

## APPENDIX 1.—UNEMPLOYMENT ESTIMATES—1930-1940

No Nation-wide enumerations of the unemployed are made in the United States except at the time of the decennial census, and until April 1940, when the WPA began to issue monthly estimates based upon direct sample surveys, no continuous official estimates were released by any government agency to cover the long period between enumerations. To meet the need for current information, various private organizations and individuals have prepared and released monthly estimates during the last 10 years. The estimates of the American Federation of Labor, the National Industrial Conference Board, and Robert R. Nathan cover the longest period and have been most widely used.<sup>1</sup>

### Methodology of the Estimates

The method adopted by all estimators other than the WPA is in principle the same. Essentially, it involves using data for the year 1930 regarding the size of the labor force, the amount of unemployment, and by subtraction, the volume of employment at that time. Estimates of unemployment for subsequent periods are then secured from the difference between the estimated changes in the total labor force and the estimated changes in the volume of employment.

It is evident that the validity of such estimates will depend upon the reliability of the three basic components. In fact, all estimates have been subjected to serious criticism.<sup>2</sup> No attempt is here made to reproduce the various technical arguments that have been adduced. Nevertheless, a brief indication of the character of the main sources of weakness is necessary to indicate the limitations of the figures presented.

<sup>1</sup> For an account of the methods used by these three estimators see "Employment and Unemployment of the Labor Force 1900-1940," *The Conference Board Economic Record*, II (March 1940), especially pp. 89-92; "The Federation's Revised Unemployment Estimate," *American Federationist*, XLIII (January 1936); Nathan, Robert R., "Estimates of Unemployment in the United States, 1929-35," *International Labour Review*, XXIII (January 1936), 49-73.

Other series have been released by the Alexander Hamilton Institute, the Cleveland Trust Co., and more recently by the Congress of Industrial Organizations.

<sup>2</sup> Cf. Nathan, *op. cit.*; Woytinsky, W. S., *Additional Workers and the Volume of Unemployment in the Depression*, Social Science Research Council, Washington, 1940; Humphrey, Don D., "Alleged 'Additional Workers' in the Measurement of Unemployment," *Journal of Political Economy*, XLVIII (June 1940), 412-419; Nixon, Russell A. and Samuelson, Paul A., "Estimates of Unemployment in the United States," *The Review of Economic Statistics*, XXII (August 1940), 101-111; Reede, Arthur H., "Adequacy of Employment Statistics," *Journal of the American Statistical Association*, XXXVI (March 1941), 71-80; Joy, Arnyess, "The Meaning of Unemployment Statistics," *Journal of the American Statistical Association*, XXXVI (June 1941), 167-174; Myers, Howard B., "Dynamics of Labor Supply," *Journal of the American Statistical Association*, XXXVI (June 1941) 175-184; and Woytinsky, W. S., "Controversial Aspects of Unemployment Estimates in the United States," *The Review of Economic Statistics*, XXIII (May 1941), 68-77.

### Limitations of the Data for the Base Period

The usual starting point is 1930, and the basic information is that recorded in the regular decennial census of population. The census of occupations, taken in April 1930, gives basic information on the labor supply, and the unemployment census of the same date reports the job status of those "usually gainfully occupied."<sup>3</sup> From this information the volume of employment and unemployment in April 1930 can be computed.

### Labor Supply in the Base Period

The census of occupations reported the total number of "gainful workers" 10 years of age and over as 48,829,920 on April 1, 1930.<sup>4</sup> This figure is treated variously by different estimators. The National Industrial Conference Board accepts this figure (rounded) as an accurate measure of the total labor force in March 1930. Robert R. Nathan makes an upward adjustment of the census figure to represent the mid-April level of unemployment. The American Federation of Labor, from an examination of the returns of the 1930 unemployment census, has concluded that the census reported as gainful workers approximately 216,000 persons who were not actually in the labor market,<sup>5</sup> and the Federation therefore uses 48,613,265 as the number of gainful workers in April 1930.<sup>6</sup>

As a result of different assumptions and interpretations, the figures used by the different estimators to represent the total labor supply at the base point vary by over 200,000, and this is the first source of the

<sup>3</sup> *Fifteenth Census of the United States: 1930*, Population, V, Washington, 1933, and Unemployment, II, Washington, 1932.

<sup>4</sup> *Fifteenth Census of the United States: 1930*, Population, II, p. 37, table 1. The "gainful workers" included all those who "worked for pay or profit or assisted in the production of marketable goods \* \* \* the equivalent of one day per week." See *ibid.*, pp. 29-31 for definitions and instructions to enumerators.

<sup>5</sup> The Federation reasoned that 172,661 persons in the Census Class G were not in the labor market in April 1930 and should, therefore, be deducted from the total labor supply. On the assumption that only about one-half of the Census Class E were actually in the labor market, 43,994 of this group were subtracted from the labor supply. (*American Federationist*, XLIII (January 1936), 68). See footnote 8 below for explanation of unemployment classes used by the census.

<sup>6</sup> The National Research Project, which has made annual estimates of the labor supply over the period 1920-37, reasons that the census, on the contrary, greatly understated the size of the labor supply in 1930 and adjusts it upward to 49,590,000. It points out that as a result of the census definition of "gainful worker" (see footnote 4 above), anyone who had not been gainfully employed prior to the enumerator's call in April was excluded from the labor market even though that person was seeking work on the Census date. It bases the adjustment of the census figure on this assumed undercount of new workers (325,000), and on the further assumption of an undercount (435,000) in the number of farm operators, unpaid family laborers on farms, and hired farm workers.

differences in unemployment estimates.<sup>7</sup> The labor supply, in each case, means all gainful workers: the self-employed, employers, unpaid family workers, and wage and salaried workers.

#### Unemployment in the Base Period

The 1930 census of unemployment classified all persons who were not working on the day preceding the enumerator's call (or on the last working day) into seven classes, and reported 3,187,647 persons among Class A and Class B unemployed.<sup>8</sup> Differences of opinion as to the classification of workers in some of the remaining groups have influenced the initial estimates of the extent of unemployment and employment as of the census date.

Further uncertainties as to the extent of unemployment in the base period arise from the treatment by the census of farm workers working for members of their own family without wages who were included in the group of "gainful workers" but were not considered as subject to unemployment. There is some indication too that workers themselves under-reported the extent of involuntary unemployment.<sup>9</sup>

The differing allowances made for these uncertainties by the different estimators have led to significant differences regarding the basic data from which estimates for future periods have been developed. These differences are shown in Table 1.

TABLE 1.—Estimates of labor supply, unemployment, and total employment, April 1930

Estimators	Labor supply I	Unemployment II	Employment III (I—II)
American Federation of Labor.....	48,613,265	4,048,947	44,564,318
National Industrial Conference Board.....	48,886,000	2,932,000	46,639,000
Robert R. Nathan.....	48,833,000	4,014,000	44,819,000

Source: AFL estimates from *American Federationist*, XLIII (January 1936), 71; NICB estimates from *The Conference Board Economic Record*, II (March 20, 1940), 86; Nathan estimates obtained from the author.

<sup>7</sup> For charts showing the differences in the various estimates during the period 1929-40, see Nixon and Samuelson, *op. cit.*, pp. 106-107.

<sup>8</sup> *Fifteenth Census of the United States: 1930, Unemployment*, II, p. 2. The seven classes were as follows: Class A, persons out of a job, able to work, and looking for a job; Class B, persons having jobs, but on lay-off without pay, excluding those sick or voluntarily idle; Class C, persons out of a job and unable to work; Class D, persons having jobs, but idle on account of sickness or disability; Class E, persons out of a job and not looking for work; Class F, persons having jobs, but voluntarily idle, without pay; Class G, persons having jobs and drawing pay, though not at work (on vacation, etc.).

<sup>9</sup> In view of the much larger unemployment totals shown by the special census of unemployment taken in January 1931, the Census Bureau has stated that perhaps "many persons who said they were voluntarily idle in April 1930 were, by January 1931 willing to admit that their idleness was not entirely voluntary." (*Ibid.*, p. 366.)

It has further been pointed out that the relatively small amount of short-duration unemployment reported in April 1930 may be explained if it is assumed that many of those who had only recently lost their jobs did not regard themselves as unemployed and did not report themselves as such. (Woytinsky, *Additional Workers and the Volume of Unemployment in the Depression*, pp. 12-13.)

#### Differences in Estimates of Subsequent Changes in the Labor Supply

Current estimates of the labor supply, which is ever changing, have been developed from the figures representing the labor supply in the base period. In general, as the population increases, the potential working force also increases. At first, all estimators made the simplest possible adjustment by applying to an estimated total population growth the percentage of the population gainfully employed in 1930 (39.8 percent). The resulting figure was added to the 1930 labor supply to provide an estimate of the current labor supply. The inadequacy of this adjustment was soon realized, and all three series under discussion have made more refined, though differing, adjustments based upon an analysis of population trends which indicates that the number of persons of working age is increasing faster than the total population. Most estimates allow for the growth and aging of the population by applying the 1930 percentage of gainful workers in each census age and sex group (10 years and over) to the estimated total growth in each of those groups since 1930. The results are then added to the estimate of the labor supply in 1930 to secure an estimate of the current labor supply.<sup>10</sup> All three estimates also make an adjustment in their estimates of the total labor supply to allow for the increasing school attendance of young people.<sup>11</sup>

As the base period becomes more remote, the discrepancies between the various estimates of the labor supply tend to increase. The difference between the largest and the smallest estimate of the total labor supply in April 1930 was only 220,000; by June 1940, this range had increased to 1,651,000.

No allowances have been made by any estimators, however, for other changes in the proportion of persons of working age actually in the labor market. Immigration is one of these possible influences on the labor force. At one time immigration contributed large numbers of recruits to the American labor force, but at present the most widely used estimates of population assume no net migration of foreign-born persons to this country.<sup>12</sup>

The decline in child labor is partly taken into account through allowances made for increased duration

<sup>10</sup> For the sake of simplicity, the irregular rate of monthly increase is disregarded, and an equal monthly increase is assumed. There are, of course, peaks in the volume of influx of new workers—February and June. The total annual increase in the labor supply is not affected by assuming equal monthly increases.

<sup>11</sup> The NICB, for example, uses "enrollment in colleges, universities, normal schools, and professional schools" to make this adjustment. (*Conference Board Bulletin*, XII (July 30, 1938), 60.)

<sup>12</sup> Those prepared for the National Resources Committee by Warren S. Thompson and P. K. Whelpton assume no net immigration. See National Resources Committee, *Population Statistics, I. National Data*, Washington, 1937, p. 9.

of school attendance, but the two are by no means synonymous, and in this respect, the annual increase in the labor supply may be exaggerated.

Furthermore, the estimators have not found it possible to estimate either seasonal or cyclical expansions and contractions in the labor supply, though it is known that many people enter or leave the labor market temporarily during booms and depressions and with changes in the seasons.<sup>13</sup> In agriculture, for example, seasonal fluctuations in the labor supply are known to be very great. Cyclical changes may be indicated by the tendency of some old people to remain in the labor market longer because of economic reverses suffered during the depression. Improvements in public provision for the aged during recent years may, on the other hand, have made possible earlier retirements.<sup>14</sup>

The position of women in the labor market presents a particularly difficult problem. In addition to the increasing tendency for women to enter and remain in the labor market irrespective of fluctuations in business activity, during periods of depression an unknown number of women enter or do not retire from the labor market because their earnings are needed for the whole or partial support of themselves and their families.<sup>15</sup> No estimator has attempted to adjust the labor supply for periodic entries and withdrawals of these supplementary or "additional" workers.<sup>16</sup> Table 2 shows the estimated total labor force at selected dates between 1933 and 1940.

In comparison with the preliminary returns of the 1940 census, the size of the labor force has been overestimated by practically all estimators of current unemployment.<sup>17</sup>

<sup>13</sup> For a discussion of the significance of short-period changes in the labor supply, see Myers, *op. cit.*, pp. 177-184.

<sup>14</sup> The census of 1940 disclosed a deficit of 876,000 persons in the age groups from 20 to 64 years and a surplus of 538,000 in the group of 65 and over as compared to the estimates of the National Resources Committee. Woytinsky suggests that in 1930 many aged people understated their ages because they were concerned with a competition for jobs, whereas by 1940 the availability of old-age assistance and old-age insurance may have led even to some overstatement of age. ("Controversial Aspects of Unemployment Estimates in the United States," p. 71.)

<sup>15</sup> In 1937, the enumerative check census indicated that some 2,800,000 women in the labor market in November 1937 may have come within these groups, but such facts as the census having been taken during the pre-Christmas season and during a month of sharp recession raise doubts as to whether this figure may not overstate the ratio of female accessions to the labor supply.

<sup>16</sup> It has been estimated that in Philadelphia in 1937, one "additional" worker entered the labor market for each six or seven regular members of the labor supply who became unemployed. There were, thus, seven or eight persons unemployed and looking for jobs, although only six or seven had actually been displaced. (Woytinsky, *Additional Workers and the Volume of Unemployment in the Depression*, pp. 16-17.) For a contrary view, see Humphrey, *op. cit.*, pp. 414-419.

<sup>17</sup> Woytinsky, "Controversial Aspects of Unemployment Estimates," *op. cit.*, p. 72. One student suggests that this is the principal reason why the number unemployed as indicated by the census count was smaller than many estimators expected it to be. He has suggested that the 1930 gainful workers (which are used as the basis of the

TABLE 2.—Estimates of total labor force, at selected dates, 1933-1940

(In thousands)

Estimators	March 1933	November 1937	December 1939	June 1940
American Federation of Labor.....	50,503	52,521	53,713	54,004
National Industrial Conference Board.....	50,646	53,265	54,711	55,059
Robert R. Nathan.....	50,137	52,223	53,165	53,408

Sources: AFL estimates from *American Federationist*, XLIII (January 1936), 71; XLVI (December 1939), 1360; XLVII (June 1940), 649; and XLVIII (May 1941), 24. NICB estimates from *The Conference Board Economic Record*, II (March 20, 1940), 86; (April 5, 1940), 164; and (October 3, 1940), 383. Nathan estimates obtained from the author.

### Differences in Estimates of Subsequent Changes in the Volume of Employment

The estimated volume of employment in various industries during the base period is extrapolated in accordance with changes in indexes of employment, many of which are prepared by the Bureau of Labor Statistics. Certain supplementary data on changes in business conditions and in industrial activity are also used. Estimates of current employment may be considered in two main groups: nonagricultural and agricultural.

Robert Nathan and the CIO use the Bureau of Labor Statistics monthly figures for nonagricultural employment. Because of the method by which they are secured, these figures probably tend to underestimate the volume of employment.<sup>18</sup>

The methods adopted by the remaining estimators can best be described in the words of Messrs. Nixon and Samuelson:

The other three estimating agencies compile their own employment figures, using in various combinations the employment indices of, for example, the Bureau of Labor Statistics, the Interstate Commerce Commission, and the F. W. Dodge Corporation (on residential construction), or using employment indices independently constructed. Also, data from the National Income Section of the U. S. Department of Commerce, from Dun and Bradstreet, and from other governmental and private agencies are used to estimate changes in business activity. These series indicating changes in employment are then applied to the absolute volume of employment in the

estimates) cannot be regarded as a group comparable to the "labor force" of the 1940 Census. (Loring Wood of the Bureau of Labor Statistics, quoted by Joy, *op. cit.*, p. 169.) On the other hand, it has been stated that the disparity between the two concepts is not large and that a comparison of the respective figures of the two enumerations is defensible. (Woytinsky, "Controversial Aspects of Unemployment Estimates in the United States," p. 71.)

<sup>18</sup> The indexes are based on information supplied by cooperating employers in various industries. Reports cover from 25 percent to 90 percent of the workers in different industries, and the adequacy and representative character of the sample varies from industry to industry. Although efforts are made to keep the indexes representative by allowing for declines of old firms and additions of new ones and by adjusting on the basis of special industry censuses, authorities appear to agree that, especially in periods of rising activity, new industries and new firms cannot be included quickly enough. There is, moreover, a questionable coverage of small firms and miscellaneous employment. (Cf. Woytinsky, "Controversial Aspects of Unemployment Estimates," pp. 72-73.)



various sectors of economic activity for specific base periods; a summation of the results gives the total number of persons employed at any one time. The bases of employment here used are derived from the 1930 Census of Occupations, the various Censuses of Manufactures, of American Business, of Mines and Quarries, of Electrical Industries, etc. The estimates are subject to revision as new data are provided by special Censuses, and all but the Hamilton estimate are tied to the 1930 census figures.<sup>19</sup>

All estimators make separate estimates of agricultural employment. Because of the paucity of data on which they are based, estimates of agricultural employment are probably least adequate of all estimates of current employment.

The most elaborate method of estimating current agricultural employment is that used by the National Industrial Conference Board prior to 1941. Agricultural workers were divided into four groups: farm owners, operators, and tenants; unpaid family laborers; hired workers (wage workers and foremen); and all others. Separate estimates were prepared for each group. Other estimations distinguish at least three of these four groups. Especial difficulties are created by the category of unpaid family laborers and by the treatment of part-time farming.<sup>20</sup>

The differences between the various estimates of the volume of employment for four different periods are shown in Table 3.

TABLE 3.—Estimates of total current employment, selected dates, 1933-1940  
(In thousands)

Estimators	March 1933	November 1937	December 1939	June 1940
American Federation of Labor.....	36,060	44,042	44,622	44,353
National Industrial Conference Board.....	35,884	46,090	46,454	46,834
Robert R. Nathan.....	36,329	45,046	43,318	44,153

Sources: See table 2 of this appendix.

There is general agreement that estimates of employment, especially those relating to industries not reporting data to one of the government agencies, must be accepted with considerable caution.<sup>21</sup>

<sup>19</sup> Nixon and Samuelson, *op. cit.*, p. 109.

In 1941 the NICB revised its employment estimates utilizing new data from the 1940 census and refinements of primary data from other sources. The revisions resulted in minor changes, primarily in agriculture, manufacturing, and construction. In October 1941, the NICB reported that "the net change in total employment for recent months is relatively small, primarily as a result of compensating adjustments." For an account of the new methods and a table carrying the revision back to January 1939, see "Interim Revision of Employment Estimates, 1939-41," *The Conference Board Economic Record*, III (October 11, 1941), 399-404.

<sup>20</sup> Cf. Nixon and Samuelson, *op. cit.*, pp. 109-110, and Reede, *op. cit.*, pp. 76-77.

<sup>21</sup> For an evaluation of current employment estimates, see Reede, *op. cit.* Reede concludes that estimates covering some 13.5 million of the employed may have a margin of error of 3 percent or less, those covering another 10 million of the employed may have a margin of error of from 4 to 6 percent, while those relating to 22.0 million have a margin of error of over 7 percent. He concludes "All in all, we should

## The Choice Between Available Series

Although all series tend to move in similar directions, they differ in regard to the absolute volume of unemployment estimated to exist at any one time. None of them agreed with the preliminary data on unemployment based upon a 5-percent cross-section of the total count of the census of April 1940.<sup>22</sup> The various estimates have also failed to correspond to such indications of the volume of unemployment as have been provided by occasional special counts of unemployment, such as the special census of unemployment taken in January 1931, and the voluntary census of partial employment, unemployment, and occupations, and the sample enumerative check census, taken in connection therewith in November 1937.<sup>23</sup> Nor have the estimates been in agreement with the conclusions to be drawn from the widely scattered sample enumeration made in connection with the National Health Survey in 1935-36.<sup>24</sup>

There is no consensus among critics of the various series as to which of the estimates is the most accurate measure of the volume of unemployment at any given time. This is partly due to differences of opinion as to definitions of the concept of unemployment itself (*e. g.*, whether additional workers forced into the labor market in periods of depression should properly be

be fortunate if the total of 45.5 million erred by less than 6 percent or over two and a half million. It is not as if the errors were, in general, likely to prove offsetting, for the tendency to underestimate is overwhelming." (*Ibid.*, pp. 79-80.) Cf. Woytinsky: " \* \* \* a considerable downward bias is inherent to the whole system of employment indexes which constitute the common basis of all current estimates of unemployment." ("Controversial Aspects of Unemployment Estimates," p. 75.)

<sup>22</sup> The census sample indicated a total unemployment figure of some 7,490,000. The census estimates are, however, uncertain about the status of 1,789,000 persons who were not included in the labor force nor allocated among either the employed or the unemployed. If all these persons were classed as unemployed, the census estimate would be increased to 9,279,000. The closest of the current estimates to this figure was that of the NICB, which had estimated 9,017,000 gainful workers unemployed in April 1940. (*The Conference Board Economic Record*, III (January 13, 1941), 8.) Owing to the fact that in the census the number of emergency workers was about 1 million short of the number which would be expected on the basis of the records of the emergency work agencies, and because of other uncertainties, it is doubtful how far the census figures are comparable with those of other estimates. It has been suggested that when all allowances are made, the census figure of the unemployed, defined as persons seeking work plus emergency workers, other than NYA students, may approximate 8 million. (Joy, *op. cit.*, p. 167.)

<sup>23</sup> Thus the voluntary registration in November 1937 indicated a total of 7,845,016 persons registered as unemployed, able to work, and wanting jobs. Estimates of the periodic estimates for the period in question were as follows: Alexander Hamilton Institute, 8,977,000; AFL, 8,479,000; NICB, 7,175,000; and R. Nathan, 7,777,000. On the other hand, the official estimate of unemployment, based upon the returns of the enumerative check census, gave a total of 10,983,000, which was 2 million above the highest of the current estimates. (Woytinsky, "Controversial Aspects of Unemployment Estimates in the United States," p. 70.)

<sup>24</sup> It has been estimated that the findings of the National Health Survey indicated that there were between 7.7 and 7.8 million usual earners out of jobs, a figure considerably lower than the estimates for the period December 1935 through February 1936, which ranged from 11,109,000 (Alexander Hamilton Institute) to 9,196,000 (Robert Nathan). (*Ibid.*)

TABLE 4.—National Industrial Conference Board estimates of unemployment in the United States, by months, January 1929 to June 1940

[In thousands]

Month	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
January	2,083	3,144	7,923	11,397	14,262	11,544	11,234	9,434	7,574	10,328	10,012	9,163
February	2,055	3,426	8,179	11,670	14,535	11,200	10,777	9,479	7,507	10,667	10,105	9,424
March	1,517	3,338	7,838	11,859	14,762	10,213	10,395	8,883	6,865	10,721	9,800	9,269
April	701	2,932	7,270	11,982	14,410	9,965	9,942	8,346	6,431	10,680	9,595	9,017
May	<sup>1</sup> -105	2,433	6,890	12,069	13,891	9,484	9,572	7,705	5,585	10,754	9,382	8,822
June	<sup>1</sup> -597	2,331	6,850	12,321	13,025	9,277	9,168	7,296	5,441	10,352	8,933	8,225
July	<sup>1</sup> -617	3,253	7,483	12,906	12,377	9,898	9,018	7,034	5,155	10,347	9,384	-----
August	<sup>1</sup> -826	3,764	7,948	12,941	11,475	10,086	8,947	6,393	5,066	9,314	8,192	-----
September	<sup>1</sup> -1,219	3,671	7,838	12,469	10,647	10,232	8,640	6,294	5,691	9,244	7,969	-----
October	<sup>1</sup> -482	4,529	8,682	12,961	10,796	10,597	8,729	6,521	5,691	9,429	8,337	-----
November	760	6,080	9,931	13,404	11,248	11,211	8,737	6,676	7,175	9,429	8,337	-----
December	1,919	6,802	10,522	13,768	11,500	11,086	9,099	7,120	8,841	9,304	8,257	-----
Average	429	3,809	8,113	12,478	12,744	10,400	9,522	7,599	6,372	10,099	9,067	<sup>2</sup> 8,987

<sup>1</sup> "Negative unemployment," resulting from excess of estimated employment over estimated total labor supply.

<sup>2</sup> Average for 6 months.

Source: *The Conference Board Economic Record*, II (March 20, 1940), 86, for all months prior to December 1939; data for later months from the monthly issues of the *Conference Board Economic Record*. It is to be noted that, in order to obtain continuity and comparability, these figures are not revised in accordance with recent changes by the NICB.

included in a measure of unemployment), and partly due to differences of judgment concerning both the classification of the employment status of specific groups of workers and the reliability of specific estimating techniques.

Estimates of unemployment have been utilized in this study mainly in connection with Chapter IX, where an attempt is made to evaluate the adequacy of coverage of public provision of work. Since it was felt desirable to avoid charges of exaggerating the inadequacy of work programs to provide for the unemployed, the NICB estimate prior to the revisions of 1941 was selected as the measure of unemployment precisely because it is in general the most conservative of the available estimates. There is, moreover, general agreement that it is the most carefully compiled of the various series and is also probably more sensitive to short-period changes, an important consideration in view of the month-by-month changes in project employment. The monthly estimates (unrevised series) over the period 1929-40 are shown in Table 4.

### WPA Monthly Reports on Unemployment

In December 1939 the Division of Research, Work Projects Administration, put into operation a regular monthly survey of unemployment which aimed to provide a more accurate and systematic measurement of unemployment, employment, and the size of the labor force by means of actual field counts. Monthly estimates based on this survey have been available since April 1940. The method adopted is similar in principle to that adopted by the surveys of public opinion conducted by the Gallup polls and *Fortune* magazine.<sup>25</sup> A carefully selected cross-section of the total

population is interviewed each month, and questions are asked to provide information on the size of the household, the number of persons under and over 14 years of age, and (for all persons 14 years and older) their relationship to the labor market during the entire week immediately preceding the week of interview. The interviews are intended primarily to secure data on the size of the labor force and the volume of employment and unemployment, but they also yield information on age, sex, and duration of unemployment, industry of the employed, and other characteristics of workers and nonworkers in the population.<sup>26</sup>

The national sample consists of 64 counties located in 45 States and selected on the basis of location, population, and economic characteristics. In the opinion of the agency the sample "is truly a cross-section of the country to an extent considerably beyond that considered safe by the public opinion polls."<sup>27</sup> Despite the small size of the sample this new attempt at direct and continuous measurement of labor market conditions is generally recognized as a significant contribution to the technique of estimating unemployment, and has come to be the most widely quoted of the estimates. It is the only estimate whose technique allows for short-run fluctuations in the size of the labor force. However, data from this sampling process were not available until the end of the decade with which this study is concerned.<sup>28</sup>

Unemployment," *Journal of the American Statistical Association*, XXXVII (March 1942), 77-80.

<sup>25</sup> The data are released monthly by the WPA in the form of mimeographed memoranda. For a presentation and interpretation of some of the more significant findings of the surveys, see Myers, *op. cit.*; see also "WPA Unemployment Estimates," *Monthly Labor Review*, LIII (October 1941), 893-899.

<sup>26</sup> Work Projects Administration, Division of Research, *op. cit.*, p. 2.

<sup>27</sup> For a list of other sources and series which might be utilized to develop more satisfactory estimates than have been available in the decade 1930-40, see Joy, *op. cit.*, pp. 172-174, and Woytinsky, "Controversial Aspects of Unemployment Estimates in the United States," pp. 76-77.

<sup>25</sup> For a more detailed account of the procedures adopted see Work Projects Administration, Division of Research, *Sampling Procedures and Methods of Operations of the WPA Monthly Report of Unemployment*; and Frankel, Lester R. and Stock, J. Stevens, "On the Sample Survey of