Chapter Title: Wages and Salaries in Industries Covered by the Census

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CHAPTER II

WAGES AND SALARIES [1] IN INDUSTRIES COVERED BY THE CENSUS

Importance of Wages and Salaries in the National Income.

Wages and salaries combined make up the most important item in our national income. In 1919 the estimated total payroll of the country was about $34,769,000,000, or nearly 54 per cent of the total current income received by the entire population. Owing to the unusual activity in manufacturing industries in 1920, and to the great decline in income from agriculture in 1921, the percentages of the total national income represented by wages and salaries were even greater in these two years than in 1919. In 1921 wages and salaries accounted for approximately 58 per cent and in 1920 for about 59 per cent of the total current income [2] in the respective years.

When we consider in connection with the above figures the fact that wages and salaries play a greater rôle as a source of income in some States than in others, we realize that accuracy in the apportionment between States of this part of the national income is of very great moment. Unfortunately, the data available to make such a distribution are not as plentiful as one would desire. The Census on which we must depend for the bulk of our data is taken intermittently, and does not cover all the industries. A great deal of estimating and piecing together must therefore be done.

Following the limitations of the available material, the entire field of wages and salaries has been divided into five parts which, as will be observed, are by no means of equal magnitude. These divisions are as follows:

1. Manufactures
2. Mines, Quarries, and Oil Wells

[1] Throughout this volume, the term "wages and salaries" is used to include pensions, compensation for injuries, etc., and hence is synonymous with "the total share of employees."

[2] In calculating this percentage, *current income* excludes, in addition to Gains in Inventory Values, Imputed Interest on the Value of Durable Consumption Goods in the Hands of Consumers.

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3. Agriculture
4. Construction
5. Trade, Transportation, and Miscellaneous Industries.

In this chapter an attempt will be made to cover briefly the three industries namely, — Manufactures, Mining, and Agriculture, for which the United States Department of Commerce furnishes information in the form of periodic censuses covering the entire country.

MANUFACTURES

The Census of Manufactures.

Of all the five classes into which the income from wages and salaries has been divided for purposes of this study, the manufacturing field offers the most complete information with regard to the share of the national total received by employees in each State. The regular Census of Manufactures, which is now taken every two years, furnishes accurate and almost complete data for two years out of the three under consideration — 1919 and 1921. Hence, the problem encountered in estimating wages and salaries in this very important field was found to be comparatively simple, the only real difficulty lying in the distribution of the national total for 1920.

Cyclical Fluctuations Not Synchronous Throughout the Country.

Apart from the general upward trend due to the industrial expansion of the United States, the amount of wages and salaries disbursed to employees by manufacturing concerns varies considerably from year to year. Taking the three years covered by this study, we find that, for the entire United States, the totals fluctuated from about $13,624,000,000 in 1919 to $17,368,000,000 in 1920, and $11,050,000,000 in 1921. Have wages and salaries in manufacturing industries varied in the same proportion in each of the forty-eight States? If this were so, our problem would be still further simplified, as the distribution by States of the 1920 total could be made on the basis of the Census figures for either 1919 or 1921. However, it is found to be a fact that cyclical fluctuations are not synchronous in all industries and all sections of the country. It occasionally happens that, while one section of the

country is in the midst of an industrial depression, another section enjoys normal and sometimes even better than normal conditions in business activity and volume of employment. A glance at Table I will show why this is likely to be the case. In this table, we have twenty-four groups of manufacturing industries all reduced to

TABLE I. — INDICES OF EMPLOYMENT AND PRODUCTION FOR SPECI-
FIED MANUFACTURING INDUSTRIES IN THE
CONTINENTAL UNITED STATES
1919—1920—1921
(Base 1919)

TYPE OF INDEX AND INDUSTRY	YEAR		
	1919	1920	1921
Employment Indices			
Automobiles[a]	100.0	105.5	58.9
Boots and Shoes[a]	100.0	93.7	87.0
Chemicals[a]	100.0	103.8	85.3
Clothing[a]	100.0	103.6	92.8
Cotton Manufactures[a]	100.0	104.9	104.0
Iron and Steel[a]	100.0	109.5	67.6
Knit Goods[b]	100.0	94.9	87.2
Leather[a]	100.0	93.0	73.1
Metals[a]	100.0	104.9	66.8
Paper[a]	100.0	103.8	91.6
Printing and Publishing[a]	100.0	108.0	95.3
Railroad Cars[a]	100.0	99.0	64.1
Tobacco[b]	100.0	101.4	98.7
Wood Work[a]	100.0	107.0	82.3
Woolen Manufactures[a]	100.0	87.3	92.8
Production Indices			
Canned Foods and Preserves[d]	100.0	92.0	109.0
Chocolate, Coffee, and Spices, etc.[d]	100.0	86.2	87.2
Copper and Zinc Smelting and Refining[c]	100.0	97.0	40.0
Flour[c]	100.0	83.0	91.0
Glass, Cement, and Clay Products[c]	100.0	116.0	85.0
Lumber and Timber Products[c]	100.0	100.0	85.0
Slaughtering and Meat Packing[c]	100.0	89.0	89.0
Shipbuilding, Steel[c]	100.0	67.0	33.0
Sugar[d]	100.0	117.0	124.0

[a] Computed from figures appearing in the *Review of Economic Statistics* (Harvard Economic Service), Supplement 1, June, 1923.
[b] Computed from employment statistics appearing in different issues of the *Monthly Labor Review*.
[c] Based on figures published in the *Survey of Current Business*.
[d] Based on figures compiled by Miss Elizabeth Putnam, National Bureau of Economic Research.

the same basis with respect to the volume of employment or production. Starting with the same relative number of 100 in 1919, no two industries have apparently fluctuated in the other two years in exactly the same manner. The variation in the fluctuations of the different industries is certainly very great. Considering only the employment indices for the fifteen industries listed at the head of the table, we find that in 1920 the spread was between 87.3 and 109.5, or 22.2 points, while in 1921 the difference between the highest and the lowest of these indices was even greater, giving a dispersion of over 45 points.

Fluctuations in Total Payrolls and Composition of Industries.

It is well known that the composition of industry is not uniform throughout the country. An examination of the figures presented in the *Census of Manufactures* will show that many of the more important industries are concentrated within narrow geographic areas, and, consequently, the situation in one or two industries may well determine the relative employment conditions of an entire State. Thus, we know that Michigan, where the automobile industry is so dominant, was hit harder than most of the other States by the depression of 1921. Ohio is another State where one group of industries — iron, steel, and other metals — was mainly responsible for pulling the total volume of employment down to a very low point in 1921.

Under such conditions, it is quite apparent that the relative yearly fluctuations in the total payroll in manufacturing industries in different States depend largely upon the industrial composition of the States.

Rate of Development of Manufacturing Not the Same in All Sections of the Country.

In addition to the differences in the cyclical swings, the proportion of the total payrolls in manufacturing industries accruing to the employees of each State will change from year to year on account of the difference in the rate of development of the several parts of the country. For instance, in the five years between the 1914 and 1919 censuses, the industrial development of the Middle West progressed at a more rapid pace than that of the New England States. In 1914 Massachusetts had an average of 606,698 factory

workers, which by 1919 had increased to 713,836, a growth of less than 18 per cent.   During the same period, the number of factory workers in Ohio increased 43 per cent; in Indiana it increased 40 per cent, and in Wisconsin 36 per cent.   The total amount of wages in each of the above States showed the same tendency.   While in Massachusetts the total payroll increased 125 per cent, the increases in Ohio, Indiana, and Wisconsin were 197 per cent, 166 per cent, and 157 per cent, respectively.

From the above it follows that, to distribute the 1920 payrolls on the basis of the Census figures for either 1919 or 1921, would lead to serious errors.   Some adjusting factor must apparently be introduced to bridge the gap between the Census years.

Yearly Index for Each State of Total Manufacturing Payrolls.

Obviously, if it were possible to obtain an index for each State of the total amount of pay received by employees in manufacturing industries in 1919, 1920, and 1921, the solution of the problem would be at hand.   The total amount of wages and salaries in the manufacturing industries of each State in 1920 would then be estimated by applying these indices to the payroll figures as reported by the Census of Manufactures.   Unfortunately, payroll data by States are rather scarce, and it has therefore been necessary to resort to a more or less round-about method to secure the desired results.

Assuming that, in general, a given industry is affected by cyclical fluctuations in very much the same manner throughout the country, the figures presented in Table I have been used to construct indices of employment in each State which, together with the Census data, serve as a basis for estimating the relative distribution of wages and salaries in 1920.   In computing the indices of employment just mentioned, the indices representing each industry for the entire United States have been weighted in accordance with the relative importance of the industry in the given State, as indicated by the number of employees engaged therein in 1919.   The unimportant industries, which presumably serve local consumers, were assumed to have remained the same during the three years, and, consequently, their index of employment was taken as 100 each year.   An example will help to clarify the method employed.

Suppose a State has the following distribution of its employees in manufacturing industries in 1919:

Automobiles	10
Boots and Shoes	10
Clothing	5
Cotton Manufactures	10
Iron and Steel	20
Leather	10
All Other Industries	35
Total	100

Taking the index of employment for 1919 as 100, if changes in employment have been in accordance with the indices shown in Table I,[1] the above percentages will have changed in 1921 to:

Automobiles	5.9
Boots and Shoes	8.7
Clothing	4.6
Cotton Manufactures	10.4
Iron and Steel	13.5
Leather	7.3
All Other Industries	35.0
Total	85.4

As indicated above, "All Other Industries," which separately represent very small fractions of the total number of employees attached to manufacturing industries, are assumed not to have changed in volume of employment, and still represent in our example 35 per cent of the total number employed in 1919. The total of the transformed percentages representing the number of employees in the individual industries, or, in the above case, 85.4, is accepted as an approximation of employment in 1921. A figure may similarly be obtained for 1920, or any of the other years following 1921.

The approximate indices of employment in manufacturing industries for each State are presented in Table II. It should be stated emphatically that these indices are, at best, but very rough approximations, and are presented merely as an intermediary step in the estimating of the final index of the relative amount of wages and salaries received by manufacturing employees in each State. These indices cannot be recommended as being sufficiently accurate to be used independently without careful adjustment. The employment indices for each State shown in Table II have been

[1] See p. 51.

TABLE II. — APPROXIMATE INDICES OF EMPLOYMENT IN MANUFACTURING INDUSTRIES FOR EACH STATE[a]
1919—1920—1921   (Base 1919)

State and Geographic Division	Year		
	1919	1920	1921
New England			
Maine	100.0	97.6	88.7
New Hampshire	100.0	98.8	94.0
Vermont	100.0	99.9	94.1
Massachusetts	100.0	99.2	83.8
Rhode Island	100.0	99.2	95.6
Connecticut	100.0	101.9	86.7
Middle Atlantic			
New York	100.0	100.4	90.3
New Jersey	100.0	96.9	88.2
Pennsylvania	100.0	100.2	84.2
East North Central			
Ohio	100.0	101.9	84.9
Indiana	100.0	102.3	83.6
Illinois	100.0	100.1	89.5
Michigan	100.0	102.6	76.5
Wisconsin	100.0	100.2	90.3
West North Central			
Minnesota	100.0	98.6	89.6
Iowa	100.0	99.8	89.1
Missouri	100.0	100.2	89.5
North Dakota	100.0	98.8	85.5
South Dakota	100.0	98.2	90.5
Nebraska	100.0	96.7	90.3
Kansas	100.0	96.7	86.7
South Atlantic			
Delaware	100.0	99.2	89.6
Maryland	100.0	97.2	86.0
District of Columbia	100.0	100.3	96.0
Virginia	100.0	100.8	91.9
West Virginia	100.0	104.1	83.9
North Carolina	100.0	102.1	95.8
South Carolina	100.0	103.4	98.3
Georgia	100.0	100.9	89.9
Florida	100.0	96.9	85.5
East South Central			
Kentucky	100.0	101.2	87.6
Tennessee	100.0	99.9	90.9
Alabama	100.0	100.8	84.5
Mississippi	100.0	100.4	87.3
West South Central			
Arkansas	100.0	100.0	93.1
Louisiana	100.0	100.0	90.6
Oklahoma	100.0	101.1	90.1
Texas	100.0	100.5	88.1
Mountain			
Montana	100.0	99.5	85.1
Idaho	100.0	99.6	85.6
Wyoming	100.0	99.6	82.5
Colorado	100.0	99.5	90.6
New Mexico	100.0	99.7	77.4
Arizona	100.0	98.6	67.0
Utah	100.0	101.8	94.2
Nevada	100.0	98.8	79.4
Pacific			
Washington	100.0	93.0	75.1
Oregon	100.0	99.8	88.3
California	100.0	93.1	83.9

[a] These indices are only rough approximations of the relative changes in employment in the different States. Since in the computation of these indices only fluctuations in the more important industries in each State have been considered — it having been assumed that, on the average, employment in the less important and purely local industries remained unchanged through the three years — the amplitudes of the oscillations are undoubtedly underestimated. The indices cannot be recommended as being sufficiently accurate to be used in other investigations without very careful adjustments.

adjusted to correspond with indices of total payrolls in each State based on the figures of the Census of Manufactures for 1919 and 1921. In other words, by using the employment data presented in Table II (1919, 1920, and 1921) in conjunction with the payroll data recorded by the Census of Manufactures (1919 and 1921), indices of the total payrolls in manufacturing industries for the three years, 1919, 1920, and 1921, have been computed for each State. On the basis of these indices,[1] preliminary figures of the total wages and salaries in manufacturing industries in 1920 were computed. These figures then served as a basis for the distribution of the final total of wages and salaries in manufacturing industries of the entire Continental United States.

It should be noted that, in our method of estimating the total wages and salaries for 1920, only differences in the relative changes in employment in the different States have been taken into consideration. It has not been possible to make allowances for changes in average wage rates in the different parts of the country. However, it is quite improbable that any errors thus introduced were large enough to make any appreciable differences in the final totals.

Power Laundries.

The method described above applied to all manufacturing industries exclusive of power laundries. For power laundries the wages and salaries were distributed on the basis of the Census figures for 1919 in each of the three years, without making any adjustments for the intercensal years. It is believed that laundry service is not subject to as violent fluctuations as some of the other industries, and, consequently, the changes in the geographic distribution of wages and salaries in this industry within the period of one or two years can hardly be significant.

The Final Estimates.

The final estimates of the total wages and salaries received by employees in all manufacturing industries by States are presented in Table III. It will be noted that invariably 1920 is the highest

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[1] No presentation is made of these indices for the reason that, as noted in the following paragraph, no adjustment could be made in 1920 for changes in the average wage level in the different States, and, consequently, the legitimate use of these indices for purposes of other investigations would be even more limited than that of the figures shown in Table II.

TABLE III. — TOTAL WAGES AND SALARIES PAID IN ALL MANUFACTURING INDUSTRIES IN EACH STATE

1919—1920—1921

STATE AND GEOGRAPHIC DIVISION	DOLLARS (000's Omitted)			PER CENT OF TOTAL		
	1919	1920	1921	1919	1920	1921
Continental United States...	**13,624,401**	**17,368,540**	**11,050,617**	**100.000**	**100.000**	**100.000**
New England	**1,790,390**	**2,360,741**	**1,492,652**	**13.141**	**13.592**	**13.508**
Maine	113,071	144,899	99,914	.829	.834	.904
New Hampshire	93,493	116,451	80,355	.686	.671	.727
Vermont	41,863	52,039	35,177	.307	.300	.318
Massachusetts	961,310	1,327,483	828,597	7.057	7.643	7.498
Rhode Island	170,371	213,562	149,960	1.251	1.229	1.357
Connecticut	410,282	506,307	298,649	3.011	2.915	2.702
Middle Atlantic	**4,530,766**	**5,772,154**	**3,731,066**	**33.256**	**33.233**	**33.764**
New York	1,994,587	2,617,918	1,777,062	14.640	15.073	16.081
New Jersey	779,102	951,229	620,190	5.719	5.477	5.613
Pennsylvania	1,757,077	2,203,007	1,333,814	12.897	12.683	12.070
East North Central	**3,911,684**	**4,995,682**	**3,043,721**	**28.710**	**28.763**	**27.543**
Ohio	1,231,800	1,508,160	866,033	9.042	8.684	7.837
Indiana	407,264	545,540	337,717	2.989	3.141	3.056
Illinois	1,092,628	1,444,292	985,524	8.018	8.316	8.918
Michigan	797,884	1,025,060	551,862	5.856	5.902	4.994
Wisconsin	382,108	472,630	302,585	2.805	2.720	2.738
West North Central	**765,346**	**989,460**	**678,211**	**5.618**	**5.697**	**6.137**
Minnesota	176,906	222,851	150,630	1.299	1.283	1.362
Iowa	127,015	164,766	111,208	.932	.949	1.007
Missouri	282,918	378,116	263,150	2.077	2.177	2.381
North Dakota	7,277	9,522	6,504	.053	.055	.059
South Dakota	10,509	12,859	8,693	.077	.074	.079
Nebraska	63,771	78,166	53,949	.469	.450	.488
Kansas	96,950	123,180	84,077	.711	.709	.761
South Atlantic	**962,922**	**1,176,386**	**734,850**	**7.068**	**6.773**	**6.650**
Delaware	45,436	48,992	26,446	.334	.282	.239
Maryland	192,376	237,203	153,764	1.412	1.366	1.392
District of Columbia...	20,404	27,255	20,706	.150	.157	.187
Virginia	148,483	176,918	109,117	1.089	1.019	.988
West Virginia	121,050	161,499	96,491	.889	.930	.873
North Carolina	152,528	185,935	119,284	1.119	1.069	1.079
South Carolina	74,009	93,751	62,189	.544	.540	.563
Georgia	129,282	154,382	93,347	.949	.889	.845
Florida	79,354	90,451	53,506	.582	.521	.484
East South Central	**377,884**	**474,924**	**300,144**	**2.774**	**2.734**	**2.716**
Kentucky	88,957	122,322	84,096	.653	.704	.761
Tennessee	109,361	136,822	90,652	.803	.788	.820
Alabama	119,614	147,739	87,742	.878	.851	.794
Mississippi	59,952	68,041	37,654	.439	.391	.341
West South Central	**379,619**	**484,294**	**325,218**	**2.786**	**2.788**	**2.943**
Arkansas	57,540	63,766	36,975	.422	.367	.335
Louisiana	119,126	152,181	101,880	.876	.876	.922
Oklahoma	49,238	61,320	43,982	.362	.353	.398
Texas	153,715	207,027	142,381	1.126	1.192	1.288
Mountain	**181,687**	**231,451**	**155,614**	**1.332**	**1.333**	**1.408**
Montana	30,746	37,022	22,459	.226	.213	.203
Idaho	21,950	25,169	18,669	.160	.145	.169
Wyoming	13,322	20,940	16,117	.098	.121	.146
Colorado	58,465	75,325	53,017	.429	.434	.480
New Mexico	7,936	10,272	6,084	.058	.059	.055
Arizona	15,795	19,182	9,584	.116	.110	.087
Utah	28,389	36,256	24,744	.208	.209	.224
Nevada	5,084	7,285	4,940	.037	.042	.044
Pacific	**724,103**	**883,448**	**589,141**	**5.315**	**5.087**	**5.331**
Washington	230,771	243,919	127,689	1.694	1.405	1.156
Oregon	97,745	111,657	64,797	.717	.643	.586
California	395,587	527,872	396,655	2.904	3.039	3.589

of the three years, and that, in all but three cases (California, Wyoming, and the District of Columbia), 1921 is the lowest.

An examination of the last three columns of Table III reveals some very interesting points regarding the relative effect on the different States of the violent changes in the industrial conditions of the country which have taken place in the three years. These three columns show the percentages of the total wages and salaries in manufacturing industries received by employees residing in each State. Without directly portraying changes in the absolute amounts, these percentages disclose the redistribution of the total wage bill of the manufacturing industries of the country among the several States. It is quite apparent that the East North Central division was hit hardest by the depression of 1921. Out of an already reduced total payroll, this division received 27.5 per cent in 1921 as compared with 28.8 per cent in 1919. Ohio and Michigan, where the metal and automobile industries are so heavily represented, seem to be chiefly responsible for the poor showing of the entire division in 1921. In 1919 manufacturing employees in Ohio received over 9 per cent of the total payrolls of the country; in 1921 they received only 7.8 per cent. Michigan's share also dropped about 1 per cent.

Distribution of Manufacturing Activities.

Table III also gives a very clear picture of the distribution of manufacturing activities. While it is true that average wages and earnings are not the same in each State, and consequently cannot be taken to show the volume of manufacturing, the figures shown in this table are very significant. Over 33 per cent of the total payrolls of manufacturing industries of the country is received by employees in the three States making up the Middle Atlantic division. The employees of New York and Pennsylvania alone receive over 27 per cent of the total payrolls. About 75 per cent of the total manufacturing payrolls of the country is concentrated in the eastern part of the United States.

MINES, QUARRIES, AND OIL WELLS

The Census Year.

As in the case of manufactures, the United States Census furnishes a very good background for estimating the amount of

income derived in each State from wages and salaries in the mining industries.   The 1920 Census of Mines, Quarries, and Oil Wells furnishes complete figures by States of the share of employees in this industry for 1919.   In the final estimates used in this report, no changes are made from the 1919 Census figures except in the case of coal mines where the figures have been adjusted by about $39,000,000 to take care of items duplicated under the title of manufactures.[1]

The Intercensal Years.

It is obvious that, in the apportioning by States of the total wages and salaries in the mining industry for 1920 and 1921, to use the 1919 Census figures, as reported, would not yield highly accurate results.   This is particularly true on account of the fact that two-thirds of the total wages and salaries in mining industries are earned in coal mines.   Coal mines are subject to frequent strikes which affect different areas in varying degrees.   A local strike would naturally reduce the total mining payroll of the State containing the field affected.   Furthermore, a strike in one coal area may stimulate production in other fields, thus materially changing the proportionate share of each State in the total national income from wages and salaries in coal mines.   It would, therefore, appear that an adjustment of some sort is necessary if the Census year is to be made basic in computing wages and salaries in coal mines for the intercensal years.   The adjustment of the Census figures for coal mines was made on the basis of the total value of coal mined each year in each State.   About 70 per cent of the total value of the product in mining is paid out in wages and salaries, which fact makes the value of coal a good indicator of the total disbursements to employees.   Accordingly, the wages and salaries paid to coal mine employees in each State in 1920 and 1921 were approximated by multiplying the corresponding figures for 1919, as recorded in the 1920 Census, by the ratio of the value of coal in 1920 (or 1921) to that in 1919.   These estimates were then adjusted to correspond with the national totals computed by Dr. King.

It should be noted that this process was followed in all States with the exception of Pennsylvania.   For this State the figures as reported by its Department of Internal Affairs were used.   The

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[1] This difference occurs chiefly in the figures for Pennsylvania.

TABLE IV. — TOTAL WAGES AND SALARIES IN MINING INDUSTRIES IN EACH STATE
1919—1920—1921
Dollars (000's Omitted)

State and Geographic Division	1919 Total	1919 Coal Mines	1919 Other Mines	1920 Total	1920 Coal Mines	1920 Other Mines	1921 Total	1921 Coal Mines	1921 Other Mines
Continental United States	1,415,903	935,272	480,631	1,859,208	1,283,425	575,783	1,290,124	1,044,705	245,419
New England	9,248		9,248	11,078		11,078	4,722		4,722
Maine	1,170		1,170	1,399		1,399	597		597
New Hampshire	922		922	1,106		1,106	471		471
Vermont	3,490		3,490	4,180		4,180	1,782		1,782
Massachusetts	2,393		2,393	2,867		2,867	1,222		1,222
Rhode Island	482		482	576		576	246		246
Connecticut	791		791	950		950	404		404
Middle Atlantic	456,343	413,624	42,719	608,767	557,585	51,182	528,025	506,212	21,813
New York	8,928		8,928	10,698		10,698	4,559		4,559
New Jersey	6,119		6,119	7,330		7,330	3,124		3,124
Pennsylvania	441,296	413,624	27,672	590,739	557,585	33,154	520,342	506,212	14,130
East North Central	265,588	182,666	82,922	375,310	275,964	99,346	253,199	210,859	42,340
Ohio	66,376	52,856	13,520	102,414	86,217	16,197	59,743	52,840	6,903
Indiana	34,271	31,267	3,004	50,189	46,590	3,599	34,606	33,072	1,534
Illinois	104,302	96,350	7,952	149,608	140,079	9,529	126,103	122,043	4,060
Michigan	55,107	2,193	52,914	66,472	3,078	63,394	29,922	2,904	27,018
Wisconsin	5,532		5,532	6,627		6,627	2,825		2,825
West North Central	94,932	33,796	61,136	114,944	41,704	73,240	62,536	31,318	31,218
Minnesota	32,925		32,925	39,447		39,447	16,813		16,813
Iowa	13,810	12,890	920	18,345	17,245	1,100	12,585	12,115	470
Missouri	18,641	8,934	9,707	23,518	11,887	11,631	14,430	9,474	4,956
North Dakota	1,188	1,188		1,192	1,192		1,323	1,323	
South Dakota	2,819	11	2,808	3,370	7	3,363	1,440	6	1,434
Nebraska	193		193	230		230	99		99
Kansas	25,356	10,773	14,583	28,842	11,373	17,469	15,846	8,400	7,446

	1	2	3	4	5	6	7	8	9
South Atlantic	168,252	138,354	29,898	240,397	204,583	35,814	148,701	133,435	15,266
Delaware	156		156	184		184	80		80
Maryland	6,941	6,065	876	11,219	10,171	1,048	4,947	4,500	447
District of Columbia	8		8	11		11	4		4
Virginia	17,929	14,261	3,668	24,157	19,764	4,393	14,554	12,681	1,873
West Virginia	134,564	118,028	16,536	194,461	174,648	19,813	124,697	116,254	8,443
North Carolina	1,688		1,688	2,021		2,021	862		862
South Carolina	820		820	985		985	419		419
Georgia	2,372		2,372	2,839		2,839	1,211		1,211
Florida	3,774		3,774	4,520		4,520	1,927		1,927
East South Central	111,745	92,808	18,937	143,179	120,493	22,686	99,794	90,124	9,670
Kentucky	56,955	51,788	5,167	83,281	77,091	6,190	58,653	56,015	2,638
Tennessee	14,626	9,732	4,894	19,377	13,516	5,861	12,040	9,541	2,499
Alabama	40,164	31,288	8,876	40,521	29,886	10,635	29,101	24,568	4,533
Mississippi									
West South Central	110,296	16,701	93,595	131,893	19,770	112,123	62,703	14,912	47,791
Arkansas	5,175	3,859	1,316	6,604	5,026	1,578	4,270	3,598	672
Louisiana	9,073		9,073	10,871		10,871	4,633		4,633
Oklahoma	59,452	9,722	49,730	71,084	11,513	59,571	35,004	9,611	25,393
Texas	36,596	3,120	33,476	43,334	3,231	40,103	18,796	1,703	17,093
Mountain	152,335	50,226	102,109	178,535	56,218	122,317	104,026	51,886	52,140
Montana	28,723	6,061	22,662	34,382	7,240	27,142	17,362	5,791	11,571
Idaho	5,385		5,385	6,466		6,466	2,750		2,750
Wyoming	16,171	11,425	4,746	18,630	12,947	5,683	15,538	13,115	2,423
Colorado	28,999	18,410	10,589	33,235	20,551	12,684	24,762	19,354	5,408
New Mexico	11,912	6,160	5,752	13,126	6,234	6,892	8,427	5,489	2,938
Arizona	31,452		31,452	37,673		37,673	16,060		16,060
Utah	19,758	8,170	11,588	23,122	9,246	13,876	14,054	8,137	5,917
Nevada	9,935		9,935	11,901		11,901	5,073		5,073
Pacific	47,164	7,097	40,067	55,105	7,108	47,997	26,418	5,959	20,459
Washington	8,330	7,001	1,329	8,592	7,003	1,589	6,550	5,871	679
Oregon	1,191	96	1,095	1,418	105	1,313	647	88	559
California	37,643		37,643	45,095		45,095	19,221		19,221

fact that reliable figures were available each year for the coal mines of Pennsylvania reduced the probable error in our final estimates, as Pennsylvania alone accounts for nearly 50 per cent of the total wages and salaries disbursed in the coal mining industry.

The changes in employment in mines other than coal are more uniform throughout the country, and yearly adjustments by States are not considered essential. The apportionment by States of the estimate of total wages paid in all other mines was therefore made on the basis of the 1919 payrolls.

The Final Estimates For All Mining Industries.

Table IV gives comparative figures for 1919, 1920, and 1921 of the total income derived in the form of wages and salaries from the mining industries. It will be noted that Pennsylvania, West Virginia, and Illinois get the lion's share of this income. Of the total of $1,416,000,000 in 1919, these three States received $680,000,000, or 48 per cent. In 1921, the share of Pennsylvania, West Virginia, and Illinois constituted almost 60 per cent of the total. This enormous change in the geographic distribution of wages and salaries in mining industries is explained by the fact that the depression of 1921 affected chiefly the employees in mining industries other than coal. While the total wage bill in coal mines was slightly higher in 1921 than in 1919, the 1921 payrolls in all other mines were only about 50 per cent of those in 1919.

<div align="center">AGRICULTURE</div>

Farm Wages Form a Small Fraction of Total Payrolls for All Industries.

Although there are more persons engaged in agriculture than in any other single industry, the annual agricultural payroll of the country is not very large. It represents, on the average, only a little more than 4 per cent of the total payrolls of all industries. The comparatively small amount paid out in wages and salaries in agriculture is, of course, due to the fact that most of the work on the farm is done by the farmer himself and his family, and, consequently, hired labor does not play as important a rôle in this industry as it does in others. Another reason is that farm wages are, as a rule, considerably lower than wages in manufacturing, mining, and other industries.

Geographic Distribution of Farm Wages.

The total wage bill in agriculture for the Continental United States in 1919 was about $1,415,813,000. This amount did not include salaries of farm managers. For 1920 and 1921, the estimated total amounts of wages paid out to employees in agriculture were about $1,581,000,000, and $1,324,000,000, respectively. In 1919 the West North Central States disbursed over 25 per cent of the total amount of farm wages. The geographic division next highest in the amount of farm wages was the East North Central, with about 18 per cent of the total. The Pacific division follows with approximately 13 per cent. Individually, California leads all the other States in the amount it pays out annually for farm labor. In 1921 it disbursed about $118,000,000, or nearly 9 per cent of the total for the country. Texas takes second place with respect to farm wages. In 1921 it paid out about $83,000,000, making up 6.3 per cent of the total. Illinois, New York, Iowa, and Kansas follow California and Texas with payrolls comprising from about 6 per cent to 5 per cent each.

Method of Estimating.

The estimates of the total amount of farm wages disbursed in each State in 1919 are based on the records of the 1920 Census.[1] For 1920 and 1921 the totals for each State have been estimated on the basis of

1. Average monthly farm wages in each State,
2. Crop acreage, and
3. Total amount of wages in 1919.

The mode of calculation of these totals may be outlined as follows:

A = Crop acreage 1919
B = Crop acreage 1920
C = Crop acreage 1921
D = Farm wages per month 1919
E = Farm wages per month 1920
F = Farm wages per month 1921
G = Amount paid out in wages in 1919

[1] *Census of Agriculture,* 1920, Vol. VI, p. 48.

TABLE V. — TOTAL FARM WAGES RECEIVED BY EMPLOYEES IN EACH STATE

1919—1920—1921

STATE AND GEOGRAPHIC DIVISION	DOLLARS (000's Omitted)			PER CENT OF TOTAL		
	1919	1920	1921	1919	1920	1921
Continental United States......	1,415,813	1,580,767	1,324,466	100.000	100.000	100.000
New England...............	56,095	65,286	63,668	3.963	4.130	4.807
Maine..................	10,066	11,540	10,662	.711	.730	.805
New Hampshire..........	4,714	5,517	5,192	.333	.349	.392
Vermont................	8,041	8,931	8,424	.568	.565	.636
Massachusetts...........	17,291	20,692	20,370	1.222	1.309	1.538
Rhode Island............	2,194	2,419	2,530	.155	.153	.191
Connecticut.............	13,789	16,187	16,490	.974	1.024	1.245
Middle Atlantic............	129,451	146,173	145,982	9.143	9.247	11.022
New York...............	67,152	80,445	77,494	4.743	5.089	5.851
New Jersey..............	18,858	22,431	20,807	1.332	1.419	1.571
Pennsylvania............	43,441	43,297	47,681	3.068	2.739	3.600
East North Central.........	249,240	284,001	247,171	·17.604	17.966	18.662
Ohio...................	48,464	54,552	46,754	3.423	3.451	3.530
Indiana.................	34,305	36,168	32,595	2.423	2.288	2.461
Illinois.................	82,882	92,792	83,892	5.854	5.870	6.334
Michigan...............	33,342	39,503	33,190	2.355	2.499	2.506
Wisconsin...............	50,247	60,986	50,740	3.549	3.858	3.831
West North Central........	357,110	394,716	308,467	25.223	24.970	23.290
Minnesota...............	52,004	57,350	43,548	3.673	3.628	3.288
Iowa...................	73,806	83,496	65,693	5.213	5.282	4.960
Missouri................	41,879	44,467	40,966	2.958	2.813	3.093
North Dakota...........	38,694	43,850	33,257	2.733	2.774	2.511
South Dakota...........	33,144	36,974	25,218	2.341	2.339	1.904
Nebraska...............	46,736	49,035	35,323	3.301	3.102	2.667
Kansas.................	70,847	79,544	64,462	5.004	5.032	4.867
South Atlantic.............	107,371	118,906	95,733	7.583	7.522	7.228
Delaware...............	2,941	3,335	3,086	.207	.211	.233
Maryland...............	17,456	19,238	17,907	1.233	1.217	1.352
District of Columbia......	....	....	....	.....	.....	.....
Virginia................	21,322	23,585	20,675	1.506	1.492	1.561
West Virginia...........	6,074	7,003	6,150	.429	.443	.465
North Carolina..........	12,558	14,559	10,755	.887	.921	.812
South Carolina..........	15,857	17,452	12,278	1.120	1.104	.927
Georgia.................	19,850	21,783	14,357	1.402	1.378	1.084
Florida.................	11,313	11,951	10,516	.799	.756	.927
East South Central.........	46,071	48,278	39,880	3.254	3.054	3.011
Kentucky...............	18,944	18,764	16,013	1.338	1.187	1.209
Tennessee..............	11,723	12,615	11,046	.828	.798	.834
Alabama................	8,056	9,153	6,755	.569	.579	.510
Mississippi..............	7,348	7,746	6,066	.519	.490	.458
West South Central........	169,152	186,589	148,328	11.948	11.804	11.199
Arkansas...............	13,790	16,377	12,053	.974	1.036	.910
Louisiana...............	22,356	27,094	19,523	1.579	1.714	1.474
Oklahoma...............	42,403	44,356	33,403	2.995	2.806	2.522
Texas..................	90,603	98,762	83,349	6.400	6.248	6.293
Mountain..................	118,113	135,453	104,805	8.342	8.569	7.913
Montana................	22,285	23,095	14,993	1.574	1.461	1.132
Idaho..................	19,113	20,724	16,503	1.350	1.311	1.246
Wyoming...............	9,712	12,520	10,106	.686	.792	.763
Colorado...............	28,534	34,014	27,423	2.015	2.152	2.071
New Mexico.............	11,725	13,678	11,026	.828	.865	.832
Arizona................	11,807	14,223	9,761	.834	.900	.737
Utah...................	8,863	10,512	8,980	.626	.665	.678
Nevada.................	6,074	6,687	6,013	.429	.423	.454
Pacific....................	183,210	201,365	170,432	12.940	12.738	12.868
Washington.............	35,622	39,456·	32,542	2.516	2.496	2.457
Oregon.................	21,959	22,083	19,576	1.551	1.397	1.478
California...............	125,629	139,826	118,314	8.873	8.845	8.933

Using the above factors, the estimate of the amount paid out in wages in 1920 equals $\dfrac{B \times E \times G}{A \times D}$; the estimated amount paid out in wages in 1921 equals $\dfrac{C \times F \times G}{A \times D}$.

The preliminary totals obtained in the manner indicated above have been adjusted so as to agree with the estimates for the Continental United States previously calculated by Dr. King. Complete data for the three years are recorded in Table V.

Salaries of Farm Managers.

The figures presented in Table V do not cover the entire amount of wages and salaries paid out in agriculture. According to the 1920 Census,[1] over 68,000 farms in the Continental United States are operated by farm managers. It is obvious that the distribution of salaries of these managers does not necessarily follow the same geographic lines as that for farm wages, and, hence, the amount received by farm managers is not calculated on the basis of the 1920 Census figures. The distribution of this item has been made in accordance with an index based upon the total number of farms operated by managers in each State, as reported by the Census[1] and the estimated relative level of wages and salaries in each State.[2] The final totals are shown in Tables XXXI, XXXII, and XXXIII.

[1] *Census of Agriculture*, 1920, Vol. V, p. 132.
[2] The estimated average full-time earnings of employees in trade, transportation, and miscellaneous industries in 1919 were taken as the index of relative wages and salaries by States (see Table VIII, Column M).