U. S. DEPARTMENT OF COMMERCE
Roy D. Chapin, Secretary
BUREAU OF THE CENSUS
W. M. Steuart, Director

LOCATION OF MANUFACTURES 1899–1929

A STUDY OF THE TENDENCIES TOWARD CONCENTRATION AND TOWARD DISPERSION OF MANUFACTURES IN THE UNITED STATES

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1933

For sale by the Superintendent of Documents, Washington, D. C. - - - - - - - - Price 10 cents

CONTENTS

TEXT TABLES

APPENDIX TABLES

MAPS AND DIAGRAMS

LOCATION OF MANUFACTURES: 1899-1929

By TRACY E. THOMPSON, *Industrial Analyst, Bureau of the Census*

I.—INTRODUCTION

This study of the location of manufacturing industries is based primarily on data from the four decennial censuses of manufactures in the period from 1899 to 1929. It represents an endeavor to record the increases and decreases which have taken place in industry and which have tended to remold gradually its geographic pattern. The changes which thus redistribute industry are: (*a*) The expansion of going manufacturing concerns, (*b*) the establishment of new plants, (*c*) the relocation of industrial enterprises, and (*d*) the lessened activity or discontinuance of plants.

Data on the gross volume of such changes in all industries have never been collected and analyzed, if by the term "gross" reference is made to all the gains and losses specified in the preceding paragraph. While the Bureau of the Census gathers data from manufacturing establishments above a specified minimum size limit [1] at each census, some of the facts required for such a comprehensive picture of the processes of industrial redistribution are not collected from individual manufacturers. It is doubtful whether the great amount of effort required to secure and tabulate data on all the changes classified under *a*, *b*, *c*, and *d* for approximately 211,000 manufacturing establishments would be practicable.

The periodic censuses of manufactures are, therefore, confined to the presentation of facts covering the manufacturing activities of the census years. While some of the industrial gains and losses which occur in intercensal years may be seen by comparison of the statistics of one census year with those of another, many of the changes are not discernible at all in these figures. For example, data for a plant which is organized in an intercensal year and which is merged with another going concern before the next census of manufactures is taken will not appear in the reports of the census, except as the merger tends to increase the size and activity of the enlarged plant. Census reports in general disclose not the gross but the net change in industries and in geographic and civil divisions, corresponding roughly in the field of financial reports to periodic balance-sheet statements.

Since industrial history is a succession of adjustments to competitive conditions, resulting in gains here, losses there, and combinations elsewhere, it should be worth while to get some idea—so far as the available data permit—of the volume and direction of these changes and adjustments during recent years. For this purpose the following inquiries were carried on all the questionnaires used in the census of manufactures for 1929:

> Is this a new plant which started operations after January 1, 1928?
> Indicate by check mark (√) in proper space whether, since January 1, 1928, this plant has changed its name ..., location ..., ownership ..., general nature of business ... If so, give former name, location, ownership, or nature of business.....

No attempt was made to obtain from the manufacturers the reasons for the particular locations chosen for new plants or for relocated ones. Even if it were considered advisable to burden manufacturers with such an inquiry, the returns might prove of doubtful value, for motives are often difficult to establish by the

[1] Those reporting products valued at $5,000 or more. At the censuses for 1919 and for prior census years all manufacturing concerns with products valued at $500 or more were canvassed.

questionnaire method. Decisions regarding plant location are frequently the result of a composite of tangible and intangible factors and circumstances.

A description of the tangible factors which determine the location of manufacturing plants was made as part of the census of manufactures for 1899 by Frederick S. Hall [2] and exerted a strong influence in this country on later thought on that subject. The author did not attempt to evolve a universal theory of industrial location, but rather to single out the predominant forces which in one combination or another determine the location of plants. Seven of the advantages which give rise to the localization of industries were said to be: (1) Nearness to materials, (2) nearness to markets, (3) water power, (4) favorable climate, (5) supply of labor, (6) capital available for investment in manufactures, and (7) the momentum of an early start.

Hall concluded as follows: "It should be noted that in proportion as a country develops industrially and upon a large scale—in proportion, moreover, as there is a mobility of labor and freedom from the influence of inherited and overconservative ideas—the localization of industries tends to be governed increasingly by purely economic considerations and less by the fortuitous considerations which accounted in many cases for localization in earlier years. The influence of industrial combination in this direction has already become marked. The system of uniform bookkeeping, introduced in many such combinations, enables managers to know accurately the comparative advantages of several localities for the industry in question, and to redistribute their production accordingly."

Probably the most thorough treatment of the subject of industry location is one by a German economist, Alfred Weber, a recent English translation of which is entitled "Theory of the Location of Industries." Weber attempts to construct a body of location principles of general applicability. He points out that two broad groups of costs change when location changes, namely, (*a*) cost of transportation, including cost of raw materials and fuel, and (*b*) cost of labor. The forces of competition tend to draw an industry to the region in which the combination of these two main costs for the particular industry is the lowest.

The exact location of an industry within this minimum-cost region will depend upon a heterogeneous group of what Weber terms "agglomerating" and "deglomerating" factors. Agglomerating factors, which lead to the congregation of industries within a given region, comprise, among others, economies in overhead costs and nearness to auxiliary industries and to marketing services. Deglomerating factors tend to disperse industries over a given region in order to lower expenditures for rent, taxes, etc. It has been pointed out that Weber's reduction of the problem of industry location to a few determining factors does not satisfactorily explain the phenomena of location in a highly involved economic organization such as exists in this country.

Importance of industry location.—The geographic distribution of industry has immediate, as well as historical, significance. For example, the aggressive programs of industrial promotion, launched on a large scale during the past decade by hundreds of large and small communities, were organized on the hypothesis that manufacturing establishments can be induced to change their locations in response to changing economic conditions. It was argued that many industries were no longer bound to given locations by the presence of water power, materials, and special transportation advantages, but were increasingly free to follow the movement of consuming centers on account of the improved transmission of electric energy, enlarged transportation systems, increased mobility of labor, and multiplied sources of materials. Furthermore, numerous plants were said to be so poorly located that it was thoroughly uneconomic for them to remain

[2] See *The Localization of Industries*, Twelfth Census of the United States: 1900; Volume VII, Manufactures, Part I; pp. cxc-ccxiv.

where they were. Those who took this view insisted that industrial establishments relocate freely, and they were able to cite numerous instances to prove their point. Their support within communities came largely from business men affiliated with the so-called "consumer" enterprises which depend directly upon local purchasing power, such as wholesale and retail stores, banks, newspapers, and real-estate concerns. It was sometimes difficult, on the other hand, to convince manufacturers with national markets that they would benefit materially from an increase of industry in their localities, unless the new plants would either supply them with materials or services or consume their products.

A second group asserted that industries once thoroughly established are not easily uprooted and that it is chiefly the unsuccessful plant that can be induced to relocate. Furthermore, location being often of less importance than the ability of management, an industry may remain in a second-rate location and still dominate its field. As to disposing of a plant in one place and erecting a new one elsewhere, it was pointed out that most industries are already overbuilt and in no immediate need of increased productive capacity. Industrial establishments, it was said, do not move about to the extent claimed by the first group.

The redistribution of industry has another aspect which is less closely related to the ambitions of individual communities. It concerns the geographic pattern of the nation's industry and centers about the issue whether as the country matures all areas will tend to become more self-sustaining and manufactures more decentralized than at present. Certain general location factors, such as increased availability of electric energy and transportation and high costs of operation in large population centers, appear to be influences for industrial dispersion. The establishment of branch manufacturing plants is evidence of a tendency in that direction. There are, however, strong forces tending to preserve the present degree of industrial concentration.

Industrial changes which have occurred since the taking of the census for 1929 and which have, in all probability, a close relationship to the business depression may exert considerable effect on the distribution of industry. The following excerpt from an article which appeared in a business periodical in May, 1932, is a characteristic observation: "Executives of highly centralized industries, national distributors, transportation officials, are attempting to fathom the significance of a definable movement of industrial concerns and an unseasonable crop of new manufacturing enterprises at various points, making chiefly consumer goods." Whether such changes will have lasting influence, in comparison with the whole of industry, or whether they are chiefly sporadic adjustments to temporary conditions, can be judged better with the collection of more data.

To predict the future trend of the geographic distribution of industry would involve considerable speculation. The purpose of this brief report is mainly to describe some of the location tendencies discernible in the statistics of manufactures over a recent span of years, explaining them so far as available facts and space permit.

Measurement of geographic distribution.—There are several criteria for measuring the distribution of industry. *Value of products*, although sometimes used for this purpose, is not strictly comparable from year to year because of its dependence upon commodity-price movements. Furthermore, in that it represents gross rather than net value it is an inflated figure because of the use of the products of some industries as materials for further manufacture by others.[3]

[3] It is estimated that the gross value of products of all industries for 1929 included duplication amounting to approximately one-third. There is considerable variation in the extent of duplication in different areas and in different groups of industries. Very little duplication, however, occurs within individual industries. See table entitled "Estimated Net Value of Manufactures," in General Summary section of Volume I, II, or III, Reports of the Census of Manufactures, 1929, or a special study published by the Bureau of the Census, entitled *Materials Used in Manufactures: 1929*.

Value added by manufacture, a computed item representing the value added to materials by the manufacturing processes, is likewise dependent upon changes in price levels, both for materials and for products, but is a net figure, free from duplication.

While the *quantity of goods produced* is, for most purposes, a suitable standard for measuring industrial expansion or contraction, the conversion of quantities of dissimilar products to a common basis by means of index numbers is too laborious for application to small areas. Increases or decreases of physical quantities of goods manufactured may not parallel closely corresponding increases or decreases of wage jobs, for the extent to which machines are employed may determine largely the amount of human labor required. For example, about 1.5 per cent fewer wage earners were employed in the manufacture of cotton goods in 1929 than in 1919, although the physical volume of output increased by an estimated 30 per cent. The meat packing industry, too, employed 24 per cent fewer wage earners in 1929 than in 1919, but increased its physical output of products by approximately 5 per cent. The index of physical output of all manufactures increased about 38 per cent from 1919 to 1929, while the number of wage jobs decreased almost 2 per cent.[4]

The *number of establishments* reported for a given area or industry fails to take account of differences in size, a very important consideration for most purposes. In fact, the appraisal of industrial change in terms of numbers of plants launched, closed, or relocated may convey quite an inaccurate idea of the nature and extent of the changes. The general pattern of industry is not readily affected by the gain or loss of small plants which, while perhaps formidable in number, may have only slight influence on the total employment and the total quantity and value of output of a particular region or industry. For example, the heralded industrial growth of certain communities in recent years, described primarily in terms of numbers of manufacturing establishments acquired, gave in some instances quite exaggerated impressions of the expansion which actually occurred.

A more reliable indicator of manufacturing activity is the *average number of wage earners* employed—the standard which is used in the following pages of this report and referred to as *wage jobs*. The figure is an annual average based on the number of wage earners on the pay roll for the week which includes the 15th day of each month. It equals also the approximate number of persons that would be steadily employed if the work were spread evenly over the year. The figure is rarely, if ever, identical with the total number of different persons employed during the course of a year, for generally many more persons than are represented by the average number of wage earners are employed for longer or shorter periods at some time within the 12 months. The number of wage earners reported on the pay roll is likely to be inflated by the inclusion of data for those workers not employed on a full-time basis.

The average number of wage earners, or the number of wage jobs, understates, however, the total employment in a given industry, for in addition to wage earners there are proprietors, firm members, and salaried officers and employees obtaining livelihoods in manufacturing industries. Nevertheless, the trend of wage-earner employment indicates the general trend of total factory employment. An average of 8,838,743 wage earners were employed in 1929, while salaried officers and employees in industry totaled 1,567,138. Wage earners, therefore, constituted almost 85 per cent of all those employed on a salary or wage basis in manufacturing enterprises.

The number of wage jobs, as explained above, is the number of "wage earners (average for the year)" as reported in the census of manufactures. The figures

[4] According to adjusted figures 1.8 per cent, unadjusted figures 2.8 per cent.

may be interpreted to represent approximately *year jobs*, a concept useful for expressing the employment importance of a given establishment or industry. Job figures for a community may not indicate the number of wage earners living there. A factory in a given locality may employ far more persons than actually reside in the community, many of them being commuters from places more or less distant from the plant. Wage-job figures, therefore, are used in these pages primarily to measure the size of a plant or industry and the number of jobs available to industrial workers.

This measure of the importance of an industry may have little significance for the marketing expert who may be primarily interested in the proximity of the factory and its products to consuming centers. Whether the goods are manufactured by automatic machines or by man power may be of only secondary concern to him. Nevertheless, since industry still requires the services of large numbers of wage earners and since data for measuring accurately the physical quantities of production for all the individual industries and for civil divisions can not be computed readily, the best available measure of the distribution of manufactures is found in number of wage jobs.

Certain limitations in the use of these figures should, however, be pointed out. They undoubtedly serve as a very satisfactory measure of the relative size and importance of the different industries or of the same industries in different sections of the country at any given time, but they have not proved to be a good measure of the growth of industrial production over a period of years. This limitation can be illustrated from Table 1. The wage-job index for 1914 was 146; by 1919 it had risen to 191. In the same period output as measured by "Productivity per wage job" dropped from 116 to 112, indicating that the increase in jobs exceeded that in individual output. This condition came about through the sudden acceleration of industry to meet emergency demands for goods, with the resultant inefficient use of equipment and labor in may industries. The decade from 1919 to 1929, on the other hand, was marked by the rapid introduction of improved machinery and equipment and by superior plant administration. The index for output rose from 214 to 295; that for wage jobs fell from 191 to 188; the productivity figure increased from 112 to 157. In other words, the industrial growth of the decade, if thought of in terms of goods produced, was not disclosed by the indexes for wage jobs.

It should be explained that although in all the tables the wage-job figures for the census years 1899, 1909, and 1919 include data for establishments with value of products ranging above $500, while those for 1929 are limited to establishments reporting $5,000 and over, the comparableness of the figures for the four years are not thereby materially impaired since more than 99 per cent of the total wage jobs in 1919 and 98 per cent in 1909 were reported by establishments in which products were valued at $5,000 or more. The corresponding percentage for 1899 can not be determined from census data.

The figures for 1919 are also slightly inflated by the inclusion of wage jobs in the automobile-repairing industry which was not canvassed at the other three censuses. It is impossible to obtain exact comparableness of data for cities, counties, States, and industries covering the four census years by deducting the figures for plants whose output was less than $5,000 and for automobile repair shops. Inasmuch as the inflation for the three earlier census years was not confined to any one section of the country or to one industry, it is believed that use of the unadjusted data is essentially sound for such comparisons as are made in this report.

Still another factor which must be kept in mind in using the figures for wage jobs in manufacturing industries is the effect of cyclical business fluctuations on the volume of production. The comparison of data for a year of marked activity with those for a later one covering a year of depression will show a drop in business

activity even though business may have continued to be exceedingly active during practically all of the intercensal period. Under such circumstances it would be wrong to assume that the general trend of business during the period had been downward.

Fortunately for the purposes of this comparison, the last four decennial censuses, each of which marked the close of a decade and formed a convenient milepost for measuring industrial change, covered periods of brisk business activity. The year 1899 saw a pronounced upturn from the 1893–1897 depression; 1909, particularly the last six months of the year, made decided industrial recovery from the panic conditions of 1907 and 1908; the year 1919, although it reacted in the early months from the intense activity of the war period, improved near the middle of the year and exceeded any prior year in quantity of manufactured goods produced; and 1929 reached a crest following the greatest period of industrial production the country had ever known. It is hardly necessary to mention that all the intercensal years during the three decades were not equally prosperous; as a matter of fact, four distinct periods of depression occurred between 1899 and 1929.

Comparisons of the levels for the four decennial census years 1899, 1909, 1919, and 1929 and of the relative manufacturing activity of those years with that of intervening census years may be made with the help of the following indexes:

TABLE 1.—INDEXES OF PRODUCTION AND OF WAGE JOBS: 1899 TO 1929.

Census year	Manufactured products (quantity)	Wage jobs	Productivity per wage job	Products per unit of population
1899	100	100	100	100
1904	122	114	107	111
1909	159	137	116	131
1914	169	146	116	129
1919	214	191	112	153
1921	170	147	116	117
1923	261	186	140	175
1925	269	178	151	175
1927	[1] 272	177	154	172
1929	[2] 295	188	157	182

[1] Based upon computations made by the Federal Reserve Board.
[2] Based upon computations made by the National Bureau of Economic Research.

II.—GEOGRAPHIC DISTRIBUTION—MANUFACTURES AS A WHOLE

Center of manufactures.—The first aspect of the geographic distribution of manufactures for consideration is the general westward trend of industry as a whole. A convenient criterion for measuring movement of industry in mass is afforded by the center of manufactures—a mythical point located by distributing the gross value of products by square degrees and multiplying these volumes by the distances from the assumed parallel or meridian. The center of value located by this method represents the "center of gravity" of manufactures and constitutes a convenient means of recording net shifts in industrial activity. The center for 1919 was computed both from wage-job data and from those for gross value of products, but the results of the two methods did not differ greatly.

Between 1849 (the first census year for which the center of manufactures was computed) and 1919 the center moved westward a distance of 329.2 miles and southward a net distance of 15.7 miles.[1] It followed closely the fortieth parallel of latitude, deviating north and south but slightly. The center for 1929 has not been computed. However, the growth of manufactures during the past decade in the South and West would probably place it a few miles south and west of its 1919 position.

As might be expected, the center of manufactures has generally followed the center of population westward, the latter point for each decade lying considerably west and south of the corresponding center for manufactures. In the 70 years during which the center of manufactures worked westward 329.2 miles the center of population moved in that direction but 290.2 miles; in only two of the periods—from 1860 to 1870 and from 1870 to 1880—did the center of population make greater westward advances than did that for manufactures. The accelerated industrial development of the Western and Southern States between 1899 and 1919 pulled the center of manufactures westward 71.9 miles and southward 9.6 miles, while the center of population was extended westward but 48.7 miles and northward 0.9 of a mile. During those two decades the population in the three Pacific Coast States increased 130 per cent, while the number of wage earners employed there in industry increased 253 per cent.

Any considerable expansion of industry to supply directly the distant markets of the South and West will exert a considerable effect on the center of manufactures because the pull exerted is in proportion to the distance from center. A factory organized in California, for example, exerts far more attraction on the center than a new plant of equal size located in Kansas.

Though the movement of the center of manufactures shows quite faithfully the net shift of industry from one period to another, it throws no direct light on the behavior of different industries or types of industries, on multitudes of industrial gains and losses which occur between census years, nor on changes occurring on opposite sides of the center which neutralize one another.

If industries were to range themselves entirely in accordance with the distribution of population, the center of manufactures would coincide with the center of

[1] The approximate location of the center of manufactures in 1919 was 0.7 mile north of Rushsylvania, Logan County, Ohio, as determined by value of products; and 2.4 miles southeast of Sparta, Morrow County, Ohio, as determined by number of wage jobs.

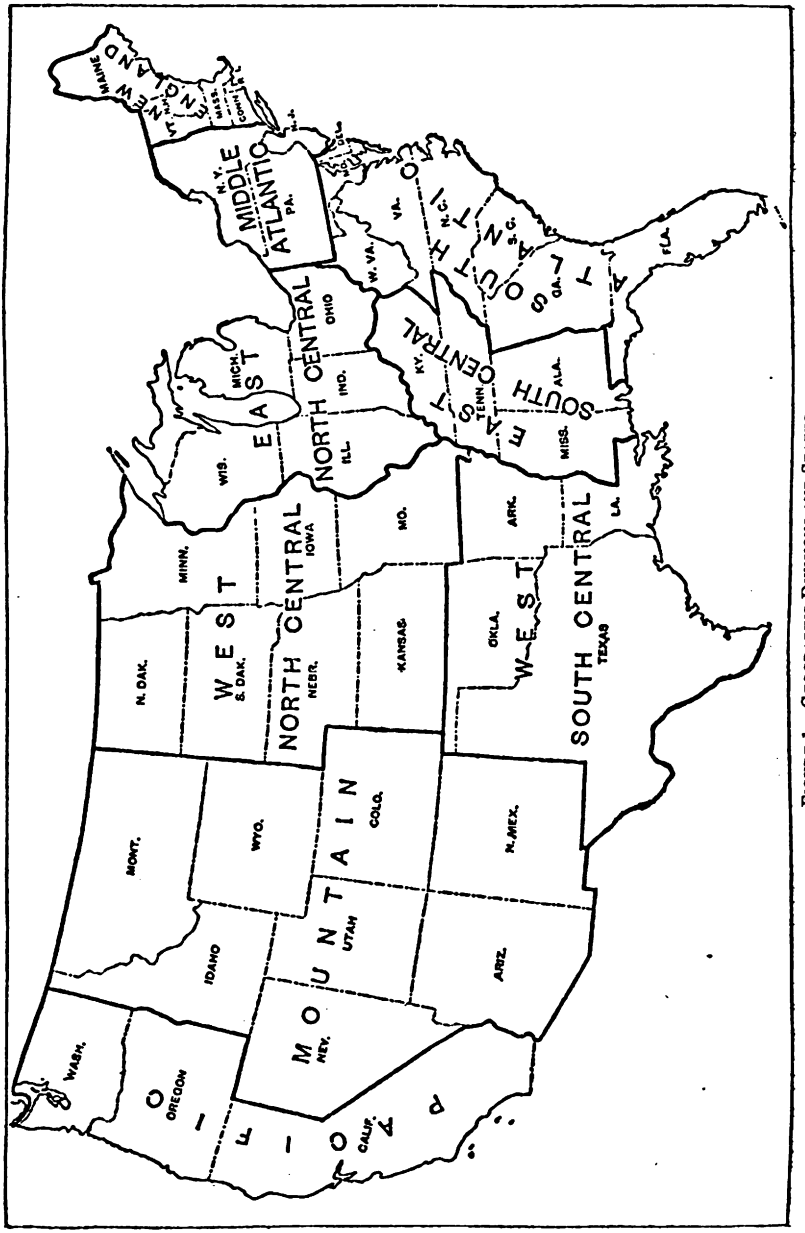

FIGURE 1.—GEOGRAPHIC DIVISIONS AND STATES

population and would rest many miles west of its present position. Some industries, because of the general availability of required materials and other convenient conditions for economical manufacture and sale, have considerable freedom of location, while to many others the necessity of remaining near essential supplies, specialized markets, etc., prevents such mobility. Despite the vast changes in number, size, and location of plants which have occurred between decennial census years, the movement of the center of the whole of industry has generally been inconsiderable over short periods of time.

Sectional shifts.—While there has been a lively interest in the growth of industry in the South and West, the fact remains that only the East North Central division has been able thus far to challenge seriously the historical industrial supremacy of the manufacturing East, composed of the New England and Middle Atlantic divisions (Table 3). In these three divisions occurred the major part of the sectional redistribution of industry which took place from 1899 to 1929. Together they reported 75 per cent of all factory wage jobs at the beginning of the century and 70.2 per cent 30 years later. The combined share for New England and the 3 States of the Middle Atlantic division dropped from 52.2 to 41.4 per cent of the total for the country. While considerable growth, as measured by rate of increase, took place in the 6 other divisions as a group, their total increase in wage jobs during the 30-year period was less than that for the single East North Central division.

At each census from 1899 to 1929, wage jobs, expressed as a percentage of the total for the United States, exceeded the corresponding percentage of population only in the New England, the Middle Atlantic, and the East North Central divisions. In these three highly industrialized divisions changes in the industry proportions were considerable as compared with those in population. A pronounced decrease in the percentage of wage jobs in the Middle Atlantic division accompanied a small increase in its proportion of the total population. In the East North Central division the opposite change took place, a slight decrease in its population percentage being accompanied by a large increase in its percentage of wage jobs. On the principal industrial frontiers—South Atlantic, East South Central, West South Central, and Pacific—the percentage of the total wage jobs increased, but only in the westernmost two of these divisions did corresponding changes take place in population.

TABLE 2.—PER CENT DISTRIBUTION OF POPULATION, BY GEOGRAPHIC DIVISIONS: 1899 TO 1929

DIVISION	PER CENT OF TOTAL POPULATION			
	1929 [1]	1919 [1]	1909 [1]	1899 [1]
United States	100.0	100.0	100.0	100.0
New England	6.7	7.0	7.1	7.4
Middle Atlantic	21.4	21.0	21.0	20.3
East North Central	20.6	20.3	19.8	21.0
West North Central	10.8	11.9	12.7	13.6
South Atlantic	12.9	13.2	13.2	13.8
East South Central	8.0	8.4	9.1	9.9
West South Central	9.9	9.7	9.6	8.6
Mountain	3.0	3.2	2.9	2.2
Pacific	6.7	5.3	4.6	3.2

[1] Based on numbers as enumerated in following year.

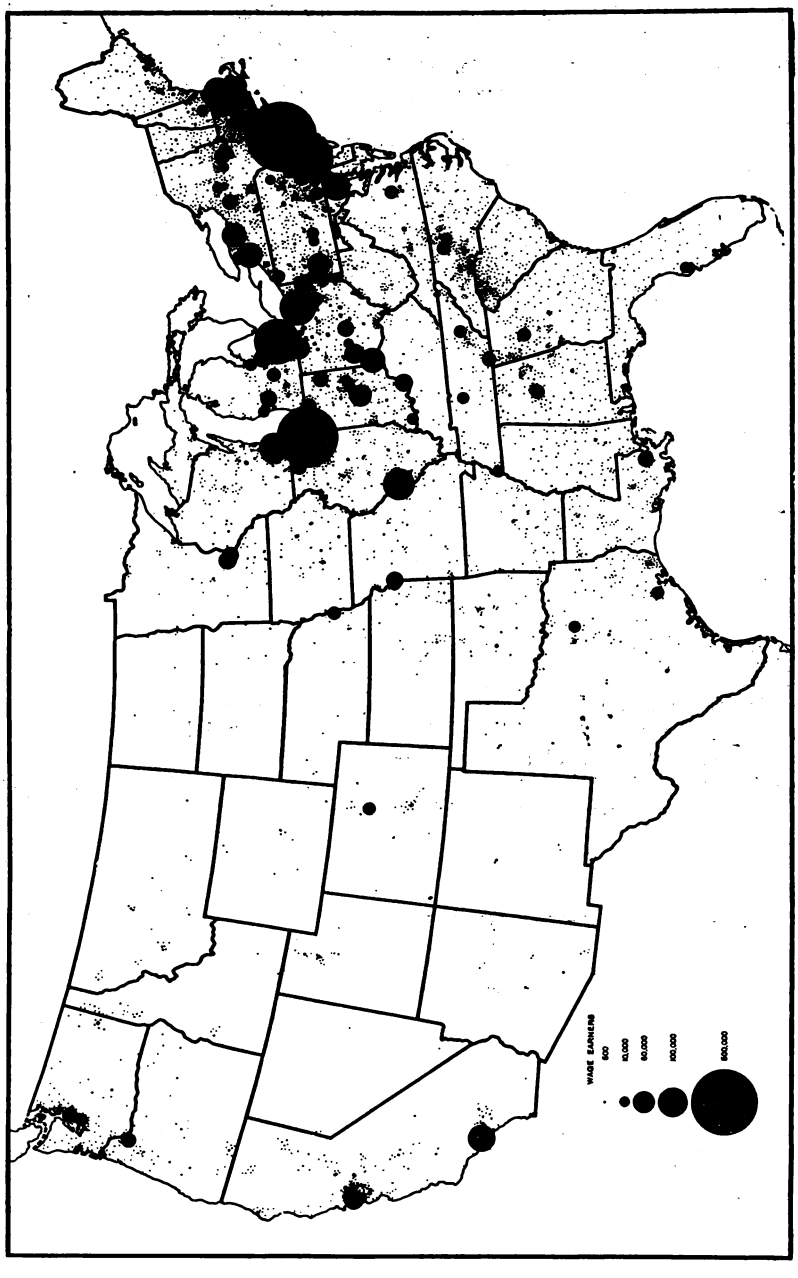

FIGURE 2.—GEOGRAPHIC DISTRIBUTION OF WAGE JOBS IN MANUFACTURING INDUSTRIES: 1929

TABLE 3.—PER CENT DISTRIBUTION OF WAGE JOBS IN MANUFACTURING INDUSTRIES, BY GEOGRAPHIC DIVISIONS: 1899 TO 1929

DIVISION	PER CENT OF TOTAL WAGE JOBS			
	1929	1919	1909	1899
United States	100.0	100.0	100.0	100.0
New England	12.4	14.9	16.6	18.1
Middle Atlantic	29.0	31.6	33.4	34.1
East North Central	28.8	26.3	22.9	22.8
West North Central	5.4	5.5	5.7	5.6
South Atlantic	10.3	9.0	10.0	9.7
East South Central	4.3	3.6	4.0	3.8
West South Central	3.4	3.1	3.1	2.4
Mountain	1.2	1.2	1.1	.9
Pacific	5.3	4.8	3.2	2.6

The increase in the shares of the total wage jobs of the country, which occurred in all the divisions except the New England, the Middle Atlantic, and the West North Central, were the result of either (*a*) general growth and development in those sections, or (*b*) increases in the percentage of the total industry, accompanied by declining shares of the population. The Pacific and Mountain divisions illustrate the first type of expansion. There the increase in percentage of total wage jobs was in almost exact proportion to the increase in percentage of population. In the Pacific division both population and job percentages for 1929 were practically double the corresponding figures for 1899, while in the Mountain division the increases were somewhat less. Much the same kind of development occurred in the West South Central division, although in that section the industrial growth exceeded that of population (Table 11). It may be said that in these three of the less industrialized divisions the growth in the proportion of the total industry paralleled roughly the growth in population.

There was some shift of the gainfully occupied population [2] among the various occupations in these divisions (Table 4). The figures [3] indicate that the share of the gainfully occupied reported for agriculture, including forestry and fishing, declined markedly between 1910 and 1930, both in the Pacific and in the West South Central divisions, while mining decreased relative to other occupations in the Mountain division. In the West South Central division the loss of percentage in the extractive industries was offset by increased proportions both in manufacturing and mechanical pursuits and in each of the other classes of occupations distinguished in Table 4. In the other two divisions there was no increase in the proportion engaged in manufacturing and mechanical industries, but quite a decided increase in the total of the "Other occupations."

The second type of expansion mentioned above took place in the East North Central, the South Atlantic, and the East South Central divisions, where, despite actual losses in percentage of the total population—very small in the East North Central division—the shares of the total industry grew larger. This resulted in pronounced increases in wage jobs per 1,000 population (Table 5).

[2] The term "gainfully occupied," as used in the reports of the Occupations Census, refers to all persons who were gainfully occupied on the census date, or were unemployed on that date but had had gainful occupations at some previous time and expected to engage in such occupations in the future.

[3] Figures for 1900 are omitted from the table because comparable statistics for that year are not available for "Other occupations."

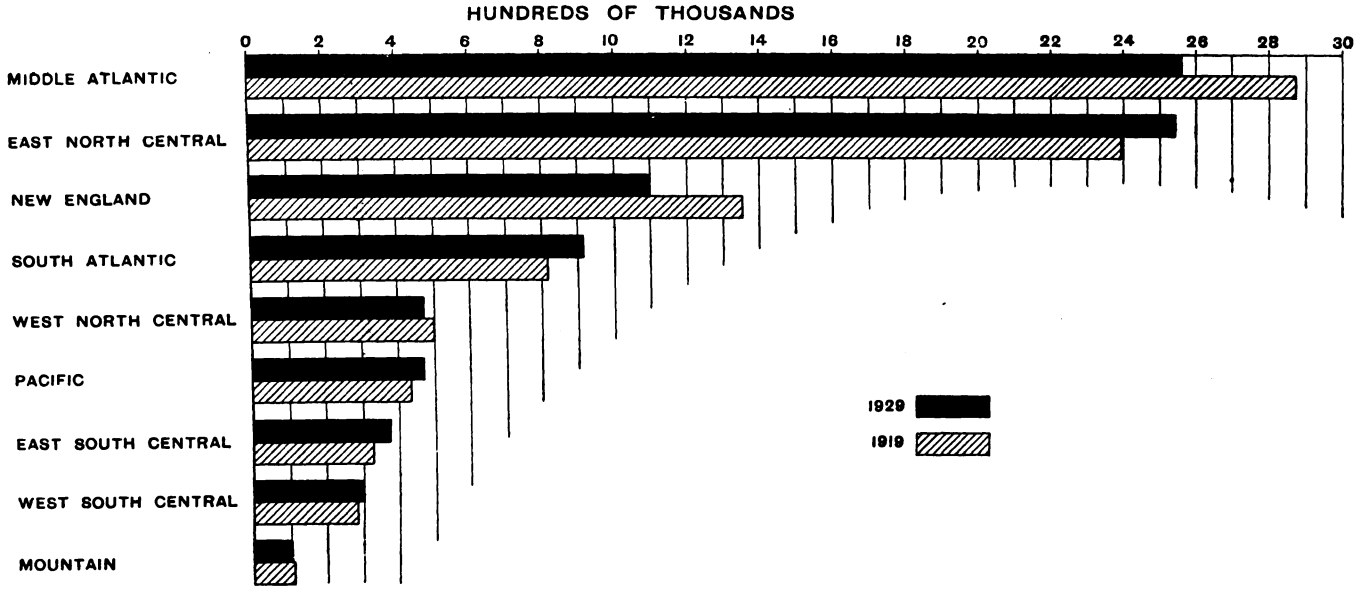

FIGURE 3.—WAGE JOBS IN MANUFACTURING INDUSTRIES, BY GEOGRAPHIC DIVISIONS: 1929 AND 1919

TABLE 4.—PER CENT DISTRIBUTION OF GAINFULLY OCCUPIED PERSONS 10 YEARS OF AGE AND OVER, BY CLASSES OF OCCUPATION, FOR GEOGRAPHIC DIVISIONS: 1910 TO 1930

DIVISION	Census year	Agriculture	Forestry and fishing	Extraction of minerals	Manufacturing and mechanical industries	OTHER OCCUPATIONS						
						Total	Transportation and communication	Trade	Public service (not elsewhere classified)	Professional service	Domestic and personal service	Clerical occupations
United States	1930	21.4	0.5	2.0	23.9	47.2	7.9	12.5	1.8	6.7	10.1	8.2
	1920	25.6	.6	2.6	30.8	40.4	7.4	10.2	1.9	5.2	8.2	7.5
	1910	32.6	.6	2.5	27.8	36.5	6.9	9.5	1.2	4.4	9.9	4.6
New England	1930	6.8	.2		43.1	49.9	7.4	12.8	2.2	7.4	10.0	10.1
	1920	7.9	.2		50.5	41.4	6.7	10.2	2.1	5.4	8.1	9.1
	1910	10.4	.3		49.0	40.3	6.5	10.6	1.7	4.9	10.7	5.9
Middle Atlantic	1930	5.4	2.9		36.3	55.4	8.9	14.3	2.0	7.4	10.9	11.9
	1920	7.1	3.7		41.3	47.9	8.6	11.6	2.0	5.7	9.0	10.8
	1910	10.0	4.2		40.5	45.3	8.0	12.0	1.4	5.0	11.8	7.1
East North Central	1930	14.6	1.4		35.7	48.3	8.2	13.2	1.6	6.7	9.3	9.3
	1920	19.2	2.5		37.2	41.1	7.4	11.1	1.5	5.2	7.2	8.6
	1910	25.6	2.6		33.1	38.7	7.6	10.6	1.1	4.9	9.2	5.3
West North Central	1930	33.8	1.1		19.8	45.3	8.2	12.8	1.4	7.2	8.9	6.8
	1920	36.8	1.6		21.0	40.6	7.8	11.5	1.3	6.0	7.5	6.4
	1910	41.2	1.8		19.9	37.1	7.8	10.4	1.1	5.3	8.5	3.9
South Atlantic	1930	33.4	2.3		24.2	40.1	6.6	9.4	1.9	5.4	11.5	5.3
	1920	40.8	2.5		22.5	34.2	6.1	7.4	2.3	4.0	9.2	5.2
	1910	51.4	1.8		18.6	28.2	5.0	6.1	1.0	3.0	10.5	2.6
East South Central	1930	48.3	2.9		16.9	31.9	6.0	7.9	.9	4.3	9.2	3.6
	1920	54.5	3.2		15.8	26.5	5.2	6.5	1.1	3.2	7.6	3.0
	1910	63.2	1.9		12.4	22.5	4.0	5.3	.6	2.6	8.4	1.7
West South Central	1930	41.1	2.0		16.9	40.0	7.2	10.8	1.5	5.4	10.2	4.9
	1920	48.7	2.2		15.8	33.3	6.7	8.6	2.0	4.1	7.7	4.2
	1910	60.1	.7		12.6	26.6	5.2	7.0	.8	3.4	8.1	2.1
Mountain	1930	31.7	5.8		18.3	44.2	8.9	11.3	1.8	7.5	8.9	5.8
	1920	34.0	7.4		18.1	40.5	8.9	9.9	2.5	6.1	7.7	5.4
	1910	32.4	9.4		19.4	38.8	10.3	8.7	1.7	5.3	9.1	3.6
Pacific	1930	16.3	1.3		26.1	56.3	8.3	16.4	2.3	8.8	11.1	9.4
	1920	20.6	1.5		28.9	49.0	8.6	13.0	2.6	7.2	9.4	8.2
	1910	22.6	2.4		27.1	47.9	10.3	12.6	2.0	6.1	11.3	5.5

TABLE 5.—PER CENT INCREASE OF POPULATION AND OF WAGE JOBS BETWEEN 1899 AND 1929; AND WAGE JOBS PER 1,000 POPULATION IN 1899 AND IN 1929, BY GEOGRAPHIC DIVISIONS

DIVISION	PER CENT OF INCREASE, 1899 TO 1929		WAGE JOBS PER 1,000 POPULATION	
	In population	In wage jobs	1929	1899
United States	61.6	87.5	72	62
New England	46.0	28.9	135	152
Middle Atlantic	69.9	59.7	98	104
East North Central	58.3	136.9	100	67
West North Central	28.5	78.2	36	26
South Atlantic	51.2	99.0	58	44
East South Central	31.0	113.2	38	23
West South Central	86.4	162.6	24	17
Mountain	121.0	130.3	28	27
Pacific	239.1	282.5	58	51

In general, it would be expected that a decline in the percentage of the total population in a given section would be accompanied by a decline in the percentage of the total wage jobs, for with a decreasing share of the consuming public living in the region, some types of industrial activity would be likely to fall off. However, industry once established tends to remain for a time and to maintain itself, if need be, by seeking customers in new and more distant markets. This tendency, though perhaps adequate in some cases to explain a static condition of manufactures, would in no sense account for a marked growth such as occurred in these three divisions. The industrial expansion in the East North Central division probably came about through a combination of circumstances centering about the general movement of population westward, the rise of the automotive industry, and the presence of rich deposits of mineral resources. The increase of industry in the two southern divisions, despite a drop in their proportion of the total population, was attributable in large part to particularly favorable conditions in regard to labor, raw materials, and freight rates.

Within each of these three divisions the shift from agriculture into other occupations was pronounced. The percentage engaged in agricultural pursuits declined from 63.2 to 48.3 in the East South Central division, from 51.4 to 33.4 in the South Atlantic, and from 25.6 to 14.6 in the East North Central. This was counterbalanced by a considerable increase in the percentage engaged in manufacturing and mechanical industries and by a still greater gain in the percentage engaged in "Other occupations."

In each of the three remaining divisions, New England, Middle Atlantic, and West North Central, the share of the total wage jobs decreased, so much, in fact, in New England that the decline is quite out of proportion to the drop in percentage of the total population. In the West North Central States the share of industry declined slightly, but less than population. In the Middle Atlantic division a large decrease in the portion of the total industry occurred, along with a small increase in percentage of the population.

In these three divisions the occupational shifts of the population were generally very marked. In the West North Central division the proportion which agricultural pursuits formed of all occupations dropped from 41.2 to 33.8 per cent and the share for every one of the group of "Other occupations" increased, while the part which manufacturing and mechanical occupations formed of the total remained practically unchanged. In the Middle Atlantic States the percentage engaged in manufacturing and mechanical occupations decreased in relation to all occupations, and in New England the percentage dropped still more sharply. The "Other occupations" increased their share of the total by the amounts surrendered by the extractive industries and manufactures.

Further explanation should be made with reference to the figures in Table 4 for some of the occupations. Manufacturing and mechanical industries include numerous pursuits of a mechanical nature carried on in establishments which, either because of the custom nature of their work or because of their small size, are not canvassed at the censuses of manufactures as manufacturing plants. Certain of these nonmanufacturing occupations of considerable size, notably automotive repairing, raise the number of those reporting manufacturing and mechanical occupations well above the number of factory wage jobs shown in the other tables. It is impossible to make an accurate separation of the figures as between those occupations which are truly manufacturing and those which are not.

A general increase occurred in "Other occupations," consisting of pursuits in the fields of transportation and communication, trade, and public, professional, domestic, personal, and clerical services. The transportation and distributive organizations required to move the enormous present-day volume of marketable goods, and the huge clerical staffs used in furnishing business services, such as

banking, insurance, accounting, and statistical research, account in part for the growth of this group of occupations. The clerical employments, although classified among the "Other occupations" in the table, are found in manufacturing organizations, as well as in the lines of business activity mentioned above. Many of the clerical workers in industrial organizations are, in a sense, as much a part of the personnel of manufactures as are the shop workers assigned in the table to manufacturing and mechanical industries. When industries were smaller the factory clerical work incident to production was likely to be performed in large part by the foreman and his wage earners. To-day, large-scale manufacturing and centralized industrial control necessitate a vast amount of production planning, checking, and balancing by specialized clerical staffs, relieving the shop workers of much of this type of work. According to returns for the census of manufactures (the figures in Table 4 were collected as part of the census of population), the percentage which salaried managers and employees formed of the total personnel of manufacturing industries increased from 7.2 in 1899 to 10.5 in 1909, to 13.5 in 1919, and to 14.9 in 1929.

131810—33——3

III.—GEOGRAPHIC DISTRIBUTION—FOUR GROUPS OF INDUSTRIES

The geographic redistribution of manufacturing activity as a whole is, in the last analysis, determined by the growth, decline, or relocation of individual industries. The reasons for such changes can be found in some instances in population migrations which set up new market centers, in others in the establishment of plants near more convenient sources of required materials. Or, particular conditions with respect to labor, supplies of capital, taxes, bonuses, or transportation, singly or in combination, may supply the key to the growth or decline of an industry or industries in a given section. The next step toward an understanding of the recent geographic redistribution of industry lies in observing the movements of particular industries and groups of industries.

Radical changes in products and in methods of manufacture have compelled so many revisions of industry classifications that it is not possible to find comparable statistics for certain important industries reaching back to 1899. Hence no attempt will be made in this connection to trace geographic shifts of industries that occurred prior to 1919.

The difference between the total number of wage jobs in industry in 1919 and in 1929 was small. (There were 1.8 per cent fewer jobs reported for 1929 than for 1919, according to adjusted data.) Redistribution of manufactures among the geographic divisions, as has been noted, was nevertheless considerable. The growth of a number of industries, either by the addition of factories or by the expansion of the scale of operations in established plants, was a potent factor in this redistribution.

Group 1.—Industries reporting large increases in wage jobs.—Each of the 10 industries or industry combinations covered in Table 6 increased its number of wage jobs by 20,000 or more between 1919 and 1929. The combined gain in wage jobs in these industries was 526,487, or almost 28 per cent, more than half the total increase having been made in the East North Central and Middle Atlantic divisions. The most pronounced percentage change in any of the 9 divisions, however, was the decrease in the proportion held by the Middle Atlantic States from 38.2 per cent of the total in 1919 to 33.7 per cent in 1929, the result of a shrinkage in percentage in every one of the 10 industries or industry combinations. There was also a relative decrease for New England—from 7.2 to 6.5 per cent of the total. The losses in percentage for these 2 eastern divisions were counterbalanced by gains in the States of the 3 southern divisions and of the Pacific division. In fact, in 8 of the 10 industries the share of the South in the total number of wage jobs increased appreciably, the 2 exceptions being the canning and preserving industry and the printing industry. The Pacific division increased its percentage in every industry except the one producing chemicals. The East North Central division made a considerable gain in the electrical-machinery industry, but a decline, though usually not very marked, in all the other industries except the baking industry and the printing and publishing industry.

These figures indicate some degree of dispersion of industry in that there was in general a decline in the large share centralized in the manufacturing East (New England and the Middle Atlantic divisions) and in the East North Central States, as compared with an increase in the smaller shares found in the South and on the Pacific coast.

TABLE 6.—DISTRIBUTION OF WAGE JOBS IN THE 10 INDUSTRIES OR INDUSTRY COMBINATIONS IN WHICH JOBS INCREASED 20,000 OR MORE BETWEEN 1919 AND 1929, BY GEOGRAPHIC DIVISIONS

INDUSTRY OR INDUSTRY COMBINATION	United States	New England	Middle Atlantic	East North Central	West North Central
10 industries and combinations, total[1]:					
Number, 1929	2,400,113	155,740	813,429	843,738	119,983
Number, 1919	1,882,626	135,172	719,252	660,395	96,552
Increase, 1919–1929	526,487	20,568	94,177	183,343	23,431
Per cent of United States, 1929	100.0	6.5	33.7	35.0	5.0
Per cent of United States, 1919	100.0	7.2	38.2	35.1	5.1
Electrical machinery, apparatus, and supplies:					
Number, 1929	328,722	46,672	133,545	130,219	9,969
Number, 1919	212,374	37,264	87,961	75,783	7,798
Increase, 1919–1929	116,348	9,408	45,584	54,436	2,171
Per cent of United States, 1929	100.0	14.2	40.6	39.6	3.0
Per cent of United States, 1919	100.0	17.5	41.4	35.7	3.7
Motor vehicles; motor-vehicle bodies and parts:					
Number, 1929	447,448	6,886	58,331	338,297	15,004
Number, 1919	343,115	6,209	50,710	270,030	6,594
Increase, 1919–1929	104,333	677	7,621	68,267	8,410
Per cent of United States, 1929	100.0	1.5	13.0	75.6	3.4
Per cent of United States, 1919	100.0	1.8	14.8	78.7	1.9
Bread and other bakery products:					
Number, 1929	200,841	16,669	64,887	49,658	20,20
Number, 1919	141,592	13,338	50,862	32,902	15,34
Increase, 1919–1929	59,249	3,331	14,025	16,756	4,86
Per cent of United States, 1929	100.0	8.3	32.3	24.7	10.
Per cent of United States, 1919	100.0	9.4	35.9	23.3	1 .
Clothing, men's, youths', and boys', including furnishings, shirts, collars, and men's work clothing; women's clothing:					
Number, 1929	464,939	26,041	253,674	82,850	26,54
Number, 1919	410,569	20,763	247,851	80,777	18,117
Increase, 1919–1929	54,370	5,278	5,823	2,073	8,424
Per cent of United States, 1929	100.0	5.6	54.6	17.8	5.7
Per cent of United States, 1919	100.0	5.1	60.4	19.7	4.4
Furniture, including store and office fixtures:					
Number, 1929	193,399	12,246	39,947	82,829	7,652
Number, 1919	144,423	9,031	35,575	67,741	6,810
Increase, 1919–1929	48,976	3,215	4,372	15,088	812
Per cent of United States, 1929	100.0	6.3	20.7	42.8	4.0
Per cent of United States, 1919	100.0	6.3	24.6	46.9	4.7
Printing and publishing industries:					
Number, 1929	281,119	24,144	84,909	82,597	27,114
Number, 1919	244,688	21,086	77,722	66,285	27,721
Increase or decrease (−), 1919–1929	36,431	3,058	7,187	16,312	−607
Per cent of United States, 1929	100.0	8.6	30.2	29.4	9.6
Per cent of United States, 1919	100.0	8.6	31.8	27.1	11.3
Knit goods:					
Number, 1929	208,488	14,700	100,526	28,154	3,171
Number, 1919	172,572	21,487	90,381	24,083	4,234
Increase or decrease (−), 1919–1929	35,916	−6,787	10,145	4,071	−1,063
Per cent of United States, 1929	100.0	7.1	48.2	13.5	1.5
Per cent of United States, 1919	100.0	12.5	52.3	14.0	2.5
Chemicals, including compressed and liquefied gases; rayon and allied products:					
Number, 1929	104,695	5,207	43,109	17,511	1,417
Number, 1919	76,918	4,116	42,970	17,148	2,763
Increase or decrease (−), 1919–1929	27,777	1,091	139	363	−1,346
Per cent of United States, 1929	100.0	5.0	41.2	16.7	1.4
Per cent of United States, 1919	100.0	5.4	55.9	22.3	3.6
Petroleum refining:					
Number, 1929	80,596	1,285	18,248	11,884	3,720
Number, 1919	58,889	120	21,453	9,390	3,431
Increase or decrease (−), 1919–1929	21,707	1,165	−3,205	2,494	289
Per cent of United States, 1929	100.0	1.6	22.6	14.7	4.6
Per cent of United States, 1919	100.0	.2	36.4	15.9	5.8
Canning and preserving: Fruits and vegetables; pickles, jellies, etc.:					
Number, 1929	98,866	1,890	16,253	19,739	5,192
Number, 1919	77,486	1,758	13,767	16,256	3,711
Increase or decrease (−), 1919–1929	21,380	132	2,486	3,483	1,481
Per cent of United States, 1929	100.0	1.9	16.4	20.0	5.3
Per cent of United States, 1919	100.0	2.3	17.8	21.0	4.8

[1] Figures for "Dyeing and finishing textiles" industry omitted because value of products reported represents largely receipts for work done on contract.

TABLE 6.—DISTRIBUTION OF WAGE JOBS IN THE 10 INDUSTRIES OR INDUSTRY COMBINATIONS IN WHICH JOBS INCREASED 20,000 OR MORE BETWEEN 1919 AND 1929, BY GEOGRAPHIC DIVISIONS—Continued

INDUSTRY OR INDUSTRY COMBINATION	South Atlantic	East South Central	West South Central	Mountain	Pacific
10 industries and combinations, total[1]:					
Number, 1929	179,118	76,369	77,273	18,606	124,857
Number, 1919	102,984	38,008	43,085	15,082	72,096
Increase, 1919–1929	76,134	38,361	34,188	3,524	52,761
Per cent of United States, 1929	7.4	3.2	3.2	0.8	5.2
Per cent of United States, 1919	5.5	2.0	2.3	0.8	3.8
Electrical machinery, apparatus, and supplies:					
Number, 1929	1,430	1,514	227	438	4,708
Number, 1919	799	324	95	132	2,218
Increase, 1919–1920	631	1,190	132	306	2,490
Per cent of United States, 1929	0.4	0.5	0.1	0.1	1.4
Per cent of United States, 1919	0.4	0.2	(2)	0.1	1.0
Motor vehicles; motor-vehicle bodies and parts:					
Number, 1929	5,716	8,299	4,927	843	9,145
Number, 1919	1,971	1,069	2,151	591	3,790
Increase, 1919–1929	3,745	7,230	2,776	252	5,355
Per cent of United States, 1929	1.3	1.9	1.1	0.2	2.0
Per cent of United States, 1919	0.6	0.3	0.6	0.2	1.1
Bread and other bakery products:					
Number, 1929	13,943	5,867	10,159	3,806	15,649
Number, 1919	8,381	3,443	6,276	2,834	8,213
Increase, 1919–1929	5,562	2,424	3,883	972	7,436
Per cent of United States, 1929	6.9	2.9	5.1	1.9	7.8
Per cent of United States, 1919	5.9	2.4	4.4	2.0	5.8
Clothing, men's youths', and boys', including furnishings, shirts, collars, and men's work clothing; women's clothing:					
Number, 1929	37,420	10,644	9,861	1,525	16,383
Number, 1919	26,294	5,191	3,440	473	7,663
Increase, 1919–1929	11,126	5,453	6,421	1,052	8,720
Per cent of United States, 1929	8.0	2.3	2.1	0.3	3.5
Per cent of United States, 1919	6.4	1.3	.8	.1	1.9
Furniture, including store and office fixtures:					
Number, 1929	27,681	6,972	4,122	292	11,658
Number, 1919	13,104	5,081	2,137	246	4,668
Increase, 1919–1929	14,577	1,891	1,985	46	6,990
Per cent of United States, 1929	14.3	3.6	2.1	0.2	6.0
Per cent of United States, 1919	9.1	3.5	1.5	.2	3.2
Printing and publishing industries:					
Number, 1929	18,988	8,487	11,441	5,437	18,002
Number, 1919	16,485	7,228	9,918	5,841	12,402
Increase or decrease (−), 1919–1929	2,503	1,259	1,523	−404	5,600
Per cent of United States, 1929	6.8	3.0	4.1	1.9	6.4
Per cent of United States, 1919	6.7	3.0	4.1	2.4	5.1
Knit goods:					
Number, 1929	35,921	22,051	934	406	2,625
Number, 1919	17,940	12,368	935	198	946
Increase or decrease (−), 1919–1929	17,981	9,683	−1	208	1,679
Per cent of United States, 1929	17.2	10.6	0.4	0.2	1.3
Per cent of United States, 1919	10.4	7.2	.5	.1	.5
Chemicals, including compressed and liquefied gases; rayon and allied products:					
Number, 1929	24,064	9,716	708	326	2,547
Number, 1919	4,243	1,102	988	1,290	2,298
Increase or decrease (−), 1919–1929	19,821	8,614	−190	−964	249
Per cent of United States, 1929	23.0	9.3	0.8	0.3	2.4
Per cent of United States, 1919	5.5	1.4	1.3	1.7	3.0
Petroleum refining:					
Number, 1929	2,056	578	32,261	2,421	8,133
Number, 1919	1,848	312	15,749	1,454	5,132
Increase or decrease (−), 1919–1929	218	266	16,512	967	3,001
Per cent of United States, 1929	2.6	0.7	40.0	3.0	10.1
Per cent of United States, 1919	3.1	.5	26.7	2.5	8.7
Canning and preserving: Fruits and vegetables; pickles, jellies, etc.:					
Number, 1929	11,889	2,241	2,543	3,112	36,007
Number, 1919	11,919	1,890	1,396	2,023	24,766
Increase or decrease (−), 1919–1929	−30	351	1,147	1,089	11,241
Per cent of United States, 1929	12.0	2.3	2.6	3.1	36.4
Per cent of United States, 1919	15.4	2.4	1.8	2.6	32.0

[1] Figures for "Dyeing and finishing textiles" industry omitted because value of products reported represents largely receipts for work done on contract.
[2] Less than one-tenth of 1 per cent.

To what extent the growth of this group of industries was brought about by enlargement of existing plants and to what extent by the launching of new establishments, it is impracticable to try to determine from census records. These industries, generally associated with the industrial expansion of the postwar decade, may be grouped under the following heads: (*a*) Equipment, etc. (motor vehicles, electrical machinery, furniture, and petroleum products); (*b*) foods (bakery products and canned fruits and vegetables); (*c*) chemicals; (*d*) clothing (knit goods and other ready-to-wear garments); and (*e*) printed and published products. The increases in wage jobs in the five groups were as follows:

Group	Per cent gain in wage jobs, 1919 to 1929
Equipment, etc	38.4
Foods	36.8
Chemicals	36.1
Clothing	15.5
Printing	14.9

The equipment industries, representing a variety of applications of physical energy, as in the automobile, radio, and power-transmission appliances, made the outstanding gain of the period, followed closely by the two food industries. The latter reflect the rapid change from domestic preparation of baked and canned goods to factory production, explainable in part by increased urbanization of the population. Chemicals (including rayon) made an almost equal gain in wage jobs. Growth of the ready-to-wear clothing industry also reflected the increasing dependence on factory production, coupled with an accelerated style turnover during a decade of mounting standards of living. The increase of wage jobs in the printing and publishing field was roughly equivalent to the country's growth in population.

Group 2.—Industries reporting large decreases in wage jobs.—The geographic redistribution of manufactures during the past decade was furthered also by the elimination of 660,002 wage jobs in eight industries or combinations of related industries, each of which reduced its wage jobs by 20,000 or more (Table 7). No geographic division escaped a loss of jobs in these industries during the decade. The industries were more widely dispersed geographically in 1919 than were the 10 rapidly growing industries in Group 1. In the shifts which occurred between 1919 and 1929 the largest single change in the percentage distribution of wage jobs was the decline in the share of the Middle Atlantic States from 23.2 to 18.3 per cent of the total. New England, on the other hand, advanced its percentage, despite a reduction of about one-quarter in the actual number of jobs in these industries. The decline in shipbuilding was less drastic in New England than in any of the seven divisions in which the industry flourished during the World War.

Decreases in wage jobs, particularly in meat packing, shipbuilding, and car repairing, reversed the generally upward trend of factory employment in the East North Central division. Small additions were made to the percentages held by the States of the South, the lumber industry being the only one in which a loss occurred. The Pacific States made a small net advance, although they were set back considerably by the decline in shipbuilding and to a lesser extent by inactivity in the leather industry.

More explanation is required of the changes that occurred in these industries than was necessary for the 10 industries in which wage jobs increased so noticeably during the decade, primarily because in four of the industries in which the number of jobs decreased, physical output of goods actually increased. In the remaining industries of the group reductions in quantity of output occurred.

Those industries of the group which, despite fewer wage jobs in 1929 than in 1919, increased their output were engaged in the manufacture of meat products, lumber products, cigars and cigarettes, and woolen and worsted goods. They installed more and better machinery and perhaps accomplished in other ways a more economical application of human labor, although the latter is exceedingly difficult to determine with any degree of satisfaction.[1] It is estimated that the output of meat-packing establishments in 1929 increased 5 per cent over that for 1919, lumber and timber products increased 4 per cent, cigars and cigarettes 57 per cent, and woolen and worsted goods 7 per cent.

TABLE 7.—DISTRIBUTION OF WAGE JOBS IN THE 8 INDUSTRIES OR INDUSTRY COMBINATIONS IN WHICH JOBS DECREASED 20,000 OR MORE BETWEEN 1919 AND 1929, BY GEOGRAPHIC DIVISIONS

INDUSTRY OR INDUSTRY COMBINATION	United States	New England	Middle Atlantic	East North Central	West North Central
8 industries and combinations, total:					
Number, 1929	1,300,590	144,604	237,292	213,151	98,139
Number, 1919	1,960,601	196,450	456,183	346,046	138,994
Decrease (−), 1919–1929	−660,002	−51,846	−218,891	−132,895	−40,855
Per cent of United States, 1929	100.0	11.1	18.3	16.5	7.5
Per cent of United States, 1919	100.0	10.0	23.2	17.7	7.1
Ship and boat building, steel and wooden:					
Number, 1929	55,089	6,224	21,718	5,698	196
Number, 1919	387,446	18,595	144,329	38,528	550
Decrease (−), 1919–1929	−332,357	−12,371	−122,611	−32,830	−354
Per cent of United States, 1929	100.0	11.3	39.4	10.3	0.4
Per cent of United States, 1919	100.0	4.8	37.4	9.9	.1
Car and general construction and repairs, steam-railroad repair shops:					
Number, 1929	368,681	8,219	82,351	87,542	47,683
Number, 1919	484,437	14,642	119,497	118,079	63,118
Decrease (−), 1919–1929	−115,756	−6,423	−37,146	−30,537	−15,435
Per cent of United States, 1929	100.0	2.2	22.4	23.8	12.9
Per cent of United States, 1919	100.0	3.0	24.6	24.4	13.0
Lumber and timber products, etc.:					
Number, 1929	419,084	9,124	6,448	32,668	9,052
Number, 1919	480,945	20,137	14,364	45,642	18,751
Decrease (−) or increase (+), 1919–1929	−61,861	−11,013	−7,916	−12,974	−9,699
Per cent of United States, 1929	100.0	2.2	1.5	7.8	2.2
Per cent of United States, 1919	100.0	4.2	3.0	9.5	3.9

INDUSTRY OR INDUSTRY COMBINATION	South Atlantic	East South Central	West South Central	Mountain	Pacific
8 industries and combinations, total:					
Number, 1929	194,271	113,767	106,050	40,553	152,772
Number, 1919	283,637	134,179	142,431	45,042	217,639
Decrease (−), 1919–1929	−89,366	−20,412	−36,381	−4,489	−64,867
Per cent of United States, 1929	14.9	8.7	8.2	3.1	11.7
Per cent of United States, 1919	14.5	6.8	7.3	2.3	11.1
Ship and boat building, steel and wooden:					
Number, 1929	11,798	1,662	1,856	2	5,935
Number, 1919	75,527	10,101	12,077	53	87,686
Decrease (−), 1919–1929	−63,729	−8,439	−10,221	−51	−81,751
Per cent of United States, 1929	21.4	3.0	3.4	(*)	10.8
Per cent of United States, 1919	19.5	2.6	3.1	(*)	22.6
Car and general construction and repairs, steam-railroad repair shops:					
Number, 1929	47,462	31,078	25,826	17,134	21,386
Number, 1919	53,763	35,240	28,505	26,149	25,444
Decrease (−), 1919–1929	−6,301	−4,162	−2,679	−9,015	−4,058
Per cent of United States, 1929	12.9	8.4	7.0	4.6	5.8
Per cent of United States, 1919	11.1	7.3	5.9	5.4	5.3
Lumber and timber products, etc.:					
Number, 1929	83,587	74,609	70,927	20,445	115,224
Number, 1919	99,525	81,853	91,929	15,510	93,234
Decrease (−) or increase (+), 1919–1929	−15,938	−10,244	−21,002	+4,935	+21,990
Per cent of United States, 1929	19.9	17.1	16.9	4.9	27.5
Per cent of United States, 1919	20.7	17.0	19.1	3.2	19.4

* Less than one-tenth of 1 per cent.

[1] An article entitled *When Machines Make Cigars*, by Mary Anderson, Director, Women's Bureau, U. S. Department of Labor, appeared in the *American Federationist* for December, 1932, pages 1375-1381. In it the author describes the effect of recently introduced automatic machinery on employment and productivity within the "Cigars and cigarettes" industry.

TABLE 7.—DISTRIBUTION OF WAGE JOBS IN THE 8 INDUSTRIES OR INDUSTRY COMBINATIONS IN WHICH JOBS DECREASED 20,000 OR MORE BETWEEN 1919 AND 1929, BY GEOGRAPHIC DIVISIONS—Continued

INDUSTRY OR INDUSTRY COMBINATION	United States	New England	Middle Atlantic	East North Central	West North Central
Meat packing, wholesale:					
Number, 1929	122,505	3,265	15,327	45,598	38,435
Number, 1919	160,996	5,233	14,650	70,135	50,725
Decrease (−) or increase (+), 1919–1929	−38,491	−1,968	+677	−24,537	−12,290
Per cent of United States, 1929	100.0	2.7	12.5	37.2	31.4
Per cent of United States, 1919	100.0	3.3	9.1	43.5	31.5
Musical instruments, parts, and phonographs:					
Number, 1929	33,041	4,144	16,922	9,871	335
Number, 1919	68,741	8,608	32,021	25,594	265
Decrease (−) or increase (+), 1919–1929	−35,700	−4,464	−15,099	−15,723	+70
Per cent of United States, 1929	100.0	12.5	51.3	29.9	1.0
Per cent of United States, 1919	100.0	12.5	46.7	37.2	0.4
Cigars and cigarettes:					
Number, 1929	105,308	3,054	43,707	14,902	1,979
Number, 1919	138,773	4,937	59,918	25,664	3,969
Decrease (−) or increase (+), 1919–1929	−33,465	−1,883	−16,211	−10,762	−2,690
Per cent of United States, 1929	100.0	2.9	41.4	14.2	1.2
Per cent of United States, 1919	100.0	3.6	43.1	18.5	2.9
Leather, tanned, curried, and finished:					
Number, 1929	49,932	11,541	18,389	11,313	493
Number, 1919	72,476	16,399	26,204	16,684	659
Decrease (−) or increase (+), 1919–1929	−22,544	−4,855	−7,915	−5,371	−166
Per cent of United States, 1929	100.0	23.1	36.8	22.7	1.0
Per cent of United States, 1919	100.0	22.6	36.3	23.0	0.9
Woolen goods and worsted goods:					
Number, 1929	146,959	99,030	32,430	5,559	666
Number, 1919	166,787	107,899	45,100	5,720	957
Decrease (−) or increase (+), 1919–1929	−19,828	−8,869	−12,670	−161	−291
Per cent of United States, 1929	100.0	67.3	22.1	3.8	0.5
Per cent of United States, 1919	100.0	64.7	27.0	3.4	.6

INDUSTRY OR INDUSTRY COMBINATION	South Atlantic	East South Central	West South Central	Mountain	Pacific
Meat packing, wholesale:					
Number, 1929	4,167	1,890	5,516	2,520	5,787
Number, 1919	4,765	1,333	6,026	2,730	5,399
Decrease (−) or increase (+), 1919–1929	−598	+557	−510	−210	+388
Per cent of United States, 1929	3.4	1.5	4.5	2.1	4.7
Per cent of United States, 1919	3.0	0.8	3.7	1.7	3.4
Musical instruments, parts, and phonographs:					
Number, 1929	832	80	.....	193	664
Number, 1919	1,116	163	3	5	966
Decrease (−) or increase (+), 1919–1929	−284	−83	−3	+188	−302
Per cent of United States, 1929	2.5	0.2	.....	0.6	2.0
Per cent of United States, 1919	1.6	.2	(*)	(*)	1.4
Cigars and cigarettes:					
Number, 1929	34,825	4,198	1,756	176	1,411
Number, 1919	36,187	2,070	3,759	517	1,752
Decrease (−) or increase (+), 1919–1929	−1,362	+2,128	−2,003	−341	−341
Per cent of United States, 1929	33.1	4.0	1.7	0.2	1.3
Per cent of United States, 1919	26.0	1.5	2.7	.4	1.3
Leather, tanned, curried, and finished:					
Number, 1929	6,721	899	21	.....	552
Number, 1919	9,640	1,270	20	3	1,497
Decrease (−) or increase (+), 1919–1929	−2,919	−371	+1	−3	−945
Per cent of United States, 1929	13.5	1.8	(*)	.....	1.1
Per cent of United States, 1919	13.3	1.8	(*)	(*)	2.1
Woolen goods and worsted goods:					
Number, 1929	4,879	2,351	148	83	1,813
Number, 1919	3,114	2,149	112	75	1,661
Decrease (−) or increase (+), 1919–1929	+1,765	+202	+36	+8	+152
Per cent of United States, 1929	3.3	1.6	0.1	0.1	1.2
Per cent of United States, 1919	1.9	1.3	.1	(*)	1.0

* Less than one-tenth of 1 per cent.

The four remaining industries of the group declined in volume of production as well as in wage jobs. Ship and boat building, activated by the Government's war-time construction program, fell off precipitately soon after the cessation of hostilities to approximately one-third the war-time level, and in 1929 produced only about 11 per cent as large a tonnage as in 1919 (exclusive of power boats of less than 5 gross tons). The Middle Atlantic and Pacific Coast States suffered most from the decline. The musical-instruments industry, in part superseded

by radio manufacture (included with the production of electrical equipment), fell off both in wage jobs and in total production, the East North Central States experiencing the greatest loss. The revolution in this industry probably had less permanent effect on the distribution of wage jobs than might be supposed, because of the prompt adaptation of many of the musical-instrument factories to radio and furniture manufacture.

The tanning and finishing of leather, conducted principally in the New England, the Middle Atlantic, and the East North Central States, declined about 11 per cent in quantity of output between 1919 and 1929. Depressed by heavy war-time surpluses and by the substitution of textile fabrics and compositions in upholstery and in shoe manufacture, the industry suffered a fairly uniform decline in all sections of the country.

Another industry in which there was a large shrinkage in wage jobs between 1919 and 1929 was "car and general construction and repairs, steam-railroad repair shops." Despite an increase of 22 per cent in tons of revenue freight originated on Class I railways, the roads, by adopting locomotives of greater tractive power, more heavy-duty cars, and improved equipment in shops, found it possible to reduce shop personnel by almost 24 per cent in the course of the decade. The total number of shops reporting, however, was larger at the census for 1929 than for 1919.

TABLE 8.—DISTRIBUTION OF WAGE JOBS IN 14 INDUSTRIES, OTHER THAN THOSE COVERED BY TABLES 6 AND 7, WHICH REPORTED 50,000 OR MORE WAGE JOBS EACH FOR 1929, BY GEOGRAPHIC DIVISIONS: 1929 AND 1919

INDUSTRY	United States	New England	Middle Atlantic	East North Central	West North Central
14 industries, total:					
Number, 1929	1,901,382	342,795	530,938	457,090	76,070
Number, 1919	1,877,661	457,202	591,736	394,419	73,790
Increase or decrease (−), 1919–1929	23,721	−114,407	−60,798	62,671	2,280
Per cent, 1929	100.0	18.0	27.9	24.0	4.0
Per cent, 1919	100.0	24.3	31.5	21.0	3.9
Iron and steel: Steel works and rolling mills:					
Number, 1929	394,574	4,193	171,692	158,680	6,274
Number, 1919	375,088	7,880	203,427	120,918	5,038
Increase or decrease (−), 1919–1929	19,486	−3,687	−31,735	37,732	1,236
Per cent, 1929	100.0	1.1	43.5	40.2	1.6
Per cent, 1919	100.0	2.1	54.2	32.2	1.3
Clay products (other than pottery) and nonclay refractories:					
Number, 1929	93,336	2,071	26,681	29,731	8,517
Number, 1919	76,915	2,020	22,687	22,601	9,416
Increase or decrease (−), 1919–1929	16,421	51	3,994	7,130	−899
Per cent, 1929	100.0	2.2	28.6	31.9	9.1
Per cent, 1919	100.0	2.6	29.5	29.4	12.2

INDUSTRY	South Atlantic	East South Central	West South Central	Mountain	Pacific
14 industries, total:					
Number, 1929	325,501	81,898	27,410	9,143	50,537
Number, 1919	240,073	56,706	21,399	7,935	34,401
Increase or decrease (−), 1919–1929	85,428	25,192	6,011	1,208	16,136
Per cent, 1929	17.1	4.3	1.4	0.5	2.7
Per cent, 1919	12.8	3.0	1.1	.4	1.8
Iron and steel: Steel works and rolling mills:					
Number, 1929	26,496	15,007	589	4,053	7,590
Number, 1919	20,145	10,402	172	2,724	4,352
Increase or decrease (−), 1919–1929	6,351	4,605	417	1,329	3,238
Per cent, 1929	6.7	3.8	0.1	1.0	1.9
Per cent, 1919	5.4	2.8	(1)	.7	1.2
Clay products (other than pottery) and nonclay refractories:					
Number, 1929	8,313	6,274	3,719	1,778	6,252
Number, 1919	7,369	5,445	3,079	1,735	2,563
Increase or decrease (−), 1919–1929	944	829	640	43	3,689
Per cent, 1929	8.9	6.7	4.0	1.9	6.7
Per cent, 1919	9.6	7.1	4.0	2.3	3.3

[1] Less than one-tenth of 1 per cent.

TABLE 8.—DISTRIBUTION OF WAGE JOBS IN 14 INDUSTRIES, OTHER THAN THOSE COVERED BY TABLES 6 AND 7, WHICH REPORTED 50,000 OR MORE WAGE JOBS EACH FOR 1929, BY GEOGRAPHIC DIVISIONS: 1929 AND 1919—Continued

INDUSTRY	United States	New England	Middle Atlantic	East North Central	West North Central
Paper and pulp (wood and other fibre):					
Number, 1929	128,049	32,610	28,786	40,817	3,076
Number, 1919	113,759	35,034	30,522	33,294	2,950
Increase or decrease (−), 1919–1929	14,290	−2,394	−1,736	7,523	126
Per cent, 1929	100.0	25.5	22.5	31.9	2.4
Per cent, 1919	100.0	30.8	26.8	29.3	2.6
Structural and ornamental iron and steel work, not made in rolling mills:					
Number, 1929	54,947	2,140	21,038	17,714	3,661
Number, 1919	43,962	1,878	17,709	14,657	4,423
Increase or decrease (−), 1919–1929	10,985	262	3,329	3,057	−762
Per cent, 1929	100.0	3.9	38.3	32.2	6.7
Per cent, 1919	100.0	4.3	40.3	33.3	10.1
Hardware not elsewhere classified:					
Number, 1929	52,306	19,146	9,375	21,712	985
Number, 1919	46,180	20,807	10,021	13,618	977
Increase or decrease (−), 1919–1929	6,126	−1,661	−646	8,094	8
Per cent, 1929	100.0	36.6	17.9	41.5	1.9
Per cent, 1919	100.0	45.1	21.7	29.5	2.1
Silk and rayon manufactures:					
Number, 1929	130,467	25,864	93,224	3,097	5
Number, 1919	126,782	21,551	98,720	3,462	----------
Increase or decrease (−), 1919–1929	3,685	4,313	−5,496	−365	5
Per cent, 1929	100.0	19.8	71.5	2.4	(1)
Per cent, 1919	100.0	17.0	77.9	2.7	----------
Planing-mill products (including general millwork) not made in planing mills connected with sawmills:					
Number, 1929	90,134	5,016	14,618	22,352	8,548
Number, 1919	86,956	5,323	17,596	21,558	9,320
Increase or decrease (−), 1919–1929	3,178	−307	−2,978	794	−772
Per cent, 1929	100.0	5.6	16.2	24.8	9.5
Per cent, 1919	100.0	6.1	20.2	24.8	10.7
Nonferrous-metal alloys and products:					
Number, 1929	79,183	25,368	22,858	24,082	1,350
Number, 1919	78,512	33,274	18,272	22,969	1,104
Increase or decrease (−), 1919–1929	671	−7,906	4,586	1,113	246
Per cent, 1929	100.0	32.0	28.9	30.4	1.7
Per cent, 1919	100.0	42.4	23.3	29.3	1.4
Boxes, paper, not elsewhere classified:					
Number, 1929	55,654	8,637	20,511	14,744	4,697
Number, 1919	55,862	8,145	22,377	14,409	3,865
Increase or decrease (−), 1919–1929	−208	492	−1,866	335	832
Per cent, 1929	100.0	15.5	36.9	26.5	8.4
Per cent, 1919	100.0	14.6	40.1	25.8	6.9
Boots and shoes, other than rubber:					
Number, 1929	205,640	80,058	48,831	40,066	26,482
Number, 1919	211,049	103,431	50,862	31,114	20,366
Increase or decrease (−), 1919–1929	−5,409	−23,373	−2,031	8,952	6,116
Per cent, 1929	100.0	38.9	23.7	19.5	12.9
Per cent, 1919	100.0	49.0	24.1	14.7	9.6
Cotton goods:					
Number, 1929	424,916	127,041	18,342	2,764	336
Number, 1919	430,966	203,187	28,250	3,028	227
Increase or decrease (−), 1919–1929	−6,050	−76,146	−9,908	−264	109
Per cent, 1929	100.0	29.9	4.3	0.7	0.1
Per cent, 1919	100.0	47.1	6.6	.7	.1
Glass:					
Number, 1929	67,527	446	25,889	22,373	1,818
Number, 1919	77,520	365	31,473	25,109	3,070
Increase or decrease (−), 1919–1929	−9,993	81	−5,584	−2,736	−1,252
Per cent, 1929	100.0	0.7	38.3	33.1	2.7
Per cent, 1919	100.0	.5	40.6	32.4	4.0
Confectionery:					
Number, 1929	63,501	8,265	18,319	18,497	5,378
Number, 1919	76,493	11,903	23,189	17,897	7,266
Increase or decrease (−), 1919–1929	−12,992	−3,638	−4,870	600	−1,888
Per cent, 1929	100.0	13.0	28.8	29.1	8.5
Per cent, 1919	100.0	15.6	30.3	23.4	9.5
Engines, turbines, tractors, and water wheels:					
Number, 1929	61,148	1,910	10,774	40,461	4,943
Number, 1919	77,617	2,404	16,631	49,755	5,768
Increase or decrease (−), 1919–1929	−16,469	−494	−5,857	−9,294	−825
Per cent, 1929	100.0	3.1	17.6	66.2	8.1
Per cent, 1919	100.0	3.1	21.4	64.1	7.4

[1] Less than one-tenth of 1 per cent.

TABLE 8.—DISTRIBUTION OF WAGE JOBS IN 14 INDUSTRIES, OTHER THAN THOSE COVERED BY TABLES 6 AND 7, WHICH REPORTED 50,000 OR MORE WAGE JOBS EACH FOR 1929, BY GEOGRAPHIC DIVISIONS: 1929 AND 1919—Continued

INDUSTRY	South Atlantic	East South Central	West South Central	Mountain	Pacific
Paper and pulp (wood and other fibre):					
Number, 1929	10,770	1,504	2,745	25	7,686
Number, 1919	6,993	838	989	----	3,139
Increase or decrease (−), 1919–1929	3,777	666	1,756	25	4,547
Per cent, 1929	8.4	1.2	2.1	----	6.0
Per cent, 1919	6.1	.7	.9	----	2.8
Structural and ornamental iron and steel work, not made in rolling mills:					
Number, 1929	2,672	2,351	2,343	447	2,581
Number, 1919	1,752	704	661	146	2,032
Increase or decrease (−), 1919–1929	920	1,647	1,682	301	549
Per cent, 1929	4.9	4.3	4.3	0.8	4.7
Per cent, 1919	4.0	1.6	1.5	.3	4.6
Hardware not elsewhere classified:					
Number, 1929	100	484	29	----	475
Number, 1919	81	486	39	9	142
Increase or decrease (−), 1919–1929	19	−2	−10	−9	333
Per cent, 1929	0.2	0.9	0.1	----	0.9
Per cent, 1919	.2	1.1	.1	(1)	.3
Silk and rayon manufactures:					
Number, 1929	7,316	827	----	----	134
Number, 1919	2,699	306	----	----	44
Increase or decrease (−), 1919–1929	4,617	521	----	----	90
Per cent, 1929	5.6	0.6	----	----	0.1
Per cent, 1919	2.1	.2	----	----	(1)
Planing-mill products (including general millwork) not made in planing mills connected with sawmills:					
Number, 1929	12,220	8,752	5,412	1,002	12,214
Number, 1919	11,584	6,631	4,608	1,091	9,245
Increase or decrease (−), 1919–1929	636	2,121	804	−89	2,969
Per cent, 1929	13.6	9.7	6.0	1.1	13.6
Per cent, 1919	13.3	7.6	5.3	1.3	10.6
Nonferrous-metal alloys and products:					
Number, 1929	3,293	378	226	358	1,270
Number, 1919	1,331	247	165	196	954
Increase or decrease (−), 1919–1929	1,962	131	61	162	316
Per cent, 1929	4.2	0.5	0.3	0.5	1.6
Per cent, 1919	1.7	.3	.2	.2	1.2
Boxes, paper, not elsewhere classified:					
Number, 1929	3,022	1,047	787	251	1,958
Number, 1919	3,332	1,399	454	130	1,751
Increase or decrease (−), 1919–1929	−310	−352	333	121	207
Per cent, 1929	5.4	1.9	1.4	0.5	3.5
Per cent, 1919	6.0	2.5	0.8	.2	3.1
Boots and shoes, other than rubber:					
Number, 1929	4,707	4,556	161	----	779
Number, 1919	2,729	1,392	390	1	764
Increase or decrease (−), 1919–1929	1,978	3,164	−229	−1	15
Per cent, 1929	2.3	2.2	0.1	----	0.4
Per cent, 1919	1.3	.7	.2	(1)	.4
Cotton goods:					
Number, 1929	229,033	38,824	7,423	----	1,153
Number, 1919	163,593	26,370	6,106	12	193
Increase or decrease (−), 1919–1929	65,440	12,454	1,317	−12	960
Per cent, 1929	53.9	9.1	1.7	----	0.3
Per cent, 1919	38.0	6.1	1.4	(1)	(1)
Glass:					
Number, 1929	12,841	415	2,219	----	1,526
Number, 1919	13,527	168	2,467	----	1,341
Increase or decrease (−), 1919–1929	−686	247	−248	----	185
Per cent, 1929	19.0	0.6	3.3	----	2.3
Per cent, 1919	17.4	.2	3.2	----	1.7
Confectionery:					
Number, 1929	4,674	1,450	1,718	1,229	3,971
Number, 1919	4,862	2,203	2,206	1,885	5,082
Increase or decrease (−), 1919–1929	−188	−753	−488	−656	−1,111
Per cent, 1929	7.4	2.3	2.7	1.9	6.3
Per cent, 1919	6.4	2.9	2.9	2.5	6.6
Engines, turbines, tractors, and water wheels:					
Number, 1929	44	29	39	----	2,948
Number, 1919	76	115	63	6	2,799
Increase or decrease (−), 1919–1929	−32	−86	−24	−6	149
Per cent, 1929	0.1	(1)	0.1	----	4.8
Per cent, 1919	.1	0.1	.1	(1)	3.6

[1] Less than one-tenth of 1 per cent.

Group 3.—Other important industries.—A third group is composed of 14 large industries or industry combinations which reported 50,000 or more wage jobs each for 1929, but in which the increase or decrease from 1919 to 1929 in the number of wage jobs was under 20,000 in each case (Table 8). In this group there occurred a more pronounced geographic redistribution than was found in either of the two groups considered above. To the 14 industries 23,721 wage jobs were added during the decade, an increase of slightly more than 1 per cent. A decrease occurred in none of the divisions except New England and the Middle Atlantic where the combined shrinkage amounted to 175,205 jobs. In contrast, the increase in the 3 divisions of the South totaled 116, 631 wage jobs, equal to 75 per cent of the total net wage-job gain made in that section during the decade. The cotton-goods industry accounted for more than two-thirds of the increase. Only 3 other industries of the group, namely, "Iron and steel: Steel works and rolling mills," "Paper and pulp (wood and other fibre)," and "Silk and rayon manufactures," expanded in the 3 southern divisions combined by as many as 5,000 wage jobs. The 8 States of the South Atlantic division reported about 38 per cent of the cotton-goods industry in 1919 and approximately 54 per cent of it in 1929.

The frequent reference to decentralization of shoe manufacture finds confirmation in the figures for that industry. New England's share fell from 49 to 38.9 per cent during the decade, while the proportion reported for the East North Central and West North Central divisions combined increased from 24.3 to 32.4. Gains in this industry in the South, while general, were based on too small a portion of the total to affect materially the redistribution.

The hardware industry, two-third of which was found in New England and the Middle Atlantic States in 1919 and 54.5 per cent a decade later, expanded considerably in the East North Central States (29.5 to 41.5 per cent of the total). Practically all the plants in the industry are reported from these 3 geographic divisions. A more outstanding instance of geographic concentration among the 14 industries or industry combinations, however, is that of "Engines, turbines, tractors, and water wheels," 64.1 per cent of which was localized within the single East North Central division in 1919 and 66.2 per cent 10 years later.

Group 4.—All other industries.—The remaining industries, 271 in number, have been combined as "All other industries" in Table 9. Together they furnished about 37 per cent of the total number of wage jobs in industry both in 1919 and in 1929. New England and the Middle Atlantic States claimed almost half the wage jobs of the group in 1919 and about 45 per cent 10 years later. These industries branched out during the decade chiefly into the East North Central, the South Atlantic, and the Pacific divisions, although all the divisions outside the manufacturing East, except the Mountain, added to their shares of the total.

It has been pointed out that the figures for some of the individual industries in the various groups may be somewhat misleading in that they fail to reflect in all cases adaptations of plants in declining industries to new conditions. For example, the decrease in wage jobs in a piano factory in a given area will not result in a loss in total wage jobs in that area if the piano plant continues to operate as a furniture plant. It is only in a summary of aggregate gains and losses of wage jobs in all divisions, as in Table 9, that the net effect of such gains and losses can be clearly seen.

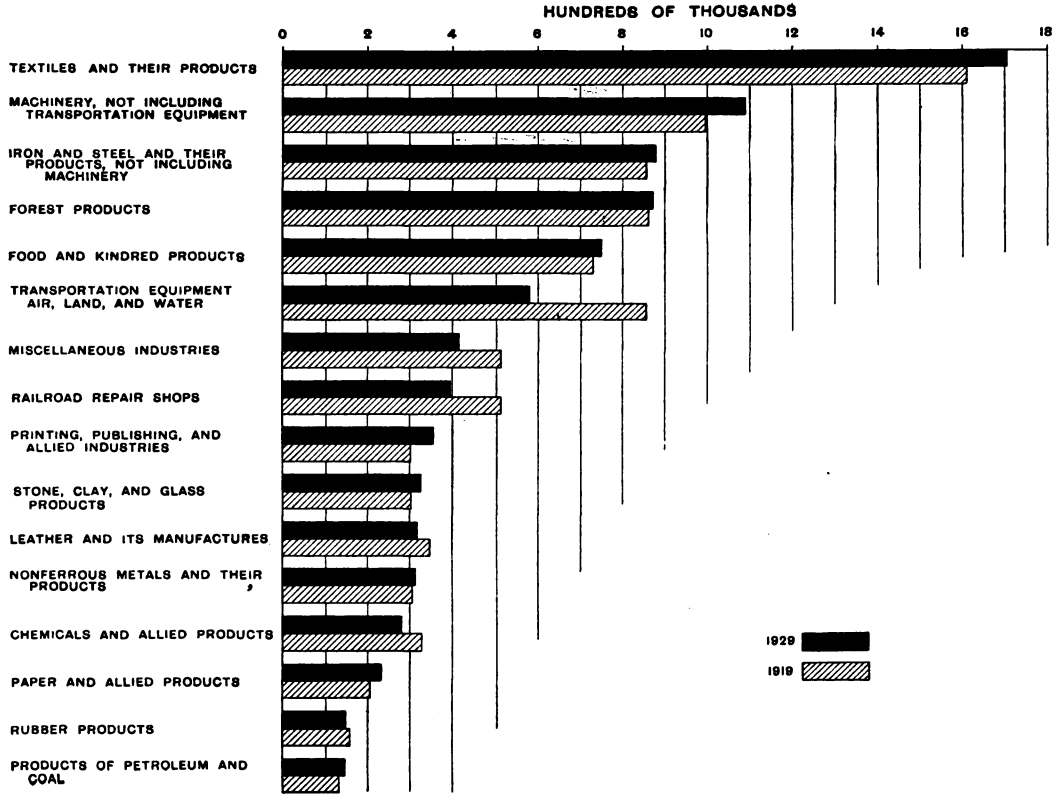

FIGURE 4.—WAGE JOBS IN MANUFACTURES, BY INDUSTRY GROUPS: 1929 AND 1919

TABLE 9.—DISTRIBUTION OF WAGE JOBS IN GROUPS OF INDUSTRIES CLASSIFIED ACCORDING TO INCREASE, DECREASE, OR NUMBER OF WAGE JOBS, BY GEOGRAPHIC DIVISIONS: 1929 AND 1919

	United States	New England	Middle Atlantic	East North Central	West North Central
All industries, total:					
Number, 1929	8,833,743	1,098,514	2,562,340	2,542,176	474,115
Number, 1919 [1]	9,041,311	1,347,531	2,859,604	2,387,477	492,054
Increase or decrease (−), 1919–1929	−202,568	−249,017	−297,264	154,699	−17,939
Per cent of United States, 1929	100.0	12.4	29.0	28.8	5.4
Per cent of United States, 1919	100.0	14.9	31.6	26.4	5.4
10 industries or combinations which gained 20,000 or more jobs each:					
Number, 1929	2,409,113	155,740	813,429	843,738	119,983
Number, 1919	1,882,626	135,172	719,252	660,395	96,552
Increase or decrease (−), 1919–1929	526,487	20,568	94,177	183,343	23,431
Per cent of United States, 1929	100.0	6.5	33.7	35.0	5.0
Per cent of United States, 1919	100.0	7.2	38.2	35.1	5.1
8 industries or combinations which lost 20,000 or more jobs each:					
Number, 1929	1,300,599	144,604	237,292	213,151	98,139
Number, 1919	1,960,601	196,450	456,183	346,046	138,994
Increase or decrease (−), 1919–1929	−660,002	−51,846	−218,891	−132,895	−40,855
Per cent of United States, 1929	100.0	11.1	18.3	16.5	7.5
Per cent of United States, 1919	100.0	10.0	23.2	17.7	7.1
14 other industries or combinations which reported 50,000 or more jobs each in 1929:					
Number, 1929	1,901,382	342,795	530,938	457,090	76,070
Number, 1919	1,877,661	457,202	591,736	394,419	73,790
Increase or decrease (−), 1919–1929	23,721	−114,407	−60,798	62,671	2,280
Per cent of United States, 1929	100.0	18.0	27.9	24.0	4.0
Per cent of United States, 1919	100.0	24.3	31.5	21.0	3.9
All other industries:					
Number, 1929	3,227,649	455,375	980,681	1,028,197	179,923
Number, 1919	3,320,423	558,707	1,092,433	986,617	182,718
Increase or decrease (−), 1919–1929	−92,774	−103,332	−111,752	41,580	−2,795
Per cent of United States, 1929	100.0	14.1	30.4	31.9	5.6
Per cent of United States, 1919	100.0	16.8	32.9	29.7	5.5

	South Atlantic	East South Central	West South Central	Mountain	Pacific
All industries, total:					
Number, 1929	912,247	377,870	297,743	102,492	471,246
Number, 1919 [1]	812,122	327,352	282,751	105,647	426,773
Increase or decrease (−), 1919–1929	100,125	50,518	14,992	−3,155	44,473
Per cent of United States, 1929	10.3	4.3	3.4	1.2	5.3
Per cent of United States, 1919	9.0	3.6	3.1	1.2	4.7
10 industries or combinations which gained 20,000 or more jobs each:					
Number, 1929	179,118	76,369	77,273	18,606	124,857
Number, 1919	102,984	38,008	43,085	15,082	72,096
Increase or decrease (−), 1919–1929	76,134	38,361	34,188	3,524	52,761
Per cent of United States, 1929	7.4	3.2	3.2	0.8	5.2
Per cent of United States, 1919	5.5	2.0	2.3	.8	3.8
8 industries or combinations which lost 20,000 or more jobs each:					
Number, 1929	194,271	113,767	106,050	40,553	152,772
Number, 1919	283,637	134,179	142,431	45,042	217,639
Increase or decrease (−), 1919–1929	−89,366	−20,412	−36,381	−4,489	−64,867
Per cent of United States, 1929	14.9	8.7	8.2	3.1	11.7
Per cent of United States, 1919	14.5	6.8	7.3	2.3	11.1
14 other industries or combinations which reported 50,000 or more jobs each in 1929:					
Number, 1929	325,501	81,898	27,410	9,143	50,537
Number, 1919	240,073	56,706	21,399	7,935	34,401
Increase or decrease (−), 1919–1929	85,428	25,192	6,011	1,208	16,136
Per cent of United States, 1929	17.1	4.3	1.4	0.5	2.7
Per cent of United States, 1919	12.8	3.0	1.1	.4	1.8
All other industries:					
Number, 1929	213,357	105,836	87,010	34,190	143,080
Number, 1919	185,428	98,459	75,836	37,588	102,637
Increase or decrease (−), 1919–1929	27,929	7,377	11,174	−3,398	40,443
Per cent of United States, 1929	6.6	3.3	2.7	1.1	4.4
Per cent of United States, 1919	5.6	3.0	2.3	1.1	3.1

[1] Figures for the "Automobile repairing" industry which was canvassed at the census for 1919, but not at the census for 1929, are omitted.

IV.—AREAS OF INDUSTRIAL AND POPULATION CONCENTRATION

In this section statistics are presented which show the extent of industrial and population concentration in industrial centers. For the purpose of measuring this concentration, the country has been divided, regardless of State and geographic-division lines, into (1) *Areas of primary concentration*, comprising the areas of 93 cities of 100,000 population or more; (2) *Areas of secondary concentration*, composed of the remainder of the areas of those counties within which the cities of 100,000 population are located, together with 47 other counties belonging in what the Bureau of the Census defines as "industrial areas" (Table 19); and (3) *All other areas*, constituting the remainder of continental United States. It would be possible for industry in one or more of the nine geographic divisions of the country to suffer marked declines or to make pronounced gains without disturbing the ratios between these areas. In other words, shifts which occur between one industrial area and another and those which take place between one geographic division and another are two quite distinct phenomena.

Before commenting further on this classification of areas some explanation should be made of the 33 "industrial areas" of the census which are used in part in forming the areas of secondary concentration described in the preceding paragraph. The "industrial areas," for which statistics are presented in Volumes I and III of the Census of Manufactures for 1929, are composed of 97 counties of marked industrial concentration. Each area embraces from 1 to 12 counties and has at least 40,000 wage jobs in manufacturing establishments, as reported at the census for 1929. Such an area has as its nucleus an important manufacturing city and comprises the county in which the city is located, together with any adjoining counties in which there is a great development of manufacturing industry. These areas should be confused neither with the "metropolitan districts" of the census of population—geographic units which include, with the central city or cities, all the adjacent minor civil divisions (townships, etc.) having a density of at least 150 inhabitants per square mile—nor with the areas of primary and secondary concentration, as defined for the purposes of this report.

The area classification in Table 10 is imperfect in at least two respects. In the first place, although those portions of counties lying outside the boundaries of cities having 100,000 inhabitants or more and included in the secondary areas show in a reasonably satisfactory manner the industrial changes which occurred in the generally less congested sections surrounding the large cities, it is probable that in some cases the metropolitan districts of the census of population might more accurately portray the industrial and population shifts which occurred in regions subsidiary to the large cities. However, in defining metropolitan districts, county lines were frequently disregarded with the result that manufactures data for such districts are not generally available.

Another limitation arises from the extensions of corporate limits of municipalities, an interference with the strict comparableness of city figures from one census year to another.[1] Since census records do not disclose the industrial

[1] The 93 cities having 100,000 inhabitants or more in 1930 covered in that year an aggregate of 4,259 square miles, 630 more than in 1920; the increase of population in these cities, resulting solely from annexations during the decade, amounted to 754,593.

importance of the tracts added or subtracted, the effect of such changes on the comparableness of cities from one census to another can not be readily determined. It is believed that the modifications of corporate boundaries have not affected industrial data enough to impair seriously the value of the classification in question.

Data are not available for showing in any comprehensive way the geographic redistribution of individual industries or groups of industries in the three types of areas. This is particularly unfortunate, for while the area statistics for industry as a whole indicate fairly well-defined trends, it is quite probable that data for some of the industries, if available, would show even more distinct tendencies either toward concentration or toward dispersion.

TABLE 10.—DISTRIBUTION OF POPULATION AND OF WAGE JOBS, BY AREAS OF CONCENTRATION: 1899 TO 1929

	Census year	UNITED STATES	AREAS OF PRIMARY CONCENTRATION		AREAS OF SECONDARY CONCENTRATION		ALL OTHER AREAS	
		Number	Number	Per cent of United States total	Number	Per cent of United States total	Number	Per cent of United States total
Population	[1] 1929	122,775,046	36,325,736	29.6	17,818,213	14.5	68,631,097	55.9
	[1] 1919	105,710,620	29,405,294	27.8	13,208,692	12.5	63,096,634	59.7
	[1] 1909	91,972,266	23,175,482	25.2	10,617,066	11.5	58,179,718	63.2
	[1] 1899	75,994,575	17,027,745	22.4	8,166,214	10.7	50,800,616	66.8
Wage jobs	1929	8,538,743	3,868,283	43.8	1,866,761	21.1	3,103,699	35.1
	1919	[2] 9,096,372	4,051,858	44.5	1,965,283	21.6	3,079,231	33.9
	1909	[2] 6,615,016	2,882,093	43.6	([3])	----	([3])	----
	1899	4,712,763	2,104,166	44.6	868,531	18.4	1,740,066	36.9
Wage jobs per square mile	1929	3.0	897.2	----	21.7	----	1.1	----
	1919	3.1	1,100.6	----	22.6	----	1.1	----
	1909	2.2	([4])	----	([4])	----	([4])	----
	1899	1.8	([4])	----	([4])	----	([4])	----

[1] Based on numbers as enumerated in following year.
[2] Represents the total number of wage jobs as originally published, but not as adjusted for comparison with 1929.
[3] No data.
[4] Data incomplete.

More than two-fifths of the manufacturing of the country—43.8 per cent in 1929 as measured by number of wage jobs—is carried on in cities having 100,000 inhabitants or more, constituting the areas of primary concentration as here defined. The number of square miles which these cities cover is but one-seventh of 1 per cent of the total land area of the Nation. There has been no important change in the past three decades in the percentage of the Nation's wage jobs localized in these areas, although there has been a very pronounced increase in the proportion of the total population residing there—from 22.4 per cent in 1899 to 29.6 per cent in 1929—resulting from the fact that while the increase of population for the country as a whole amounted to 61.6 per cent between 1899 and 1929, the rate of increase in these areas of primary concentration was nearly twice as large, or 113.3 per cent. In this connection it should be borne in mind that the primary areas, as already pointed out, have acquired by annexation many square miles, some of which were occupied by manufacturing plants. Since it is likely, however, that the majority of the additions have been residential rather than industrial, it is probable that from one census to another the comparableness of the areas has not been seriously impaired.

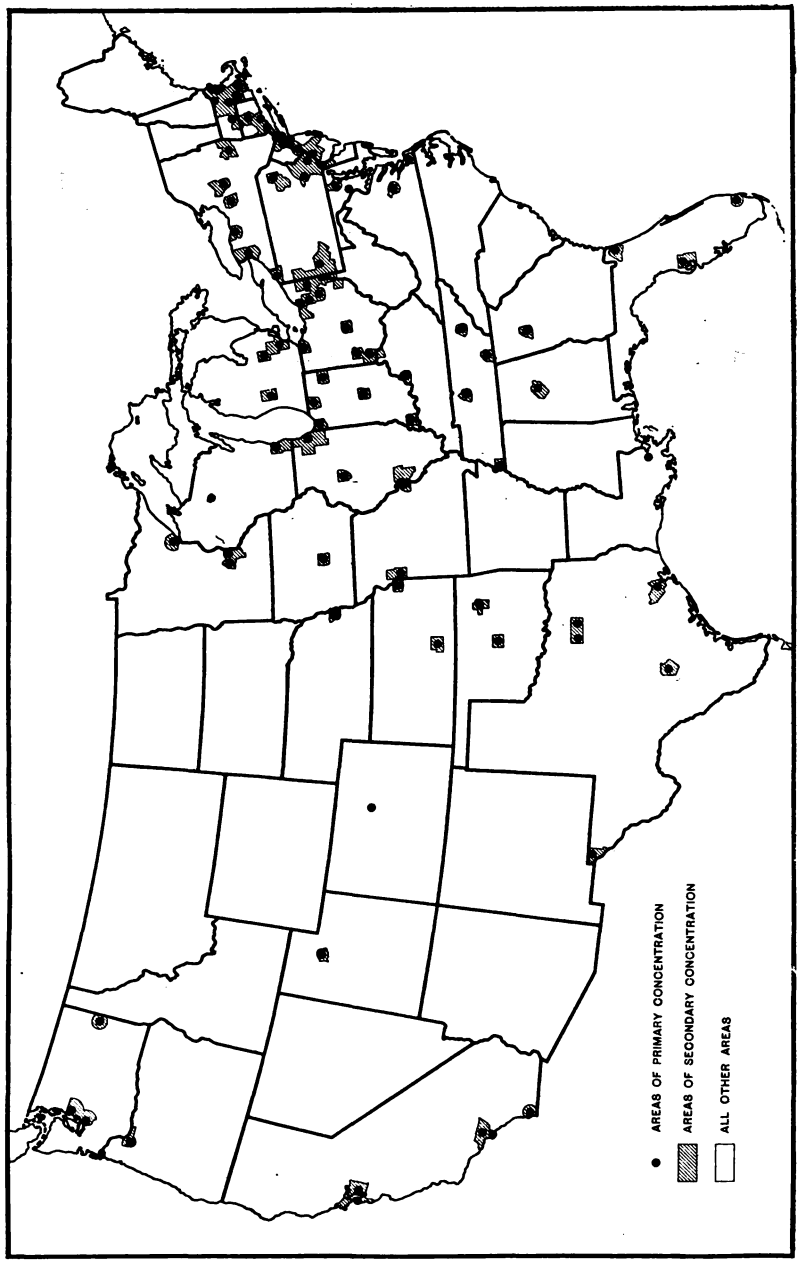

FIGURE 5.—AREAS OF INDUSTRIAL AND POPULATION CONCENTRATION: 1929

131810—33——5

TABLE 11.—PER CENT INCREASE OR DECREASE OF POPULATION AND OF WAGE JOBS, IN AREAS OF CONCENTRATION, BY GEOGRAPHIC DIVISIONS: 1899 TO 1929

GEOGRAPHIC DIVISION	Period covered [1]	POPULATION—PER CENT OF GAIN OR LOSS (—)				WAGE JOBS—PER CENT OF GAIN OR LOSS (—)			
		All areas	Areas of primary concentration	Areas of secondary concentration	All other areas	All areas	Areas of primary concentration	Areas of secondary concentration	All other areas
United States	1899–1929	61.6	113.3	118.2	35.1	87.5	83.8	114.9	78.4
	1919–1929	16.1	23.5	34.9	8.8	−2.8	−4.5	−5.0	.8
	1899–1919	39.1	72.7	61.7	24.2	93.0	92.6	126.3	77.0
New England	1899–1929	46.0	50.6	75.2	18.5	28.9	37.9	37.9	9.1
	1919–1929	10.3	4.4	20.6	5.3	−18.7	−18.7	−17.8	−20.0
	1899–1919	32.3	44.3	45.2	12.5	58.6	69.7	67.8	36.3
Middle Atlantic	1899–1929	69.9	80.8	111.6	29.6	59.7	42.9	113.6	49.4
	1919–1929	18.0	16.8	28.3	11.0	−10.8	−14.0	−4.7	−10.5
	1899–1919	44.0	54.8	64.9	16.7	79.0	62.2	124.3	67.0
East North Central	1899–1929	58.3	140.8	152.2	12.4	136.9	151.1	246.9	80.8
	1919–1929	17.8	26.3	48.1	3.4	6.1	8.4	2.5	4.4
	1899–1919	34.3	87.7	70.3	8.6	123.3	131.7	238.5	73.1
West North Central	1899–1929	28.5	89.4	113.8	15.9	78.2	90.3	58.7	67.5
	1919–1929	6.0	15.0	42.6	2.3	−5.1	−3.2	−8.0	−7.0
	1899–1919	21.2	64.7	50.0	13.3	87.8	96.7	72.4	80.1
South Atlantic	1899–1929	51.2	105.2	53.3	44.3	99.0	50.4	117.6	115.3
	1919–1929	12.9	19.6	29.2	11.1	11.6	−9.9	.6	20.0
	1899–1919	34.0	71.6	18.7	29.8	78.3	66.8	116.3	79.4
East South Central	1899–1929	31.0	145.3	44.5	21.7	113.2	139.1	115.4	101.5
	1919–1929	11.2	44.6	14.7	7.3	14.8	27.2	9.3	10.1
	1899–1919	17.8	69.7	26.0	13.5	85.8	87.9	97.0	83.1
West South Central	1899–1929	86.4	281.1	169.4	68.8	162.6	201.1	1,516.1	136.0
	1919–1929	18.9	53.8	24.1	14.0	4.4	23.0	17.0	−2.3
	1899–1919	56.8	147.7	117.1	48.1	151.6	144.7	1,280.8	141.6
Mountain	1899–1929	121.0	128.5	122.5	120.1	130.3	105.5	112.1	139.1
	1919–1929	11.0	14.3	30.8	10.3	−6.2	−4.8	−8.2	−6.5
	1899–1919	99.2	99.9	70.2	99.6	145.4	115.9	131.1	155.6
Pacific	1899–1929	239.1	328.9	451.9	145.4	282.5	282.7	705.9	207.8
	1919–1929	47.2	51.3	97.1	20.0	8.3	.3	26.5	11.2
	1899–1919	130.4	183.4	180.1	90.2	253.2	281.4	536.9	176.7

[1] No county statistics were compiled at the census for 1909, and therefore it was necessary to combine the two 10-year periods 1899–1909 and 1909–1919.

An increasing proportion of the total population of the country and likewise of the total number of wage jobs is being absorbed by the regions around the large cities, constituting the areas of secondary concentration. In the period from 1899 to 1929 the population of these areas increased by 118.2 per cent and the number of wage jobs by 114.9 per cent, as compared with an increase of 61.6 per cent in the population and 87.5 per cent in wage jobs for the country as a whole. As a result, the proportion of wage jobs concentrated within secondary areas increased from 18.4 to 21.1 per cent, while the corresponding population percentage increased from 10.7 to 14.5.

The difference between primary and secondary areas in density of wage jobs, as indicated by "wage jobs per square mile," is, of course, quite pronounced. The spread from 21.7 jobs per square mile in secondary areas to 897.2 in primary areas is in part caused by the greater proximity of plants to one another in the cities of the primary areas, but mainly by the presence of large nonindustrial sections in many of the counties composing the areas of secondary concentration.

The compact areas of primary and secondary concentration, in which about two-thirds of all factory wage jobs are located, cover only 3 per cent of the total area of the country. The remainder of continental United States, termed "All other areas" in this report, is a vast expanse of territory of an exceedingly diversified character. A large portion of it is rural, large areas are sparsely populated, and a considerable part has practically no population.

Within this large portion of the country lying outside primary and secondary areas there is a total population of 68,631,277, of which 31 per cent is urban, 42 per cent rural farm, and 27 per cent rural nonfarm.[2] All the farms of the country, except the comparatively few which lie within the 137 counties or parts of counties which form the areas of secondary concentration, are in "All other areas." Because of the wide expanses in which no manufacturing is carried on, there is on the average only about one industrial job per square mile in these areas. This vast region, however, includes territory in which there is considerable concentration of population and industry. Fifty-four cities having between 50,000 and 100,000 inhabitants and reporting a total population of 3,547,983 are to be found within this region. Some of these cities are more industrial in character than are some of those in the primary and secondary areas. There is the fundamental difference, however, between the two groups of cities that, in general, only the cities of the primary and secondary areas form integral parts of regions of marked concentration of both population and industry.

The proportion of wage jobs located in this vast territory outside the large industrial centers (areas of primary and secondary concentration) showed a slight decrease, from 36.9 per cent of the total in 1899 to 35.1 per cent in 1929, while the corresponding percentage of the population in that interval underwent a more marked decline, from 66.8 to 55.9. This means, of course, that an increasing proportion of the industry of the country is being absorbed into the industrial centers as represented by cities of over 100,000 and the territory adjacent to these cities. Concentration in these centers increased from 63 per cent of the total number of wage jobs in 1899 to 66.1 in 1919, and then fell off slightly to 64.9 in 1929. The increase in 1919 was in all probability due to the relatively greater production of war supplies (which continued for some time after the termination of hostilities) in the larger than in the smaller industrial cities. It is evident that the large centers are rather more than holding their own in relation to the less populous areas.

TABLE 12.—WAGE JOBS PER 1,000 POPULATION, BY AREAS OF CONCENTRATION: 1929 AND 1899

AREA	WAGE JOBS PER 1,000 POPULATION	
	1929	1899
All areas, total	**72**	**62**
Primary concentration	106	124
Secondary concentration	105	106
All others	45	34

In the areas of primary concentration the percentage increase in wage jobs (83.8) was decidedly less than that in population (113.3), resulting in a pronounced decrease in the number of wage jobs per 1,000 population—from 124 to 106 (Tables 11 and 12). In the areas of secondary concentration the percentage of increase in the number of wage jobs was only slightly less than that in the total population (114.9 and 118.2, respectively), so that the number of wage jobs per 1,000 population remained nearly stationary, being 106 in 1899 and 105 in 1929.

[2] Urban population, according to census-of-population definition, is that residing in cities and other incorporated places having 2,500 inhabitants or more, the remainder being classified as rural. The rural farm population resides on farms; the rural nonfarm population, sometimes termed the "village population," is that part of the rural pupulation which does not live on farms.

Outside these areas of concentration the number of wage jobs increased by a much larger percentage than did the population (78.4 per cent and 35.1 per cent, respectively), with the result that the number of wage jobs per 1,000 population increased from 34 to 45.

TABLE 13.—PER CENT DISTRIBUTION OF POPULATION AND OF WAGE JOBS, BY GEOGRAPHIC DIVISIONS AND AREAS OF CONCENTRATION: 1929 AND 1899

DIVISION AND AREA	POPULATION		WAGE JOBS	
	1929	1899	1929	1899
	Per cent	*Per cent*	*Per cent*	*Per cent*
United States, aggregate	100.0	100.0	100.0	100.0
Primary concentration	29.6	22.4	43.8	44.6
Secondary concentration	14.5	10.7	21.1	18.4
All others	55.9	66.8	35.1	36.9
New England, total	100.0	100.0	100.0	100.0
Primary concentration	30.6	29.7	34.3	32.1
Secondary concentration	38.1	31.8	39.4	36.9
All others	31.2	38.5	26.3	31.0
Middle Atlantic, total	100.0	100.0	100.0	100.0
Primary concentration	48.2	45.3	50.7	56.7
Secondary concentration	26.1	20.9	29.1	21.7
All others	25.8	33.8	20.2	21.6
East North Central, total	100.0	100.0	100.0	100.0
Primary concentration	37.2	24.4	52.7	49.7
Secondary concentration	16.5	10.4	18.6	12.7
All others	46.3	65.2	28.6	37.5
West North Central, total	100.0	100.0	100.0	100.0
Primary concentration	19.9	13.5	52.2	48.8
Secondary concentration	4.6	2.8	4.6	5.2
All others	75.5	83.7	43.2	45.9
South Atlantic, total	100.0	100.0	100.0	100.0
Primary concentration	14.7	10.8	19.1	25.3
Secondary concentration	3.7	3.6	6.2	5.6
All others	81.6	85.6	74.7	69.1
East South Central, total	100.0	100.0	100.0	100.0
Primary concentration	12.1	6.5	30.9	27.6
Secondary concentration	6.1	5.5	9.8	9.7
All others	81.8	88.0	59.3	62.7
West South Central, total	100.0	100.0	100.0	100.0
Primary concentration	15.1	7.4	27.1	23.6
Secondary concentration	2.8	1.9	5.0	0.8
All others	82.1	90.7	67.9	75.6
Mountain, total	100.0	100.0	100.0	100.0
Primary concentration	11.6	11.2	21.4	23.9
Secondary concentration	1.5	1.4	2.4	2.6
All others	87.0	87.4	76.2	73.4
Pacific, total	100.0	100.0	100.0	100.0
Primary concentration	40.7	32.2	44.6	44.6
Secondary concentration	18.4	11.3	17.5	8.3
All others	40.9	56.5	37.9	47.2

In general, the distribution of wage jobs both regionally and by areas of concentration corresponds more closely to the distribution of population than it did 30 years ago, indicating a form of industrial dispersion. The number of such jobs per 1,000 population in 1899 ranged from a minimum of 17 in the West

South Central division to a maximum of 152 in New England; by 1929 the lower and upper limits, still found in the same two geographic divisions, had narrowed to 24 and 135, respectively (Table 5). This dispersion tendency is seen also in the figures for areas of concentration (Table 12). At the beginning of the present century there were but 34 factory wage jobs per 1,000 population in the areas outside primary and secondary centers, as compared with 124 in the primary centers. By 1929 the population of the outlying regions had become more industrialized and the large industrial centers less so, the figures for wage jobs per 1,000 population being 45 and 106, respectively.

Statistics have been presented to show the redistribution of wage jobs among the primary, secondary, and other areas for the United States as a whole. Movements opposed to the predominant trend in each type of area occurred in some sections of the country. Industrial concentration increased between 1899 and 1929 in the cities having 100,000 inhabitants or more in New England, in the East North Central and West North Central States, and throughout the South, except in the coastal States of the South Atlantic division. Opposing forces were at work in the Middle Atlantic and in the South Atlantic divisions. Population, on the other hand, tended to congregate within the primary areas in all nine divisions.

The figures for the country as a whole indicate a trend—though not, it is true, very pronounced—toward a greater degree of industrial concentration in the secondary areas comprising the regions around the large cities. The same trend, more or less marked, is apparent in seven of the nine geographic divisions, the exceptions being the West North Central and the Mountain, in which the relatively small percentage of wage jobs in secondary areas underwent a very slight decrease. The trend was especially pronounced in the Middle Atlantic division, where the percentage of wage jobs in these areas increased from 21.7 to 29.1; in the East North Central division, in which the increase was from 12.7 to 18.6; and in the Pacific division, where it was from 8.3 to 17.5.

The relation between the growth of industry in the two types of areas of concentration—primary and secondary—is further disclosed by the figures in Table 14. It is worthy of note that of the increase of 2,762,347 wage jobs in these two areas combined, 998,230, or 36.1 per cent, were in secondary territory; also that the share of the secondary areas in the total for both primary and secondary areas increased from 29.2 in 1899 to 32.6 in 1929. Pronounced gains in the share for secondary areas were made in five important divisions, namely, the Middle Atlantic, the East North Central, the South Atlantic, the West South Central, and the Pacific. The percentage of all wage jobs in the five divisions which were localized in secondary areas was 24.1 in 1899; 30.6 in 1929. In New England the percentage distribution between primary and secondary areas remained practically unchanged through the 30-year period.

The percentage of wage jobs in "All other areas"—those outside the large population and industrial centers—decreased to a greater or less extent in every section of the country except the South Atlantic and Mountain divisions. In the South Atlantic division the rather striking increase, from 69.1 per cent in 1899 to 74.7 in 1929, reflects clearly the growth of the textile industry in the Piedmont region.

Plant Relocations.[3]—The returns of the census for 1929 carried information in regard to the manufacturing plants which were relocated during 1928 or 1929—the first time that such data have ever been available for all industries.[4] Returns

[3] For a more comprehensive treatment of this subject see Appendix B, pp. 57 to 67.

[4] The moving of a plant from one incorporated city or town to another or from within the limits of such an incorporated place to a location outside municipal boundaries is considered a relocation. A change of location within a given incorporated city or town is not defined as a relocation for the purpose of this study.

from the largest 50 industries included data for 287 relocated manufacturing plants. On these returns the old and new locations of the plants were noted, together with other information concerning their manufacturing operations.

TABLE 14.—DISTRIBUTION OF WAGE JOBS IN AREAS OF PRIMARY AND OF SECONDARY CONCENTRATION, BY GEOGRAPHIC DIVISIONS: 1929 AND 1899

DIVISION	WAGE JOBS IN PRIMARY AND SECONDARY AREAS				
	Total number	Primary areas		Secondary areas	
		Number	Per cent of total	Number	Per cent of total
United States:					
1929	5,735,044	3,868,283	67.4	1,866,761	32.6
1919	6,017,141	4,051,858	67.3	1,965,283	32.7
1899	2,972,697	2,104,166	70.8	868,531	29.2
New England:					
1929	810,004	376,912	46.5	433,092	53.5
1919	990,796	464,005	46.8	526,791	53.2
1899	587,406	273,413	46.5	313,993	53.5
Middle Atlantic:					
1929	2,045,092	1,299,935	63.6	745,157	36.4
1919	2,294,483	1,512,215	65.9	782,268	34.1
1899	1,258,654	909,845	72.3	348,809	27.7
East North Central:					
1929	1,813,905	1,340,564	73.9	473,341	26.1
1919	1,699,027	1,237,133	72.8	461,894	27.2
1899	670,408	533,968	79.6	136,440	20.4
West North Central:					
1929	269,325	247,313	91.8	22,012	8.2
1919	279,520	255,604	91.4	23,916	8.6
1899	143,802	129,929	90.4	13,873	9.6
South Atlantic:					
1929	230,497	174,239	75.6	56,258	24.4
1919	249,190	193,288	77.6	55,902	22.4
1899	141,702	115,853	81.8	25,849	18.2
East South Central:					
1929	153,920	116,748	75.8	37,172	24.2
1919	125,766	91,767	73.0	33,999	27.0
1899	66,092	48,836	73.9	17,256	26.1
West South Central:					
1929	95,484	80,616	84.4	14,868	15.6
1919	78,219	65,516	83.8	12,703	16.2
1899	27,697	26,777	96.7	920	3.3
Mountain:					
1929	24,374	21,894	89.8	2,480	10.2
1919	25,698	22,997	89.5	2,701	10.5
1899	11,823	10,654	90.1	1,169	9.9
Pacific:					
1929	292,443	210,062	71.8	82,381	28.2
1919	274,442	209,333	76.3	65,109	23.7
1899	65,113	54,891	84.3	10,222	15.7

Practically all these relocations took place in four divisions, namely, the New England, the Middle Atlantic, the East North Central, and the Pacific. Those which occurred in the other divisions were scarcely numerous enough to justify any conclusion in regard to trends in the redistribution of industry.

The 287 reported changes of location indicate rather strikingly a general movement away from the cities of 100,000 inhabitants or more (Table 15). Of the total of 18,599 wage jobs in the plants reporting location changes, 58.3 per cent, according to the figures in the following table, were in plants which had been in operation in primary areas in 1927, whereas only 27.8 per cent were in plants which were located in primary areas in 1929:

AREA	1929	1927
	Per cent	*Per cent*
All areas, total	100.0	100.0
Areas of primary concentration	27.8	58.3
Areas of secondary concentration	44.3	33.8
All other areas	27.9	7.9

In three of the four divisions specified in the paragraph above, the exception being the Pacific, the primary centers suffered heavy losses from the migrations, the East North Central division losing about 64 per cent of the number it had in 1927. The secondary areas as a whole increased their proportion of the jobs of the 287 plants from 33.8 to 44.3 per cent. New England made a small gain of 7.1 per cent in the secondary areas, while the Middle Atlantic and Pacific divisions lost 10.4 and 42.5 per cent, respectively. The East North Central States increased their share 713 per cent.

TABLE 15.—WAGE JOBS IN RELOCATED PLANTS IN THE LARGEST 50 INDUSTRIES, BY GEOGRAPHIC DIVISIONS AND AREAS OF CONCENTRATION: 1929 AND 1927

DIVISION AND AREA	WAGE JOBS IN RELOCATED PLANTS		
	As located in 1929	As located in 1927	Increase (+) or decrease (−), 1927 to 1929
United States, aggregate	18,599	18,599	----
Primary concentration	5,166	10,840	−5,674
Secondary concentration	8,245	6,292	+1,953
All other areas	5,188	1,467	+3,721
New England, total	4,351	4,250	+101
Primary concentration	310	1,601	−1,291
Secondary concentration	2,351	2,196	+155
All other areas	1,690	453	+1,237
Middle Atlantic, total	4,633	6,254	−1,621
Primary concentration	1,909	3,466	−1,557
Secondary concentration	2,219	2,476	−257
All other areas	505	312	+193
East North Central, total	7,722	6,072	+1,650
Primary concentration	1,904	5,246	−3,342
Secondary concentration	3,099	381	+2,718
All other areas	2,719	445	+2,274
West North Central, total	238	254	−16
Primary concentration	115	178	−63
Secondary concentration	----	----	----
All other areas	123	76	+47
South Atlantic, total	222	114	+108
Primary concentration	170	----	+170
Secondary concentration	7	62	−55
All other areas	45	52	−7
East South Central, total	98	271	−173
Primary concentration	----	----	----
Secondary concentration	15	213	−198
All other areas	83	58	+25
West South Central, total	9	9	----
Primary concentration	9	----	+9
Secondary concentration	----	----	----
All other areas	----	9	−9
Mountain, total	----	53	−53
Primary concentration	----	49	−49
Secondary concentration	----	----	----
All other areas	----	4	−4
Pacific, total	1,326	1,322	+4
Primary concentration	749	300	+449
Secondary concentration	554	964	−410
All other areas	23	58	−35

TABLE 16.—PER CENT INCREASE OR DECREASE OF POPULATION AND OF WAGE JOBS IN CENTRAL CITIES AND REMAINING PORTIONS OF THOSE INDUSTRIAL AREAS WHICH IN 1929 INCLUDED THE MOST POPULOUS 10 CITIES: 1899 TO 1929

[The basic figures from which these percentages were computed appear in Table 21, p. 55]

INDUSTRIAL AREA	PER CENT OF INCREASE OR DECREASE (−), 1899 TO 1929	
	In population	In wage jobs
10 industrial areas, aggregate (2 independent cities and 43 counties)	**118.4**	**68.4**
Largest 10 cities, total	104.8	68.4
Ten other cities having 100,000 population or more, total [1]	60.4	41.7
Remainder of areas, total	169.9	77.0
New York City area, total (5 counties in Greater New York and 7 other counties)	112.6	58.2
New York City	101.6	44.9
Five other cities having 100,000 population or more	74.4	44.0
Remainder of area	204.3	136.1
Chicago area, total (6 counties)	123.4	85.0
Chicago (city)	98.8	83.3
Remainder of area [1]	229.5	90.1
Philadelphia area, total (Philadelphia and 7 counties)	65.8	34.8
Philadelphia (city, county)	50.8	15.0
Camden (city), N. J	56.3	273.0
Remainder of area	104.3	77.5
Detroit area, total (2 counties)	439.1	440.5
Detroit (city)	449.1	472.1
Remainder of area	411.7	364.1
Los Angeles area, total (1 county)	1,196.8	1,122.4
Los Angeles (city)	1,108.1	1,369.6
Remainder of area	1,330.9	817.4
Cleveland area, total (2 counties)	165.3	143.1
Cleveland (city)	135.9	165.4
Remainder of area	265.6	72.0
St. Louis area, total (1 independent city and 3 counties)	71.9	53.6
St. Louis (city)	42.9	68.1
Remainder of area	154.8	27.1
Baltimore area, total (1 independent city and 1 county)	55.0	16.6
Baltimore (city)	58.1	28.7
Baltimore County	37.3	−26.1
Boston area, total (4 counties)	54.9	8.1
Boston (city)	39.3	37.2
Four other cities having 100,000 population or more	32.5	7.9
Remainder of area	74.6	−2.6
Pittsburgh area, total (4 counties)	86.7	46.7
Pittsburgh (city)	48.3	−14.3
Remainder of area	114.0	99.3

[1] Wage-job data for Gary, Ind. (population 100,426), which can not be shown separately without disclosing approximations of the figures for a single company, are excluded from the figures for cities having 100,000 population or more, but are included in those for Lake County, Ind. (Chicago area).

It was in the areas outside the primary and secondary centers, however, that the largest total wage-job expansion came as the result of the relocations of these plants. The increase in this territory, amounting to more than 250 per cent,

consisted almost entirely of the gains made in the New England, the Middle Atlantic, and the East North Central divisions.

These figures reflect more recent distribution tendencies than can be seen in the statistics given in any of the other tables. Since they disclose a more pronounced trend in the dispersion of manufacturing plants from the large cities outward than is shown by the other data, they suggest the question whether the forces for decentralization of industry were not acquiring increased momentum toward the close of the last decade.

V.—TEN INDUSTRIAL AREAS

The combined areas of primary concentration, areas of secondary concentration, and "All other areas," considered in the preceding section, embrace the entire United States. The 93 cities which together compose the areas of primary concentration range in size from Lowell, Mass., with a population of 100,234, to New York City, with 6,930,446. For the purpose of observing changes in population and in wage jobs in the principal cities of this group and in the regions adjacent to them, Tables 16, 17, and 21 have been prepared. Data are given for (1) the most populous 10 cities, each of which forms the nucleus of an industrial area (see description of industrial areas, p. 29), (2) the 10 other cities having 100,000 inhabitants or more which are located within the industrial areas surrounding the 10 larger centers, and (3) the 37 counties or parts of counties which are located in the same areas. (The population and job figures for a part of a given county are the numbers remaining after data for the city or cities of 100,000 population or more which are located within the county have been deducted.) While this grouping of cities and counties differs from that given in the tables in the preceding section, nevertheless all the cities in the 10 industrial areas considered in this section are also in the areas of primary concentration, and all the counties and parts of counties in the 10 industrial areas are to be found also in the areas of secondary concentration.

Within these 10 areas there exists the greatest concentration of population and industry to be found anywhere in the country. They contain a quarter of the nation's population and more than a third of all the wage jobs in industry. If there were any tendency for manufacturing industries to decentralize one might expect to find evidence of it in these exceedingly concentrated areas.

First, as to percentage of increase between 1899 and 1929: The 10 areas as a group grew far more rapidly in population than did the country as a whole, the two percentages being 118.4 and 61.6, respectively. In number of wage jobs, on the other hand, the 68.4 per cent of increase in these 10 areas fell far short of that for the entire country, 87.5. Although the rates of expansion of both population and industry in the largest 10 cities exceeded considerably those in the smaller cities within the same areas, they were not equal to the rates attained in the outlying sections of the 10 areas, where population increased 170 per cent and wage jobs 77 per cent during the past three decades. These variations in rates of growth brought about some redistribution of industry within the areas as a whole (Table 17). The percentage of the total wage jobs located within the 10 central cities remained practically stationary (62.2 in 1899; 62.3 in 1929), while in the group of 10 smaller cities the proportion declined from 9.2 to 7.7 per cent. The regions outside these 20 large centers made a small increase in their combined share—from 28.6 to 30 per cent.

In the New York City area the most noticeable change indicated in both population and wage-job figures is the large growth—204 per cent in population and 136 per cent in wage jobs—which took place in the 30-year period in the sections of the area which lie outside the six large cities—sections located for the most part on the New Jersey side of the Hudson River. The increase in industry for the New York City area as a whole, 58.2 per cent, was approximately the same as for the Middle Atlantic division for the same period, while the rate of increase for New York City alone, 44.9 per cent, was considerably under that for the geographic division of which it forms a part. From 67 per cent of all the wage jobs in the area in 1899, New York City's share dropped to 61.3 per cent in 1929

The outlying portions of the area increased their percentage of the total from 14.8 to 22.1 during the period.

In the Chicago area the redistribution of industry from 1899 to 1929 was much less pronounced than in the New York area. The city's percentage of increase in wage jobs, 83.3—slightly under that for the country as a whole—was also less than that for the part of the area which stretches beyond Chicago. The difference in rates was not enough, however, to make any significant change in the percentage distribution of wage jobs as between Chicago and the outlying portions of the area. The increase in population in the region beyond the city, 230 per cent, was more than double the rate for Chicago alone (98.8).

The growth of wage jobs in Philadelphia amounted to 15 per cent in three decades, while in Camden, the only other city in the Philadelphia area having more than 100,000 inhabitants, the rate was high, 273 per cent. These industrial changes resulted in increased percentages in the shares of both Camden and the remainder of the area outside of Philadelphia, while that city's share fell from 77 per cent of the total to 65.7 per cent.

The Detroit area grew industrially by a percentage, 441, five times that for the United States as a whole. Both the city of Detroit and the region outside registered exceedingly high rates of expansion, 472 and 364, respectively. The growth of population in the area amounted to 439 per cent.

The rates of both population and industry growth in the Los Angeles area between 1899 and 1929 exceeded those for any one of the other nine areas, having amounted to 1,197 and 1,122 per cent, respectively. The city made far greater industrial strides than did the region outside, the share of Los Angeles increasing from 55.2 to 66.4 per cent of the total wage jobs for the area.

In the Cleveland area the trend was much the same, the city itself having increased in industry, though not in population, by a far larger percentage than did the outlying part of the area. The city's share of the wage jobs increased from 76.1 to 83.1 per cent in 30 years. Also, in the St. Louis area industrial redistribution brought about an increase in concentration. The per cent of increase in wage jobs for the city of St. Louis, 68.1, was more than double that for the remainder of the area, although the outlying sections grew much more rapidly in population than did the central city. The city proper increased its share of the total industry from 64.5 to 70.6 per cent.

Baltimore's factory wage jobs increased 28.7 per cent in number between 1899 and 1929, while those in the remainder of the Baltimore area decreased at about the same rate, 26.1 per cent—the highest percentage of decline registered for any of the 10 outlying sections. Wage jobs in the Boston area as a whole increased 8.1 per cent—the smallest gain made by any one of the 10 areas. It underwent a smaller change in the redistribution of its industry during the 30 years than did any other area.

While Pittsburgh's wage jobs actually decreased in number from 1899 to 1929, the number of such jobs approximately doubled in the growing region outside the city, in which 72.9 per cent of the total industry of the area is located. The rate of increase for the entire area was 46.7 per cent.

The 93 cities having 100,000 inhabitants or more which make up the areas of primary concentration described in the preceding section of this report increased their wage jobs 83.8 per cent between 1899 and 1929; but the largest 10 cities of the group—the cities now under consideration—increased by only about four-fifths of that percentage—68.4. Ten smaller cities of the 93, located in industrial areas of which the leading 10 cities are nuclei, increased their wage jobs even less—41.7 per cent. If the relatively new major centers—Detroit and Los Angeles—are deducted, the contrast between the largest 8 cities and the remaining 83 in rates of growth is, of course, even more striking. The concentration of industry in the leading 10 cities, with the exception of Detroit and Los Angeles,

was accomplished before the beginning of the present century; the growth and redistribution of industry over the past 30 years have tended to its dispersion in relation to the rest of the country. The fact that the 93 cities having 100,000

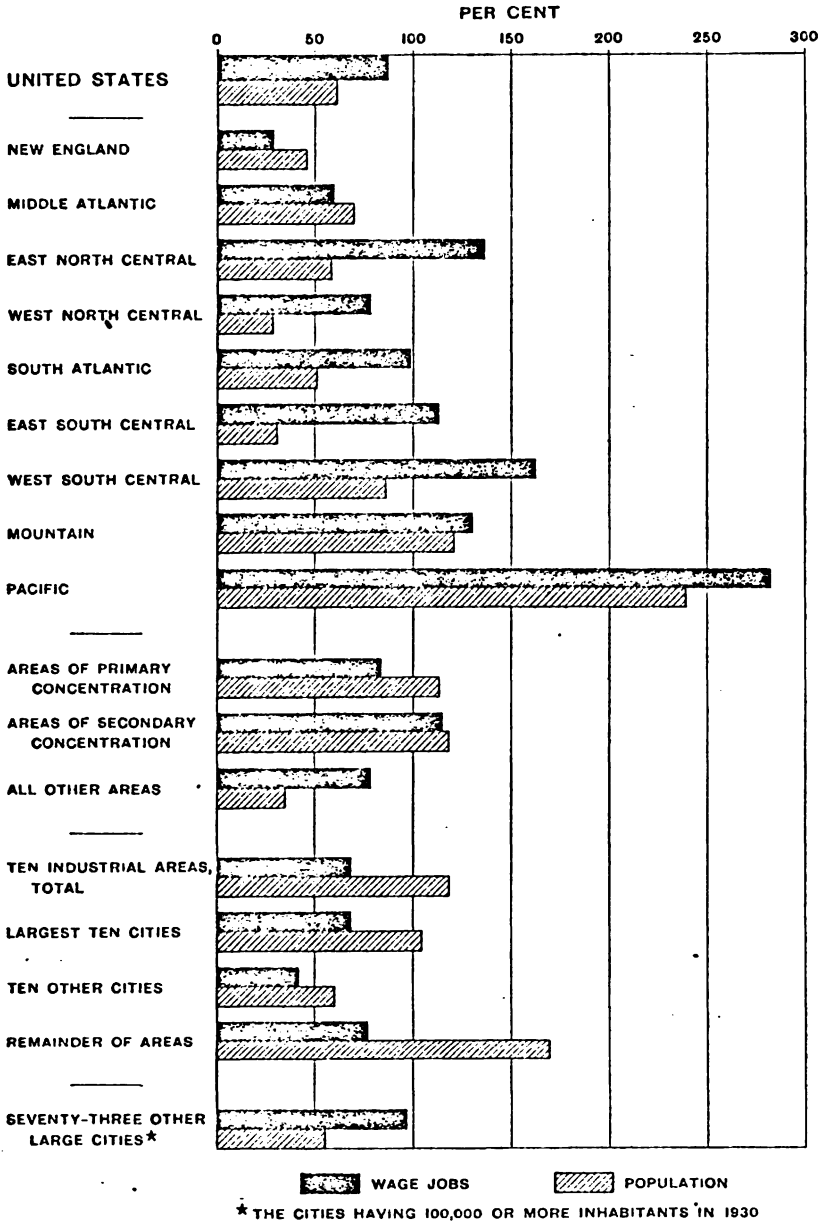

FIGURE 6.—PER CENT INCREASE OF WAGE JOBS AND OF POPULATION, BY GEOGRAPHIC DIVISIONS AND AREAS: 1899 TO 1929

inhabitants or more so nearly maintained their 1899 share of the country's wage jobs (44.6 per cent in 1899; 43.8 per cent in 1929) was due almost entirely to the great industrial expansion in the 73 smaller cities.

The largest 10 population and industrial centers did not, as has been said, increase their combined share of the Nation's industry directly, nor did they increase their percentage of the total indirectly through the growth that took place in the outlying portions of the industrial areas dominated by them. The share of these 10 cities in the total wage jobs of the 93 cities amounted to 56.2 per cent in 1899; by 1929 it had fallen to 51.4 per cent.

TABLE 17.—PER CENT DISTRIBUTION OF POPULATION AND OF WAGE JOBS IN CENTRAL CITIES AND REMAINING PORTIONS OF THOSE INDUSTRIAL AREAS WHICH IN 1929 INCLUDED THE MOST POPULOUS 10 CITIES: 1929 AND 1899

INDUSTRIAL AREA	POPULATION		WAGE JOBS	
	1929	1899	1929	1899
10 industrial areas, aggregate (2 independent cities and 43 counties)	*Per cent* 100.0	*Per cent* 100.0	*Per cent* 100.0	*Per cent* 100.0
Largest 10 cities, total	62.5	66.6	62.3	62.2
10 other cities having 100,000 population or more, total[1]	5.5	7.5	7.7	9.2
Remainder of areas, total	32.0	25.9	30.0	28.6
New York City area, total (5 counties in Greater New York and 7 other counties)	100.0	100.0	100.0	100.0
New York City	68.2	71.9	61.3	67.0
Five other cities having 100,000 population or more	11.3	13.8	16.6	18.2
Remainder of area	20.5	14.3	22.1	14.8
Chicago area, total (6 counties)	100.0	100.0	100.0	100.0
Chicago (city)	72.2	81.2	73.6	74.3
Remainder of area	27.8	18.8	26.4	25.7
Philadelphia area, total (Philadelphia and 7 counties)	100.0	100.0	100.0	100.0
Philadelphia (city, county)	62.2	68.4	65.7	77.0
Camden (city), N. J.	3.8	4.0	7.7	2.8
Remainder of area	34.0	27.6	26.6	20.2
Detroit area, total (2 counties)	100.0	100.0	100.0	100.0
Detroit (city)	74.7	73.3	74.9	70.7
Remainder of area	25.3	26.7	25.1	29.3
Los Angeles area, total (1 county)	100.0	100.0	100.0	100.0
Los Angeles (city)	56.1	60.2	66.4	55.2
Remainder of area	43.9	39.8	33.6	44.8
Cleveland area, total (2 counties)	100.0	100.0	100.0	100.0
Cleveland (city)	68.7	77.3	83.1	76.1
Remainder of area	31.3	22.7	16.9	23.9
St. Louis area, total (1 independent city and 3 counties)	100.0	100.0	100.0	100.0
St. Louis (city)	61.6	74.1	70.6	64.5
Remainder of area	38.4	25.9	29.4	35.5
Baltimore area, total (1 independent city and 1 county)	100.0	100.0	100.0	100.0
Baltimore (city)	86.6	84.9	86.0	77.9
Baltimore County	13.4	15.1	14.0	22.1
Boston area, total (4 counties)	100.0	100.0	100.0	100.0
Boston (city)	29.9	33.3	26.6	20.9
Four other cities having 100,000 population or more	16.1	18.8	22.7	22.8
Remainder of area	54.0	47.9	50.7	56.3
Pittsburgh area, total (4 counties)	100.0	100.0	100.0	100.0
Pittsburgh (city)	33.1	41.7	27.1	46.3
Remainder of area	66.9	58.3	72.9	53.7

[1] Wage-job data for Gary, Ind. (population 100,426), which can not be shown separately without disclosing approximations of the figures for a single company, are excluded from the figures for cities having 100,000 population or more, but are included in those for Lake County, Ind. (Chicago area).

VI.—SUMMARY

At the beginning of the present century industry was quite decidedly concentrated within the manufacturing East, with New England and the Middle Atlantic States in possession of more than half the total, as measured in terms of wage jobs. With the East North Central States added, exactly three-fourths of the nation's manufacturing was localized within the region bounded by the Great Lakes and the St. Lawrence River on the north, the Mississippi River on the west, the Ohio River and Mason and Dixon's line on the south, and the Atlantic Ocean on the east. This region contained, however, slightly less than half the total population (49 per cent).

The following 30 years saw profound changes both in the industry and in the population of the United States. The latter increased 62 per cent and industrial wage jobs almost 88 per cent, resulting in an increase of such jobs from 62 to 72 per 1,000 population. The physical volume of manufactured products nearly trebled (increasing 195 per cent), bringing about a gain of 82 per cent in manufactured goods per capita of the total population.

The geographic redistribution of industry which took place during the period, while on a somewhat smaller scale than were the increases in wage jobs and in physical output, was, nevertheless, considerable. The figures disclose a tendency toward decentralization, manifested both in sectional shifts and in dispersion from the larger cities outward. The westward movement of the "center of manufactures" was greater than that of the "center of population" during the 20 years from 1899 to 1919. (The center of manufactures for 1929 has not been computed.) This indicated a geographic redistribution of industry among the several sections more pronounced than that of population.

The most important changes occurred in the leading 3 industrial divisions—the New England, the Middle Atlantic, and the East North Central. The 2 eastern divisions of the group, with a combined total of 52 per cent of all factory wage jobs in 1899, reported only 41 per cent of the total 30 years later. Six of the other seven divisions—the exception being the West North Central division—increased their proportions of the Nation's industry during the period, but only in the East North Central division, which had about 23 per cent of the factory wage jobs in 1899 and almost 29 per cent of them in 1929, were the gains of sufficient volume to challenge seriously the long supremacy of the manufacturing East. The changes in percentage of the population living in the principal 3 industrial divisions were very small in comparison with the changes in percentage of wage jobs located there.

The gains made by each of the 5 less industrialized divisions were unimportant only in comparison with the greater numbers of wage jobs involved in the redistribution which took place in the leading 3 divisions. In fact, the increase in the combined share of industry for these 5 divisions—slightly more than one-fourth—was the same as the corresponding increase recorded for the rapidly developing East North Central division. The considerable expansion of these 5 divisions reduced materially the percentage of industry in the original manufacturing centers of the East. One of the five—the Pacific division—approximately doubled its proportions of both population and industry in the past 30 years. The growth of the industry share at a rate roughly equal to that

of population increase came about in the West South Central division. In the other 2 divisions of the South—South Atlantic and East South Central—the share of wage jobs increased 8 per cent, while that of population decreased 12 per cent.

Changes in the amount and in the distribution of industry obviously affect occupational opportunities and modify the proportion of employed persons in each of the principal three occupational fields, namely, (a) the extractive industries (agriculture, fisheries, and mining); (b) manufacturing and the mechanical industries; and (c) other industries and services, consisting of transportation and communication, trade, and public, professional, domestic, and clerical services. The extractive industries furnished jobs to about 36 per cent of the gainfully employed [1] in 1910 and to 24 per cent in 1930. The proportion of workers reporting employment in manufacturing or mechanical lines increased from 28 to 29 per cent, while that of persons engaged in "other industries and services" rose from 37 to 47 per cent of the total in 20 years. Factory *wage jobs*—not the number of different persons reporting gainful employment in manufacturing industries—increased from 70 to 72 per 1,000 population during the same period.

The geographic stability of industry as a whole is, in general, greater than that of individual industries. It is not possible to make a satisfactory comparison going further back than 1919, because of the lack of comparable statistics for some of the important industries for earlier years. Numerous revisions in industry classification were forced upon the census by revolutionary changes in industrial methods and products.

Changes which occurred in the single decade from 1919 to 1929 throw some light on the volume and character of the geographic distribution of industry. Although factory wage jobs as a whole were almost 2 per cent fewer in 1929 than in 1919, pronounced increases in them took place in some lines of manufacture, notably in 10 industries or industry combinations which are engaged principally in the production of electrical equipment, canned and baked foods, furniture, petroleum products, chemicals, motor vehicles, clothing, and printed matter. While every section of the country increased its number of wage jobs in these industries, there were changes in the proportions credited to 8 of the 9 geographic divisions. The share of the manufacturing East in this group of industries declined from 45 to 40 per cent, while the States of the South and the Pacific Coast increased their combined proportion from approximately 14 to 19 per cent, but no percentage change took place in the rapidly developing East North Central division.

Eight industries or combinations of industries, engaged primarily in the manufacture of meat, lumber products, tobacco, ships, musical instruments, leather, and woolen and worsted goods, and in the construction and repair of steam-railway equipment, radically reduced their wage jobs in all the divisions, from a total of 1,960,601 to 1,300,599. Several of these industries reduced quantity of output in approximately the same proportion; others actually increased their volume, chiefly through increased mechanization of their plants. The manufacturing East lost some of its former share, as it did in the first group of industries. In this instance, however, New England's percentage increased, the Middle Atlantic States bearing the brunt of the reduction in wage jobs. The drastic decline in the shipbuilding industry—the largest single cause of the geographic reapportionment of these eight industries or combinations—while felt in all sections, was sufficient in the Pacific division to cut down the percentage of that division by one-half. The expansion of logging operations in the North-

[1] For definition of "gainfully employed," see footnote 2, p. 11.

west added approximately 25 per cent to the lumber industry in the Pacific and Mountain divisions and lessened the shares of all the others.

However, not all the pronounced instances of sectional redistribution occurred in the two groups of industries considered above. Some took place in a third group composed of 14 industries or combinations of industries having 50,000 wage jobs or more each, in which increases or decreases were under the 20,000 mark set for admission to the first two groups. The principal products of this third group are shoes, paper boxes, clay products, confectionery, cotton goods, engines and tractors, glass, hardware, rolled steel, nonferrous-metal alloys, planing-mill products, silk and rayon manufactures, and structural and ornamental iron and steel products.

The manufacturing East lost heavily in its share of wage jobs in these industries as a group; but every other division except the Mountain increased its portion appreciably during the decade. Shoe manufacturing, 49 per cent of which, as measured by wage jobs, was done in New England in 1919, developed rapidly in the 3 Southern divisions and in the East North Central division, leaving New England with only 39 per cent of the total in 1929. Some migration of cotton-goods manufacture occurred, the New England share falling from 47 to 30 per cent. The only other division having as much as 10 per cent of the industry—the South Atlantic—increased its percentage from 38 to 54 during the period. The hardware industry, formerly concentrated largely in the East (two-thirds of its wage jobs were localized in New England and in the Middle Atlantic division in 1919), advanced rapidly in the East North Central States during the decade, increasing their percentage of the industry total from 30 to 42 and reducing the combined share for New England and the Middle Atlantic States from 67 to 55 per cent. Fifty-four per cent of the wage jobs in steel works and rolling mills in 1919 were reported in the Middle Atlantic States; only 44 per cent were located there 10 years later, the East North Central division having increased its share of the industry total from 32 to 40 per cent.

A type of industrial redistribution essentially different in character from those sectional shifts described above is seen in the changes in the distribution of wage jobs in urban, suburban, and other areas. In order to observe such movements data are shown for (*a*) the 93 cities having 100,000 inhabitants or more, (*b*) the related industrial areas adjoining these cities, and (*c*) the remainder of the country—referred to in the report as (*a*) "Areas of primary concentration," (*b*) "Areas of secondary concentration," and (*c*) "All other areas," respectively. Movement of an industry from one geographic division to another may, of course, indicate a desire to remove from a crowded urban location to one in a suburban or rural neighborhood, but such a regional move is likely to be made primarily in order to take advantage of more convenient supplies of materials, better coverage of the market, or more satisfactory labor conditions. On the other hand, to leave an area of primary concentration for a site in an adjoining secondary area usually indicates a desire chiefly for more manufacturing space, lower taxes, etc., in the less congested area. While it not infrequently happens that a plant removes from a primary area of one geographic division to a secondary area of another division in order to gain both kinds of advantages, nevertheless, in general, the two types of relocation are quite distinct in motive and effect.

Some dispersion of industry is disclosed in the statistics for the areas of concentration. The primary areas, which as a group had about 45 per cent of the nation's factory wage jobs in 1899, did not quite hold that proportion through the following 30 years of rapid industrial expansion, their share having dropped to 44 per cent in 1929. These large urban areas did more than approximately maintain their 1899 share of the country's population. Their portion of that total increased in 3 decades from 22 to about 30 per cent. In the secondary

regions adjoining the large centers industry grew relatively more than it did in the centers themselves, increasing the share of the total wage jobs reported in these outlying areas from 18 to 21 per cent. In all the more industrialized divisions, except the East South Central—six in all—the secondary areas built up their share of the total industry.

The primary and secondary areas, in which approximately two-thirds of all factory wage jobs are to be found to-day, account for only 3 per cent of the land area of the nation. The remaining 97 per cent is occupied by what are here termed "other areas." Although this vast region suffered a very considerable loss in its share of the total population by reason of the heavy migration to the large cities, it maintained slightly more than one-third of the nation's industry with but a small loss in percentage.

A group of 287 manufacturing plants in the largest 50 industries, those reported as relocated in 1928 or 1929, reflected so strong a tendency toward decentralization as to suggest the possibility that data, if available, might indicate a recently increasing momentum away from the largest urban centers. The movements of these plants brought decided gains in wage jobs to the "other areas," and lesser, but nevertheless real gains to the regions of secondary concentration.

The effect of redistributions of industry in the past 30 years—both regionally and in areas of concentration—has been to establish more nearly an equilibrium between population and wage jobs. The extent to which this has taken place is seen in the narrowing of the extremes in wage jobs per 1,000 population—from 34 in the "other areas" and 124 in the primary areas in 1899, to 45 and 106, respectively, in the two types of regions in 1929.

It is of interest to know how location changes have affected the largest 10 cities of the country, as contrasted with the group of 93 urban centers having 100,000 or more inhabitants (areas of primary concentration). One might expect to find marked differences between the growth of the extremely large cities and those in which the population is nearer the lower limit of 100,000. It is, of course, in the largest centers that the most pronounced concentration of both population and industry exists. Data for the most populous 10 cities of the group and for their surrounding industrial areas indicate a fairly definable current of industrial dispersion. Since the rate of growth in wage jobs for these large cities was not quite equal to four-fifths of the rate for the country as a whole from 1899 to 1929, their percentage of the total jobs dropped from 25 to 23. The extremely rapid growth in two of the newer centers—Detroit and Los Angeles—serves to conceal the relatively small expansion which took place in several of the older cities. Ten smaller municipalities having 100,000 inhabitants or more, and situated in the industrial areas dominated by the 10 chief cities, advanced industrially considerably less than did the latter. Although the remaining sections of these 10 industrial areas, composed of 37 counties and parts of counties (i. e., those portions of the counties which are located outside the limits of cities having 100,000 inhabitants or more), increased their factory wage jobs at a more rapid rate (77 per cent) than did either of the 2 more populous portions of the areas, nevertheless they failed by a wide margin to equal the growth of industry in the country at large.

Despite the tendency toward manufacturing decentralization, generally observable in the statistics presented in this report, industry remains quite highly concentrated in large urban centers. The dispersion which has occurred consists principally of expansion into areas adjoining the dominant population and industry centers, rather than into the thousands of smaller cities and towns throughout the country. The process also has taken the form of a relatively smaller growth of industry in the key cities of the 10 great industrial areas than in those large cities located elsewhere.

It is impossible to say whether these decentralizing tendencies are as strong as they have been generally described. Much recent literature on the subject of industry location refers quite emphatically to a definite reversal of the generally gregarious tendency of industry. Misunderstanding sometimes arises from the fact that reports of industry migrations are likely to be exaggerated. When news that plants or industries are moving from one section of the country to another is investigated, it is often found that the migration, while possibly involving several factories, is relatively unimportant as measured by the resultant geographic redistribution of wage jobs for the entire industry.

This brief study has dealt only in a broad way with the subject of the location of manufactures since the beginning of the century. Practically no consideration has been given to the forces which have brought about industrial migration and determined location, although some quantitative measurement of those influences could possibly be made from data collected by the several divisions of the Bureau of the Census and from other business and statistical organizations. Nor has the subject of the probable economic and social consequences of further decentralization of industry found a place in this primarily descriptive study.

VII—APPENDIXES

A—SUMMARY STATISTICS
B—NEW AND RELOCATED MANUFACTURING ESTABLISHMENTS: 1928 AND 1929

APPENDIX A

SUMMARY STATISTICS

TABLE 18.—SUMMARY STATISTICS, BY GEOGRAPHIC DIVISIONS AND STATES: 1929, 1919, AND 1899

DIVISION AND STATE	Census year	Number of establishments	Wage jobs	Horsepower	Wages	Value of products	Value added by manufacture
New England	1929	18,272	1,098,514	4,686,822	$1,346,391,525	$6,398,214,685	$3,239,798,494
	1919	25,528	1,351,389	3,779,818	1,436,436,587	7,183,070,799	3,231,162,640
	1899	22,576	851,903	1,792,342	367,674,353	1,660,348,100	756,311,120
Middle Atlantic	1929	64,730	2,562,340	11,623,682	3,640,419,529	21,359,573,975	10,175,955,333
	1919	88,360	2,872,653	8,512,612	3,461,931,287	19,854,772,760	8,430,676,934
	1899	65,834	1,604,841	3,139,128	729,364,046	4,074,718,936	1,763,314,384
East North Central	1929	46,396	2,542,176	12,602,451	3,738,804,099	21,663,289,041	9,973,490,317
	1919	61,332	2,396,618	7,702,551	2,992,930,744	17,737,479,599	7,115,792,510
	1899	50,521	1,073,322	2,401,808	473,039,517	2,853,055,527	1,205,478,817
West North Central	1929	17,792	474,115	2,210,192	589,162,333	5,377,382,984	1,869,990,673
	1919	29,166	499,635	1,592,809	546,172,557	5,187,064,766	1,408,939,540
	1899	20,732	266,051	605,098	117,209,210	972,968,662	325,404,096
South Atlantic	1929	20,860	912,247	4,318,015	825,902,832	5,269,276,425	2,458,221,327
	1919	29,976	817,212	2,791,088	778,026,847	4,455,151,691	1,858,887,004
	1899	19,144	458,311	851,050	130,864,732	711,800,355	316,114,105
East South Central	1929	9,860	377,870	1,999,354	348,733,174	2,014,443,158	924,428,157
	1919	14,655	329,226	1,414,190	298,710,318	1,642,391,461	664,566,944
	1899	10,058	177,208	513,425	56,003,048	325,086,235	148,579,732
West South Central	1929	10,576	297,743	1,749,555	316,474,819	2,802,091,813	950,462,119
	1919	13,909	285,244	1,179,896	293,021,663	2,277,861,293	729,867,722
	1899	7,174	113,388	397,471	42,715,339	252,313,866	98,803,134
Mountain	1929	4,319	102,492	938,689	144,485,836	1,239,910,858	370,055,342
	1919	7,612	109,216	685,192	141,900,942	922,676,092	312,436,974
	1899	3,146	44,497	123,012	27,713,726	191,825,437	76,220,285
Pacific	1929	18,151	471,246	2,802,301	670,599,107	4,310,680,504	1,922,881,949
	1919	19,567	435,179	1,752,036	581,269,395	3,157,610,312	1,289,368,222
	1899	8,329	123,206	274,559	63,777,148	364,802,580	140,849,534
New England:							
Maine	1929	1,568	70,159	679,153	74,199,961	391,751,334	174,384,514
	1919	2,995	88,651	545,613	94,225,346	456,821,783	202,253,260
	1899	2,878	60,914	259,232	25,730,735	112,959,098	51,748,771
New Hampshire	1929	1,075	65,511	402,147	70,513,919	332,534,753	147,132,430
	1919	1,499	83,074	348,592	79,326,341	407,204,934	167,677,317
	1899	1,771	67,646	200,975	25,849,631	107,590,803	47,427,423
Vermont	1929	927	27,421	163,940	33,809,987	143,522,547	77,239,674
	1919	1,790	33,491	184,327	34,083,935	168,108,072	72,935,491
	1899	1,938	28,179	126,124	11,426,548	51,515,228	25,130,416
Massachusetts	1929	9,872	557,494	2,068,521	694,805,312	3,392,162,237	1,710,729,449
	1919	11,906	713,836	1,716,982	766,623,337	4,011,181,532	1,750,468,496
	1899	10,929	438,234	796,061	195,278,276	907,626,439	408,971,406
Rhode Island	1929	1,701	126,068	463,822	144,196,934	666,368,210	324,078,139
	1919	2,466	139,665	319,688	137,495,377	747,322,858	331,333,655
	1899	1,678	88,197	153,619	35,995,101	165,550,382	77,598,602
Connecticut	1929	3,129	251,861	909,239	328,865,412	1,471,875,604	806,214,288
	1919	4,872	292,672	664,316	324,682,251	1,392,431,620	706,494,421
	1899	3,382	159,733	256,331	73,394,062	315,106,150	145,434,502
Middle Atlantic:							
New York	1929	39,395	1,105,966	3,986,781	1,650,378,858	9,978,556,143	4,973,920,158
	1919	49,330	1,228,130	2,926,963	1,458,206,804	8,867,004,906	3,923,790,987
	1899	35,957	726,909	1,099,931	337,323,585	1,871,830,872	853,453,686
New Jersey	1929	8,388	442,328	1,645,408	610,596,378	3,937,156,775	1,771,429,649
	1919	11,057	508,686	1,140,554	600,658,345	3,672,064,987	1,401,591,708
	1899	6,415	213,975	322,503	95,164,913	553,005,684	218,279,590
Pennsylvania	1929	16,947	1,014,016	5,991,493	1,379,444,293	7,413,861,057	3,430,605,526
	1919	27,973	1,135,837	4,445,095	1,406,066,138	7,315,702,867	3,105,294,239
	1899	23,462	663,960	1,716,694	296,875,548	1,649,882,380	691,581,108
East North Central:							
Ohio	1929	11,855	741,143	4,340,575	1,102,166,499	6,027,903,137	2,889,804,303
	1919	16,125	730,733	2,885,007	944,651,734	5,100,308,728	2,188,360,857
	1899	13,868	308,109	783,665	136,427,579	748,670,855	339,368,354
Indiana	1929	5,091	314,698	1,858,735	418,771,109	2,539,893,849	1,136,462,692
	1919	7,916	277,580	1,094,568	317,042,997	1,898,753,387	723,802,819
	1899	7,128	139,017	325,919	59,280,131	337,071,630	141,909,064
Illinois	1929	15,333	691,555	2,807,001	1,024,870,235	6,282,092,240	2,930,037,761
	1919	18,593	653,114	1,651,947	801,087,359	5,425,244,694	1,936,974,248
	1899	14,374	332,571	559,347	159,104,179	1,120,868,308	439,418,186
Michigan	1929	6,686	530,035	2,356,746	840,505,363	4,656,718,046	2,067,343,879
	1919	8,305	471,242	1,193,709	639,708,093	3,466,188,483	1,546,915,240
	1899	7,310	155,800	368,497	62,531,812	319,691,856	143,725,728
Wisconsin	1929	7,431	264,745	1,239,394	352,490,893	2,156,681,709	949,811,682
	1919	10,393	263,949	874,320	290,440,561	1,846,984,307	719,709,346
	1899	7,841	137,525	364,380	55,695,816	326,752,878	141,057,485

TABLE 18.—SUMMARY STATISTICS, BY GEOGRAPHIC DIVISIONS AND STATES: 1929, 1919, AND 1899—Continued

DIVISION AND STATE	Census year	Number of establishments	Wage jobs	Horsepower	Wages	Value o products	Value added by manufacture
West North Central:							
Minnesota	1929	4,315	103,414	606,704	$132,418,195	$1,173,213,606	$404,995,277
	1919	6,225	115,623	473,660	127,106,505	1,218,129,735	335,039,958
	1899	4,096	64,557	180,124	29,029,190	223,692,922	73,393,645
Iowa	1929	3,317	81,678	366,760	102,326,738	898,213,272	323,819,543
	1919	5,683	80,551	242,820	90,117,169	745,472,697	225,231,890
	1899	4,828	44,420	106,664	18,020,653	132,870,865	47,091,998
Missouri	1929	5,765	202,879	717,978	240,368,692	1,917,155,275	777,497,193
	1919	8,592	195,037	476,648	196,515,353	1,594,208,338	537,751,174
	1899	6,853	107,704	189,117	46,713,734	316,304,095	132,115,065
North Dakota	1929	373	4,024	19,756	5,687,028	55,321,592	15,637,130
	1919	894	4,472	17,791	5,401,330	57,373,622	12,884,123
	1899	337	1,358	7,351	671,321	6,259,840	2,108,980
South Dakota	1929	615	6,535	31,297	8,132,240	97,697,636	22,681,212
	1919	1,414	6,382	22,176	7,905,426	62,170,782	19,184,912
	1899	624	2,224	11,775	1,129,787	9,529,946	3,046,269
Nebraska	1929	1,491	28,212	169,210	36,881,112	481,168,409	119,993,699
	1919	2,884	36,521	125,769	46,066,755	596,042,498	115,268,376
	1899	1,695	18,669	41,825	8,842,429	130,302,453	34,377,275
Kansas	1929	1,916	47,373	298,487	63,348,328	751,613,194	205,366,619
	1919	3,474	61,049	233,945	73,060,019	913,667,094	163,579,107
	1899	2,299	27,119	68,242	12,802,096	154,008,541	33,270,864
South Atlantic:							
Delaware	1929	460	23,552	114,961	29,062,739	149,642,042	69,151,304
	1919	668	29,035	85,105	37,265,319	165,073,009	79,610,076
	1899	633	20,562	40,134	8,457,003	41,321,061	16,595,744
Maryland	1929	3,231	131,099	659,823	148,835,163	1,119,082,289	422,096,747
	1919	4,937	140,342	406,637	147,866,515	873,944,774	324,597,395
	1899	3,886	94,170	132,052	32,414,429	211,076,143	81,721,731
District of Columbia	1929	547	9,752	44,916	15,512,711	88,972,885	52,772,815
	1919	595	10,482	33,069	13,189,031	68,826,570	37,886,470
	1899	491	6,155	10,255	3,022,906	16,426,408	8,951,192
Virginia	1929	3,287	120,273	646,251	118,088,986	745,910,075	380,085,734
	1919	5,603	119,352	419,738	120,006,452	643,511,621	271,970,788
	1899	3,186	66,223	136,696	20,273,889	108,644,150	49,284,666
West Virginia	1929	1,488	85,326	650,199	115,294,705	513,012,300	251,614,514
	1919	2,785	83,036	328,455	101,840,420	471,970,877	201,030,281
	1899	1,824	33,080	91,891	12,639,856	67,006,822	29,778,569
North Carolina	1929	3,797	209,826	839,945	160,867,988	1,311,924,352	693,012,662
	1919	5,999	157,659	549,808	126,680,009	943,807,949	416,901,768
	1899	3,465	72,322	151,467	14,051,784	85,274,083	40,419,859
South Carolina	1929	1,659	108,777	527,326	73,223,327	385,892,252	159,350,649
	1919	2,004	79,450	395,466	62,565,413	381,452,984	153,466,600
	1899	1,369	47,025	112,697	9,130,269	53,335,811	22,819,950
Georgia	1929	4,179	158,774	641,899	110,435,015	722,453,803	294,648,715
	1919	4,803	123,441	433,719	101,180,339	693,237,096	252,747,039
	1899	3,015	83,336	136,499	19,958,153	94,532,368	45,176,072
Florida	1929	2,212	64,868	192,695	54,582,198	232,386,427	135,488,187
	1919	2,582	74,415	139,091	67,433,229	213,326,811	120,616,587
	1899	1,275	35,471	36,356	10,916,443	31,183,509	21,336,322
East South Central:							
Kentucky	1929	2,246	77,825	354,740	88,643,659	502,638,722	236,079,956
	1919	3,957	69,340	246,399	67,033,546	395,660,417	159,944,791
	1899	3,618	51,735	144,161	18,454,252	126,508,660	59,102,458
Tennessee	1929	2,855	128,400	606,701	115,877,077	730,508,612	322,898,062
	1919	4,589	95,167	338,732	81,355,256	556,253,162	211,486,432
	1899	3,116	45,963	130,518	14,727,506	92,749,129	38,190,090
Alabama	1929	2,848	119,559	785,330	102,004,881	560,378,132	258,124,741
	1919	3,654	107,159	628,287	99,065,800	492,730,895	192,066,605
	1899	2,000	52,711	173,208	14,911,683	72,109,929	34,111,696
Mississippi	1929	1,911	52,086	252,580	42,207,557	221,917,692	107,325,395
	1919	2,455	57,560	200,772	51,255,716	197,746,987	101,069,116
	1899	1,294	26,799	65,738	7,909,607	33,718,517	17,175,488
West South Central:							
Arkansas	1929	1,731	44,205	223,034	39,503,121	210,903,228	94,254,753
	1919	3,123	49,954	212,219	47,186,189	200,312,858	97,499,851
	1899	1,746	31,525	79,560	10,184,154	39,887,578	21,599,533
Louisiana	1929	1,989	87,345	480,404	83,867,448	685,036,857	246,496,763
	1919	2,617	98,265	387,233	94,405,732	676,189,770	241,785,903
	1899	1,826	40,878	190,182	14,725,437	111,397,919	35,993,982
Oklahoma	1929	1,658	31,695	223,257	41,276,993	455,905,297	149,403,800
	1919	2,415	29,503	139,550	35,025,942	401,362,869	88,757,049
	1899	495	2,381	11,572	894,067	8,133,936	2,703,489
Texas	1929	5,198	134,498	822,860	151,827,257	1,450,246,431	460,306,803
	1919	5,724	107,522	440,894	116,403,800	999,995,796	298,824,893
	1899	3,107	38,604	116,157	16,911,681	92,894,433	38,506,130

TABLE 18.—SUMMARY STATISTICS, BY GEOGRAPHIC DIVISIONS AND STATES: 1929, 1919, AND 1899—Continued

DIVISION AND STATE	Census year	Number of establishments	Wage jobs	Horsepower	Wages	Value of products	Value added by manufacture
Mountain:							
Montana	1929	589	14,869	197,781	$24,214,895	$271,094,446	$61,249,008
	1919	1,290	17,160	153,489	24,742,562	166,664,518	44,512,594
	1899	395	9,854	43,679	7,376,822	52,744,997	22,676,896
Idaho	1929	562	15,648	105,787	22,451,545	96,352,026	44,488,521
	1919	922	13,917	73,840	18,548,272	80,510,749	36,562,244
	1899	287	1,552	5,649	818,239	3,001,442	1,562,574
Wyoming	1929	248	6,258	46,677	10,255,365	96,348,076	33,627,992
	1919	576	6,634	17,864	11,188,979	81,445,394	39,194,866
	1899	139	2,060	3,820	1,209,123	3,268,555	1,898,825
Colorado	1929	1,548	32,890	233,726	43,640,403	306,071,031	122,331,478
	1919	2,631	35,254	206,110	42,974,879	275,622,335	100,752,060
	1899	1,323	19,498	43,434	11,707,566	89,067,879	28,317,095
New Mexico	1929	250	4,476	23,147	5,564,991	21,697,148	11,277,699
	1919	387	5,736	17,260	6,658,462	17,856,602	10,129,119
	1899	174	2,490	3,658	1,199,496	4,060,924	2,062,331
Arizona	1929	348	10,550	180,637	15,074,528	200,002,217	32,288,622
	1919	480	8,528	103,958	12,014,769	120,769,112	28,123,675
	1899	154	3,126	8,537	2,287,352	20,438,987	12,562,445
Utah	1929	651	15,601	123,737	19,698,684	214,628,855	56,726,834
	1919	1,160	18,868	92,797	21,454,997	156,933,071	46,778,722
	1899	575	5,413	12,674	2,762,522	17,981,648	6,541,398
Nevada	1929	123	2,200	27,197	3,585,425	33,717,059	8,065,188
	1919	166	3,119	19,874	4,318,022	22,874,311	6,383,694
	1899	99	504	1,561	352,606	1,261,005	598,721
Pacific:							
Washington	1929	3,672	114,830	814,891	160,670,891	795,561,861	367,148,835
	1919	4,918	132,928	683,073	194,968,222	809,622,984	366,445,453
	1899	1,926	31,523	87,601	17,065,140	70,831,345	32,554,401
Oregon	1929	2,463	65,505	418,324	86,828,968	411,768,975	206,541,785
	1919	2,707	58,559	303,795	81,093,784	366,782,627	160,576,586
	1899	1,406	14,459	60,005	6,822,011	36,592,714	15,803,881
California	1929	12,019	290,911	1,569,086	423,099,248	3,103,349,668	1,349,191,329
	1919	11,942	243,602	765,168	305,207,389	1,981,204,701	762,346,183
	1899	4,997	77,224	126,953	39,889,997	257,385,521	92,491,252

TABLE 19.—COUNTIES INCLUDED IN AREAS OF SECONDARY CONCENTRATION

[See description of Industrial Areas, p. 29]

1. Portions of following counties which lie outside corporate limits of cities of 100,000 inhabitants or more:

State and county	State and county	State and county	State and county
Alabama: Jefferson.	Kansas:	New Jersey—Contd.	Pennsylvania—Contd.
California:	Sedgwick.	Mercer.	Berks.
Alameda.	Wyandotte.	Passaic.	Erie.
Los Angeles.	Kentucky: Jefferson.	Union.	Lackawanna.
San Diego.	Louisiana: Orleans.	New York:	Rhode Island: Providence.
San Francisco.	Massachusetts:	Albany.	Tennessee:
Connecticut:	Bristol.	Erie.	Davidson.
Fairfield.	Essex.	Monroe.	Hamilton.
Hartford.	Hampden.	Oneida.	Knox.
New Haven.	Middlesex.	Onondaga.	Shelby.
Delaware: New Castle.	Suffolk.	Westchester.	Texas:
Florida:	Worcester.	Ohio:	Bexar.
Dade.	Michigan:	Cuyahoga.	Dallas.
Duval.	Genesee.	Franklin.	El Paso.
Hillsborough.	Kent.	Hamilton.	Harris.
Georgia: Fulton.	Wayne.	Lucas.	Tarrant.
Illinois:	Minnesota:	Mahoning.	Utah: Salt Lake.
Cook.	Hennepin.	Montgomery.	Virginia:
Peoria.	Ramsey.	Stark.	Henrico.
Indiana:	St. Louis.	Summit.	Norfolk.
Allen.	Missouri: Jackson.	Oklahoma:	Washington:
Lake.	Nebraska: Douglas.	Oklahoma.	King.
Marion.	New Jersey:	Tulsa.	Pierce.
St. Joseph.	Camden.	Oregon: Multonomah.	Spokane.
Vanderburg.	Essex.	Pennsylvania:	Wisconsin: Milwaukee.
Iowa: Polk.	Hudson.	Allegheny.	

TABLE 19.—COUNTIES INCLUDED IN AREAS OF SECONDARY CONCENTRATION—Continued

2. Entire areas of following counties:

State and county	State and county	State and county	State and county
California:	Massachusetts: Norfolk.	Ohio:	Pennsylvania—Contd.
Contra Costa.	Michigan: Oakland.	Belmont.	Mercer.
Marin.	Minnesota: Dakota.	Butler.	Montgomery.
San Mateo.	Missouri:	Columbiana.	Northampton.
Illinois:	Clay.	Jefferson.	Washington.
Du Page.	St. Louis.[2]	Lorain.	Westmoreland.
Kane.	New Jersey:	Trumbull.	West Virginia:
Lake.	Bergen.	Pennsylvania:	Brooke.
Madison.	Burlington.	Beaver.	Hancock.
St. Clair.	Gloucester.	Bucks:	Ohio.
Will.	Middlesex.	Chester.	Wisconsin:
Kentucky:	New York:	Delaware.	Kenosha.
Campbell.	Niagara.	Lawrence.	Racine.
Kenton.	Rensselaer.	Lehigh.	
Maryland: Baltimore.[1]	Schenectady.	Luzerne.	

[1] Not including independent city of Baltimore.
[2] Not including independent city of St. Louis.

Most of the counties above employed at least 10,000 wage earners, but there were 17 exceptions, as follows:

State and county	Number of wage earners	State and county	Number of wage earners	State and county	Number of wage earners
California:		New Jersey:		Pennsylvania: Bucks	9,453
Marin	785	Burlington	9,587	West Virginia:	
San Mateo	3,790	Gloucester	2,304	Brooke	3,389
Illinois:		New York: Richmond	8,247	Ohio	7,764
Du Page	1,303	Ohio:			
Lake	8,577	Belmont	5,209		
Kentucky:		Columbiana	8,760		
Campbell	4,506	Jefferson	9,520		
Kenton	4,548				
Minnesota: Dakota	4,320				
Missouri: St. Louis	5,861				

In determining whether a county with fewer than 10,000 wage earners should or should not be included in a given area, consideration was given to the general form of the area and to the size of the county in square miles. To illustrate: A small county (in number of square miles) with only 5,000 wage earners might contain a greater degree of industrial concentration than a county in which 10,000 wage earners were employed but which covered several times as many square miles. Again, the inclusion of a small county of no great industrial importance might make an area considerably more symmetrical in form than it would be if the county were omitted.

TABLE 20.—POPULATION AND WAGE JOBS, IN AREAS OF INDUSTRIAL AND POPULATION CONCENTRATION, BY GEOGRAPHIC DIVISIONS: 1899 TO 1929

DIVISION	Year[1]	POPULATION				WAGE JOBS			
		All areas	Areas of primary concentration	Areas of secondary concentration	All other areas	All areas	Areas of primary concentration	Areas of secondary concentration	All other areas
United States	1929	122,775,046	36,325,736	17,818,213	68,631,097	8,838,743	3,868,283	1,866,761	3,103,699
	1919	105,710,620	29,405,294	13,208,692	63,096,631	9,096,372	4,051,858	1,965,283	3,079,231
	1909	91,972,266	23,175,482	10,617,066	58,179,718	6,615,046	2,882,093	(2)	(2)
	1899	75,994,575	17,027,745	8,166,214	50,800,616	4,712,763	2,104,166	868,531	1,740,066
New England	1929	8,166,341	2,500,799	3,113,719	2,551,823	1,098,514	376,912	433,092	288,510
	1919	7,400,909	2,395,545	2,581,378	2,423,986	1,351,339	464,005	526,791	360,593
	1909	6,552,681	2,058,049	2,173,975	2,320,657	1,101,290	368,259	(2)	(2)
	1899	5,592,017	1,660,158	1,777,643	2,154,216	851,903	273,413	313,993	264,497
Mid. Atlantic	1929	26,260,750	12,650,337	6,841,217	6,769,196	2,562,340	1,299,935	745,157	517,248
	1919	22,261,144	10,832,910	5,330,191	6,098,043	2,872,653	1,512,215	782,268	578,170
	1909	19,315,892	9,181,457	4,331,381	5,803,054	2,207,747	1,228,772	(2)	(2)
	1899	15,454,678	6,997,011	3,232,851	5,224,816	1,604,844	909,845	348,809	346,190
E. N. Central	1929	25,297,185	9,403,178	4,180,672	11,713,335	2,542,176	1,340,564	473,341	728,271
	1919	21,475,543	7,328,978	2,823,426	11,323,139	2,366,618	1,237,133	461,894	697,591
	1909	18,250,621	5,269,882	2,081,692	10,899,047	1,513,764	765,854	(2)	(2)
	1899	15,985,581	3,904,312	1,657,676	10,423,593	1,073,322	533,968	136,440	402,914
W. N. Central	1929	13,296,915	2,648,663	609,209	10,039,043	474,115	247,313	22,012	204,790
	1919	12,544,249	2,302,967	427,304	9,813,978	499,635	255,604	23,916	220,115
	1909	11,637,921	1,875,273	395,744	9,366,904	374,337	181,888	(2)	(2)
	1899	10,347,423	1,398,525	284,886	8,664,012	266,051	129,929	13,873	122,249
South Atlantic	1929	15,793,589	2,322,692	577,055	12,893,842	912,247	174,239	56,258	681,750
	1919	13,990,272	1,942,362	446,802	11,601,108	817,212	193,288	55,902	568,022
	1909	12,194,895	1,427,836	434,044	10,333,015	663,015	134,488	(2)	(2)
	1899	10,443,480	1,131,678	376,392	8,935,410	458,344	115,853	25,849	316,642
E. S. Central	1929	9,887,214	1,200,032	598,471	8,088,711	377,870	116,748	37,172	223,950
	1919	8,893,307	830,103	521,552	7,541,652	329,226	91,767	33,999	203,460
	1909	8,409,901	679,032	464,459	7,266,410	261,772	62,442	(2)	(2)
	1899	7,547,757	489,122	414,030	6,644,605	177,208	48,836	17,256	111,116
W. S. Central	1929	12,176,830	1,835,646	339,130	10,002,054	297,743	80,616	14,868	202,259
	1919	10,242,224	1,193,262	273,278	8,775,684	285,241	65,516	12,703	207,025
	1909	8,784,534	801,571	190,019	7,792,944	204,520	36,182	(2)	(2)
	1899	6,532,290	481,717	125,888	5,924,685	113,388	26,777	920	85,691
Mountain	1929	3,701,789	428,128	53,835	3,219,826	102,492	21,894	2,480	78,118
	1919	3,336,101	374,601	41,172	2,920,328	109,216	22,997	2,701	83,518
	1909	2,633,517	306,158	38,649	2,288,710	75,435	15,926	(2)	(2)
	1899	1,674,657	187,390	24,194	1,463,073	44,497	10,654	1,169	32,674
Pacific	1929	8,194,433	3,336,261	1,504,905	3,353,267	471,246	210,062	82,381	178,803
	1919	5,566,871	2,204,566	763,589	2,598,716	435,179	209,333	65,109	160,737
	1909	4,192,304	1,576,224	507,103	2,108,977	213,166	88,282	(2)	(2)
	1899	2,416,692	777,832	272,654	1,366,206	123,206	54,891	10,222	58,093

[1] Population figures as enumerated in following year.

[2] No data.

TABLE 21.—POPULATION AND WAGE JOBS IN CENTRAL CITIES AND REMAINING PORTIONS OF THOSE INDUSTRIAL AREAS WHICH IN 1929 INCLUDED THE MOST POPULOUS 10 CITIES: 1929 AND 1899

AREA	POPULATION		WAGE JOBS	
	1929	1899	1929	1899
10 industrial areas, aggregate	30,492,218	13,984,086	3,196,485	1,898,401
Largest 10 cities, total	19,042,823	9,296,024	1,990,086	1,181,972
10 other cities having 100,000 inhabitants or more, total	1,685,605	1,050,681	246,273	173,835
Remainder of areas (37 counties or parts of counties [1]), total	9,763,790	3,617,381	960,126	542,594
New York City area, total	10,160,159	4,779,318	918,206	580,240
New York City	6,930,446	3,437,202	563,249	388,586
5 other cities having 100,000 inhabitants or more	1,146,800	657,735	152,406	105,864
Yonkers, N. Y.	134,646	47,931	13,127	7,555
Patterson, N. J.	138,513	105,171	32,686	28,542
Jersey City, N. J.	316,715	206,433	25,822	17,391
Newark, N. J.	442,337	246,070	65,057	42,878
Elizabeth, N. J.	114,589	52,130	15,714	9,498
Remainder of area (counties)	2,082,913	684,381	202,551	85,790
Westchester, N. Y. (in part)	386,301	136,326	13,009	9,433
Passaic, N. J. (in part)	163,616	50,031	25,112	10,901
Hudson, N. J. (in part)	374,015	179,615	64,642	26,124
Essex, N. J. (in part)	391,176	112,983	27,087	17,432
Union, N. J. (in part)	190,620	47,223	12,817	5,282
Bergen, N. J. (all)	364,977	78,441	23,775	5,275
Middlesex, N. J. (all)	212,208	79,762	36,109	11,343
Chicago area, total	4,675,877	2,092,883	550,903	297,738
Chicago	3,376,438	1,698,575	405,399	221,191
Remainder of area (counties)	1,299,439	394,308	145,504	76,547
Cook, Ill. (in part)	605,685	140,160	57,351	48,557
Lake, Ind. (all) [2]	261,310	37,892	50,328	6,359
Lake, Ill. (all)	104,387	34,504	8,577	2,466
Kane, Ill. (all)	125,327	78,792	16,201	11,698
Du Page, Ill. (all)	91,908	28,196	1,303	502
Will, Ill. (all)	110,732	74,764	11,744	6,965
Baltimore area, total	929,439	599,712	99,601	85,452
Baltimore (city)	804,874	508,957	85,655	66,571
Baltimore County	124,565	90,755	13,946	18,881
Boston area, total	2,611,926	1,685,682	285,652	264,230
Boston	781,188	560,892	75,907	55,336
4 other cities having 100,000 inhabitants or more	420,105	317,011	64,988	60,229
Lynn	102,320	68,513	20,520	16,377
Cambridge	113,643	91,886	21,328	11,070
Lowell	100,234	94,969	17,097	29,254
Somerville	103,908	61,643	6,043	3,528
Remainder of area (counties)	1,410,633	807,779	144,757	148,665
Suffolk (in part)	98,348	50,525	6,056	20,543
Essex (in part)	395,720	288,517	63,377	62,968
Middlesex (in part)	617,139	317,198	52,801	45,663
Norfolk (all)	299,426	151,539	22,523	19,491
Pittsburgh area, total	2,023,269	1,083,846	227,221	154,927
Pittsburgh	669,817	451,512	61,503	71,794
Remainder of area (counties)	1,353,452	632,334	165,718	83,133
Allegheny (in part)	701,593	323,546	93,871	56,588
Beaver (all)	149,062	56,432	28,438	7,095
Westmoreland (all)	294,995	160,175	28,810	14,535
Washington (all)	204,802	92,181	14,599	4,915

[1] "Parts of counties" refers to those portions of the counties which are located outside the limits of cities having 100,000 inhabitants or more.

[2] Wage-job data for Gary, Ind. (population 100,426), which can not be shown separately without disclosing approximations of the figures for a single company, are excluded from the figures for cities having 100,000 inhabitants or more, but are included in those for Lake County, Ind. (Chicago area).

TABLE 21.—POPULATION AND WAGE JOBS IN CENTRAL CITIES AND REMAINING PORTIONS OF THOSE INDUSTRIAL AREAS WHICH IN 1929 INCLUDED THE MOST POPULOUS 10 CITIES: 1929 AND 1899—Continued

AREA	POPULATION		WAGE JOBS	
	1929	1899	1929	1899
Philadelphia area, total	3,137,040	1,892,128	376,009	278,968
Philadelphia	1,950,961	1,293,697	246,908	214,775
Camden, N. J.	118,700	75,935	28,879	7,742
Remainder of area (counties)	1,067,379	522,496	100,222	56,451
Camden, N. J. (in part)	133,612	31,708	4,857	3,635
Delaware, Pa. (all)	280,264	94,762	30,799	13,923
Chester, Pa. (all)	126,629	95,695	10,565	8,034
Montgomery, Pa. (all)	265,804	138,935	32,657	17,619
Bucks, Pa. (all)	96,727	71,190	9,453	5,600
Burlington, N. J. (all)	93,541	58,241	9,587	4,981
Gloucester, N. J. (all)	70,802	31,905	2,304	2,659
Detroit area, total	2,100,197	389,585	293,252	54,252
Detroit	1,568,662	285,704	219,551	38,373
Remainder of area (counties)	531,535	103,881	73,701	15,879
Wayne (in part)	320,284	63,089	50,873	13,858
Oakland (all)	211,251	40,792	22,828	2,021
Los Angeles area, total	2,208,492	170,298	114,480	9,365
Los Angeles	1,238,048	102,479	76,023	5,173
Remainder of Los Angeles County	970,444	67,819	38,457	4,192
Cleveland area, total	1,310,661	493,977	176,840	72,755
Cleveland	900,429	381,768	146,881	55,341
Remainder of area (counties)	410,232	112,209	29,959	17,414
Cuyahoga (in part)	301,026	57,352	14,375	13,526
Lorain (all)	109,206	54,857	15,584	3,888
St. Louis area, total	1,335,158	776,657	154,321	100,474
St. Louis (city)	821,960	575,238	109,010	64,832
Remainder of area (counties)	513,198	201,419	45,311	35,642
St. Louis (all)	211,593	50,040	5,861	18,504
Madison (all)	143,830	64,694	22,089	8,681
St. Clair (all)	157,775	86,685	17,361	8,457

APPENDIX B

NEW AND RELOCATED MANUFACTURING ESTABLISHMENTS: 1928 AND 1929

On page 1 of the Introduction attention was called to the inquiries concerning new and relocated plants, which were carried for the first time on all the manufactures schedules at the census for 1929.[1] [These additions were made at the request of certain industrial organizations interested in industrial promotion and desirous of obtaining data on the number and nature of new manufacturing establishments and of relocated plants.] Although there was at the time an unusually widespread interest in industrial expansion, no nation-wide measure of its extent as evidenced in new manufacturing plants and relocated concerns had been attempted.[2]

Although supposedly ample instructions were given for answering the inquiries correctly, many of the returns indicated that the questions had not been interpreted properly and careful editing of the data in the Census Bureau was found to be necessary.

The principal defects in the returns made by the manufacturers in response to the inquiries were: (*a*) The term "new plant" was intended to refer to a newly organized manufacturing enterprise and not to the transfer of activities of a going concern from an old factory building to a newly constructed physical plant; (*b*) some relocated plants are believed to have been reported as new plants, for if a manufacturer dismantles his plant in a given city, moves to another place, and with the aid of new capital and a new force of workers opens a plant there to make similar products, he is likely to report his plant as being new; (*c*) change of location in many cases was reported when the enterprise had merely moved its manufacturing operations from one street to another in the same town or city; and (*d*) an indicated change of ownership may mean little without further explanation in view of the fluidity of modern corporate ownership as embodied in transferable stock certificates. Fortunately, the final request for "former name, location, ownership, or nature of business" brought out information which made it possible in many cases for those editing a given return to check it with the one made for the same plant or for its predecessor at the preceding census.

If periodic reports were to be made on the gross, rather than the net changes in industry (see Introduction, p. 1), such data as this type of inquiry provides would be essential. The information is such that manufacturers can furnish it with little effort and without reference to their books of account.

For the purpose of this study data were obtained from the returns covering the organization of new industrial establishments and the relocations of plants in the

---

[1] The inquiries were:

Is this a new plant which started operations after January 1, 1923?

Indicate by check mark (√) in proper space whether, since January 1, 1923, this plant has changed its name ..., location ..., ownership ..., general nature of business .... If so, give former name, location, ownership, or nature of business .....

[2] A comprehensive report on the subject entitled *Industrial Development in the United States and Canada*, was published by the Civic Development Committee of the National Electric Light Association and the Policyholders Service Bureau of the Metropolitan Life Insurance Company. The survey covered the industrial development in 1926 and 1927 within communities which "represent 75 per cent of the total urban population of the United States and about two-thirds of the urban population of Canada."

largest 50 industries. (Table 27.) An idea of the size and scope of this group is conveyed by the following table:

TABLE 22.—COMPARATIVE SUMMARY FOR ALL INDUSTRIES COMBINED AND FOR 50 SELECTED INDUSTRIES: 1929

	ALL INDUSTRIES	50 SELECTED INDUSTRIES	
	Number or value	Number or value	Per cent of total
Industry groups represented	16	13	81.3
Industries represented	326	50	15.3
Establishments	210,959	44,121	20.9
Wage jobs	8,838,743	4,796,412	54.3
Wage jobs per establishment (average)	42	109	
Value of products	$70,434,863,443	$34,368,915,382	48.8
Value added by manufacture	$31,885,283,711	$15,504,029,635	48.6

While the 50 selected industries furnished 54.3 per cent of all the wage jobs in manufactures, they accounted for only 20.9 per cent of the establishments reported for all industries. The figures for wage jobs per establishment furnish a convenient basis for comparison of the average plant size for the selected industries with that for all industries. It is likely that the sample group, in which the number of wage jobs per plant was two and one-half times the general average, was more stable and less given to shifting location than was industry as a whole. The larger the enterprise the more deeply its roots tend to extend into the community. Generally speaking, the smaller establishments are in all probability the more foot-loose.

Returns covering this group of 50 industries as made at the census for 1927 indicated that 42,778 establishments having 4,507,143 wage jobs were in operation in that year. (Table 23.) During the following two years, 1928 and 1929, there were added 2,235 new establishments reporting an average of 43 wage jobs each. Any other plants which may have been organized in 1928 but which failed to operate during at least a part of the year 1929 were not covered in the census canvass. Another factor tending to conservatism in the figures is the probability that certain manufacturers who had established new plants neglected to specify that fact, since the inquiry concerning the year in which the plant was organized had not appeared before on a census questionnaire.

The additions and subtractions for "plants reclassified" represent changes in Census Bureau records made for the purpose of revising the industry classification of plants in which changes in character of products had occurred since the last preceding census.

First reports were made to the census for 507 establishments, some of which had doubtless begun manufacturing after the close of 1927, but since data were lacking as to the year of their organization, these plants were not counted among the new ones.

The plant losses for the 50 industries included 432 establishments which had been classified in these industries at the census for 1927 but which were found to belong in others when returns covering 1929 were received. The computed number 2,205, representing closed plants, was obtained by adding the total of items 1, 2, and 3 under "Additions" to the 1927 figure for number of plants, 42,778, subtracting item 2 under "Losses," and then deducting from the result the 1929 plant figure 44,121. There is a likelihood of some error in the number of closed plants, arising from the fact that the canvass at the census for 1929 was conducted more intensively than that for 1927, which was made largely by mail.

An understatement of the number of establishments in operation in 1927 would, because of the method of computation employed, exaggerate the number of closed plants given in the table.

TABLE 23.—SUMMARY FOR 50 INDUSTRIES: 1919, 1927, AND 1929

	Number of plants	Wage jobs	Value of products
50 industries: 1919	44,142	4,663,997	$29,521,477,128
50 industries: 1927	42,778	4,507,143	29,781,493,296
Additions: 1928–1929:			
1. Newly established plants	2,235	97,310	692,033,857
2. Plants reclassified	1,238	(1)	(1)
3. First plant report to census [2]	507	(1)	(1)
Losses: 1928–1929:			
1. Plants closed [3]	2,205	(1)	(1)
2. Plants reclassified	432	(1)	(1)
50 industries: 1929	44,121	4,796,412	34,368,915,382
Plants relocated: 1928–1929:			
1. Intrastate and interstate	287	18,599	142,130,095
2. Intrastate	201	9,907	61,800,176
3. Interstate	86	8,692	80,329,919
Per cent of 1929 totals:			
1. New and relocated plants	5.7	2.4	2.4
2. New plants	5.1	2.0	2.0
3. Relocated plants	.6	.4	.4

[1] Data not readily available.
[2] Date of origin of concern uncertain.
[3] Idle, out of business, or merged.

There were 287 establishments, averaging 65 wage jobs each, which moved from one city or town to another in 1928 or 1929. Seventy per cent of this number represented intrastate relocations, 30 per cent interstate. However, the wage jobs in the plants which relocated within the same States amounted to only 53 per cent of the total number. Attention has been called to the fact that in all probability some of the plants reported as new were in reality relocated, for a manufacturer may dismantle his plant in one city, move to another locality and with the aid of new capital resume the same line of manufacture, reporting a "new plant" to the Census Bureau. It is, therefore, likely that if all the facts were known the number of relocations would be somewhat larger and the number of new plants somewhat smaller than are given in these tables.

Of the total number of establishments in the 50 industries, 5.7 per cent were reported to the census as having been either newly organized or relocated within the year 1928 or 1929. Of the total wage jobs in the 44,121 establishments, 2.4 per cent were in new or relocated plants.

A somewhat similar analysis covering the years 1928 and 1929, and made on a geographic rather than on an industry basis, gave slightly higher rates of change.[1] It was found that in two States—New Jersey and Michigan—approximately 4 per cent of the wage jobs reported for 1929 were in plants which were new or relocated in 1928 or 1929. The reason for the difference between the 4 per cent rate for wage jobs on a State basis and the 2.4 per cent rate on the industry basis probably lies in the greater-than-average rate of industrial change in the two States selected. It is quite likely that the 50 industries covered by this report

[1] Report made by the author to the President's Conference on Home Building and Home Ownership, Dec. 4, 1931, and published by the conference in a book entitled *Slums, Large-Scale Housing and Decentralization*, as Appendix II (pp. 217–233).

(for the United States as a whole) afford a truer sample of the rates for new-plant organization and factory relocation than do those of the States of New Jersey and Michigan.

The largest amount of plant change in the group of 50 industries, as measured by the percentage that wage jobs in new and relocated plants form of the number of wage jobs in all the plants of the group, was found in the five industries in which the principal products manufactured are tin cans and other tinware, furniture, motor-vehicle bodies and parts, gas and electric fixtures, and shoes. (Table 27.) These industries varied widely in the proportions of jobs in new and in relocated plants. In the tinware, furniture, and motor-vehicle bodies and parts industries more than 90 per cent of the wage jobs in the plants for which data were furnished in response to the special inquiries were in new, as distinguished from relocated, establishments; in the two industries in which shoes and gas and electric fixtures are made the corresponding percentages were 73 and 68, respectively.

The manufacture of furniture and that of motor-vehicle bodies and parts were among the most rapidly growing of the larger industries from 1919 to 1929. The gas and electric-fixtures industry, considerably smaller in wage jobs, also expanded during this period, wage jobs increasing about 30 per cent. On the other hand, although wage jobs in the tinware industry decreased, value and volume of production increased (no data being available, however, for measuring at all accurately the growth in physical output). The boot and shoe industry gained about 12 per cent in quantity of production between 1919 and 1929, despite a small decrease in wage jobs. In three of the industries, therefore, there were increases in wage jobs within the decade; in the other two there were gains in physical output with fewer wage jobs.

TABLE 24.—WAGE JOBS IN NEW PLANTS IN THE LARGEST 50 INDUSTRIES, BY GEOGRAPHIC DIVISIONS AND AREAS OF CONCENTRATION: 1929

DIVISION	WAGE JOBS IN NEW PLANTS			
	All areas	Areas of primary concentration	Areas of secondary concentration	All other areas
United States	**97,310**	**47,507**	**18,510**	**31,293**
New England	12,468	2,672	5,851	3,945
Middle Atlantic	18,825	9,391	5,780	3,654
East North Central	32,104	18,595	5,528	7,981
West North Central	3,508	3,061	239	208
South Atlantic	10,521	3,097	129	7,295
East South Central	8,134	2,522	19	5,593
West South Central	1,952	1,080	22	850
Mountain	316	198	----	148
Pacific	9,452	6,891	942	1,619

Since in two of the three industries in which wage jobs increased—those making furniture and gas and electric fixtures—large-scale production and highly specialized machinery are not the rule, an expansion in demand for their products would normally bring new producers and new plants into the field. The dynamic condition of the motor-vehicle industry brings about considerable turnover in establishments engaged in furnishing materials and parts to final assembly plants. Because of the bulk of tin containers, it is highly desirable to locate the plants for their manufacture near the places where the products are to be used. The considerable amount of plant expansion and relocation in this industry rep-

resents the development of container manufacture near centers of the canning industry. The turnover of plants in the shoe industry indicates a migration of industry, rather than a general need for expansion in plant capacity.

An analysis of the plant relocations which occurred in 1928 or 1929 within the 50 industries appears in the section entitled "Plant Relocations" (pp. 35 to 39). It is indicated in that section that practically all the relocations took place within four divisions, namely, the New England, the Middle Atlantic, the East North Central, and the Pacific; also that the movement in general was a decentralizing one, subtracting from the industry of the large cities and adding to that of the less-concentrated sections of the country, and particularly to the "All other areas."

Wage jobs in new plants amounted almost exactly to 1 per cent of the total jobs in 1929 in each of the three types of industrial areas, indicating no relative gain for any one of them.

The distribution of these 2,235 new wage jobs among the nine geographic divisions did not take place in any of them in approximate proportion to the distribution of total wage jobs in industry in the divisions, except in New England and the South Atlantic States (Table 25). For the East North Central, the East South Central, and the Pacific Divisions larger percentages of the new jobs were reported than the divisions were entitled to by reason of their existing proportions of the nation's industry, whereas in the Middle Atlantic, the West North Central, the West South Central, and the Mountain divisions the opposite distribution occurred.

TABLE 25.—PER CENT DISTRIBUTION OF WAGE JOBS IN ALL MANUFACTURING INDUSTRIES AND IN NEW PLANTS IN 50 SELECTED INDUSTRIES, BY GEOGRAPHIC DIVISIONS: 1929

DIVISION	WAGE JOBS IN ALL INDUSTRIES	WAGE JOBS IN NEW PLANTS IN 50 INDUSTRIES
	Per cent	*Per cent*
United States	100.0	100.0
New England	12.4	12.8
Middle Atlantic	29.0	19.3
East North Central	28.8	33.0
West North Central	5.4	3.6
South Atlantic	10.3	10.8
East South Central	4.3	8.4
West South Central	3.4	2.0
Mountain	1.2	0.4
Pacific	5.3	9.7

Generally the divisions in which wage jobs increased most rapidly during the past decade were those in which 1928–29 wage-job additions from new and relocated plants were most marked. New England and the South Atlantic States were the chief exceptions to the rule, the former making greater gains in 1928 and 1929 and the latter fewer gains than might have been expected on the basis of the wage-job changes within the last decade. The data reflect considerable mobility of industry within New England in 1928–29 and less in the South Atlantic States than had probably existed earlier in the decade.

TABLE 26.—PER CENT DISTRIBUTION OF WAGE JOBS IN 50 SELECTED INDUSTRIES, BY INDUSTRY GROUPS, FOR GEOGRAPHIC DIVISIONS: 1929

INDUSTRY GROUP AND INDUSTRY	UNITED STATES		New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
	Wage jobs	Per cent									
			P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.
50 industries, total	4,796,412	100	14.7	27.5	33.7	4.8	10.5	3.6	1.6	0.7	2.9
Food and kindred products: Meat packing	122,505	100	2.7	12.5	37.2	31.4	3.4	1.5	4.5	2.1	4.7
Textiles and their products	1,025,418	100	28.4	30.6	4.6	.8	27.6	6.4	.9	.1	.7
Carpets and rugs, wool, other than rag	32,623	100	23.5	73.7	1.0	.1	1.7				
Cotton goods	424,916	100	29.9	4.3	.7	.1	53.9	9.1	1.7		.3
Cotton small wares	15,281	100	67.9	25.9	1.6	.5	3.4	.5			.2
Knit goods	208,488	100	7.1	48.2	13.5	1.5	17.2	10.6	.4	.2	1.3
Lace goods	6,854	100	22.6	69.2	8.2						
Shirts	59,830	100	7.7	60.6	11.3	6.4	7.5	3.2	.8	.1	2.3
Silk and rayon manufactures	130,467	100	19.8	71.5	2.4	(1)	5.6	.6			.1
Woolen goods	58,474	100	61.7	17.9	5.8	1.1	7.3	3.3		.1	2.7
Worsted goods	88,435	100	71.2	24.8	2.5		.7	.5	.2		.3
Forest products: Furniture	193,399	100	6.3	20.7	42.8	4.0	14.3	3.6	2.1	.2	6.0
Paper and allied products	128,049	100	25.5	22.5	31.9	2.4	8.4	1.2	2.1	(1)	6.0
Paper	103,320	100	25.2	23.9	35.2	2.3	6.7	.8	1.5	(1)	4.4
Pulp (wood and other fiber)	24,729	100	26.6	16.5	18.0	2.6	15.8	2.8	5.0		12.7
Chemicals and allied products	152,567	100	5.7	39.5	24.9	4.9	15.3	4.2	1.6	.3	3.5
Chemicals, not elsewhere classified	62,199	100	6.2	47.9	24.3	1.8	11.5	3.3	.9	.4	3.7
Druggists' preparations	10,688	100	3.6	38.0	36.9	9.4	8.4	1.3	.7	.2	1.5
Fertilizers	20,926	100	3.7	6.8	9.5	.2	60.2	12.0	5.7	.4	1.6
Paints and varnishes	29,211	100	4.1	40.1	35.5	6.5	4.7	2.1	1.1	.3	5.7
Patent or proprietary medicines and compounds	16,434	100	12.3	31.1	27.1	13.7	6.6	3.2	1.4	.2	4.4
Perfumes, cosmetics, and other toilet preparations	13,109	100	3.8	62.7	15.7	8.7	1.7	3.9	1.1	.4	2.0
Rubber products: 3 industries combined [2]	149,148	100	22.7	14.4	54.1	.9	2.4	.3	.1	.8	4.3
Leather and its manufactures	255,572	100	35.8	26.3	20.1	10.6	4.5	2.1	.1		.5
Boots and shoes, other than rubber	205,640	100	38.9	23.7	19.5	12.9	2.3	2.2	.1		.4
Leather: Tanned, curried and finished	49,932	100	23.1	36.8	22.7	1.0	13.5	1.8	(1)		1.1
Stone, clay, and glass products	196,272	100	1.4	32.4	34.5	5.4	14.2	3.6	3.1	1.0	4.5
Clay products (other than pottery) and nonclay refractories	93,336	100	2.2	28.6	31.9	9.1	8.9	6.7	4.0	1.9	6.7
Glass	67,527	100	.7	38.3	33.1	2.7	19.0	.6	3.3		2.3
Pottery, including porcelain ware	35,409	100	.7	31.0	43.9	.7	18.8	1.3	.3	.3	3.1
Iron and steel and their products, not including machinery	613,703	100	5.4	36.5	41.8	2.6	6.1	4.1	.3	.7	2.6
Bolts, nuts, washers, and rivets, not made in plants operated in connection with rolling mills	16,175	100	14.9	27.5	53.6	.3	.5	1.5			1.8
Cutlery (not including silver and plated cutlery) and edge tools	14,991	100	43.7	33.8	12.3	2.4	6.0	.2	.9	.4	.3
Iron and steel: Steel works and rolling mills	394,574	100	1.1	43.5	40.2	1.6	6.7	3.8	.1	1.0	1.9
Plumbers' supplies, not including pipe or vitreous-china sanitary ware	27,960	100	5.7	23.9	42.2	2.4	5.4	15.7	(1)		4.7
Screw-machine products and wood screws	19,881	100	30.6	8.4	59.6	.8	.2				.3

[1] Less than one-tenth of 1 per cent.

[2] Boots and shoes, rubber; rubber goods other than tires, inner tubes, and boots and shoes; rubber tires and inner tubes.

TABLE 26.—PER CENT DISTRIBUTION OF WAGE JOBS IN 50 SELECTED INDUSTRIES, BY INDUSTRY GROUPS, FOR GEOGRAPHIC DIVISIONS: 1929—Continued

INDUSTRY GROUP AND INDUSTRY	UNITED STATES		New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
	Wage jobs	Per cent									
Iron and steel and their products, not including machinery—Continued.			P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.
Steam fittings and steam and hot-water heating apparatus	39,621	100	14.8	30.9	45.7	5.1	0.7	2.2	(1)	-----	0.6
Stoves and ranges (other than electric) and warm-air furnaces	46,616	100	5.7	15.1	53.2	8.7	3.1	9.2	.2	(1)	4.7
Tin cans and other tinware, not elsewhere classified	31,497	100	3.5	26.8	30.8	4.5	18.5	.4	4.1	.5	10.8
Wirework, not elsewhere classified	22,388	100	11.3	28.6	48.6	5.1	2.8	.3	.3	(1)	3.0
Nonferrous metals and their products	130,685	100	32.8	29.6	20.1	2.3	2.7	.3	.3	.4	2.5
Gas and electric fixtures; lamps, lanterns, and reflectors	23,580	100	7.3	32.4	50.9	3.9	.2	.1	.1	.1	5.0
Jewelry	27,922	100	56.6	29.4	7.1	2.5	.5	.1	.4	.4	2.9
Nonferrous-metal alloys and products, not including aluminum products	79,183	100	32.0	28.9	30.4	1.7	4.2	.5	.3	.5	1.6
Machinery, not including transportation equipment	983,490	100	13.8	29.8	44.1	4.3	1.8	1.3	1.3	.3	3.4
Agricultural implements	41,663	100	.5	8.1	75.6	7.7	2.2	2.9	.3	.1	2.8
Electrical machinery, apparatus, and supplies	328,722	100	14.2	40.6	39.6	3.0	.4	.5	.1	.1	1.4
Engines, turbines, tractors, and water wheels	61,148	100	3.1	17.6	66.2	8.1	.1	(1)	.1	-----	4.8
Foundry and machine-shop products, not elsewhere classified	454,441	100	10.4	27.6	43.9	4.9	3.1	2.0	2.6	.6	4.9
Machine tools	47,391	100	39.9	13.4	43.6	1.3	1.3	.4	-----	-----	.1
Pumps (hand and power) and pumping equipment	23,106	100	13.3	25.3	46.0	4.5	.1	.5	1.4	(1)	8.8
Textile machinery and parts	27,019	100	65.5	27.4	2.5	.1	4.0	.6	-----	-----	-----
Transportation equipment, air, land, and water	447,448	100	1.5	13.0	75.6	3.4	1.3	1.9	1.1	.2	2.0
Motor-vehicle bodies and motor-vehicle parts	221,332	100	2.0	15.5	75.3	2.4	.6	2.5	.5	(1)	1.1
Motor vehicles	226,116	100	1.1	10.6	75.9	4.3	2.0	1.2	1.7	.3	2.9
Railroad repair shops	398,156	100	2.5	23.5	23.9	12.4	12.3	8.0	6.8	4.4	6.2
Car and general construction and repairs, electric-railroad repair shops	29,475	100	5.9	38.3	26.0	6.1	5.5	2.3	4.0	1.3	10.6
Car and general construction and repairs, steam-railroad repair shops	368,681	100	2.2	22.3	23.7	12.9	12.9	8.4	7.0	4.6	5.8

[1] Less than one-tenth of 1 per cent.

TABLE 27.—SUMMARY FOR NEW AND RELOCATED PLANTS IN 50 INDUSTRIES, BY INDUSTRY GROUPS: 1929

INDUSTRY GROUP AND INDUSTRY	ALL PLANTS	NEW PLANTS			RELOCATED PLANTS						Ratio of jobs in new and relocated plants to those in "All plants" (per cent of wage jobs)
					Interstate			Intrastate			
	Wage jobs	Number	Wage jobs	Value of products	Number	Wage jobs	Value of products	Number	Wage jobs	Value of products	
Fifty industries, total	4,796,412	2,235	97,310	$692,033,857	86	8,692	$30,329,919	201	9,907	$61,600,176	2.4
Food and kindred products: Meat packing, wholesale	122,505	63	761	17,817,562							.6
Textiles and their products	1,025,418	290	15,288	45,991,582	18	1,221	5,456,140	13	547	3,456,959	1.7
Carpets and rugs, wool, other than rag	32,623	5	141	539,865							.4
Cotton goods	424,916	49	4,906	13,231,289	4	43	110,129	2	17	150,102	1.2
Cotton small wares	15,281	17	373	1,543,611	1	111	457,989	1	4	168,198	3.2
Knit goods	208,488	54	3,096	8,593,561	1	270	895,000	3	83	295,006	1.7
Lace goods	6,854	2	6	32,435							.1
Shirts	59,830	59	2,993	6,924,024	3	128	256,350				5.2
Silk and rayon manufactures	130,467	83	2,845	10,610,466	8	437	2,441,369	2	185	716,625	2.7
Woolen goods	58,474	13	410	1,741,470				4	56	250,022	.8
Worsted goods	88,485	8	518	2,774,831	1	232	1,295,303	1	202	1,877,006	1.1
Forest products: Furniture	193,399	335	11,487	54,823,668	1	15	71,250	12	247	1,257,221	6.1
Paper and allied products	128,049	26	3,238	29,278,360				1	67	799,224	2.6
Paper	103,320	18	2,048	21,447,839				1	67	799,224	2.0
Pulp (wood and other fiber)	24,729	8	1,190	7,830,521							4.8
Chemicals and allied products	152,567	276	3,371	38,381,046	15	307	4,903,950	26	177	2,419,381	2.5
Chemicals, not elsewhere classified	62,199	44	1,360	15,025,464				4	36	542,778	2.2
Druggists' preparations	10,688	24	105	1,856,148				3	26	357,989	1.2
Fertilizers	20,926	24	422	3,862,155	1	4	53,335				2.0
Paints and varnishes	29,211	52	601	6,978,931	3	43	1,000,915	6	65	852,390	2.4
Patent or proprietary medicines and compounds	16,434	82	507	7,771,186	6	139	1,807,660	9	33	583,007	4.1
Perfumes, cosmetics, and other toilet preparations	13,109	50	376	2,887,162	5	121	2,042,042	4	17	83,217	3.9
Rubber products: 3 industries combined [1]	149,148	34	3,744	25,946,689				6	739	9,377,501	3.0
Leather and its manufactures	255,572	97	8,867	28,695,704	7	992	3,219,228	21	2,284	8,807,076	4.8
Boots and shoes, other than rubber	205,640	87	8,543	27,419,927	6	910	2,925,506	20	2,259	8,713,476	5.7
Leather: Tanned, curried, and finished	49,932	10	324	1,275,777	1	82	293,722	1	25	93,600	.9
Stone, clay, and glass products	196,272	138	2,892	7,840,622	1	213	63,383	9	404	1,293,209	1.8
Clay products (other than pottery) and nonclay refractories	93,336	107	2,353	5,803,474	1	213	63,383	7	305	961,688	3.1
Glass	67,527	9	247	1,278,275				1	29	62,000	.4
Pottery, including porcelain ware	35,409	22	292	758,873				1	70	269,521	1.0

[1] Boots and shoes, rubber; Rubber goods other than tires, inner tubes, and boots and shoes; and rubber tires and inner tubes.

TABLE 27.—SUMMARY FOR NEW AND RELOCATED PLANTS IN 50 INDUSTRIES, BY INDUSTRY GROUPS: 1929—Continued

INDUSTRY GROUP AND INDUSTRY	ALL PLANTS	NEW PLANTS			RELOCATED PLANTS						Ratio of jobs in new and relocated plants to those in "All plants" (percent of wage jobs)
					Interstate			Intrastate			
	Wage jobs	Number	Wage jobs	Value of products	Number	Wage jobs	Value of products	Number	Wage jobs	Value of products	
Iron and steel and their products, not including machinery	613,703	134	6,630	$40,929,859	3	115	$574,013	15	541	$5,427,152	1.2
Bolts, nuts, washers, and rivets, not made in plants operated in connection with rolling mills	16,175	4	259	2,694,315	--	--	--	1	20	190,216	1.7
Cutlery (not including silver and plated cutlery and edge tools	14,991	9	126	377,351	--	--	--	1	22	127,275	1.0
Iron and steel: Steel works and rolling mills	394,574	13	832	6,082,703	1	35	167,322	2	270	3,076,646	.3
Plumbers' supplies, not including pipe or vitreous-china sanitary ware	27,960	13	245	895,303	--	--	--	1	19	103,000	.9
Screw-machine products and wood screws	19,881	17	299	2,614,375	--	--	--	1	9	114,526	1.5
Steam fittings and steam and hot-water heating apparatus	39,621	7	906	4,502,401	--	--	--	2	78	587,227	2.5
Stoves and ranges (other than electric) and warm-air furnaces	46,616	39	1,193	5,838,484	1	15	93,771	2	57	388,048	2.7
Tin cans and other tinware, not elsewhere classified	31,497	9	2,110	15,172,721	--	--	--	1	28	145,100	6.8
Wirework, not elsewhere classified	22,388	23	660	2,842,206	1	65	312,920	4	38	695,114	3.4
Nonferrous metals and their products	130,685	176	1,718	12,621,986	3	69	222,357	11	1,309	6,556,397	2.4
Gas and electric fixtures; lamps, lanterns, and reflectors	23,580	53	929	5,128,231	2	62	190,357	6	385	2,516,084	5.8
Jewelry	27,922	85	420	3,716,926	--	--	--	--	--	--	1.5
Nonferrous-metal alloys and products, not including aluminum products	79,183	38	369	3,776,829	1	7	32,000	5	924	4,010,313	1.6
Machinery, not including transportation equipment	983,490	588	19,493	113,434,302	35	2,448	18,324,233	78	3,361	21,265,028	2.6
Agricultural implements	41,663	10	113	670,086	--	--	--	1	2	13,239	.3
Electrical machinery, apparatus, and supplies	323,722	128	10,810	56,471,076	12	1,007	7,176,279	21	1,578	9,541,810	4.1
Engines, turbines, tractors, and water wheels	61,148	2	90	185,290	3	696	4,480,772	--	--	--	1.3
Foundry and machine-shop products, not elsewhere classified	454,441	421	7,364	49,997,665	18	655	6,036,189	51	1,743	11,570,932	2.1
Machine tools	47,391	4	791	3,866,536	--	--	--	--	--	--	1.7
Pumps (hand and power) and pumping equipment	23,106	14	148	1,401,043	2	90	630,993	2	22	93,684	1.1
Textile machinery and parts	27,019	9	177	839,606	--	--	--	3	16	45,363	.7

TABLE 27.—SUMMARY FOR NEW AND RELOCATED PLANTS IN 50 INDUSTRIES, BY INDUSTRY GROUPS: 1929—Continued

INDUSTRY GROUP AND INDUSTRY	ALL PLANTS	NEW PLANTS			RELOCATED PLANTS						Ratio of jobs in new and relocated plants to those in "All plants" (per cent of wage jobs)
					Interstate			Intrastate			
	Wage jobs	Number	Wage jobs	Value of products	Number	Wage jobs	Value of products	Number	Wage jobs	Value of products	
Transportation equipment, air, land, and water	447,448	68	19,301	$275,012,182	3	3,312	$47,495,365	6	175	$982,417	5.1
Motor-vehicle bodies and motor-vehicle parts	221,332	54	11,832	76,762,627	2	1,003	7,015,876	6	175	982,417	5.9
Motor vehicles	226,116	14	7,469	198,249,555	1	2,309	40,479,489				4.3
Railroad repair shops	398,156	10	520	1,260,295				3	56	158,611	.1
Car and general construction and repairs, electric-railroad repair shops	29,475	5	274	665,330				1	26	49,525	1.0
Car and general construction and repairs, steam-railroad repair shops	368,681	5	246	594,965				2	30	109,086	.1

TABLE 28.—SUMMARY FOR NEW AND RELOCATED PLANTS IN 50 INDUSTRIES, BY GEOGRAPHIC DIVISIONS AND STATES: 1929

DIVISION AND STATE	ALL INDUSTRIES	50 INDUSTRIES							Ratio of jobs in new and relocated plants to those in "all plants"
		All plants	New plants		Relocated plants				
					Moving into State		Moving within State		
	Wage jobs	Wage jobs	Number	Wage jobs	Number	Wage jobs	Number	Wage jobs	Per cent of wage jobs
United States	8,838,743	4,796,412	2,235	97,310	86	8,692	201	9,907	2.4
New England	1,098,514	704,146	211	12,468	14	1,436	62	2,982	2.4
Maine	70,159	47,860	9	1,479	2	317			3.8
New Hampshire	65,511	49,233	14	1,713	3	497	3	348	5.2
Vermont	27,421	11,718	3	266					2.3
Massachusetts	557,494	361,393	121	6,741	4	165	46	2,307	2.5
Rhode Island	126,068	96,571	32	949	3	367	6	220	1.6
Connecticut	251,861	137,371	32	1,320	2	90	7	107	1.1
Middle Atlantic	2,562,340	1,317,177	635	18,825	27	2,062	58	2,498	1.8
New York	1,105,966	442,407	354	6,588	5	433	25	912	1.8
New Jersey	442,328	225,579	145	8,018	12	722	21	886	4.3
Pennsylvania	1,014,046	649,191	136	4,219	10	907	12	700	.9

TABLE 28.—SUMMARY FOR NEW AND RELOCATED PLANTS IN 50 INDUSTRIES, BY GEOGRAPHIC DIVISIONS AND STATES: 1929—Continued

DIVISION AND STATE	ALL INDUSTRIES	50 INDUSTRIES							
		All plants	New plants		Relocated plants				Ratio of jobs in new and relocated plants those in "all plants"
					Moving into State		Moving within State		
	Wage jobs	Wage jobs	Number	Wage jobs	Number	Wage jobs	Number	Wage jobs	Per cent of wage jobs
East North Central	2,542,176	1,615,849	510	32,104	27	4,869	44	2,853	2.5
Ohio	741,143	494,860	118	8,111	3	1,131	17	1,231	2.1
Indiana	314,698	205,056	66	3,814	9	742	2	10	2.2
Illinois	691,555	374,250	166	8,437	5	225	14	951	2.6
Michigan	530,035	382,944	117	10,622	5	2,608	4	27	3.5
Wisconsin	264,745	158,739	43	1,120	5	163	7	634	1.2
West North Central	474,115	229,231	135	3,508	7	68	7	170	1.6
Minnesota	103,414	47,687	25	237	4	51	2	54	.7
Iowa	81,678	38,837	28	374	2	9	2	3	1.0
Missouri	202,879	100,017	63	2,606	1	8	2	110	2.7
North Dakota	4,024	1,798	------	------	------	------	------	------	------
South Dakota	6,535	2,813	2	3	------	------	------	------	.1
Nebraska	28,212	13,933	11	186	------	------	------	------	1.3
Kansas	47,373	24,146	6	102	------	------	1	3	.4
South Atlantic	912,247	505,175	189	10,521	6	127	3	101	2.1
Delaware	23,552	10,995	3	55	1	7	------	------	.6
Maryland	131,099	62,140	25	1,827	3	103	1	62	3.2
District of Columbia	9,752	1,499	1	3	------	------	------	------	.2
Virginia	120,273	49,921	32	2,831	1	6	------	------	5.7
West Virginia	85,326	56,701	14	424	------	------	1	29	.8
North Carolina	209,826	150,300	55	2,357	------	------	1	10	1.6
South Carolina	108,777	79,387	19	945	------	------	------	------	1.2
Georgia	158,774	87,099	32	1,968	1	11	------	------	2.3
Florida	64,868	7,073	8	111	------	------	------	------	1.6
East South Central	377,870	173,879	105	8,134	3	91	1	7	4.7
Kentucky	77,825	44,592	23	514	1	15	------	------	1.2
Tennessee	128,400	64,467	31	2,858	1	38	------	------	4.5
Alabama	119,559	57,221	42	4,586	1	38	------	------	8.1
Mississippi	52,086	7,599	9	176	------	------	1	7	2.4
West South Central	297,743	77,274	93	1,952	------	------	1	9	2.5
Arkansas	44,205	9,584	8	351	------	------	------	------	3.7
Louisiana	87,345	16,229	12	395	------	------	------	------	2.4
Oklahoma	31,695	9,804	21	303	------	------	1	9	3.2
Texas	134,498	41,657	52	903	------	------	------	------	2.2
Mountain	102,492	33,365	36	346	------	------	------	------	1.0
Montana	14,869	4,674	------	------	------	------	------	------	------
Idaho	15,648	1,327	3	20	------	------	------	------	1.5
Wyoming	6,258	2,349	1	3	------	------	------	------	.1
Colorado	32,890	15,375	19	195	------	------	------	------	1.3
New Mexico	4,476	1,687	4	48	------	------	------	------	2.8
Arizona	10,550	2,110	5	53	------	------	------	------	2.5
Utah	15,601	4,522	4	27	------	------	------	------	.6
Nevada	2,200	1,321	------	------	------	------	------	------	------
Pacific	471,246	140,316	321	9,452	2	39	25	1,287	7.7
Washington	114,830	22,974	37	1,716	1	4	------	------	7.5
Oregon	65,505	12,212	39	408	1	35	25	1,287	14.2
California	290,911	105,130	245	7,328	------	------	------	------	7.0

O