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## CHAPTER III

### THE VOLUME OF EMPLOYMENT

While the preceding chapter gives rather complete information concerning the numbers of employees on the pay rolls of various industries, it does not picture accurately the variations taking place in the volume of employment. The reason that it does not do so is that fluctuations occur from time to time in the number of hours worked per week as well as in the number of employees who are drawing pay. In times of depression, some employers, in order to spread work, have all employees work shorter hours, some keep their business in operation only part of the days in the week, and others have part of the force work the first half and part the second half of the week. In each of these instances the number on the pay roll remains unchanged, though evidently the volume of employment varies greatly. As workers produce only when at work and normally are paid only for time when actually so engaged, it is the number of hours worked and not the number of persons whose names appear on the pay roll that measures the volume of employment and hence is of chief significance to students of employment questions.

#### THE PER CENT OF FULL TIME WORKED BY EMPLOYEES WHILE ON THE PAY ROLLS

That the part of unemployment which arises during a business depression from putting the workers on part time is, however, distinctly smaller than the fraction of total idleness caused by dropping them from the pay rolls is clearly indicated by Tables XIV, XV, XVI, and XVII, which record for the important industrial fields the per cent of full time worked during each quarter by workers who remained on the pay rolls all of the time.

Too much reliance must not be placed upon the absolute sizes of the percentages entered in these tables, for their correctness depends upon the accuracy of two distinct quantities: first, the number of employee hours actually worked; and, second, the number of full-time employee hours for these plants. The first quantity is something definite, which, when the needed data are available, can be measured with precision. The second is perforce based upon opinions and hence is liable to error from subjective causes.

At first thought it seems easy enough to define "full-time" hours, but

reflection brings the conviction that every definition is necessarily arbitrary. When, for example, a plant that ordinarily runs 48 hours a week reduces its time of operation to 36 hours a week in order to keep from discharging employees, no one can know positively that the 48-hour week will ever be resumed. When to this impossibility of foreknowledge is added the fact that a considerable number of the employers who furnished the information upon which these tables are based failed to interpret the question on the schedule in the manner expected, it follows that every estimate of "the per cent of full time actually worked" must be viewed with more or less suspicion.

It is probable, however, that the recorded *changes* in the percentages are more reliable than the absolute sizes of the percentages themselves. When, therefore, one industry shows a much larger change than another, the chances are that it represents a real and not merely a fictitious difference in the degree of variation in employment.

Table XIV indicates that the maximum change occurred in the case of steam railway employees. The fact should be noted, however, that the figures show that during the boom, the railway workers put in much overtime so that, even at the lowest point of the depression, they were working 94.2 per cent of full time.

The decline recorded for the metal products factories is next in magnitude. During the depression their employees lost about one-eighth of their nominal full time. In mines and construction work and in textile and lumber products factories, the decline was not very great, but the percentage of full time worked is lower throughout than in most other fields.

Table XV indicates that of enterprises employing fewer than 21 employees each the only ones that resorted to part-time employment to a marked extent were those engaged in mining, construction work, or the manufacture of textiles and clothing. The unusually low percentage of employment reported for mines of this size presumably is not very significant as the record is based upon an inadequate sample. However, there is a possibility that it pictures the facts correctly for, according to Table XVI, the same phenomenon occurred in mines of the next larger size. In mines having from 21 to 100 men, part-time work is shown to have been more prevalent than in those that employed over 100 workers each.

The same relationship held for the position of the smaller as compared with the larger metal working factories. In fact, the general indications of Tables XVI and XVII are that the device of part-time work has been used just as extensively by concerns employing from 21 to 100 workers as by those conducting operations on a larger scale.

If the records obtained from employers are representative, the conclusion seems to be justified for all but a few industries that part-time work, while

THE VOLUME OF EMPLOYMENT

TABLE XIV

AN ESTIMATE FOR THE CONTINENTAL UNITED STATES OF THE PER CENT OF FULL TIME WORKED BY THE AVERAGE EMPLOYEE WHILE ON THE PAY ROLL IN ENTERPRISES OF ALL SIZES

INDUSTRY	PER CENT OF FULL TIME WORKED										DECLINE FROM HIGHEST TO LOWEST RECORDED	
	1920					1921						1922
	First quarter	Second quarter	Third quarter	Fourth quarter		First quarter	Second quarter	Third quarter	Fourth quarter	First quarter		
All Industries.....	98.5	97.5	98.0	97.4		95.3	95.8	95.8	96.4	96.2	3.2	
Agriculture.....	95.1	93.2	96.9	98.9		92.4	95.1	97.4	99.6	94.1	6.5	
Extraction of Minerals.....	94.3	93.1	95.1	94.8		90.7	90.2	88.4	92.8	93.4	6.7	
Building and Construction.....	94.1	94.6	94.6	94.9		92.9	94.3	94.4	94.5	102.1	2.0	
Other Hand Trades.....	96.9	98.3	97.1	97.6		95.8	97.7	97.2	97.0	96.2	2.5	
Finance.....	99.5	100.1	100.1	99.3		99.4	99.5	99.7	99.4	99.5	1.2	
Public and Professional Service.....	100.6	100.1	100.0	100.3		101.4	100.3	99.9	99.9	100.5	1.5	
Domestic and Personal Service.....	98.2	97.8	97.9	98.5		97.8	98.0	97.9	97.0	97.9	1.5	
All Transportation.....	103.6	103.8	105.7	103.1		98.6	99.7	99.0	99.0	95.9	9.8	
Steam Railways.....	106.8	107.4	109.9	105.6		99.0	100.4	99.5	99.1	94.2	15.7	
Other Transportation.....	98.2	98.1	98.7	99.3		97.9	98.9	98.5	98.8	98.1	1.4	
Commerce and Trade.....	97.9	98.1	98.1	98.7		98.1	98.1	97.7	98.7	98.2	1.0	
Wholesale.....	98.9	99.0	99.0	100.3		99.9	99.4	98.6	98.7	98.8	1.7	
Retail.....	97.8	97.9	98.0	98.5		97.9	97.9	97.6	98.7	98.1	0.9	
All Factories.....	98.1	96.3	96.2	94.4		91.6	92.3	92.2	93.3	93.3	6.5	
Food, Drink and Tobacco.....	97.4	97.9	95.8	96.3		97.6	98.1	95.7	96.8	96.6	2.4	
Lumber and Its Products.....	94.7	94.9	95.6	95.0		94.0	94.7	95.2	95.5	95.6	1.6	
Metals and Metal Products <sup>a</sup> .....	99.7	96.0	96.6	93.9		88.5	87.0	87.0	88.5	92.5	12.7	
Paper and Printing.....	98.7	98.6	98.0	98.5		96.8	95.9	95.8	98.2	95.7	3.0	
Mineral Products <sup>b</sup> .....	98.4	99.0	98.5	97.4		94.1	96.0	95.6	96.4	95.2	4.9	
Textile and Leather Products <sup>c</sup> .....	96.0	95.4	94.3	91.6		91.3	94.7	94.4	94.9	91.0	5.0	

<sup>a</sup> Vehicles, railroad cars, and all products not elsewhere recorded are included here.

<sup>b</sup> Includes chemical, stone, glass, and clay products.

<sup>c</sup> Includes clothing of all kinds.

## EMPLOYMENT HOURS AND EARNINGS

TABLE XV

AN ESTIMATE FOR THE CONTINENTAL UNITED STATES OF THE PER CENT OF FULL TIME WORKED BY THE AVERAGE EMPLOYEE WHILE ON THE PAY ROLL IN ALL ENTERPRISES HAVING FEWER THAN 21<sup>c</sup> EMPLOYEES

INDUSTRY	PER CENT OF FULL TIME WORKED												MAXIMUM CYCLICAL DECLINE
	1920				1921				1922				
	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Fourth quarter			
All Industries.....	97.8	97.5	97.9	98.9	97.5	97.6	97.8	98.3	97.5	98.3	97.5	98.1	0.6
Agriculture.....	95.2	94.5	97.5	99.8	92.7	95.5	97.7	100.2	93.7	100.2	93.7	98.1	2.5
Extraction of Minerals.....	71.5	71.7	71.9	71.1	71.1	79.9	78.6	74.8	70.2	74.8	70.2	92.5	1.3
Building and Construction.....	91.1	93.0	93.4	91.7	89.8	92.2	94.2	92.0	92.5	92.0	92.5	97.4	1.3
Other Hand Trades.....	98.3	98.4	98.0	98.1	96.8	97.9	97.8	97.7	97.4	97.7	97.4	101.1	1.6
Finance.....	101.3	101.1	101.4	100.6	101.6	101.0	101.6	100.8	101.1	100.8	101.1	98.2	0.5
Public and Professional Service.....	101.4	101.1	100.7	101.2	103.1	100.9	100.0	100.5	100.9	100.5	100.9	97.4	2.2
Domestic and Personal Service.....	97.7	97.4	97.1	99.1	97.2	97.4	97.3	96.2	97.4	96.2	97.4	98.2	2.9
All Transportation.....	99.1	98.2	99.4	100.5	98.1	98.7	98.4	99.5	98.2	99.5	98.2	98.2	1.0
Steam Railways.....													
Other Transportation.....	99.1	98.2	99.4	100.5	98.1	98.7	98.4	99.5	98.2	99.5	98.2	98.2	1.0
Commerce and Trade.....	98.0	98.4	98.4	99.2	98.8	98.7	98.1	99.7	98.8	99.7	98.8	98.8	0.3
Wholesale.....	98.2	98.8	98.5	98.9	98.9	98.8	98.9	99.4	98.6	99.4	98.6	98.6	0.3
Retail.....	98.0	98.4	98.4	99.2	98.8	98.7	98.1	99.7	98.6	99.7	98.6	98.6	0.3
All Factories.....	98.2	97.8	97.8	97.1	97.5	97.5	97.9	97.6	97.5	97.6	97.5	97.5	0.7
Food, Drink, and Tobacco.....	98.6	98.7	95.7	97.1	97.0	98.8	95.8	97.0	97.0	97.0	97.0	97.0	1.6
Lumber and Its Products.....	96.1	96.9	97.0	97.1	97.2	97.1	97.5	97.8	97.3	97.8	97.3	97.3	0.1 <sup>d</sup>
Metals and Metal Products.....	99.6	101.2	100.1	97.9	98.9	102.3	101.7	99.3	98.3	99.3	98.3	98.3	0.7
Paper and Printing.....	99.1	99.3	98.4	96.6	97.3	96.2	98.5	99.3	97.4	99.3	97.4	97.4	3.1
Mineral Products <sup>b</sup> .....	99.7	99.7	100.6	101.8	100.3	99.1	99.6	99.8	97.6	99.8	97.6	97.6	4.2
Textile and Leather Products <sup>e</sup> .....	101.7	93.4	99.8	91.3	94.4	92.6	98.3	90.9	98.1	90.9	98.1	98.1	7.3

<sup>a</sup> Vehicles, railroad cars, and all products not elsewhere recorded are included here.

<sup>b</sup> Includes chemical, stone, glass, and clay products.

<sup>c</sup> Includes clothing of all kinds.

<sup>d</sup> Increase—Minimum for corresponding quarters.

<sup>e</sup> Enterprises are classified on the basis of the number of persons employed in the first quarter of 1920.

THE VOLUME OF EMPLOYMENT

TABLE XVI

AN ESTIMATE FOR THE CONTINENTAL UNITED STATES OF THE PER CENT OF FULL TIME WORKED BY THE AVERAGE EMPLOYEE WHILE ON THE PAY ROLL IN ALL ENTERPRISES HAVING 21 TO 100<sup>c</sup> EMPLOYEES

INDUSTRY	PER CENT OF FULL TIME WORKED												MAXIMUM CYCICAL DECLINE
	1920				1921				1922				
	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter			
All Industries.....	96.5	93.3	93.4	95.0	94.8	95.7	94.8	95.8	95.5	95.8	97.5	98.9	3.2
Agriculture.....	96.8	83.5	94.9	96.5	93.3	91.3	95.8	97.5	98.9	97.5	97.5	98.9	3.5
Extraction of Minerals.....	88.7	80.1	86.4	92.8	84.4	80.8	68.5	93.8	91.7	93.8	96.6	96.0	17.9
Building and Construction.....	96.2	96.3	96.3	97.5	95.1	96.1	95.5	96.6	96.0	96.6	96.6	96.0	1.2
Other Hand Trades.....	96.8	96.8	96.3	96.6	96.3	95.6	95.5	94.3	93.8	94.3	94.3	93.8	3.0
Finance.....	100.9	100.8	99.8	99.7	98.2	98.1	98.1	98.1	98.0	98.1	98.1	98.0	2.8
Public and Professional Service.....	99.1	98.1	97.2	97.7	97.9	99.1	99.4	97.2	99.6	99.1	99.4	99.6	1.9
Domestic and Personal Service.....	99.0	98.2	98.7	98.9	98.7	99.1	98.8	98.5	98.6	98.5	98.5	98.6	0.5
All Transportation.....	96.3	96.5	97.4	98.4	98.1	97.9	97.7	98.3	97.1	97.7	98.3	97.1	1.0
Steam Railways.....	96.3	96.5	97.4	98.4	98.1	97.9	97.7	98.3	97.1	97.7	98.3	97.1	1.0
Other Transportation.....	97.5	95.1	95.4	97.4	95.8	95.6	95.3	95.6	95.4	95.6	95.6	95.4	1.8
Commerce and Trade.....	99.2	98.7	99.0	102.1	101.5	101.1	98.3	98.9	98.8	98.3	98.9	98.8	3.8
Wholesale.....	97.0	94.0	94.2	96.1	94.1	94.0	94.3	94.7	94.4	94.3	94.7	94.4	2.9
Retail.....	95.1	90.3	89.2	91.1	92.4	94.6	93.7	93.8	92.9	94.6	93.8	92.9	5.9
All Factories.....	97.7	97.7	92.8	93.4	97.9	98.3	91.0	94.9	97.3	98.3	91.0	94.9	1.8
Food, Drink, and Tobacco.....	91.5	91.1	93.3	92.3	91.2	91.4	92.5	93.7	93.1	91.2	92.5	93.1	0.8
Lumber and Its Products.....	94.3	70.3	71.6	79.1	82.1	87.0	90.8	84.2	88.3	87.0	90.8	88.3	24.0 <sup>a</sup>
Metals and Metal Products.....	97.1	96.2	94.4	98.0	96.4	95.3	94.3	100.1	96.2	96.4	100.1	96.2	0.9
Paper and Printing.....	97.3	99.0	99.0	97.2	96.9	98.4	98.1	97.4	95.4	96.9	98.1	95.4	1.9
Mineral Products <sup>b</sup> .....	94.5	96.5	93.5	92.3	92.4	95.6	94.5	93.4	90.1	95.6	94.5	90.1	4.4
Textile and Leather Products <sup>c</sup> .....	94.5	96.5	93.5	92.3	92.4	95.6	94.5	93.4	90.1	95.6	94.5	90.1	4.4

<sup>a</sup> Vehicles, railroad cars, and all products not elsewhere recorded are included here. The large variations are due to enormous fluctuations in a single plant—not representative.  
<sup>b</sup> Includes chemical, stone, glass, and clay products.  
<sup>c</sup> Includes clothing of all kinds.  
<sup>d</sup> Enterprises are classified on the basis of the number employed in the first quarter of 1920.

## EMPLOYMENT HOURS AND EARNINGS

TABLE XVII

AN ESTIMATE FOR THE CONTINENTAL UNITED STATES OF THE PER CENT OF FULL TIME WORKED BY THE AVERAGE EMPLOYEE WHILE ON THE PAY ROLL IN ALL ENTERPRISES HAVING OVER 100<sup>d</sup> EMPLOYEES

INDUSTRY	PER CENT OF FULL TIME WORKED												MAXIMUM CYCLICAL DECLINE
	1920				1921				1922				
	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	
All Industries.....	99.6	99.0	99.6	97.2	93.7	94.3	94.2	95.1	95.4	95.4	95.4	95.4	5.9
Agriculture.....	92.5	78.9	74.5	73.6	80.2	87.7	84.2	81.3	88.3	88.3	88.3	88.3	12.3
Extraction of Minerals.....	96.6	96.3	97.6	96.5	93.1	93.3	94.0	94.3	95.4	95.4	95.4	95.4	3.6
Building and Construction.....	95.5	94.5	94.1	96.4	93.9	94.8	93.8	95.7	96.6	96.6	96.6	96.6	2.6
Other Hand Trades.....	93.3	100.0	95.9	97.4	92.6	100.0	98.2	99.1	96.4	96.4	96.4	96.4	0.7
Finance.....	96.8	98.7	98.9	97.5	97.6	98.6	98.3	98.6	98.5	98.5	98.5	98.5	0.6
Public and Professional Service.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.0
Domestic and Personal Service.....	99.8	99.7	101.7	93.8	99.9	99.7	99.7	99.7	99.6	99.6	99.6	99.6	7.9
All Transportation.....	105.0	105.4	107.5	104.1	98.7	100.1	99.3	99.0	95.3	95.3	95.3	95.3	8.2
Steam Railways.....	106.8	107.4	109.9	105.6	99.0	100.4	99.5	99.1	94.2	94.2	94.2	94.2	10.4
Other Transportation.....	98.4	98.7	98.6	98.5	97.6	99.4	98.8	98.4	98.3	98.3	98.3	98.3	0.8
Commerce and Trade.....	97.9	99.0	99.0	97.8	97.8	97.8	98.2	97.9	98.2	98.2	98.2	98.2	1.2
Wholesale.....	99.0	99.2	99.2	99.5	99.1	98.7	98.6	99.0	99.0	99.0	99.0	99.0	0.6
Retail.....	97.5	98.8	98.9	97.2	97.3	97.4	98.0	97.5	97.9	97.9	97.9	97.9	1.4
All Factories.....	98.7	97.5	97.7	94.7	90.3	90.5	90.5	92.2	92.6	92.6	92.6	92.6	8.4
Food, Drink, and Tobacco.....	96.7	97.6	97.6	97.8	97.8	97.6	98.8	98.0	96.0	96.0	96.0	96.0	1.8
Lumber and Its Products.....	95.5	95.9	95.8	94.2	91.6	93.8	94.1	94.1	95.2	95.2	95.2	95.2	4.3
Metals and Metal Products <sup>a</sup> .....	100.0	98.1	99.0	95.1	88.7	86.5	86.1	88.4	92.6	92.6	92.6	92.6	13.9
Paper and Printing.....	99.5	99.5	99.9	99.8	96.7	96.0	94.9	96.2	94.1	94.1	94.1	94.1	5.8
Mineral Products <sup>b</sup> .....	98.6	98.9	97.7	96.1	90.6	93.5	92.4	94.5	83.8	83.8	83.8	83.8	8.3
Textile and Leather Products <sup>c</sup> .....	96.0	95.2	94.2	91.5	90.8	94.6	94.0	95.6	90.7	90.7	90.7	90.7	5.3

<sup>a</sup> Vehicles, railroad cars, and all products not elsewhere recorded are included here.

<sup>b</sup> Includes chemical, stone, glass, and clay products.

<sup>c</sup> Includes clothing of all kinds.

<sup>d</sup> Enterprises are classified on the basis of the number of persons employed in the first quarter of 1920.

more prevalent in time of depression than when the boom is on, is, nevertheless, not commonly resorted to by most employers. The minimum per cent of full time reached by the reported totals for all industries is 95.3, a figure which indicates a surprisingly small amount of part-time work. Employers in general evidently believe it advantageous to lay off some of their employees rather than to keep everyone occupied for a smaller number of hours per week.

#### THE ACTUAL VOLUME OF EMPLOYMENT AS SHOWN BY REPORTS FROM EMPLOYERS

The next logical step is to ascertain what the records furnished by employers show concerning changes in the actual volume of employment in the United States. Tables XVIII, XIX, XX, and XXI bring out the facts in this regard. These tables, like those pertaining to the numbers on the pay rolls, contain estimates for all enterprises in the United States and not merely records for the sample plants reporting. These estimates were obtained by weighting the samples from the respective fields in proportion to the estimated numbers of employees working in each on March 31, 1920. Such estimates give the best picture of the volume of employment in the United States which can be obtained from the data collected during this investigation. So far as the writer is aware, this constitutes the first serious effort to measure the total volume of employment in any country. It represents an initial attempt to portray the actual changes in employment conditions brought about by the business cycle. It is hoped that this beginning may lead to more accurate studies of the same kind in the future.

The estimates recorded in Tables XVIII to XXI indicate that, at the crest of the boom in 1920, establishments employing over 100 persons utilized nearly half of all the time worked by all employees in the United States. By the third quarter of 1922 this proportion had fallen to slightly over two-fifths. At the beginning of 1920 these large scale undertakings gave 50 per cent more employment than did the small enterprises having fewer than 21 employees. In the third quarter of 1921, however, the small enterprises were requiring more hours of work than did the large ones. The medium-sized undertakings, keeping from 21 to 100 workers, utilized about one-seventh of the entire volume of employment in 1920 and approximately one-sixth of it in 1921.

According to Table XVIII, the cyclical decline in business activity caused total employment in the United States to fall off by just about one-sixth. Workers in factories producing metals and metal products suffered most severely from the depression, employment in that field shrinking by more than one-half. Mines and railways each underwent a diminution of about three-tenths in the volume of work done. Factory owners in general

reduced the extent of their operations by from one-tenth to one-fifth. While the miscellaneous hand trades alone show quite as great activity in 1921 as in 1920, the cyclical decline in agricultural and retail mercantile operations was negligible. Public, domestic and personal service showed no striking change throughout the recorded period.

The fact is worthy of note that not every industry reached its lowest point of employment at the same date. Building and construction, and factories working in wood, textiles, and leather, struck bottom in the first quarter of 1921. Manufacturers of food, drink, and tobacco employed the fewest workers in the second quarter of 1921. Producers of metals, minerals, or paper, and their products reached the lowest stage of employment in the third quarter of 1921; while the industries of mining, finance, transportation, and merchandising employed fewer persons in the first quarter of 1922 than in any of the previous periods.

Table XIX shows how strikingly different from the general average was the steadiness of employment characterizing those small enterprises having fewer than 21 workers. While, for industry as a whole, the cycle caused employment to fall off by one-sixth, the total of this class escaped with a reduction of only some three per cent. Factories engaged in wood, metal, textile, or leather working were affected most severely, lowering their volume of employment by about one-sixth—but this is only a slightly larger reduction than the average for all plants of all classes. Building and construction employment underwent a reduction of about one-seventh, but most of the remaining industries show declines of less than ten per cent. Small mining, financial, and mercantile enterprises and paper and printing establishments were nearly as active in 1921 as in 1920.

On the average, concerns employing from 21 to 100 workers suffered from the depression about four times as severely as did the group of smallest-sized plants. Though, as a whole, they reduced their volume of employment by only about one-seventh, metal working plants had a diminution in this item of over one-half and mines of two-fifths. Most industries cut total hours worked from four to twenty per cent, financial institutions alone showing no reduction in the volume of employment.

Though, as just stated, concerns having 21 to 100 employees in the first quarter of 1920 had four times as much falling off in employment as did the very small enterprises, the larger scale plants were affected still more severely, showing a proportional reduction more than twice as great as that occurring in the medium-sized establishments. If the measurement is made in absolute amounts, the contrast is even more striking, for the cyclical shrinkage in the total employee hours worked in the large scale enterprises was approximately two and a half billions, in contrast with a loss of less than half a billion in the medium-sized plants and only a fifth of a

TABLE XVIII

AN ESTIMATE FOR THE CONTINENTAL UNITED STATES OF THE TOTAL HOURS ACTUALLY WORKED PER QUARTER BY ALL EMPLOYEES IN ENTERPRISES OF ALL SIZES

INDUSTRY	MILLIONS OF HOURS WORKED PER QUARTER												MAXIMUM CYCLICAL DECLINE (Per Cent)
	1920				1921				1922				
	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter			
All Industries.....	17,747	18,395	19,063	17,611	15,515	15,548	15,918	15,655	15,180				16.50
Agriculture.....	911	1,265	1,603	1,148	882	1,250	1,552	1,112	898				3.18
Extraction of Minerals.....	648	654	698	672	590	549	534	509	491				29.66
Building and Construction.....	702	851	914	751	619	690	805	796	751				18.92
Other Hand Trades.....	353	377	357	370	355	379	367	370	361				0.00
Finance.....	231	234	238	234	235	225	224	221	221				7.14
Public and Professional Service.....	1,961	1,928	1,922	1,905	1,952	1,841	1,834	1,939	2,032				4.57
Domestic and Personal Service.....	1,956	1,991	2,037	2,019	1,973	1,985	2,022	1,936	1,920				4.11
All Transportation.....	2,104	2,163	2,323	2,231	1,800	1,755	1,824	1,866	1,639				21.48
Steam Railways.....	1,359	1,374	1,513	1,388	1,068	1,004	1,064	1,080	936				29.68
Other Transportation.....	745	789	810	842	731	750	759	785	703				6.77
Commerce and Trade.....	1,733	1,772	1,762	1,799	1,698	1,723	1,707	1,749	1,671				2.78
Wholesale.....	185	197	195	186	178	187	184	176	171				5.64
Retail.....	1,548	1,574	1,566	1,612	1,519	1,535	1,523	1,573	1,500				2.75
All Factories.....	7,143	7,154	7,204	6,478	5,406	5,148	5,045	5,152	5,191				29.97
Food, Drink, and Tobacco.....	678	664	740	710	573	564	628	627	557				15.13
Lumber and Its Products.....	648	704	699	591	530	608	594	551	555				18.21
Metals and Metal Products <sup>a</sup> .....	3,375	3,331	3,354	2,963	2,244	1,857	1,679	1,736	1,954				50.25
Paper and Printing.....	396	394	394	412	375	359	352	379	368				10.65
Mineral Products <sup>b</sup> .....	565	571	583	570	492	474	474	488	477				18.70
Textile and Leather Products <sup>c</sup> .....	1,479	1,488	1,431	1,240	1,189	1,284	1,315	1,368	1,277				20.09

<sup>a</sup> Vehicles, railroad cars, and all products not elsewhere recorded are included here.

<sup>b</sup> Includes chemical, stone, glass, and clay products.

<sup>c</sup> Includes clothing of all kinds.

## EMPLOYMENT HOURS AND EARNINGS

TABLE XIX

**AN ESTIMATE FOR THE CONTINENTAL UNITED STATES OF THE TOTAL HOURS ACTUALLY WORKED PER QUARTER  
BY ALL EMPLOYEES IN ALL ENTERPRISES HAVING FEWER THAN 21\* EMPLOYEES**

INDUSTRY	MILLIONS OF HOURS WORKED PER QUARTER												MAXIMUM CYCLICAL DECLINE (Per Cent)
	1920				1921				1922				
	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Fourth quarter			
All Industries.....	5,895	6,464	6,956	6,310	5,773	6,277	6,742	6,161	5,872				3.08
Agriculture.....	818	1,147	1,488	1,044	783	1,149	1,456	1,018	812				4.28
Extraction of Minerals.....	22	23	23	22	22	36	38	29	23				0.00
Building and Construction.....	249	307	335	296	225	262	320	317	286				14.66
Other Hand Trades.....	181	197	186	190	180	193	184	186	185				2.11
Finance.....	92	93	94	94	96	96	97	96	96				0.00
Public and Professional Service <sup>d</sup> .....	1,085	1,079	1,089	988	1,035	970	994	995	1,091				10.93
Domestic and Personal Service.....	1,292	1,339	1,399	1,370	1,324	1,344	1,403	1,296	1,285				5.40
All Transportation.....	258	275	277	323	248	266	269	311	242				3.72
Steam Railways.....													
Other Transportation.....	258	275	277	323	248	266	269	311	242				3.72
Commerce and Trade.....	1,136	1,162	1,165	1,180	1,140	1,158	1,153	1,165	1,128				1.27
Wholesale.....	32	32	32	33	32	33	32	33	32				0.00
Retail.....	1,104	1,130	1,133	1,147	1,108	1,126	1,121	1,132	1,096				1.31
All Factories.....	762	842	901	803	718	802	827	748	725				8.21
Food, Drink, and Tobacco.....	153	171	206	183	151	164	194	172	157				5.83
Lumber and Its Products.....	294	328	325	272	246	301	272	232	235				16.31
Metals and Metal Products <sup>e</sup> .....	64	75	95	79	69	66	78	69	64				17.89
Paper and Printing.....	104	107	104	111	112	110	110	119	111				1.79
Mineral Products <sup>e</sup> .....	75	82	88	94	81	85	89	89	85				5.32
Textile and Leather Products <sup>e</sup> .....	71	78	83	64	59	76	82	66	73				16.90

<sup>a</sup> Vehicles, railroad cars, and all products not elsewhere recorded are included here.

<sup>b</sup> Includes chemical, stone, glass, and clay products.

<sup>c</sup> Includes clothing of all kinds.

<sup>d</sup> Based upon a sample too small to be dependable.

<sup>e</sup> Enterprises are classified upon the basis of the number employed in the first quarter of 1920.

THE VOLUME OF EMPLOYMENT

TABLE XX

AN ESTIMATE FOR THE CONTINENTAL UNITED STATES OF THE TOTAL HOURS ACTUALLY WORKED PER QUARTER BY ALL EMPLOYEES IN ALL ENTERPRISES HAVING 21 TO 100<sup>a</sup> EMPLOYEES

INDUSTRY	MILLIONS OF HOURS WORKED PER QUARTER								MAXIMUM CYCLICAL DECLINE (Per Cent)	
	1920				1921					1922
	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter		First quarter
All Industries.....	2,734	2,854	2,926	2,851	2,653	2,629	2,588	2,627	2,521	13.84
Agriculture.....	76	98	88	81	78	81	76	77	79	17.35
Extraction of Minerals.....	87	72	82	92	85	83	71	58	54	41.31
Building and Construction.....	225	271	311	284	273	261	264	254	229	15.11
Other Hand Trades.....	107	104	102	107	105	107	106	107	102	4.67
Finance.....	56	57	59	60	60	60	60	61	60	0.00
Public and Professional Service.....	261	255	263	252	240	245	258	249	234	11.03
Domestic and Personal Service.....	469	454	435	445	448	442	421	444	440	4.48
All Transportation.....	139	149	157	153	140	140	144	138	135	9.80
Steam Railways.....	139	149	157	153	140	140	144	138	135	9.80
Other Transportation.....	259	258	258	265	249	248	243	251	240	5.81
Commerce and Trade.....	63	63	65	64	61	60	59	58	57	12.31
Wholesale.....	196	195	193	201	188	188	184	193	183	4.66
Retail.....	1,054	1,135	1,171	1,112	974	962	946	989	948	19.21
All Factories.....	167	169	188	200	154	154	162	178	149	13.83
Food, Drink, and Tobacco.....	174	199	197	156	141	156	165	157	158	21.61
Lumber and Its Products.....	147	191	215	193	149	111	103	114	129	52.10
Metals and Metal Products <sup>c</sup> .....	105	104	102	111	98	92	91	105	98	11.54
Paper and Printing.....	167	165	169	172	159	155	156	165	157	7.69
Mineral Products <sup>b</sup> .....	294	307	300	281	273	294	269	270	255	10.33
Textile and Leather Products <sup>d</sup> .....										

<sup>a</sup> Vehicles, railroad cars, and all products not elsewhere recorded are included here.

<sup>b</sup> Includes chemical, stone, glass, and clay products.

<sup>c</sup> Includes clothing of all kinds.

<sup>d</sup> Enterprises are classified upon the basis of the number employed in the first quarter of 1920.

## EMPLOYMENT HOURS AND EARNINGS

TABLE XXI

**AN ESTIMATE FOR THE CONTINENTAL UNITED STATES OF THE TOTAL HOURS ACTUALLY WORKED PER QUARTER  
BY ALL EMPLOYEES IN ALL ENTERPRISES HAVING OVER 100' EMPLOYEES**

INDUSTRY	MILLIONS OF HOURS WORKED PER QUARTER												MAXIMUM CYCLICAL DECLINE (Per Cent)
	1920				1921				1922				
	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter			
All Industries.....	9,119	9,077	9,181	8,451	7,090	6,643	6,589	6,867	6,787	8	28.23 <sup>b</sup>		
Agriculture.....	17	21	27	23	22	20	20	17	8	25.93 <sup>c</sup>			
Extraction of Minerals.....	539	559	593	558	482	430	426	422	414	30.18			
Building and Construction.....	228	273	269	170	121	168	221	226	236	46.93			
Other Hand Trades.....	65	76	70	74	71	80	78	78	75	5.00 <sup>d</sup>			
Finance.....	84	85	81	81	80	69	68	64	66	25.58			
Public and Professional Service.....	615	594	570	666	677	627	583	696	708	2.23 <sup>d</sup>			
Domestic and Personal Service.....	196	199	204	204	202	199	198	197	196	3.92			
All Transportation.....	1,708	1,740	1,889	1,756	1,412	1,349	1,411	1,417	1,262	33.19			
Steam Railways.....	1,359	1,374	1,514	1,389	1,069	1,005	1,065	1,081	936	38.18			
Other Transportation.....	349	366	376	367	343	344	347	337	326	8.17			
Commerce and Trade.....	339	352	340	355	309	317	312	334	303	9.94			
Wholesale.....	91	103	99	90	86	95	94	85	82	7.77			
Retail.....	248	249	241	265	224	222	218	249	221	10.84			
All Factories.....	5,327	5,178	5,133	4,563	3,714	3,384	3,273	3,415	3,519	38.56			
Food, Drink, and Tobacco.....	359	325	347	328	269	246	273	277	252	25.07			
Lumber and Its Products.....	179	178	177	164	143	151	163	163	162	20.11			
Metals and Metal Products <sup>a</sup> .....	3,164	3,065	3,045	2,681	2,026	1,680	1,498	1,554	1,761	52.65			
Paper and Printing.....	187	184	188	191	165	157	152	156	160	20.42			
Mineral Products <sup>b</sup> .....	324	324	326	304	253	235	230	234	235	29.41			
Textile and Leather Products <sup>c</sup> .....	1,114	1,103	1,049	895	858	915	965	1,032	949	22.98			

<sup>a</sup> Vehicles, railroad cars, and all products not elsewhere recorded are included here.

<sup>b</sup> Includes chemical, stone, glass, and clay products.

<sup>c</sup> Includes clothing of all kinds.

<sup>d</sup> Increase—minimum for corresponding quarters.

<sup>e</sup> Third quarters compared—first quarter of 1922 not believed to be typical.

<sup>f</sup> Enterprises are classified upon the basis of the numbers employed in the first quarter of 1920.

billion for the smallest-sized enterprises. Such a marked difference seems to demonstrate conclusively that, in this depression, unemployment was primarily a phenomenon connected with undertakings of considerable size. This conclusion is corroborated by Table XXI, which indicates that, in eleven out of seventeen industries, those enterprises employing over 100 persons reduced by more than one-fifth the volume of employment given, while in only three industrial groups; namely, public and professional service and the miscellaneous hand trades, did concerns of this class record negligible cyclical declines in employment.

A pertinent question is whether or not the heavy declines in employment shown for the larger plants were distributed somewhat evenly over the United States or whether they were concentrated in certain sections. Although lack of space prevents the publication here of many of the details, separate tables have been made for three sections of the United States. For the sake of brevity, the Rocky Mountain and Pacific Coast regions will hereafter be referred to as the West, the region south of the Potomac and the Ohio rivers and running west to the New Mexico line will be designated as the South, and the remainder of the country will be called the Northeast.

The figures for large-sized enterprises in agriculture are based upon too few establishments to give one much confidence that they are representative; hence sectional differences are not worth noting. The falling off in employment in mines was almost equally marked in the West, the South, and the Northeast. No reports were received from the South or West from large concerns engaged in construction work, hence the record given probably represents mainly the situation in the Northeast, though some of the work may have been done elsewhere. Large financial institutions in the Mountain and Pacific division showed an increase rather than a decline in activity, but the South suffered from the depression nearly as severely as did the Northeast. The records for steam railways could not be classified according to geographical divisions. The business of wholesale dealers held up better in the South than in the other parts of the country, but, in retail trades, that section appears to have fared no better than did the rest of the nation. Large-scale lumber production was hit hardest in the South and showed the least effect of the depression in the West. The same may be said of large establishments producing textiles, leather goods, and clothing. Factories producing chemical and mineral products suffered most in the South and least in the Northeast. Records for the larger paper mills and printing establishments that reported show that in the South there was a gain in 1921 over 1920, but that, in the Northeast, there was a moderate decline. No reports were received from the West. The data gathered indicate that the falling off in employment in factories engaged in producing food, drink, tobacco, metals and metal products, vehicles, and

miscellaneous articles was approximately uniform through the United States.

Table XXII and Charts 1, 2, and 3 summarize the data showing the absolute changes in the volume of employment occurring between the peak and the trough of the cycle. In the diagrams presented, the left hand bar of each pair represents total employment at the peak and the right hand bar the same at the trough. The hollow bars show the totals for nominal full-time hours. Their length is affected mainly by changes in the numbers on the pay-rolls. The solid black bars on the contrary represent hours actually worked. The difference between the hollow and the solid bar represents the amount of work gained through over-time or lost through part-time work.

TABLE XXII

**A COMPARISON OF THE VOLUME OF EMPLOYMENT AT THE PEAK AND IN THE TROUGH FOR LEADING INDUSTRIAL GROUPS**

INDUSTRY	EMPLOYEES PER CONCERN	FULL TIME HOURS (Millions)			HOURS ACTUALLY WORKED (Millions)		
		Peak	Trough	Per Cent Decline	Peak	Trough	Per Cent Decline
ALL INDUSTRIES	0- 20	7,105	6,892	3.00	6,956	6,742	3.08
	21-100	3,132	2,640	15.71	2,926	2,521	13.84
	Over 100	9,215	6,997	24.07	9,181	6,589	28.23
AGRICULTURE	0- 20	1,526	1,491	2.29	1,488	1,456	2.15 <sup>a</sup>
	21-100	117	89	23.93	98	81	17.35
	Over 100	36	24	33.33	27	20	25.93
EXTRACTION OF MINERALS	0- 20	32	33	3.13 <sup>b</sup>	23	23	0.00
	21-100	99	59	40.40	92	54	41.31
	Over 100	608	434	28.62	593	414	30.18
FACTORIES	0- 20	922	844	8.46	901	827	8.21
	21-100	1,313	1,010	23.07	1,171	946	19.21
	Over 100	5,400	3,617	33.02	5,327	3,273	38.56
BUILDING AND CONSTRUCTION	0- 20	330	284	13.94	307	262	14.66
	21-100	322	278	13.66	311	264	15.11
	Over 100	289	177	38.75	228	121	46.93
TRANSPORTATION	0- 20	321	312	2.80	323	311	3.72
	21-100	156	140	10.26	153	138	9.80
	Over 100	1,758	1,324	24.69	1,889	1,262	33.19
COMMERCE AND TRADE	0- 20	1,189	1,169	1.68	1,180	1,165	1.27
	21-100	270	255	5.56	258	243	5.81
	Over 100	355	324	8.73	352	317	9.94
ALL OTHER INDUSTRIES	0- 20	2,804	2,624	6.42	2,767	2,573	7.01
	21-100	904	851	5.86	894	836	6.49
	Over 100	1,049	929	11.44	1,045	926	11.39

<sup>a</sup> Based upon the third quarters—the periods between which the proportionate change in the number of employees was greatest.

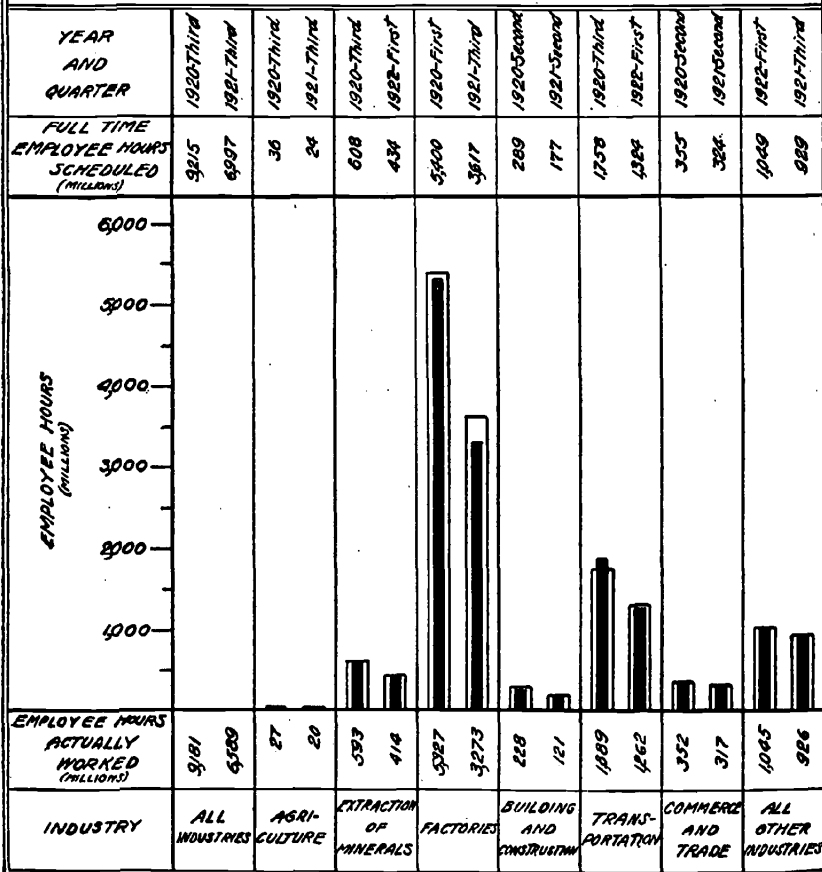
<sup>b</sup> Increase—minimum for corresponding quarters.





Chart 3

DIFFERENCES IN THE TOTAL HOURS OF EMPLOYMENT GIVEN QUARTERLY AT THE PEAK AND AT THE TROUGH OF THE BUSINESS CYCLE BY ENTERPRISES EMPLOYING MORE THAN 100 PERSONS EACH IN THE FIRST QUARTER OF 1920.



## RELATIVE CHANGES IN THE VOLUME OF EMPLOYMENT

A chart adapted to portraying employment as measured in absolute terms usually fails to show clearly the relative changes occurring in the smaller-sized items. For this reason it has been necessary to draft Tables XXIII and XXIV and Charts 4, 5, and 6, which compare by means of index numbers the relative changes from quarter to quarter in the total hours actually worked. A study of these diagrams brings out vividly the varied nature of the changes occurring in the different industrial fields. In certain industries, the seasonal fluctuations almost overshadow the cyclical movements. In one or two instances the erratic movements shown are presumably due to the inadequate size of the sample. This probably explains the large hump in the graph representing mines of the smallest size. Too few records were received to justify one in laying any stress upon the tabulated data for public and professional service. When allowance has been made for these circumstances, one can observe certain well-defined tendencies. Large-scale manufacturing enterprises employed more people in the first quarter of 1920 than at any time in the next two years. Small-scale factories, on the contrary, did not attain maximum activity until the third quarter of 1920. This peculiarity may be due primarily to the fact that the business of small factories is more seasonal and the middle of the year is the period of greatest activity or it may indicate that the larger concerns more quickly sensed the impending debacle. In general, the curves showing employment in factories of the largest size keep well below the lines representing the smaller enterprises.

Other industrial fields show somewhat the same characteristics as factories, though there are exceptions to the rule. For example, in only two cases, namely, domestic and personal service and miscellaneous hand trades, did concerns of either class fail to increase their volume of employment after the first quarter of 1920. It appears that, in this cycle, large-sized factories were the first to feel the tremors of the approaching economic earthquake. In no instance do the very small enterprises show a material reduction in the volume of employment at the close as compared to the beginning of the period, but the opposite is true of seven out of the twelve industries for enterprises employing over 100 workers in the first quarter of 1920. Only in public and professional service and the miscellaneous hand trades was there a distinct increase in the hours of work performed in large-scale concerns. Since all the graphs are on the same scale, it is easy to observe the relatively great stability of employment in mercantile concerns as compared to that given by agriculture, mines, railways, construction works, or factories.

TABLE XXIII

**INDEX NUMBERS SHOWING THE RELATIVE CHANGES IN THE TOTAL HOURS  
WORKED BY ALL EMPLOYEES IN FACTORIES OF DIFFERENT SIZES**
**Base Period = First Quarter of 1920**

NATURE OF PRODUCT	NUMBER OF EMPLOY- EES PER CONCERN <sup>a</sup>	INDEX FOR QUARTER SPECIFIED								
		1920				1921				1922
		1st	2d	3d	4th	1st	2d	3d	4th	1st
ALL FACTORY PRODUCTS	0- 20	100	111	118	105	94	105	109	98	95
	21-100	100	108	111	106	92	91	90	94	90
	Over 100	100	97	96	86	70	64	61	64	66
FOOD, DRINK, AND TOBACCO	0- 20	100	110	133	119	100	106	125	112	103
	21-100	100	101	112	120	92	92	97	107	89
	Over 100	100	91	97	91	75	69	76	77	70
LUMBER AND ITS PRODUCTS	0- 20	100	112	110	92	84	102	93	78	80
	21-100	100	114	113	89	81	90	95	90	91
	Over 100	100	99	99	91	80	84	88	91	90
METALS AND METAL PRODUCTS <sup>b</sup>	0- 20	100	117	148	123	107	103	122	107	99
	21-100	100	130	147	131	102	76	70	78	88
	Over 100	100	97	96	85	64	53	47	49	56
PAPER AND PRINTING	0- 20	100	102	100	106	108	106	106	115	107
	21-100	100	99	97	105	93	88	86	100	93
	Over 100	100	98	100	102	88	84	81	83	85
MINERALS AND CHEMICALS <sup>c</sup>	0- 20	100	109	117	125	107	113	118	118	113
	21-100	100	99	102	103	95	93	94	99	95
	Over 100	100	100	101	94	78	73	71	72	73
TEXTILE AND LEATHER GOODS <sup>d</sup>	0- 20	100	110	116	90	84	106	116	93	102
	21-100	100	104	102	95	93	100	91	92	87
	Over 100	100	99	94	80	77	82	87	93	85

<sup>a</sup> In first quarter of 1920.

<sup>b</sup> Vehicles, railroad cars, and all products not elsewhere recorded are included here.

<sup>c</sup> Includes chemical, stone, glass, and clay products.

<sup>d</sup> Includes clothing of all kinds.

TABLE XXIV

**INDEX NUMBERS SHOWING THE RELATIVE CHANGES IN THE TOTAL HOURS WORKED BY EMPLOYEES IN ENTERPRISES OF DIFFERENT SIZES**

Base Period = First Quarter of 1920

INDUSTRY	NUMBER OF EMPLOYEES PER CONCERN <sup>a</sup>	INDEX FOR QUARTER SPECIFIED								
		1920				1921				1922
		1st	2d	3d	4th	1st	2d	3d	4th	1st
ALL INDUSTRIES <sup>b</sup>	0- 20	100	110	118	107	98	106	114	105	100
	21-100	100	104	107	104	97	96	95	96	92
	Over 100	100	100	101	93	78	73	72	75	74
AGRICULTURE	0- 20	100	140	182	127	96	140	178	125	99
	21-100	100	128	116	106	102	107	100	101	103
	Over 100	100	121	154	135	125	116	117	99	46
EXTRACTION OF MINERALS	0- 20	100	103	102	99	99	160	169	128	102
	21-100	100	83	94	106	98	95	81	67	62
	Over 100	100	104	110	104	90	80	79	78	77
BUILDING AND CONSTRUCTION	0- 20	100	123	134	119	90	105	129	127	115
	21-100	100	120	138	126	121	116	117	113	102
	Over 100	100	120	118	75	53	74	97	99	104
OTHER HAND TRADES	0- 20	100	109	103	105	99	107	102	103	102
	21-100	100	97	95	100	98	100	99	100	95
	Over 100	100	116	107	113	108	122	119	120	114
FINANCE	0- 20	100	101	103	103	105	105	106	105	104
	21-100	100	101	105	106	107	107	107	108	107
	Over 100	100	101	102	97	95	82	81	76	78
PUBLIC AND PROFESSIONAL SERVICE	0- 20	100	99	100	91	95	89	92	92	101
	21-100	100	98	101	96	92	94	99	95	90
	Over 100	100	97	93	108	110	102	95	113	115
DOMESTIC AND PERSONAL SERVICE	0- 20	100	104	108	106	103	104	109	100	100
	21-100	100	97	93	95	96	94	90	95	94
	Over 100	100	101	104	104	103	102	101	100	100
STEAM RAILWAYS	0- 20	..	..	..	..	..	..	..	..	..
	21-100	..	..	..	..	..	..	..	..	..
	Over 100	100	101	111	102	79	74	78	80	69
OTHER TRANSPORTATION	0- 20	100	107	108	125	96	103	104	121	94
	21-100	100	108	114	111	101	101	104	100	98
	Over 100	100	105	108	105	98	99	100	97	93
MERCANTILE, WHOLESALE	0- 20	100	101	102	104	101	103	102	103	101
	21-100	100	100	103	102	97	96	93	93	91
	Over 100	100	113	108	99	94	105	103	94	90
MERCANTILE, RETAIL	0- 20	100	102	103	104	100	102	102	103	99
	21-100	100	100	98	103	96	96	94	98	93
	Over 100	100	100	97	107	90	90	88	100	89

<sup>a</sup> In first quarter of 1920.

<sup>b</sup> Includes factories.

Chart 4.  
RELATIVE CHANGES IN THE  
TOTAL HOURS WORKED BY ALL EMPLOYEES  
IN FACTORIES OF DIFFERENT SIZES

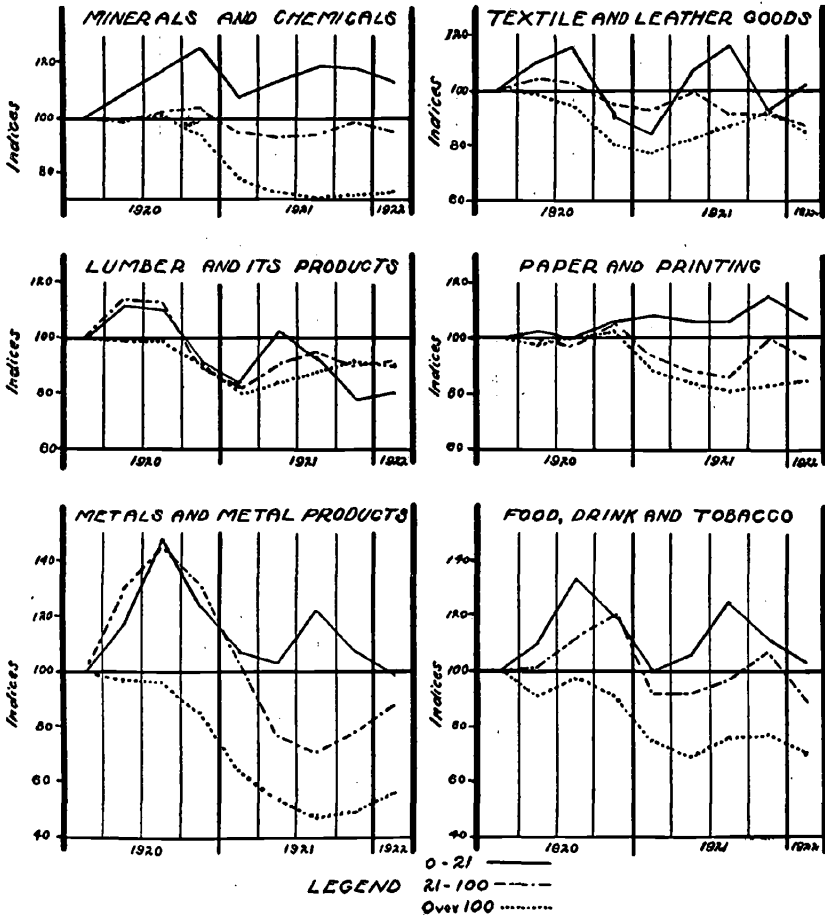


Chart 5

RELATIVE CHANGES IN THE  
TOTAL HOURS WORKED BY EMPLOYEES IN  
ENTERPRISES OF DIFFERENT SIZES  
(HIGHLY VARIABLE INDUSTRIES)

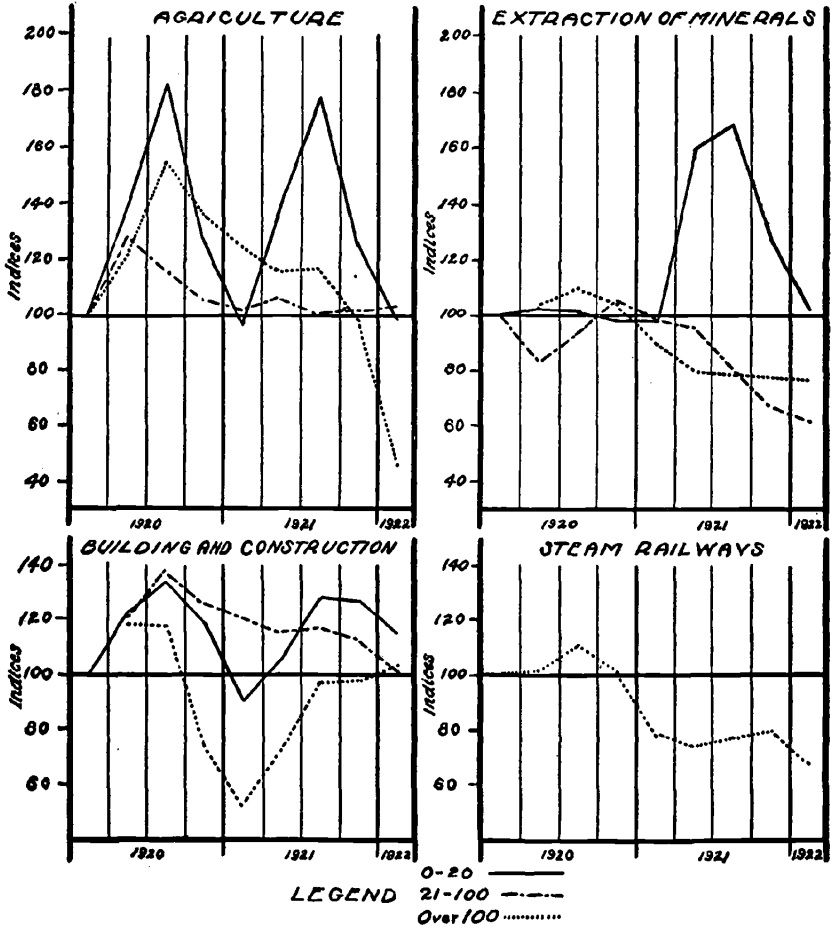
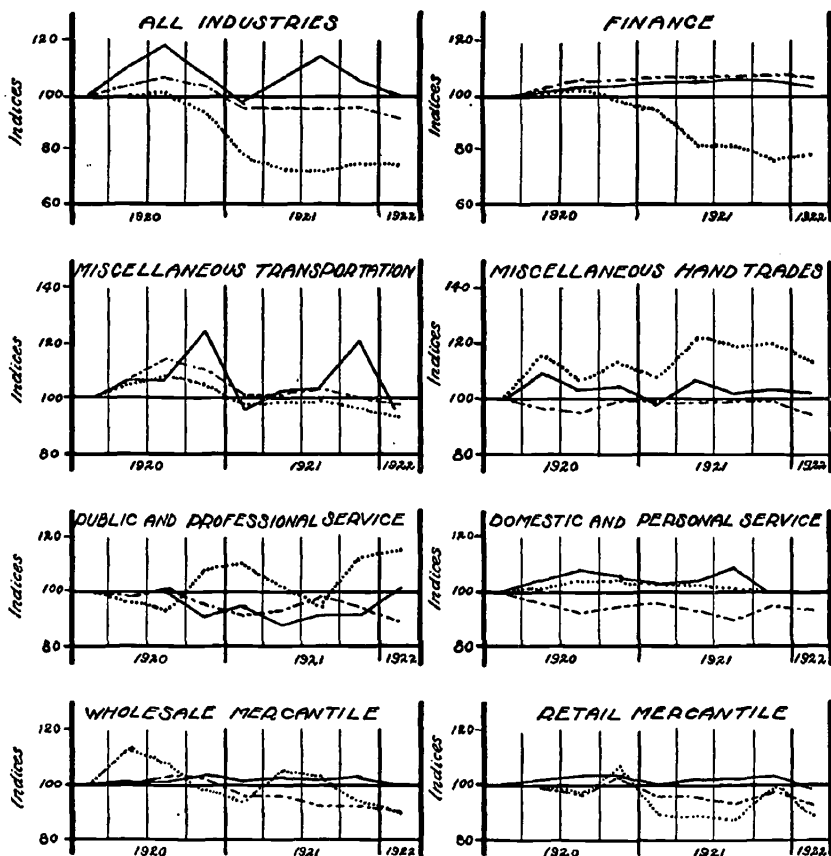


Chart 6

**RELATIVE CHANGES IN THE  
TOTAL HOURS WORKED BY EMPLOYEES IN  
ENTERPRISES OF DIFFERENT SIZES  
MODERATELY VARIABLE INDUSTRIES**



**LEGEND**  
 0-20 ———  
 21-100 - - - -  
 Over 100 ·····

## EMPLOYMENT AS SHOWN BY RECORDS FURNISHED BY EMPLOYEES

All data thus far utilized in this chapter have been derived from reports made by employers. It is of interest to compare the results obtained from this source with the figures given by employees themselves. As Table XXV shows, the sample obtained in this manner was small and its value is lessened by the fact that employees were asked to report their unemployment for a period running back two years. Under these circumstances the chances are that many days of idleness were forgotten and that the per cent of time lost was larger than that reported. Information was obtained for only five quarters. Despite these shortcomings in the quality of the material, it seems worth while to see what the figures as given show.

Owing to the fact that a number of the informants began work during the period, most of the figures in Table XXV are given an upward tilt. Despite this circumstance, however, we find in the records for males a very sharp decline in hours worked in the extraction of minerals and very noticeable downward movements in work performed in transportation and likewise in manufacturing. These results corroborate the findings derived from the information given by employers. The records for female employees show no considerable falling off in any field, but, as will be seen on examining the next table, this effect was due as much to the relatively large accessions to the numbers in the reporting groups as to steadiness of employment.

Tables XXV and XXVI present information concerning all reporting employees who furnished complete data as to hours and earnings. The fact that this group is careful is evidenced by their reports and, as we shall see later, they suffered considerably less from unemployment than did the less methodical workers.

In making up this table, a person who was idle was assigned to the industry in which he had last worked. This table indicates that, in the bottom of the depression, these employees, when averaged for all industries, were working seven-eighths of full time, which shows less unemployment than is indicated by the reports from employers recorded in Table XVIII. This difference is emphasized when one notes the fact that these employees worked only 93.5 per cent of full time in the spring of 1920. However, this difference is not surprising when one considers the small volume of evidence behind Table XXVI. In certain other respects this evidence supports the conclusions of the major study. That such is the case is illustrated by the fact that during the depression, agriculture, mining, construction work, transportation, and manufacturing show percentages of employment for men that are low as compared to these in other industries. This finding, it will be observed, agrees with the data previously presented.

TABLE XXV

**THE TOTAL HOURS ACTUALLY WORKED PER QUARTER BY THOSE EMPLOYEES SCATTERED OVER THE CONTINENTAL UNITED STATES WHO FURNISHED COMPLETE REPORTS**

SEX	AVERAGE NUMBER OF EMPLOYEES REPORTING	INDUSTRY	1920	1921				1922
			March April May	March April May	June July Aug.	Sept. Oct. Nov.	Dec. Jan. Feb.	
MALE	436	All Industries.....	260,403	257,733	274,100	251,767	232,099	
	26	Agriculture.....	18,853	17,759	24,942	16,924	12,282	
	34	Extraction of Minerals	14,892	7,694	15,399	6,563	2,037	
	41	Building and Construction.....	21,734	19,919	22,564	21,527	19,150	
	8	Other Hand Trades....	4,378	5,376	4,677	4,661	5,327	
	15	Finance.....	7,561	8,430	8,167	9,434	9,551	
	29	Public and Professional Service.....	14,323	16,459	13,216	15,092	15,763	
	23	Domestic and Personal Service.....	14,066	16,112	16,816	19,939	19,658	
	57	Transportation.....	38,410	34,094	40,728	35,520	32,018	
	75	Commerce and Trade..	44,197	52,617	54,626	50,827	47,110	
	120	Factories.....	78,596	76,136	68,527	68,107	65,957	
8	Industry Unknown....	3,393	3,137	4,438	3,173	3,246		
FEMALE	111	All Industries.....	55,712	56,478	54,493	61,829	57,835	
	1	Building and Construction.....	1,131	559	559	545	530	
	4	Other Hand Trades....	1,049	1,737	1,837	1,601	1,774	
	7	Finance.....	2,948	2,948	4,126	4,555	4,342	
	18	Public and Professional Service.....	7,124	8,543	6,753	9,947	9,303	
	21	Domestic and Personal Service.....	10,749	9,981	8,592	12,748	12,152	
	10	Transportation.....	5,363	5,599	6,445	5,090	4,930	
	21	Commerce and Trade..	11,147	11,170	10,989	12,314	10,919	
	28	Factories.....	15,518	15,941	15,192	15,029	13,885	
	1	Industry Unknown....	683	0	0	0	0	

Unemployment was unusually prevalent among those members of this class of reporting women who were engaged in domestic and personal service and the hand trades. On the whole, however, these records show little difference between the two sexes as regards stability of employment.

Table XXVII records the number of nominal working days worked and not worked by adults who were gainfully employed at some time after January 1, 1920, and shows the reasons assigned for the idleness reported. This table includes the records of all employees furnishing data complete in regard to employment whether or not they gave the other information asked for. When records for careless as well as careful employees are thus included, a much larger percentage of unemployment appears than was indi-

TABLE XXVI

**THE PER CENT OF NOMINAL FULL TIME WORKED BY THOSE EMPLOYEES  
SCATTERED OVER THE CONTINENTAL UNITED STATES WHO  
FURNISHED COMPLETE REPORTS**

SEX	AVERAGE NUMBER OF EMPLOY- EES REPORT- ING	INDUSTRY	1920	1921				1922
			March April May	March April May	June July Aug.	Sept. Oct. Nov.	Dec. Jan. Feb.	
MALE	436	All Industries.....	93.50	89.65	90.04	88.34	87.66	
	26	Agriculture.....	94.51	93.55	93.39	87.80	78.69	
	34	Extraction of Minerals	60.73	32.96	62.24	30.28	16.79	
	41	Building and Construc- tion.....	89.91	84.62	88.20	86.13	82.38	
	8	Other Hand Trades....	100.45	84.18	93.52	100.19	101.74	
	15	Finance.....	99.76	94.45	89.74	100.38	100.68	
	29	Public and Professional Service.....	100.34	102.12	97.94	100.39	96.76	
	23	Domestic and Personal Service.....	101.02	93.38	91.48	96.65	96.69	
	57	Transportation.....	98.18	95.60	97.36	94.83	89.81	
	75	Commerce and Trade..	98.88	97.53	94.60	95.47	97.29	
	120	Factories.....	96.28	94.68	89.01	90.56	89.12	
8	Industry Unknown....	79.08	92.78	91.77	92.81	74.34		
FEMALE	111	All Industries.....	94.45	92.82	88.10	91.94	89.87	
	1	Building and Construc- tion.....	100.00	100.00	100.00	100.00	100.00	
	4	Other Hand Trades....	60.68	75.49	79.84	71.42	66.29	
	7	Finance.....	99.46	99.46	99.18	99.48	97.38	
	18	Public and Professional Service.....	101.11	101.87	93.15	101.82	102.52	
	21	Domestic and Personal Service.....	85.68	84.94	70.82	81.05	81.58	
	10	Transportation.....	102.11	89.42	94.33	93.45	100.75	
	21	Commerce and Trade..	97.43	93.09	91.77	96.78	96.20	
	28	Factories.....	95.86	95.91	91.22	92.65	84.25	
	1	Industry Unknown....	100.00	0.00	0.00	0.00	0.00	

cated by Table XXVI. Even in the best of times, on one-sixth of the regular working days these workers were not gainfully occupied. However, the reason for not being gainfully employed was largely the fact that these potential workers were in school or on vacation. The figures in this table which have real significance are those showing the days not worked according to the reasons assigned. The percentage of days lost on account of sickness amounted to about  $1\frac{1}{2}$  for males and  $2\frac{1}{2}$  for females. More women had trouble in finding work in the summer of 1921 than at any other period, but men had the most difficulty in the winter of 1921-1922. The records for each sex, however, show about four times as many persons out of work for this cause in the middle of the depression as at the crest of

TABLE XXVII

**TOTAL DAYS WORKED AND NOT WORKED BY PERSONS WHO HAVE BEEN GAINFULLY EMPLOYED<sup>a</sup> AT SOME TIME SINCE JANUARY 1, 1920**
**Records from Persons Scattered Over the Continental United States**

SEX		1920	1921			1922
		March April May	March April May	June July Aug.	Sept. Oct. Nov.	Dec. Jan. Feb.
MALE	<b>Total Working Days in Period . . .</b>	<b>40,303</b>	<b>41,631</b>	<b>41,724</b>	<b>40,850</b>	<b>40,253</b>
	Days on Which Part or Full Time Was Worked . . . . .	33,385	33,214	34,513	32,752	30,436
	Per Cent of Days on Which Some Work Was Performed . . . . .	82.84	79.78	82.72	80.18	75.61
	<b>Total Days Not Worked . . . . .</b>	<b>6,918</b>	<b>8,417</b>	<b>7,211</b>	<b>8,098</b>	<b>9,817</b>
	<b>On Account of</b>					
	Strike . . . . .	188	199	171	304	138
	Sickness . . . . .	633	598	721	660	852
	No Work Available . . . . .	1,591	3,945	4,008	4,478	6,001
	Work Not Desired . . . . .	682	862	633	633	699
	Other Reasons <sup>b</sup> . . . . .	3,824	2,813	1,678	2,023	2,127
FEMALE	<b>Total Working Days in Period . . .</b>	<b>10,966</b>	<b>11,297</b>	<b>11,416</b>	<b>11,104</b>	<b>10,797</b>
	Days on Which Part or Full Time Was Worked . . . . .	8,279	8,376	7,967	9,300	8,652
	Per Cent of Days on Which Some Work Was Performed . . . . .	75.50	74.14	69.79	83.75	80.13
	<b>Total Days Not Worked . . . . .</b>	<b>2,687</b>	<b>2,921</b>	<b>3,449</b>	<b>1,804</b>	<b>2,145</b>
	<b>On Account of</b>					
	Strike . . . . .	0	0	0	26	60
	Sickness . . . . .	71	429	286	291	358
	No Work Available . . . . .	277	443	1,021	431	666
	Work Not Desired . . . . .	656	681	860	329	302
	Other Reasons <sup>b</sup> . . . . .	1,683	1,368	1,282	727	759
Number of Persons Reporting	Male . . . . .	516	534	535	536	542
	Female . . . . .	142	145	147	148	147

<sup>a</sup> Almost always as employees.

<sup>b</sup> Usually means attending school.

the boom. A record of "Not Gainfully Occupied" on account of "Other Reasons" usually means that the informant was attending school at that period. This item has then slight significance as regards unemployment.

A careful analysis of the information obtained from employees seems, therefore, not to be in serious conflict with the data secured from employers, but rather to confirm in many respects the conclusions based upon that material.

## EMPLOYMENT ON FARMS

So many farmers furnished complete information concerning the employees on their farms that it is possible to compare different sections of the country in regard to the volume of this type of employment. Table XXVIII reveals no striking differences in the changes in employment occurring in the various geographical areas. The North Central farmers did, however, hire somewhat fewer employees in the summer of 1921 than in the same period in 1920, but those in the Middle Atlantic and New England sections showed no such tendency.

Tables XXIX and XXX are condensed summaries recording the total hours of help per week that the average Crop Reporter employs. Since, as previously stated, the Crop Reporters, on the average, hire much more help than do other farmers, the averages presented in these tables are far too large to represent conditions on all the farms in the United States. Many interesting relationships may, however, be brought out by a study of these figures. The reporting farmers, on the average, use in the winter time about 56 hours of man labor and about 10 hours of woman labor per week; but in the summer time this average is nearly doubled for men and increased by something over one-half for women. During the summer season the New England, South Atlantic, and Pacific Coast farmers hire far more men than do farmers in other regions, while the North Central and West South Central farmers employ less help at that period than do those in any of the other sections. In the winter months the North Central and Rocky Mountain Crop Reporters get along with less than thirty hours of male help per week, while New England, the South, and the Pacific Coast States employ far more than their proportional share of male workers.

The custom of having a "year round" hired girl seems to prevail much more generally in New England than elsewhere, the Middle Atlantic farmer hiring much help by the week in the third quarter but not in the other seasons of the year. Female help by the week is most uncommon in the East North Central and Mountain States.

Day work on farms by women is customary in the Northeast, in the South, and also on the Pacific Coast in the third quarter, but is rare at all times in the North Central and Rocky Mountain States, and in the Middle Atlantic and Pacific regions few of this class are employed in the winter time.

TABLE XXVIII

EMPLOYEE HOURS WORKED PER WEEK ON A GROUP OF REPRESENTATIVE FARMS OF THE CONTINENTAL UNITED STATES

SEX	EMPLOYEES WORKING BY	NUMBER OF FARMS ENUMERATED	SECTION OF THE UNITED STATES	1920				1921				1922
				First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter
MALE	Month	6,348	Entire U. S.	222,582	306,022	336,664	260,342	218,639	301,533	329,119	255,650	220,421
		988	Northeast	51,700	64,126	74,929	60,485	52,467	66,901	76,449	61,987	53,663
		2,557	North Central	59,142	96,542	107,793	75,542	56,244	91,360	100,717	71,846	55,851
		2,186	South	88,075	109,101	109,336	96,640	86,713	106,869	106,824	94,443	87,252
	667	West	23,665	36,253	44,606	27,675	23,215	36,403	45,129	27,374	23,655	
	Day	5,978	Entire U. S.	128,176	189,078	303,803	189,105	121,269	195,994	300,839	185,794	129,931
		905	Northeast	22,890	38,211	65,945	38,564	23,412	39,870	66,606	39,469	23,316
		2,417	North Central	15,126	34,216	79,051	35,108	15,720	37,142	75,995	32,613	17,309
		2,000	South	76,237	91,205	103,163	88,922	68,407	92,827	103,681	86,680	75,342
	656	West	13,923	25,446	55,644	26,511	13,730	26,155	54,557	27,032	13,964	
	Week	5,687	Entire U. S.	26,836	32,804	37,100	28,756	25,996	32,100	36,444	28,131	28,337
		833	Northeast	6,700	7,818	10,505	7,716	6,427	7,889	10,040	7,734	6,705
2,258		North Central	7,051	9,235	11,245	7,503	6,162	8,849	10,327	6,779	6,741	
1,960		South	11,450	13,417	12,358	12,003	11,874	13,211	13,083	12,012	13,141	
636	West	1,635	2,334	2,992	1,534	1,533	2,151	2,994	1,606	1,750		
FEMALE	Day	5,629	Entire U. S.	31,528	43,365	56,815	41,663	25,261	42,409	52,338	36,659	27,134
		835	Northeast	4,864	7,071	14,294	7,642	4,433	7,018	14,840	6,936	3,610
	2,218	North Central	3,527	5,426	7,199	4,135	3,421	4,793	7,376	4,095	3,406	
	1,940	South	21,803	28,643	29,573	25,999	16,021	27,953	25,024	22,694	18,628	
636	West	1,334	2,225	5,749	3,887	1,386	2,645	5,098	2,934	1,490		

## EMPLOYMENT HOURS AND EARNINGS

TABLE XXIX

**TOTAL NUMBER OF HOURS OF EMPLOYMENT FOR HIRED MEN GIVEN PER WEEK ON THE AVERAGE FARM  
OWNED BY A CROP REPORTER FOR THE UNITED STATES DEPARTMENT OF AGRICULTURE**

FORM OF CONTRACT	NUMBER OF FARMS REPORTING	SECTION	1920				1921				1922
			First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter
WORKING BY THE MONTH	6,348	United States	35.1	48.2	53.0	41.0	34.4	47.5	51.8	40.3	34.7
	585	New England	52.6	65.6	74.0	61.8	53.9	69.0	76.5	64.7	54.8
	403	Middle Atlantic	51.9	63.8	78.5	60.3	51.9	65.8	78.6	59.9	53.6
	1,138	East North Central	21.8	34.3	37.1	26.9	20.9	33.5	35.8	26.1	20.4
	1,419	West North Central	24.2	40.5	46.2	31.7	22.9	37.5	42.3	29.7	23.0
	710	South Atlantic	61.1	74.6	72.9	65.1	58.3	70.0	70.9	61.0	55.6
	768	East South Central	39.0	49.2	49.0	41.5	39.9	50.6	50.0	44.3	42.5
	658	West South Central	22.4	27.9	30.3	28.3	22.2	27.8	27.5	26.0	23.0
	407	Mountain	24.7	44.8	59.5	32.4	22.8	43.0	56.8	30.2	24.2
	260	Pacific	52.3	69.3	78.5	55.7	53.6	72.7	84.6	57.9	53.0
WORKING BY THE DAY	5,978	United States	21.4	31.6	50.8	31.6	20.3	32.8	50.3	31.1	21.7
	542	New England	32.3	51.8	91.6	52.6	32.3	53.7	91.9	53.0	30.1
	363	Middle Atlantic	14.8	24.9	44.9	27.8	16.2	29.7	46.3	29.7	19.4
	1,066	East North Central	7.6	15.2	26.5	12.6	6.6	16.3	25.1	12.8	8.0
	1,351	West North Central	5.2	13.3	37.6	16.0	6.4	14.7	36.5	14.0	6.5
	677	South Atlantic	53.4	55.9	60.8	51.9	42.2	55.6	57.7	50.6	42.7
	708	East South Central	30.1	37.3	42.3	34.6	28.0	39.3	45.4	34.1	34.1
	615	West South Central	30.5	43.8	52.1	47.5	32.6	44.4	52.8	45.6	36.3
	396	Mountain	6.8	21.0	57.8	21.9	6.6	21.1	57.1	21.6	7.7
	260	Pacific	43.2	65.9	125.9	68.7	42.8	68.5	122.8	71.0	41.9

TABLE XXX

TOTAL NUMBER OF HOURS OF EMPLOYMENT FOR HIRED WOMEN GIVEN PER WEEK ON THE AVERAGE FARM

OWNED BY A CROP REPORTER FOR THE UNITED STATES DEPARTMENT OF AGRICULTURE

FORM OF CONTRACT	NUMBER OF FARMS REPORTING	SECTION	1920				1921				1922
			First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter
WORKING BY THE WEEK	5,687	United States	4.7	5.8	6.5	5.1	4.6	5.6	6.4	4.9	5.0
	506	New England	10.1	11.6	12.6	11.4	10.1	12.1	13.4	12.2	10.2
	327	Middle Atlantic	4.8	6.0	12.6	5.9	4.1	5.4	9.9	4.8	4.7
	978	East North Central	2.2	3.2	3.5	2.5	2.1	3.4	3.4	2.4	2.3
	1,280	West North Central	3.8	4.8	6.1	4.0	3.2	4.3	5.5	3.5	3.5
	619	South Atlantic	8.0	8.5	8.7	8.4	8.5	8.9	9.0	8.5	8.7
	685	East South Central	3.4	4.7	4.1	3.5	4.0	4.5	4.3	3.7	4.9
	656	West South Central	6.3	7.6	6.3	6.7	6.0	7.0	7.0	6.4	6.6
	392	Mountain	1.9	2.5	4.2	1.7	1.6	1.9	3.9	1.5	2.2
	244	Pacific	3.6	5.5	5.6	3.5	3.8	5.8	6.0	4.1	3.7
WORKING BY THE DAY	5,629	United States	5.6	7.7	10.1	7.4	4.5	7.5	9.3	6.5	4.8
	513	New England	7.7	9.8	20.4	12.2	6.9	9.4	22.4	11.4	5.6
	322	Middle Atlantic	2.8	6.2	11.8	4.3	2.8	6.8	10.5	3.3	2.3
	966	East North Central	2.1	2.6	3.4	2.5	2.2	2.6	3.6	2.5	2.1
	1,252	West North Central	1.2	2.4	3.1	1.4	1.0	1.8	3.1	1.4	1.1
	616	South Atlantic	19.9	18.9	19.2	18.2	11.7	19.2	15.8	15.0	11.8
	668	East South Central	8.9	14.2	14.3	11.4	8.0	13.6	13.5	11.3	9.5
	656	West South Central	5.5	11.4	12.5	10.9	5.3	10.7	9.6	8.9	7.7
	392	Mountain	2.2	2.8	4.7	3.7	2.5	3.2	5.3	3.3	2.8
	244	Pacific	1.9	4.5	15.9	10.0	1.7	5.8	12.4	6.7	1.7

## ACCURATE AND INACCURATE MEASURES OF EMPLOYMENT

It has been shown in the preceding pages that the number of employee hours actually worked is the ideal criterion of employment in any industry. Unfortunately, at present, no agency furnishes a continuous record of this quantity for even a single state. The Federal Government and the States of Massachusetts, New York, and Wisconsin, publish statistics of numbers on the pay rolls and total wages paid in certain industries. If these statistics were extended to cover all fields, would we then have accurate records of employment? The answer to this question is contained in Table XXXI and Chart 7, which compare the records of the two other quantities with those showing the volume of employment. During the boom, salaries and wages rose faster than did total employee hours, but, in the following depression, they fell further. On the other hand, the total number of hours worked during the period of decline in industrial activity went down distinctly faster than did the number of employees on all pay rolls. The relative divergence, in this particular cycle, at least, is more marked in the consolidated totals for factories, mines, and railways than in those for all industries, the difference in the former case running most of the time from two to eight per cent of the total volume of employment. If rough approximations only are required, this difference is too small to be of moment, but it is large enough to destroy the possibility of precision in the measurement of this phenomenon. Since precision is desirable when readily attainable, the conclusion is justified that employment statistics in the future should, whenever possible, include a statement of the total employee hours worked as well as records of the numbers on the pay rolls and totals of wage and salary payments.

TABLE XXXI

RELATIVE CHANGES IN THE NUMBER OF EMPLOYEES ON PAY ROLLS, TOTAL EMPLOYEE HOURS WORKED, AND COMBINED SALARY AND WAGE PAYMENTS IN THE CONTINENTAL UNITED STATES

	1920				1921				1922
	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	First quarter
<b>ACTUAL NUMBERS</b>									
<b>All Industries</b>									
Employees on Pay Rolls (Thousands).....	27,232	28,377	29,180	27,416	24,828	24,598	25,078	24,774	24,147
Employee Hours Worked (Millions).....	17,747	18,395	19,064	17,612	15,515	15,549	15,919	15,655	15,180
Total Salaries and Wages (Millions).....	9,463	10,048	10,472	9,905	8,380	8,114	8,047	8,055	7,744
<b>Factories, Mines, and Railways</b>									
Employees on Pay Rolls (Thousands).....	14,228	14,450	14,690	13,685	11,924	11,207	11,114	11,135	11,026
Employee Hours Worked (Millions).....	9,150	9,183	9,417	8,539	7,065	6,702	6,646	6,742	6,618
Total Salaries and Wages (Millions).....	5,540	5,791	6,031	5,584	4,413	4,065	3,877	3,824	3,729
<b>INDEX NUMBERS BASED UPON FIRST QUARTER OF 1920</b>									
<b>All Industries</b>									
Employees on Pay Rolls.....	100	104	107	101	91	90	92	91	89
Employee Hours Worked.....	100	104	107	99	87	88	90	88	86
Total Salaries and Wages.....	100	106	111	105	89	86	85	85	82
<b>Factories, Mines and Railways</b>									
Employees on Pay Rolls.....	100	102	103	96	84	79	78	78	77
Employee Hours Worked.....	100	100	103	93	77	73	73	74	72
Total Salaries and Wages.....	100	105	109	101	80	73	70	69	67

Chart 7

RELATIVE CHANGES IN THE  
NUMBER OF EMPLOYEES ON PAY ROLLS,  
TOTAL EMPLOYEE HOURS WORKED, AND  
COMBINED SALARY AND WAGE PAYMENTS.  
CONTINENTAL U.S.

