AN EVALUATION OF SELECTED ASPECTS OF THE BUREAU OF EMPLOYMENT SECURITY ESTIMATES OF AREA UNEMPLOYMENT

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CHAPTER I

INTRODUCTION

State employment security agencies use Bureau of Employment Security procedures to make estimates of area unemployment. At the local labor market area level these estimates are converted into unemployment percentages to become the basis for area participation in certain federal programs. Indicative of their importance is just one program for which specific unemployment rate levels are used to determine area eligibility, the Area Redevelopment Act;[1] it

> ...makes available to urban and rural areas with high unemployment a range of special Federal assistance: Loans to create new private enterprise and expansion of existing firms in such areas, financial aid for public facility improvements that will increase industrial or commercial employment, and technical aid to help develop new products, markets, and resources, and new uses of old resources.[2]

As of October 1, 1963, the area redevelopment administrator had used total unemployment rates as all or part of the basis for designating 633 of the nation's 1,070 redevelopment areas.[3,4] In Oklahoma, they provided

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[1] Area Redevelopment Act, Public Law 87-27. Passed May 1, 1961, by the 87th Congress, 1st Session. See Chapter II for its provisions.

[2] John Fitzgerald Kennedy, "Manpower Report of the President," Manpower Report of the President and a Report on Manpower Requirements, Resources, Utilization, and Training by the United States Department of Labor (Washington, 1963), p. xvii.

[3] Summary List of Redevelopment Areas and Eligible Areas: Public Works Acceleration Act, October 1, 1963, U.S. Department of Commerce Area Designation Status Report No. 10 (Washington, 1963), pp. 6-56.

[4] Until November 1, 1963, the small areas with labor forces under 15,000 could be designated based on current total unemployment and the

the basis for designating 30 of the state's 33 redevelopment areas.[5] The implications of such designations are substantial. By October 31, 1963, 1,148 projects valued at $206,085,000 had been approved for the nation, and 59 worth $18,725,000 had been approved for Oklahoma.[6]

Furthermore, redevelopment areas are also automatically eligible to participate in the Accelerated Public Works Program.[7] As of October 1, 1963, these areas had obtained the bulk of all projects authorized by that program: nationally, redevelopment areas received 5,477 of the nation's 6,611 projects,[8] in Oklahoma, 187 of 199.[9]

In view of the magnitude of the public grants and loans based on unemployment rates, the accuracy of the area unemployment estimates becomes very important:

> The size and complexity of the country's economy and the fact that local area estimates are used in administering public programs costing millions of dollars affirm the need of a large-scale effort to develop reliable reporting of labor market conditions in States and localities.[10]

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use of insured annual unemployment in lieu of total annual unemployment rates for those years in which adequate data inputs were not available to make total estimates. This Department of Labor procedure was ended by BES General Administration Letter 731 (Washington, October 16, 1963). Also some areas were jointly eligible for reasons other than unemployment submitted simultaneously by other agencies. As of October 1, 1963, two of Oklahoma's 30 areas based on unemployment were jointly based on other standards: Summary List of Redevelopment Areas, pp. 38-39.

[5] Summary List of Redevelopment Areas, pp. 38-39.

[6] Area Redevelopment Administration Directory of Approved Projects as of October 31, 1963 (Washington, 1963), p. 3.

[7] Summary List of Redevelopment Areas, p. 4.

[8] Table 4, "Accelerated Public Works Projects Approved by Type of Area as of October 1, 1963," Accelerated Public Works Program Directory of Approved Projects (Washington, 1963), p. 9.

[9] Ibid., pp. 103-107.

[10] President's Committee to Appraise Employment and Unemployment Statistics, Measuring Employment and Unemployment (Washington, 1962), p. 24.

A search of the literature reveals the existence of concern about the accuracy of the estimates. It also reveals that little has been done to test their accuracy, less to identify the sources of any inaccuracy, and nothing at all to find the effects of eliminating the possible sources of any inaccuracies. This seems paradoxical when:

> Data derived from an uncertain estimating procedure can prove very expensive if, as a result of faults in the procedure, decisions are made to allocate or to withhold Federal funds on the basis of incorrect information.[11]

Purpose of the Study

The present study will attempt to fill, in some measure, the gap left by this lack of scrutiny. One part of the analysis will involve an attempt to discover any indications that the area unemployment estimates are inaccurate. Another part will entail efforts to identify some of the possible causes of any indications of inaccuracy. A third portion of the study will cover the effects of using various procedures to eliminate the indications of possible inaccuracies. A major hypothesis of this study is that the introduction of these procedures will make such changes in the totals and rates of area unemployment as to change the number of areas which would be eligible for designation as redevelopment areas.

Methodology

First, the nature of the BES[12] and Decennial Census[13] estimates of

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[11] Ibid., p. 194.

[12] BES is a term generally used in the literature to represent the Bureau of Employment Security.

[13] Throughout this study the terms Decennial Census and Census will refer to the Census of Population.

area unemployment will be examined. This examination is designed to establish the extent to which definitional, methodological, and procedural variations might explain differences between the two types of unemployment estimates. Other methods of evaluating the BES estimates will also be considered. Second, an empirical test will be made between April, 1960, BES unemployment estimates and 1960 Census estimates to determine the actual level of any such differences in selected Oklahoma labor markets.

Third, the study will attempt to identify and quantify the causes of any such differences in the Oklahoma labor markets by (1) correlating the degree of differences with various area characteristics; (2) examining the nature of the data inputs used in the estimating process; and (3) recomputing the area estimates with alternative types of data inputs and then rechecking the correlations and differences. Fourth, the study will attempt to quantify other possible causes of the differences. The main procedure here will be to set the BES estimating procedure and inputs in equation form equal to Census unemployment and solve for the modifications in various procedures or inputs which would be required to yield that total.

Fifth, the modifications suggested by the causes identified above will be incorporated into the BES unemployment estimating methodology and applied to the 1958-1962 annual estimates of Oklahoma labor market areas covered by this study. And finally, the effect of applying such methodological modifications on each labor market area's ability to quality for designation as a redevelopment area will be examined.

Scope of the Study

Nineteen Oklahoma labor market areas, selected because of the

relatively large amount of pertinent data available for them, will be analyzed in the present study. The areas range in labor force size from 229,500 to 1,860.[14] They represent all sections of the state and range from highly urban to highly rural. Two of the areas are standard metropolitan statistical areas; the rest are counties. Thirteen of the areas had been designated redevelopment areas as of October 1, 1963.[15]

The study will be limited to the time period 1958 through 1962. This time period encompasses the annual unemployment estimates and rates used through 1963 to qualify areas as redevelopment areas as well as the estimates of April, 1960, which will be compared to the 1960 Census estimates.

Plan of Presentation

Chapter II will provide an analytical background. It will examine the construction and use of the unemployment estimates and rates as the basis for designating labor market areas as redevelopment areas.

The third chapter will consider various possible tests of the accuracy of the BES area estimates of unemployment. Particular attention will be paid in this chapter to the comparability of the BES and Decennial Census unemployment estimates.

Actual comparisons between the Census and BES estimates for the nineteen Oklahoma labor market areas will be made in Chapter IV.

In Chapter V, attempts will be made to identify the BES procedures causing the observed differences and the characteristics of the areas where the differences are the greatest.

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[14] As of annual average, 1962, according to the Handbook of Labor Force Data for Selected Areas of Oklahoma, 1950-1962 (Oklahoma City, 1963), pp. 8-89.

[15] Summary List of Redevelopment Areas, pp. 38-39.

Various procedures to eliminate all or part of the observed differences will be presented in Chapter VI. It will also consider the effects of applying these procedures on area eligibility for designation as redevelopment areas.

A summary and conclusions will be presented in the seventh chapter.

CHAPTER II

AREA UNEMPLOYMENT: ANALYTICAL BACKGROUND

Identification of areas eligible for designation as redevelopment areas is based on unemployment rate levels set in Section 5a of the Area Redevelopment Act and on certain other standards to be determined by the area redevelopment administrator.[1,2] Section 5a specifies that redevelopment areas shall be designated:

> (1) where the Secretary of Labor finds that the rate of unemployment, excluding unemployment due primarily to temporary or seasonal factors, is currently 6 per centum or more and has averaged at least 6 per centum for the qualifying time periods specified in paragraphs (2); and
> (2) where the Secretary of Labor finds that the annual average rate of unemployment has been at least -
> (A) 50 per centum above the national rate for three of the preceding four calendar years, or
> (B) 75 per centum above the national average for two of the preceding three calendar years, or
> (C) 100 per centum above the national average for one of the preceding two calendar years.[3]

The following annual unemployment rates were used through 1963 for

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[1]The other standards were initially published in the Federal Register, XVI:ccx (October 24, 1961), pp. 9935-9938, as Title 13, Chapter III; Amendments were published in XXVII:ccix (November 27, 1962), p. 11635, and XXVIII:iii (January 4, 1963), p. 2242, of the Federal Register.

[2]Summary List of Redevelopment Areas, p. 2, lists the following criteria for designation as of October 1, 1963: Areas of low income; median family income (Population Census of 1960) is $1887 or less. Areas of low farm income; median farm family income (Population Census of 1960) is $1415 or less. Areas of low production farming; 60 percent or more of commercial farms are "Class VI" (Census of Agriculture, 1959). Other standards cover rural development counties, areas in states which would otherwise not participate, and Indian reservations.

[3]Area Redevelopment Act, Section 5a, p. 2.

the purpose of determining area eligibility:

TABLE II-1

ANNUAL AVERAGE UNEMPLOYMENT RATES USED TO QUALIFY REDEVELOPMENT AREAS

Calendar Year	National Average Unemployment Rate	50 Percent Above National	75 Percent Above National	100 Percent Above National
1958	6.5	10.2		
1959	5.5	8.3	9.6	
1960	5.6	8.4	9.8	11.2
1961	6.7	10.0	11.7	13.4
1962	5.6	8.4	9.8	11.2

Source: "Area Eligibility Report," U.S. Department of Commerce form ARA-47 (Washington, June 18, 1963), p. 1.

Area Unemployment Rates

Each area's unemployment rate is the percent that the area's unemployment is of the sum of the area's employment and unemployment. The Department of Labor's Bureau of Employment Security and its affiliated state employment security agencies assemble data and process them as needed to compute the rates.[4] The procedures which these agencies use to derive the rates are found in the BES handbooks Estimating Unemployment[5] and Estimating Area Employment of Self-Employed, Unpaid Family and Private Household Workers - Nonagricultural Total.[6] A condensed version of the

[4]Statistical Reporting Under the Area Redevelopment Act of 1961, Attachment to BES General Administration Letter No. 650 (Washington, August 28, 1962), p. 2.

[5]Estimating Unemployment, BES No. R-185 (Washington, April, 1961).

[6]Estimating Area Employment of Self-Employed, Unpaid Family, and Private Household Workers - Nonagricultural Total, BES R-187 (Washington, July, 1961); as revised: BES R-187 (R7-63) (Washington, August, 1963).

appropriate procedures from these publications is presented in Handbook on Development of Basic Labor Market Information for Small Areas.[7] This handbook also contains a method for estimating area agricultural employment. The other publications do not discuss this item. A summary of the procedures they describe follows.

Area Employment. -- Employment is defined by the BES as

> Persons...who work for pay or profit during a week or, as unpaid family workers, work 15 hours or more a week. Also included...are those who, although not working, had some job attachment and were not looking for work.[8]

Estimates of total area employment are constructed by adding together covered employment and an estimate of noncovered employment. Covered employment is the private wage and salary employment reported under the state's unemployment insurance program. Noncovered employment refers to individuals who are engaged in various types of employment not covered by the state insurance program. It includes the wage and salary employment of firms too small to be covered (3 employees or less), railroad and government employment, employees of nonprofit organizations, agricultural workers, domestics, the self-employed, and unpaid family workers. Estimates of the size of each area's noncovered employment are obtained by totaling the amount of employment estimated for each of the above components.

The components of the employment estimates are obtained by the BES and its related state agencies in the following manner: Data on employment covered by state unemployment insurance programs are compiled

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[7] Handbook on Development of Basic Labor Market Information for Small Areas, BES No. R-188 (Washington, May, 1960).

[8] Estimating Unemployment, p. 10.

as a by-product of the employer reports required by the programs.[9,10] Estimates of employment in firms too small to be covered by the unemployment insurance programs are obtained periodically as the sum of employment reported on old age and survivor insurance reports by firms with three or fewer employees.[11] This amount is reduced by an estimate of the employment of the small firms which have voluntarily elected unemployment insurance coverage under the state programs. Interim small firm employment estimates are made by assuming that this component changes as covered employment does.[12]

The BES procedures for estimating agricultural employment involve extrapolating each area's 1950 Census of Population estimates of (1) agricultural wage and salary employment and (2) agricultural self-employed and unpaid family workers. The following steps are involved in the estimation process.[13] First, the state 1950 Census of Population estimates are divided by comparable items for April, 1950, from the 1954 Census of Agriculture. Second, each result is multiplied by an adjustment

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[9]Employer reports are made quarterly. And there is a further time lag before data are processed and available for use. Current estimates are obtained by extrapolating periodic benchmarks based on the reported estimates by the results of a mail sample of employers.

[10]Handbook on Development of Basic Labor Market Information for Small Areas, p. 13; and Estimating Unemployment, p. 23.

[11]Handbook on Development of Basic Labor Market Information for Small Areas, pp. 13-14; and Estimating Unemployment, p. 24.

[12]Handbook on Development of Basic Labor Market Information for Small Areas, p. 16.

[13]Ibid., pp. 22-26.

factor supplied by the BES.[14] The adjustment factors attribute "proportionally to each State the adjustments needed in the State series for the differences in the national totals of the AMS and MRLF."[15,16,17] The results are called estimating factors. Third, these factors are multiplied by the AMS state figures for each of the two types of agricultural employment. Fourth, percentages are computed by dividing the resulting figures by the state 1950 Census of Population estimates. Fifth, these percentages are multiplied by each area's 1950 Census of Population estimate to get estimates of its agricultural employment. The BES presentation of this procedure is accompanied by the suggestion that it "should not discourage any state agency from conducting surveys for developing other methods for estimating agricultural employment."[18,19]

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[14]According to Handbook on Development of Basic Labor Market Information for Small Areas, p. 26, the BES derives the factors by dividing the ratios of the Agricultural Marketing Service to Monthly Report on the Labor Force estimates by the ratios of the 1950 Census of Population to the 1950 Census of Agriculture estimates.

[15]Handbook on Development of Basic Labor Market Information for Small Areas, p. 23.

[16]Agricultural Marketing Service is generally referred to in the literature as AMS.

[17]MRLF appears generally in the literature in reference to the Monthly Report on the Labor Force. It is published by the Department of Labor and contains data on national employment and unemployment.

[18]Handbook on Development of Basic Labor Market Information for Small Areas, p. 22.

[19]According to Mr. Wesley Wilson, research and planning division, Oklahoma Employment Security Commission, the state of Oklahoma, attempting to improve the accuracy of its estimates, has realistically discarded this procedure in the face of apparent non-proportional changes in the agricultural sectors of the state. Instead, agricultural estimates are made of area residents by local representatives of the state employment security commission based on their own observations, as affected by local requests for agricultural employees and employment, and other such data as are available.

Area "all other" nonagricultural employment is the sum of domestics, nonagricultural self-employed, and nonagricultural unpaid family workers.[20] Estimates of this item are obtained by a procedure which uses each area's 1950 Census of Population estimate of total "all other" employment.[21] First, each area's 1950 estimate is multiplied by 1.20.[22] The resulting figures are extrapolated by the changes in wage and salary employment from March, 1950, to the desired time period. These figures are then modified to allow for any changes in this item's relationship with wage and salary employment which may have occurred since the 1950 Census. The factor used to modify them is obtained by dividing the March, 1950, Current Population Survey relationship of "all other" employment to wage and salary employment by the Current Population Survey relationship for the desired time period. The final figure for the area is then divided into domestics and nonagricultural self-employed and unpaid family workers. The division is accomplished by multiplying the final total by the percent that each of these items is of the area's total in the 1950 Census. This breakout is necessary because the unemployment estimating procedure assigns

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[20] Handbook on Development of Basic Labor Market Information for Small Areas, pp. 19-21; Estimating Area Employment of Self-Employed, Unpaid Family, and Private Household Workers - Nonagricultural Total, BES No. R-187, pp. 3-4, and as revised: BES No. R-187 (R7-63), pp. 3-4.

[21] Estimating Area Employment of Self-Employed, Unpaid Family, and Private Household Workers - Nonagricultural Total, BES No. R-187 (R7-63), is the August, 1963, revision of BES No. R187. It uses 1960 Census data inputs while the other uses the 1950 Census data. There were no changes in procedure. The discussion is presented in 1950 terms because the BES estimates for 1958-1962 were generally based on the earlier release.

[22] This is a BES correction factor which attempts to take into consideration the fact that the Current Population Survey estimate for this sector was 20 percent higher than the 1950 Decennial Census estimate. See Handbook on Development of Basic Labor Market Information for Small Areas, p. 21; and Estimating Area Employment of Self-Employed, Unpaid Family, and Private Household Workers - Nonagricultural Total, BES No. R-187, p. 5.

different rates to the two components.

Estimates of nonagricultural wage and salary employment for which current area data are not available are taken from the 1950 Census of Population.[23] The employment of nonprofit institutions, governments and railroads is involved.[24] The use of this Census data is to occur "only when more current basic information cannot be developed."[25,26]

Area Unemployment. -- An area's unemployment estimate "is an unduplicated count of the unemployed residing in the area."[27] According to the BES, it is:

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[23]Handbook on Development of Basic Labor Market Information for Small Areas, p. 14.

[24]The Census of Population data sources are listed in Handbook on Development of Basic Labor Market Information for Small Areas, p. 11. All data are from Table 43, "Economic Characteristics of the Population, by Sex, for Counties: 1950," U.S. Census of Population: 1950, Vol. II, Characteristics of the Population, Part 36, Oklahoma, pp. 91-100. Nonprofit employment is defined as the sum of the following items listed under Industry Group: 100 percent of Educational Services, private; 50 percent of Medical and Other Health Services; 50 percent of Other Professional and Related Services. Government employment is 100 percent of the item Government Workers listed under Employment Status. Railroad employment is 100 percent of the item Railroad and Railway Express Services Under Industry Group.

[25]Handbook on Development of Basic Labor Market Information for Small Areas, p. 18.

[26]The Oklahoma Employment Security Commission, according to Mr. Wesley Wilson of its Research and Planning Division, derives more current information by periodically sending an employment enumerator into each area. Interim estimates are obtained by having a portion of those surveyed mail periodic reports of their employment totals. Each sector's latest survey estimate is then assumed to move as the employment of the mail respondents from that sector does. Data needed for the time periods prior to the earliest enumeration were estimated on the basis of the enumerators' initial investigation, the trends revealed by the mail samples, and any other available data. The commission does not have to enumerate federal government employment as information is available as a by-product of information reported by the Unemployment Compensation for Federal Employees program (UCFE).

[27]Estimating Unemployment, p. 11.

> ...a count of persons who for an entire week, did not work at all, were able to work and available for work, and (1) were looking for work, or (2) would have looked for work except that (a) they were waiting to return to a job from which they had been laid off, or (b) they were waiting to report to a new wage and salary job scheduled to start within the following 30 days (and were not in school during the week), or (c) they believed no work was available in their line of work or in the community.[28]

It is the sum of insured unemployment, unemployment related to the insured unemployment but not drawing benefits for one reason or another, unemployment related to noncovered employment, and new entrant and re-entrant unemployment.[29]

Estimates of each component are obtained in the following manner. Insured unemployment is the number of claims paid to unemployed who used to work at employment covered by state unemployment insurance programs. The claims are filed by individuals who have been completely out of work for the past week. Unemployment related to insured unemployment but not drawing benefits is the sum of the unemployed who have been working at jobs covered by unemployment insurance but are disqualified from drawing benefits because they engaged in activities such as leaving work voluntarily or being discharged for misconduct. It also includes an estimate of the number of individuals who have exhausted their benefits or delayed filing for their benefits, or never filed for them.

A constant percent of the disqualified individuals is assumed to be unemployed. The size of the percentage depends on the length of the period of disqualification specified by the state regulations governing these items. Oklahoma's disqualification period is six weeks, and

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[28] Ibid., p. 9.

[29] Handbook on Development of Basic Labor Market Information for Small Areas, pp. 31-32; and Estimating Unemployment, pp. 27-31.

therefore, 78 percent of those disqualified in the last six weeks may be assumed to be unemployed.[30,31,32] Alternately, a constant 80 percent of this group can be considered unemployed.[33] According to the BES, these percentages are derived from "field studies."[34] No further details were found in a search of the literature.

There are several procedures for estimating the number of unemployed persons who have exhausted their benefits and can no longer file claims. First, it can be the number of individuals who have completely used up all their unemployment insurance benefits in the last three months.[35] This assumes that in every area the number of individuals getting jobs within the three months is exactly offset by those who remain unemployed after that time period. Alternately, the BES allows the states to assume that exhaustees will cease to be unemployed at the same rate as the insured unemployed for the first month and at one-half the rate after that.[36,37,38]

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[30] Section 215, "Disqualification for Benefits," Oklahoma Employment Security Act (Oklahoma City, 1962), pp. 4-5.

[31] The percent comes from Estimating Unemployment, p. 41.

[32] This rate is used in Oklahoma, according to Mr. Wesley Wilson, research and planning division, Oklahoma Employment Security Commission.

[33] Handbook on Development of Basic Labor Market Information for Small Areas, p. 31.

[34] Estimating Unemployment, p. 40.

[35] Handbook on Development of Basic Labor Market Information for Small Areas, p. 31.

[36] An exhaustee is a term commonly used in the literature to refer to an individual who has exhausted his state unemployment insurance benefits.

[37] Estimating Unemployment, p. 46.

[38] Both approaches are used in Oklahoma, according to Mr. Wesley Wilson, research and planning division, Oklahoma Employment Security Commission. The first one is used when immediate need exists to estimate exhaustees and the data on them have not been available for a sufficient time to survive the remaining exhaustees from one month to the next.

Estimates of each area's delayed filers and never filers (D) are based on a constant formula which relates this item to the number of initial claims for unemployment insurance filed in an area (I), and "the ratio of insured unemployment less partials, plus unemployed exhaustees, divided by the sum of these two items plus covered employment" (U).[39,40] The formula is $D = I \left(\frac{.0525}{U} - .35 \right) - 34 \left(\frac{.0525}{.083} - .35 \right)$.[41]

Unless otherwise noted, the estimates of unemployment related to employment not covered by state unemployment insurance are made with the formula $U = \frac{wr}{1-wr} \cdot E$.[42] In this formula the unemployment related to each type of noncovered employment (U) is equal to a fraction (w) of the area's covered rate of unemployment (r) times the employment estimated for each of the various types of employment not covered by the state unemployment insurance program (E).[43] The values of w are constants supplied by the BES.[44] They vary from one type of employment to the next: The employees of small firms and railroads are assumed to be unemployed at the same rate as the covered employees. Domestics are assumed to be

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[39] Partials is a term generally used in the literature to refer to individuals who only file for partial unemployment benefits because they have had some work during the past week.

[40] Handbook on Development of Basic Labor Market Information for Small Areas, p. 33.

[41] Ibid.

[42] Estimating Unemployment, p. 30.

[43] The covered rate is the percentage that insured and related unemployment is of covered employment plus insured and related unemployment.

[44] These rates can be found in Estimating Unemployment, p. 36, or in Handbook on the Development of Basic Labor Market Information for Small Areas, pp. 31-32.

unemployed at 3/4 the covered rate, and nonagricultural self-employed and unpaid family workers at 1/5 the rate. The unemployment of agricultural wage and salary workers is assumed to change from twice the covered rate in December, January and February, to 1 1/2 the covered rate in March and November, to the same rate in April through October. The area's agricultural self-employed and unpaid family workers are assumed to have a constant rate of 1/10 the covered employment rate. Government unemployment is assumed to occur at a rate equal to 1/3 of the relationship of covered unemployment to total covered labor force.[45] The employees of nonprofit institutions are given a constant rate of unemployment of .02 for every area.

Another source of unemployment is individuals entering or re-entering the labor force. The size of this group is "related to the size of the labor force in the area, the level of unemployment (other than entrants), and the time of the year."[46] Unemployment estimates for this component are based on the equation $N = AL + BU$.[47] N is the unemployed entrants, L the labor force (excluding entrant and re-entrant unemployed), and U an estimate of the unemployed exclusive of entrants and re-entrants. The A and B factors are constants provided by the BES.[48] They are assumed to be applicable to every area, whatever its characteristics; they have been

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[45]This constant comes from Handbook on Development of Basic Labor Market Information for Small Areas, p. 31. An alternate approach presented in Estimating Unemployment, p. 36, involves the use of the UCFE claims for federal unemployment and either 3/4 of the federal rate or 1/3 of the covered rate for the state and local unemployment.

[46]Estimating Unemployment, p. 56.

[47]Ibid.

[48]Handbook on Development of Basic Labor Market Information for Small Areas, p. 36, and Estimating Unemployment, p. 57.

"developed on the basis of analysis of published and unpublished MRLF data."[49] No description of the analysis was found in a search of the literature.

The following formula depicts the basic April unemployment estimating procedures. The BES assumes it will apply to every labor market area. The variables are:

U_t = total unemployment

E_i = insured employment

U_c = covered unemployment

E_{nws} = private wage and salary less nonprofit employment

E_d = domestics

E_{su} = nonagricultural self-employed and unpaid family workers

E_g = government employment

E_{aws} = agricultural wage and salary employment

E_{asu} = agricultural self-employed and unpaid family workers

E_{np} = nonprofit employment

E_t = total employment

Area Total Unemployment

$$U_t = \frac{1.0\left(\frac{U_c}{E_i+U_c}\right)\left(E_{nws}\right)}{1.0 - 1.0\left(\frac{U_c}{E_i+U_c}\right)} + \frac{.75\left(\frac{U_c}{E_i+U_c}\right)\left(E_d\right)}{1.00 - .75\left(\frac{U_c}{E_i+U_c}\right)}$$

$$+ \frac{.20\left(\frac{U_c}{E_i+U_c}\right)\left(E_{su}\right)}{1.00 - .20\left(\frac{U_c}{E_i+U_c}\right)} + \frac{.33333\left(\frac{U_c}{E_i+U_c}\right)\left(E_g\right)}{1.00000 - .33333\left(\frac{U_c}{E_i+U_c}\right)} + \frac{1.0\left(\frac{U_c}{E_i+U_c}\right)\left(E_{aws}\right)}{1.0 - 1.0\,\frac{U_c}{E_i+U_c}}$$

$$+ \frac{.10\left(\frac{U_c}{E_i+U_c}\right)\left(E_{asu}\right)}{1.00 - .10\left(\frac{U_c}{E_i+U_c}\right)} \quad .02\left(E_{np}\right) + .06\left[\frac{1.0\left(\frac{U_c}{E_i+U_c}\right)\left(E_{nws}\right)}{1.0 - 1.0\left(\frac{U_c}{E_i+U_c}\right)}\right]$$

continued on next page

[49] Estimating Unemployment, p. 56.

$$+ \frac{.75\left(\frac{U_c}{E_i+U_c}\right)\left(E_d\right)}{1.00-.75\left(\frac{U_c}{E_i+U_c}\right)} + \frac{.20\left(\frac{U_c}{E_i+U_c}\right)\left(E_{su}\right)}{1.00-.20\left(\frac{U_c}{E_i+U_c}\right)} + \frac{.33333\left(\frac{U_c}{E_i+U_c}\right)\left(E_g\right)}{1.00000-.33333\left(\frac{U_c}{E_i+U_c}\right)}$$

$$+ \frac{1.0\left(\frac{U_c}{E_i+U_c}\right)\left(E_{aws}\right)}{1.0-1.0\left(\frac{U_c}{E_i+U_c}\right)} + \frac{.10\left(\frac{U_c}{E_i+U_c}\right)\left(E_{asu}\right)}{1.00-.10\left(\frac{U_c}{E_i+U_c}\right)} + .02\left(E_{np}\right)\Bigg]$$

$$+ .003\Bigg[\left(E_t\right) + \frac{1.0\left(\frac{U_c}{E_i+U_c}\right)\left(E_{nws}\right)}{1.0-1.0\left(\frac{U_c}{E_i+U_c}\right)} + \frac{.75\left(\frac{U_c}{E_i+U_c}\right)\left(E_d\right)}{1.00-.75\left(\frac{U_c}{E_i+U_c}\right)}$$

$$+ \frac{.20\left(\frac{U_c}{E_i+U_c}\right)\left(E_{su}\right)}{1.00-.20\left(\frac{U_c}{E_i+U_c}\right)} + \frac{.33333\left(\frac{U_c}{E_i+U_c}\right)\left(E_g\right)}{1.00000-.33333\left(\frac{U_c}{E_i+U_c}\right)} + \frac{1.0\left(\frac{U_c}{E_i+U_c}\right)\left(E_{aws}\right)}{1.0-1.0\left(\frac{U_c}{E_i+U_c}\right)}$$

$$+ \frac{.10\left(\frac{U_c}{E_i+U_c}\right)\left(E_{asu}\right)}{1.00-.10\left(\frac{U_c}{E_i+U_c}\right)} + .02\left(E_{np}\right)\Bigg]$$

Annual estimates are made by changing the last two major components from .06000 and .003 to .09583 and .00567. Also the April constant for E_{aws} must change from 1.00000 to 1.33333.

Labor Market Areas

The BES defines three types of labor market areas for which unemployment estimates and rates are made: major, small and very small. The major areas have a central city, or adjoining cities, with a population of 50,000 or more.[50] Areas without a central city and not part of a

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[50] Defining Labor Market Areas, BES No. R-186 (Washington, March, 1960), p. 3.

major labor market area can be either small or very small areas; they are small if their work force[51] exceeds 15,000 and very small if it does not.

The geographic determination of the local labor market areas is based on the procedures found in Defining Labor Market Areas.[52] Determination of area boundaries is primarily based on the degree of commuting from place of residence to place of work.[53] Ideally, "all workers live in the same geographic area in which they work."[54] The BES has established certain arbitrary levels of commuting. If these levels are exceeded, then the geographic areas involved are brought together in one labor market to internalize the places of work and residence.

Major areas include the entire county which contains the central city, plus other contiguous counties in which "15 percent of the workers living in the county work in the county or counties containing central cities of the area or 25 percent of those working in the county live in the county or counties containing central cities of the area."[55] Counties are used as the smallest unit despite their not providing the accuracy of definition of finer geographic boundaries. The BES permits this because "experience has shown that areas so defined [very accurately] have a limited value because much of the economic and other data used in labor market analysis are available only on a county basis."[56]

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[51]Total number employed and unemployed in the areas.

[52]The distinction between small and very small is not made in the BES handbook Defining Labor Market Areas, which refers to both the latter types of areas as small; rather it is presented in Statistical Reporting Under the Area Redevelopment Act of 1961, p. 3.

[53]Defining Labor Market Areas, p. 2.

[54]Ibid., p. 3.

[55]Ibid., p. 7.

[56]Ibid., p. 4.

Non-major labor market areas do not have to be defined only on a county basis. They consist of a central community and any other minor civil divisions[57] that meet the following criteria or lie between the central community and those that do: (a) fifteen percent of the non-agricultural workers living in this town work in the central community; or (b) "25 percent of the nonagricultural workers employed in the adjacent town live in the central community or are hired in the central community."[58] Significantly, the BES notes that entire counties may be used for ease of data preparation in cases where "the proportion of the population in places not integrated with the central community is small and would affect insignificantly the purposes for which the area is defined."[59,60,61]

The BES provides two basic approaches for obtaining data on employment commuting: the first involves sample surveys of employers. The second obtains the data by analyzing the unemployment insurance claimants. The survey involves having employers of the central community or counties report where their workers live.[62] The number of workers working in a given area while residing in a potentially interrelated sub-area is then divided by the total number of workers residing in the sub-area. The BES suggests that the resident employment estimates needed for this form of

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[57]Any minor civil divisions are defined as "towns" in the BES criteria.

[58]*Defining Labor Market Areas*, p. 9.

[59]Ibid.

[60]A search of the literature reveals that the BES neither specifies what "small" is, nor defines "insignificantly."

[61]In Oklahoma, all of the 35 small and very small labor market areas for which the Oklahoma Employment Security Commission published unemployment data through 1962 were counties: *Handbook of Labor Force Data for Selected Areas of Oklahoma, 1950-1962*, pp. 1-3.

[62]*Defining Labor Market Areas*, p. 11.

analysis can be obtained by extrapolating the latest Census nonagricultural wage and salary employment, excluding domestics, to the present time period by the changes in insured employment. Alternately it recommends making a complete count of employees' place of residence by simultaneously surveying employers in all areas.[63]

The claimant analysis involves examination of the state unemployment insurance claims filed in a given location to see how many claims have been filed against employers not in that location. If fifteen percent or more have been filed against employers in a specific other location, the first location is considered to be integrated with the second. The validity of these conclusions is based on the assumption that "claimants are usually required to file at local offices located in or near the place in which they live."[64]

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[63]Ibid., pp. 27-28.

[64]Ibid., p. 31.

CHAPTER III

TESTS OF THE UNEMPLOYMENT ESTIMATES: REVIEW AND APPRAISAL

The studies which have been made to determine the accuracy of the unemployment estimates follow two basic patterns. One takes the form of a comparison between the BES and Census estimates of area unemployment.[1] The other sums area unemployment estimates and rates and compares them to national estimates and rates. No other tests were discovered in a search of the literature, although other tests have been suggested by various authors.

Earlier Tests

One test conducted by the Bureau of Employment Security compares April, 1950, BES unemployment rates to the 1950 Census unemployment rates of the sixteen largest labor market areas in the country.[2] "In all cases except one the BES rate was higher than the Census rate."[3] The BES considers this to be a significant indication of the accuracy of its area estimates in view of the undercount of the unemployed thought to have taken place in the 1950 Census of Population enumeration:

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[1]The Census unemployment figures are estimates rather than complete counts. They are based on a 20 percent sample of the Census enumeration in 1950 and a 25 percent sample in 1960.

[2]Louis Levine lists the areas for which estimates were compiled in "Unemployment by Locality and Industry," The Measurement and Behavior of Unemployment, a Conference (Princeton, 1957), p. 344.

[3]Estimating Unemployment, p. 20.

> The fact that the BES rates are, in most instances, higher than the Census rate may be taken as an indication of the reasonableness of the BES estimates....It is plausible to assume that there was some degree of underreporting of the unemployed in most areas and, therefore, the 'true figures' for these areas would be higher than the Census count.[4]

The BES also finds it indicative of its estimates' accuracy that "when data for these 16 areas are aggregated, the resulting BES unemployment rate is higher than the Census rate for this group by about 25 percent, or the estimated understatement in the Census national unemployment estimate."[5]

According to the BES, another indication that its estimates are satisfactory can be obtained by proportionally expanding the employment and unemployment estimates for all major areas to the national level of employment and having "the resulting unemployment figures close to the MRLF estimates."[6]

Substantial underenumeration of the Census unemployed did not occur in the 1960 Census. The Current Population Survey estimate of national unemployment exceeds the Census of Population by only 4.2 percent.[7] This difference is in the direction expected as a result of differences of definition.[8] Thus, the basic reason why the BES rejects the use of Census data to conclusively evaluate the BES estimates disappears.

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[4]Ibid., p. 21. [The BES should have cited Levine, p. 345, as its source for this specific statement.]

[5]Ibid., p. 20.

[6]Ibid. See also Levine, p. 345, for a related discussion.

[7]Calculated from data in Table A, "Comparison of Employment Status, by Sex, for the Census and April Current Population Survey: 1960 and 1950," U.S. Census of Population: 1960. Employment Status and Work Experience. Final Report PC (2)-6A, p. x.

[8]See page 30 of this chapter.

Another test involving the comparison of area Census and BES unemployment estimates, this one using 1960 Census data, has been made by Joseph Ullman.[9,10] It is the most complete test that could be located in a search of the literature. In it, Ullman compares Census and BES unemployment estimates for 44 states and 183 standard metropolitan statistical areas.[11,12] First, he computes a percent of difference for each state and SMSA by subtracting the BES estimates from the Census figures and taking the difference as a percentage of the BES estimates.[13] He then computes the mean and standard deviation of the percentage rates. The mean state rate is -2.4 percent, and the mean SMSA rate is -4.1 percent.[14,15] Thus, according to Ullman, not only are the April, 1960, area

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[9]Joseph Ullman, "How Accurate Are Estimates of State and Local Unemployment?" Industrial and Labor Relations Review, XVI (April, 1963), pp. 434-452.

[10]The BES, prior to the arrival of the 1960 Census of Population, had suggested the desirability of this form of test: "Comparisons of the unemployment estimates for states and areas with 1960 Census of Population data would also be useful in evaluating the unemployment estimating procedure": Estimating Unemployment, p. 22.

[11]The term standard metropolitan statistical area is often presented in the literature in abbreviated form as SMSA.

[12]Ullman lists only 181 SMSA's, though his mean is based on 183. He has either miscounted or is the victim of a publishing error (though no note of publishing error correction was found in subsequent issues of the Industrial and Labor Relations Review). In any case, SMSA's listed on page 450 as the seventh and eighth groups of SMSA's each show only four SMSA's, while all others are in groups of five except the last one of three.

[13]If he has been published correctly, he has computed the percentage difference of one of the SMSA's incorrectly: his Jacksonville computation should be +38.0 percent rather than +13.0 percent. No note of publication error or correction was found in subsequent issues of the Industrial and Labor Relations Review.

[14]Ullman, p. 439.

[15]Recomputing his mean with 181 SMSA's and the corrected Jacksonville percent of difference yields a mean of -4.2 percent.

estimates only slightly higher than the Census estimates, but on a national basis would be very close to the Current Population Survey estimates which are also slightly higher than the Census figures in April, 1960.[16,17]

The validity of a collective total of BES area estimates or rates is presented by the Bureau of Employment Security as an indication of the reasonableness of individual area estimates. The results of aggregating the estimates which Mr. Ullman uses in his analysis would appear to substantiate those findings. Nevertheless, and most significantly, Mr. Ullman also finds extremely wide variations in the BES estimates' relationship with the Census estimates from area to area. Arraying the percentages, he finds a range of -33.8 to +56.7 percent and a standard deviation of 18.6 percent for the states. For SMSA's, he finds a range of -53.3 to +88.8 percent, with a standard deviation of 24.7 percent.[18,19] According to Mr. Ullman's description of his basic findings,

> The Bureau of Employment Security and Decennial Census estimates of state and local unemployment in April, 1960, were often far apart, in spite of the fact that their respective estimates of total unemployment in the United States were in close agreement.[20]

Ullman feels that the differences he has found between the Census and BES estimates of area unemployment are so great as to be virtually inexplicable by minor variations of definition, time or administration. His

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[16]Ullman, p. 436.

[17]The Current Population Survey was 4.2 percent higher. See page 24 of this chapter.

[18]Ullman, p. 439.

[19]Correcting for Ullman's inaccurate addition of the number of SMSA's and computation of SMSA percentages of difference yields a standard deviation of 24.9 percent for SMSA's.

[20]Ullman, p. 434.

finding of a "considerable divergence"[21] between the estimates and his acceptance of the Census estimates as a norm by which to evaluate the BES estimates cause him to question the "adequacy of these estimates for purposes of resting policy decisions on them."[22] He also notes that the differences are particularly large in some areas and that, as a minimal result, at least "some of the BES state and local estimates should be treated with skepticism."[23]

A Suggested Test

Another test of the accuracy of the estimates has been suggested by various authors. These writers have described the advantages and uses of some form of a labor force survey at the area level. The President's Committee to Appraise Employment and Unemployment Statistics, for example, advocates "special surveys [that] are most likely to produce relationships useful in checking...the estimating methods now in use."[24] This attitude toward the desirability of testing and the recommended test closely follows several other earlier comments such as that of Herbert S. Parnes, of Ohio State University. He suggests that "estimates of total unemployment on a local area basis need to be checked by periodic labor force surveys."[25] If the BES estimates are comparable to the survey results, Parnes would allow the surveys to be discontinued. Nevertheless:

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[21] Ibid.

[22] Ibid.

[23] Ibid.

[24] The President's Committee to Appraise Employment and Unemployment Statistics, p. 195.

[25] Herbert S. Parnes, "Unemployment Data from the Employment Security Program," The Measurement and Behavior of Unemployment, p. 150.

> If, on the other hand, it should be established that employment security data do not yield valid estimates of unemployment, reliance would have to be placed exclusively on local labor force surveys.[26]

The Bureau of Employment Security also suggests that "occasional household surveys might be valuable as a device for checking...current estimates [of employment and unemployment] prepared from employment security data."[27]

The drawback of using such surveys either to check the accuracy of the BES estimates or to replace them is their cost. In 1960 the Bureau of Employment Security estimated that a one-time survey of the 150 major labor market areas would cost $10,000,000.[28] The high cost of such surveys is also noted by the President's Committee to Appraise Employment and Unemployment Statistics and by Louis Levine.[29,30]

Evaluation of Earlier and Suggested Tests

A procedure that is so costly as to preclude its use cannot be expected to become a valid test of the accuracy of the estimates. And certainly an analysis of whether totalled area estimates equal the accepted national totals or generally mirror the national results "...begs the question of whether the estimates adequately serve the primary purpose of measuring employment and unemployment in particular areas."[31]

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[26] Ibid.

[27] Estimating Unemployment, p. 19.

[28] Ibid., p. 12.

[29] President's Committee to Appraise Employment and Unemployment Statistics, p. 195.

[30] Levine, p. 339.

[31] R.O. Brunner, former staff member of the President's Committee to Appraise Employment and Unemployment Statistics, in a September 10, 1963, letter discussing Louis Levine's argument that BES estimates may be valid as they come close to the Current Population Survey totals.

Ullman's analysis could have been improved if the differences between each area's Census and BES estimates had been presented as a percent of the Census estimate rather than of the BES estimate. The results would have been more meaningful because they would show how the BES estimates differ from those which he accepts as his norm. This contrasts with his calculations which show how his norm, the Census, differs from the BES estimates.[32,33]

Although they are deficient in one way or another, these earlier studies do suggest an analytic approach to the determination of the accuracy of the BES estimates and rates: compare the April, 1960, BES and Census estimates of area unemployment.

The Validity of Using Census Estimates to Evaluate the BES Estimates

The validity of using the Census of Population estimates to evaluate the BES estimates may be readily seen by examining their definitional bases: both are unduplicated estimates of the number of unemployed area residents fourteen years of age and older.[34] Further conceptual agreement

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[32]I am indebted to Professor Frederick M. Black, of Oklahoma State University, for confirming my thoughts regarding the appropriateness of modifying Ullman's analysis and the need to recompute the data to measure the estimates' variance from the norms as opposed to the norm's variance from the estimates.

[33]With recomputing the data, the percentages become: a range of -36.2 to +51.2, a mean of 5.7, a standard deviation of 18.8 for states; and a range of -47.0 to 114.0, a mean of 11.7, and a standard deviation of 30.1 for SMSA's. The basic results of his approach are substantiated, and thus it appears that the significance of his earlier analysis is in no way affected and that his comments and suggestions would apply to the recomputed figures as well as to the corrected and original figures.

[34]Estimating Unemployment, pp. 10-11, and Census of Population: 1960. General Social and Economic Characteristics, Oklahoma. Final Report PC(1)-38C, p. xix.

between these two estimates of unemployment can be established by comparing their definitions to the definition used by the Monthly Report on the Labor Force. In April, 1960, the MRLF definition was:

> The unemployment total from the household survey includes all jobless persons who were looking for work, regardless of whether or not they were eligible for unemployment insurance. Also counted as unemployed are persons waiting to be called back to jobs from which they had been laid off; those scheduled to start new wage or salary jobs within 30 days (except students); and those who would have been looking for work except that they were temporarily ill or believed no work was available in their line of work or in the community.[35]

The definition of unemployment used by the BES is conceptually identical with that of the MRLF except that it further specifies that unemployed individuals must be able and available to work. Thus, unlike the MRLF, it does not include individuals who would have been looking for work if they had not been temporarily ill.

The Census of Population used the following definition of unemployment for its 1960 enumeration:

> Persons are classified as unemployed if they were 14 years old and over and not "at work" but looking for work. A person is considered as looking for work not only if he actually tried to find work during the reference week but also if he had made such efforts recently (i.e. within the past 60 days) and was awaiting the results of these efforts ....Persons waiting to be called back to a job from which they had been laid off or furloughed were also counted as unemployed.[36]

The Bureau of the Census feels that this definition is conceptually identical to that used by the MRLF except for those differences which it notes in Employment Status and Work Experience, PC(2)-6A.[37] This publication

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[35] Monthly Report on the Labor Force (Washington, April, 1960), p. E-2.

[36] U.S. Census of Population: 1960, PC(1)-38C, p. xix.

[37] Henry S. Shryock, Jr., Acting Chief, Population Division, Bureau of the Census, in a letter of February 27, 1964.

specifically points out that:

> ...no mention was made either in the schedules or in the instructions to enumerators of...those who would have been looking for work except for temporary illness or belief that no suitable work was available in their community.[38]

No other differences are described in this publication.

Thus, the Census definition differs conceptually from the BES definition only in that it does not count as unemployed those individuals who would have been looking for work except that they felt none was available. Both exclude the temporarily ill, which the MRLF includes.

According to the Bureau of Employment Security, the employment security agencies of most of the states require unemployment insurance claimants to be actively seeking work.[39] To the extent that this occurs, individuals who would have been looking for work except that they thought none was available are excluded from the area unemployment estimates. The BES area unemployment of these states then becomes conceptually identical to that used by the Census of Population. Oklahoma is one of these states.[40]

There are other factors related to the estimates, however, which could make absolutely perfect comparisons impossible and which could explain all or part of any differences. First, the Census estimates are based on a 25 percent sample and thus are subject to sampling error. Second there may be errors in responses, processing, or publication.

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[38] U.S. Census of Population: 1960, PC(2)-6A, p. ix.

[39] Estimating Unemployment, p. 8.

[40] According to Section 214(b) of the Oklahoma Employment Security Act, as it existed in 1962, Oklahoma unemployment insurance claimants must normally be registered for work at an employment office. According to the U.S. Census of Population: 1960, PC(2)-6A, p. viii, examples of looking for work include "registration at a public or private employment office."

Third, there may be differences between the concept of unemployment and its actual measurement. Both the Census and BES consider individuals idled by bad weather to be employed;[41,42] yet the BES unemployment estimates are affected to the extent that such individuals file insurance claims. Fortunately, this was not a major factor in April, 1960. Only 32,000 persons in the entire nation were so idled.[43] A fourth possible cause of any differences could be the time of Census enumeration. The Census reference week was constantly changing as the Census progressed and the composition of each area's unemployment may have been changing also. Gertrude Bancroft, an employee of the Bureau of the Census, notes that the 1950 Census estimates were larger in the earlier weeks of April than they were in subsequent time periods. She attributes this to the tendency for employment to be rising during this period of time.[44] Ullman accepts this as sufficient reason not to consider the time element as a major explanation of why BES estimates might be larger than those of the Census a decade later.[45] This study, however, will consider the time element in 1960.

The BES April, 1960, area unemployment estimates are assumed to represent area unemployment for the week which includes the twelfth of

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[41] U.S. Census of Population: 1960, PC(2)-6A, p. viii.

[42] Estimating Unemployment, p. 10.

[43] Table A-9: "Employed Persons with a Job but Not at Work, by Reason for Not Working and Pay Status," Employment and Earning, VI:x (Washington, April, 1960), p. 5.

[44] Gertrude Bancroft, "Current Unemployment Statistics of the Census Bureau and Some Alternatives," The Measurement and Behavior of Unemployment, pp. 75-76.

[45] Ullman, p. 436.

the month; this for April, 1960, means April 11-15.[46] The Census enumeration would have had to occur entirely in the following week to be perfectly comparable to BES estimates in terms of time. The same Census estimates, however, would still be obtained if the responses never differed from week to week before, through, and beyond the BES time period for as long as the Census enumeration required. The same results would also be obtained if a change in the position of one individual before, during, or beyond the week of reference were offset by a counterbalancing change of position of another. Alternately, the same estimates would be expected if enumerations for one time period differ from those of the reference week and yet are offset by enumerations in another time period which differ in the opposite direction.

It appears that the 1960 Census enumeration may closely approximate some combination of these optimum situations because of the procedures used to obtain the unemployment estimates. The Census estimates were based on the activities of individuals in 25 percent of the households during the week before they filled out a questionnaire or were specifically asked the questions on it by enumerators. Two basic procedures were used to handle the questionnaires. Both were used in Oklahoma. Under one, the questionnaires containing the unemployment questions were delivered to the households, and they were to be filled in by those being enumerated and returned by mail. Approximately 80 percent of the enumerations were handled in this fashion.[47] Initial distribution of the questionnaires

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[46]The insured unemployment is the total of continuing unemployment claims filed for unemployment during that time period. Insured employment is based on employer reports which refer to employment in the pay period ending nearest the fifteenth of the month.

[47]U.S. Censuses of Population and Housing, 1960: Enumeration Time and Cost Study (Washington, 1963), p. 2.

began March 31. A sample of the 290 district offices engaged in this form of enumeration revealed that nationally the initial enumeration was 78 percent completed by April 10, and 97 percent completed by April 18.[48] Seventy-five percent of the household questionnaires distributed at this time were actually returned, and of these, 45 percent of the total were adequately completed.[49] The other 30 percent were only partially incomplete, and about three-fourths of these were completed by telephone interview, the rest by another personal visit.[50] Of the data related to the unreturned questionnaires, about half were obtained by personal visits, while the rest either were found to be assigned to vacant houses, or were left incomplete, or were obtained by telephone.[51] The enumeration was approximately 95 percent completed by the end of May.[52]

Less information is available about the other procedure which simply had the Census enumerator fill in the questionnaire during his initial visit to each household. However, the Bureau of the Census reports that 90 percent of all households had been visited by an enumerator by that date, and over 99 percent by the middle of May.[53] Since the questionnaires which were passed out for mail return were almost completely distributed by April 21,[54] it means that ten percent or one-half of the households

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[48]Table 8: "Housing Units Listed and Completed Each Day of the Enumeration: Stage I," Enumeration Time and Cost Study, p. 30.

[49]Table 26: "Enumeration Time per Housing Unit by Household Questionnaire Status and Method of Completion: Stage II," Enumeration Time and Cost Study, p. 37.

[50]Ibid.

[51]Ibid.

[52]Table 34: "Housing Units Completed by Day of Week of Enumeration: Stage II," Enumeration Time and Cost Study, p. 41.

[53]U.S. Censuses of Population and Housing, 1960: Principal Data-Collection Forms and Procedures (Washington, 1961), p. 6.

[54]Table 8, Enumeration Time and Cost Study, p. 30.

whose questionnaires were to be filled in by enumerators had been enumerated by April 21, and that most of the remaining ten percent were enumerated by the middle of May.

Obviously then, in both approaches to enumeration a large proportion of the enumeration relates to the period of time from just prior to the BES April reference week to just after it. It is hard to believe that there is much difference in the number of unemployed between these two time periods. And if there were any changes in unemployment, it is reasonable to expect that the situation prior to the reference week could have substantially offset the situation which followed it.

There is every reason to expect that most areas followed the national time pattern very closely: enough enumerators were supposed to be hired in each area so that each enumeration crew could finish on time. Crew leaders had to file periodic progress reports. Furthermore, the enumerators were trained and supervised in the same way; they began on the same day; and they obtained responses to the same questionnaires.[55,56]

The BES Procedures as Causes of Differences in the Unemployment Estimates

Possible causes of the differences between Census and Bureau of Employment Security estimates range across the entire BES unemployment estimating procedure. One major cause of the differences may be the use of fixed relationships between covered unemployment and other types of unemployment. The BES recognizes that this assumes away the possibility of of area differences:

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[55] Ibid., pp. 4-7, 16-17.

[56] Principal Data-Collection Forms and Procedures, pp. 1-3.

> The technique [of estimating unemployment] has certain limitations, primarily because in some phases of the estimating procedure it is necessary to use national relationships which may not appropriately reflect local conditions.[57]

The President's Committee to Appraise Employment and Unemployment Statistics agrees that the use of fixed relationships is a drawback to the procedure. It points out that "it seems unlikely that this relation is the same for every state and local area, as implied in the method."[58,59] The Committee's chairman has testified before a Congressional committee that inaccurate unemployment estimates may result from fixed relationships. According to him, if a labor market "does not conform pretty closely to the national average, that standardized way of building up the estimate is going to be off to some unknown degree, and a man from Washington there will not be able to tell you how much."[60]

There are several reasons why local area conditions may not be the same as the national relationships that the area estimating procedure uses. For one, local areas may not be self-sufficient: unemployment related to certain types of employment may be influenced by factors originating outside of the area. Also, the character of various areas' populations and economic institutions may lead their labor forces to respond to a given situation in different ways.

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[57] Estimating Unemployment, p. 19.

[58] President's Committee to Appraise Employment and Unemployment Statistics, p. 194.

[59] See also the statement by E.J. Eberling, The Measurement and Behavior of Unemployment, p. 384.

[60] Robert A. Gordon, Measuring Employment and Unemployment, Hearings before the Subcommittee on Economic Statistics of the Joint Economic Committee, Congress of the United States, 88th Congress, 1st Session, June 6 and 7, 1963, Pursuant to Section 5(a) of Public Law 304, 79th Congress (Washington, 1963), p. 21.

Another possible reason for questioning the constant relationships involves the state unemployment insurance programs. The BES estimating procedure is based on the nation's insured unemployment and its relationship to other unemployment. These relationships may, in fact, apply to no individual area. This is true because each state uniquely defines its own covered unemployment and thus its own covered unemployment's relationship with its noncovered unemployment.[61] The differences among the state programs have been noted:

> The unemployment insurance claims data are bent and shaped by administrative factors. After all, the system was not set up to grind out statistics: State regulations can vary on when a worker qualifies, when claims may be filed, when they are recorded.[62]

The above statement undoubtedly applies also to the employment data reported under the same program. Similar points have been made elsewhere in the literature. Particular emphasis is placed on the fact that the nation's program of unemployment insurance is really many separate programs.[63] Thus, "states [vary] in their requirements for eligibility, reasons for disqualification...."[64] Furthermore, "the data received by the BES are affected by a wide diversity in both the substantive provision and the administration of state unemployment insurance laws."[65]

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[61]For a current description of state by state differences in statutory provisions and experience of state unemployment laws, see Unemployment Insurance: State Laws and Experience, BES No. U-198 (Washington, 1963).

[62]Stanley Lebergott, "Unemployment Data Needs for Planning and Evaluating Policy," Monthly Labor Review, LXXXV (February, 1962), p. 125. (From a paper delivered at the New York City December 27-29, 1961, meeting of the American Economic Association.)

[63]Levine, p. 344; Gertrude Bancroft, The American Labor Force (New York, 1958), p. 196; Parnes, p. 124.

[64]Bancroft, The American Labor Force, p. 196.

[65]Parnes, p. 124.

The questioning of the use of uniform relationships need not apply only to the estimates of unemployment related to the noncovered employment. The same reasoning may also apply to the disqualified claimants, delayed filers, and exhaustees. There are two basic reasons why this situation may exist. First, the inputs are directly or indirectly based on the same unstandardized unemployment insurance data. And second, human behavior can vary from area to area as well as be affected by differences in the physical requirements of filing claims.

The same questionable use of a constant formula exists in the case of the unemployment of individuals re-entering or newly entering the labor force. These estimates are based on the size of the labor force in the area, the level of unemployment, and the time of the year.[66] It is hard to believe that other factors may not also be influential or that the same relationships could apply to every area of the nation.

Another possible explanation of the differences involves the data inputs used in the estimating procedure:

> ...even if every instruction is carried out, that still does not insure good estimates, because the underlying data that go into this formula are not the kind of data that you would need to get a good estimate.[67]

In other words, the various sector employment estimates of an area may be inaccurate or inappropriate. First, the level of dual job holding in an area may differ from any allowance for dual job holding built into the estimating procedures. Second, employment commuters may exist. Supposedly, labor market areas' boundaries are set so as to include both place of

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[66]See Chapter II, page 17.

[67]Albert E. Rees, Measuring Employment and Unemployment, Subcommittee Hearings, p. 21.

employment and place of residence.[68] Yet some areas undoubtedly have a net export balance of commuting residents, individuals who live in one area and work in another. Other areas undoubtedly have a net import balance. These situations would be particularly expected in areas where substantial amounts of population are included within the labor market only for ease of processing and data availability.[69] Commuters have the following effect under the present BES procedures: an individual living in Area A and working at a job covered by unemployment insurance in Area B cuts the latter's rate of covered unemployment. The lower rate means less unemployment from noncovered employment. To the extent that he works in a noncovered position, he will add to that area's resident unemployment as the area's covered unemployment rate is applied to the employment sector his presence is enlarging.

The BES's recommendations illustrate its uncertainty regarding its methods of estimating employment not covered by some form of insurance reports. Except for "all other" nonagricultural employment, the BES encourages local analysts to develop their own procedures for these sectors. Regarding the "all other" employment, the BES revised the procedure when the 1960 Census of Population became available.[70]

Another source of inaccuracy in the BES estimates, at least for the state of Oklahoma, may be the efficient operation of state unemployment insurance programs. Oklahoma, in its attempts to operate its program as

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[68]See Chapter II, pages 20 and 21.

[69]See Chapter II, pages 20 and 21.

[70]Handbook on Estimating Area Employment of Self-Employed, Unpaid Family, and Private Household Workers -- Nonagricultural Total, BES No. R-187 (July, 1961), became R-187 (R7-63) in August, 1963.

efficiently as possible, allows unemployment insurance claims to be filed at any state employment security office. These offices are scattered over the state in locations where the need appears to be greatest. This does not mean that they are centrally located in terms of time and distance in each labor market area. Also in keeping with efficient operation, some offices are open more often than others.[71] Thus, individuals who work and live in one area may cross area boundaries to file claims for compensation in order to save time and travel expense. When this occurs, their claim is recorded in an office located in another area. Thus, the unemployment of the other area grows, and that of the area in which the claimants live and work is completely unaffected.[72] No provision is made for such commuters in the BES procedures.

The discussion in this chapter suggests that inaccurate covered unemployment rates may be applied to inaccurate employment estimates via inappropriate national ratios. Herein lies a possible explanation for the differences observed by Ullman between the BES and Census estimates of unemployment for April, 1960.

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[71]Mr. Wesley Wilson, research and planning division, Oklahoma Employment Security Commission.

[72]The President's Committee to Appraise Employment and Unemployment Statistics notes this possibility of claims commuters, p. 193.

CHAPTER IV

COMPARISON OF UNEMPLOYMENT ESTIMATES IN NINETEEN OKLAHOMA LABOR MARKETS

Differences between the Census and BES unemployment estimates may exist for the labor market areas of Oklahoma just as Ullman finds they do at the state and SMSA levels. This possibility will be examined by comparing April, 1960, Census and BES estimates for nineteen Oklahoma labor market areas.[1]

Both regular and improved BES estimates will be used in the comparisons. Improved estimates are those which have been affected by attempts of the Oklahoma Employment Security Commission[2] to improve data inputs in response to the BES suggestion that this is desirable.[3] They are compared to the Census estimates in Table IV-2. The regular estimates are those constructed solely for this study with data inputs from regular BES sources instead of data affected by the improvement attempts.[4] They are compared to the Census estimates in Table IV-3.

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[1] A listing of the areas may be found in footnotes 5 and 6 of this chapter.

[2] The Oklahoma Employment Security Commission is generally referred to in the literature as the OESC.

[3] See Chapter II, pp. 11, 13, for a discussion of the improvement of the data inputs.

[4] See Chapter II, pp. 9-14, for a description of the regular BES data sources.

The Improved Estimates

The improved estimates can be divided into two groups based on their availability. The OESC has published April, 1960, estimates for eight of the areas.[5] These estimates are based on the BES procedures and the modifications described in Chapter II. Comparable estimates of unemployment have also been constructed for eleven more areas as part of this study.[6] The same BES unemployment estimating methodologies and national rates have been used in constructing these estimates. There are, however, minor differences in some of the data inputs.[7]

The procedures applied to construct the improved estimates of the eleven-area group have also been applied to the eight-area group.[8] Comparisons between the eight constructed unemployment estimates and the published estimates are presented below in Table IV-1. The constructed area unemployment estimates have been subtracted from the published estimates for each of the eight areas, and the differences have been computed as a percentage of the published estimates and arrayed. Finally, the range, mean, and standard deviation of the area percents have been

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[5] Labor markets in the eight-area group: Ardmore area (Carter County); Lawton area (Comanche County); Enid area (Garfield County); Kay area (Kay County); Muskogee area (Muskogee County); Oklahoma City standard metropolitan statistical area (Oklahoma, Canadian, Cleveland Counties); McAlester area (Pittsburg County); Tulsa standard metropolitan statistical area (Tulsa, Creek, Osage Counties).

[6] Labor markets in the eleven-area group: Stilwell area (Adair County); Atoka area (Atoka County); Tahlequah area (Cherokee County); Coalgate area (Coal County); Tishomingo area (Johnston County); Wilburton area (Latimer County); Poteau area (LeFlore County); Purcell area (McClain County); Claremore area (Rogers County); Seminole area (Seminole County); Wagoner area (Wagoner County).

[7] The data and procedures for obtaining them are in Appendix Table 4.

[8] Data come from the same appendix table used for the construction of April, 1960, unemployment estimates for the eleven-area group.

computed.

TABLE IV-1

COMPARISON OF THE PUBLISHED AND CONSTRUCTED IMPROVED BES AREA UNEMPLOYMENT TOTALS, APRIL, 1960

Labor Market Areas	Published BES[a]	Constructed BES[b]	Difference as Percent of Published
Carter	825	810	-1.8
Comanche	725	711	-1.9
Garfield	625	694	11.0
Kay	600	595	-0.8
Muskogee	1,950	1,871	-4.1
Oklahoma	6,700	7,045	5.1
Pittsburg	1,025	1,039	1.4
Tulsa	7,100	7,533	6.1

$N = 8$; $\bar{x}_g = 1.9$; $s_g = 5.10$.

Sources: [a]Handbook of Labor Force Data for Selected Areas of Oklahoma, 1950-1962, pp. 8-50.

[b]Constructed with the data in Appendix Table 4.

The low average percent of difference, the low standard deviation, and the observation that four of the estimates rise while the other four fall suggest that the constructed BES estimates may be used to represent the improved estimates. However there are differences. And their existence means that absolutely definitive results are impossible whenever data are derived for this study rather than obtained from their original sources or their original users. This study will proceed, however, as if all data inputs exactly represent whatever data the original estimators used. But the results of any analyses based on derived data will be accepted as only suggestive.

BES-Level Regular Estimates

Other unemployment estimates for all nineteen of the areas have

been constructed for this study using data from the regular BES employment sources.[9] These estimates are very similar to the improved estimates. The same basic estimating formula and national rates and some of the data have been used in their construction. The only differences involve certain sources of data which the BES will accept when no other sources can be developed by the state agencies. Data from these sources have been substituted into the unemployment estimating calculations of the nineteen areas in lieu of the data affected by attempts to improve the estimates.[10,11]

BES and Census Comparisons

The same type of analysis that Mr. Ullman uses to evaluate the BES state and SMSA estimates follows in Tables IV-2 and IV-3.[12] In these tables the April, 1960, Census unemployment estimates for the nineteen areas are compared with the improved and regular BES estimates. The differences between the two estimates in each comparison have been computed as a percentage of the Census estimate and then arrayed. Finally the range, mean, and standard deviation of the percents have been computed.

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[9] Estimates are in Table IV-3.

[10] A description of the regular sources of these inputs is found in Chapter II, pages 9-14.

[11] Types of data affected: agricultural wage and salary; agricultural self-employed and unpaid family workers; government employees; nonprofit employees. Also changing are the estimates of domestics and nonagricultural self-employed and unpaid family workers. Their size is a function of the size of the nonagricultural wage and salary employment sectors.

[12] See Chapter III, pages 25, 26.

TABLE IV-2

COMPARISON OF THE DECENNIAL CENSUS AND IMPROVED BES ESTIMATES OF UNEMPLOYMENT, APRIL, 1960

Labor Market Areas	BES[a]	Census[b]	BES - Census / Census
Adair	701	217	223.04
Atoka	291	198	46.97
Carter	825	710	16.20
Cherokee	636	301	111.30
Coal	323	116	178.43
Comanche	725	1,082	-32.99
Garfield	625	584	7.02
Johnston	275	119	131.09
Kay	600	594	1.01
Latimer	433	232	86.64
LeFlore	1,028	740	38.92
McClain	374	201	86.07
Muskogee	1,950	1,288	51.40
Oklahoma	6,700	6,326	5.91
Pittsburg	1,025	700	46.43
Rogers	822	388	111.86
Seminole	813	602	35.05
Tulsa	7,100	7,478	-5.05
Wagoner	539	285	89.12

$\bar{x}_{19} = 64.65$; $s_{19} = 65.96$; $\bar{x}_{8} = 11.24$; $s_{8} = 27.38$.

Sources: [a]Eight-area group rates are based on data published in Handbook of Labor Force Data for Selected Areas of Oklahoma, 1950-1962, pp. 8-50; eleven-area group rates have been constructed with Appendix Table 4 data.

[b]Table 83, "Education, Employment Status, and Selected Labor Force Characteristics of the Population, For Counties: 1960," U.S. Census of Population: 1960 PC(1)-38C, pp. 211-216.

TABLE IV-3

COMPARISON OF THE DECENNIAL CENSUS AND REGULAR BES ESTIMATES OF UNEMPLOYMENT, APRIL, 1960

Labor Market Areas	BES[a]	Census[b]	BES-Census / Census
Adair	679	217	212.90
Atoka	287	198	44.95
Carter	778	710	9.58
Cherokee	555	301	84.39

Table IV-3 (continued)

Labor Market Areas	BES[a]	Census[b]	$\frac{\text{BES}-\text{Census}}{\text{Census}}$
Coal	328	116	182.76
Comanche	663	1,082	-38.72
Garfield	619	584	5.99
Johnston	275	119	131.09
Kay	596	594	0.34
Latimer	328	232	41.38
LeFlore	1,006	740	35.95
McClain	414	201	105.97
Muskogee	1,926	1,288	49.53
Oklahoma	6,307	6,326	-0.30
Pittsburg	1,049	700	49.86
Rogers	766	388	97.42
Seminole	840	602	39.53
Tulsa	6,940	7,478	-7.19
Wagoner	576	285	102.11

$\bar{x}_{19} = 60.40$; $s_{19} = 65.86$; $\bar{x}_{8} = 8.64$; $s_{8} = 29.33$.

Sources: [a]Constructed for this study with data from Appendix Table 6.

[b]Table 83, PC(1)-38C, pp. 211-216.

Examination of the Tables IV-2 and IV-3 comparisons reveals that whether or not an attempt is made to improve their data inputs, the average area percentage differences between the BES estimates and those of the Census and their standard deviations are as large or larger than those that Ullman finds for states and SMSA's.[13] Thus the "considerable divergence" between the BES and Census estimates which causes Mr. Ullman to suggest that the BES estimates are inaccurate exists for these areas.

The same conclusion is suggested by the arrays of absolute levels of unemployment in Tables IV-2 and IV-3. Both the BES regular and improved unemployment estimates are larger than the Census estimates in almost every one of the areas, whereas they would be expected to be identical,

[13]A description of Ullman's findings is in Chapter III, pp. 25-27.

or if differing, to be lower as often as they are higher.

Other Comparisons: The Significance of the Differences Between the Area BES and Census Unemployment Estimates

A further indication of the divergence between the BES and Census estimates can be obtained by applying the t-test.[14,15] It provides a method for determining whether the Census and BES estimates for each area are both measurements of the same population. They should be, since the populations they are trying to measure are conceptually identical.[16]

It may be suggested that the BES and Census estimates are not measuring the same unemployment population; t is 2.362 for the improved estimates and 2.311 for the regular estimates. Both indicate significant differences beyond the 95 percent level.[17,18] Thus the t-test indicates that the BES and Census estimates are not from the same universe.

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[14]I am indebted to Professor Carl E. Marshall, director of the Oklahoma State University Statistical Laboratory, for suggesting this approach and calling my attention to the appropriate formula.

[15]The formula used is $t = \frac{\bar{d}}{s_{\bar{d}}}$ where $\bar{d}$ is the mean difference between the area estimates, and $s^2_{\bar{d}} = \frac{\Sigma(d_i - \bar{d})^2}{N(N-1)}$

[16]See Chapter III, pp. 29-35, for a discussion of their comparability.

[17]The levels of significance are taken from: Helen M. Walker and Joseph Lev, "Table IX: Percentile Values of 'Student's' Distribution," Statistical Inference (New York, 1953), p. 465.

[18]Significance will be assumed to begin at 95 percent.

CHAPTER V

ATTEMPTS TO IDENTIFY THE CAUSES OF THE DIFFERENCES

Joseph Ullman's study attempts to identify the causes of the differences between the BES and Census estimates at the state and SMSA levels. Ullman tests various hypotheses concerning the causes of the differences by correlating area characteristics with the degree of differences between the estimates.[1,2] He finds no correlation between the degree of state and SMSA differences and the size of unemployment, the percentage of unemployment, and the percent of BES unemployment that is insured unemployment. He does find a correlation between Census estimates which are high relative to those of the BES and various factors related to growth: rate of population growth, migration, and change in manufacturing employment.[3] This leads him to feel that the differences are being caused, at least in part, by the BES procedures' inability to reflect the amount of unemployment among recent migrants and the number of unemployed reentrants and new entrants. The BES, he surmises, underestimates them in areas of relatively rapid growth and overestimates them in declining areas.[4] Ullman is particularly alarmed that the BES estimates are no closer to the Census estimates in areas where a high percentage of total

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[1]Ullman uses Spearman rank-correlation tests.

[2]Ullman, pp. 441 and 443.

[3]Ibid., p. 444.

[4]Ibid.

unemployment is insured:

> After all, the whole BES estimating procedure starts with insured unemployment as the source of its data and then builds everything from that. It is hardly conceivable that the size of this basic building block is irrelevant to the accuracy of the BES estimates.[5]

Application of the Ullman Approach

This study will attempt to use the Ullman approach to identify the causes of the differences observed for the nineteen Oklahoma labor market areas. Some of Ullman's hypotheses and procedures for testing them will be followed.[6] One reason for using his hypotheses and procedures is to see if his results are repeated in the Oklahoma areas. Additional hypotheses and tests will also be attempted. The area unemployment estimate levels used in the correlations will be based on both the Census, which is Ullman's norm, and the mean of the Census and BES estimates, which is the form he uses in his analysis. The correlations will be attempted for both the area improved and regular unemployment estimates.

Hypothesis 1: The BES estimates are highest relative to the Census estimates in areas with the largest number of persons unemployed. (There may be a factor in the BES formula that overweights for population or the Census may undercount by the largest percentage in areas with the most population.)[7]

Test: Correlate (BES - Census) / Census from most positive to most

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[5]Ibid., p. 443.

[6]The Spearman formula used is from Walker and Lev, p. 280.

$$R = 1 - \frac{6 \Sigma d^2}{N (N^2-1)}$$

[7]Ullman, p. 441.

negative with the mean of the Census and BES estimates of number of unemployed from largest to smallest.[8]

Ullman finds that since "none of these results is significant at the 5 percent level, there is no tendency for the BES estimates to be high relative to the Census in areas with the largest number of persons unemployed."[9,10,11]

Oklahoma area results:[12]

Improved estimates	N = 19	$r_{sm} = -.689$	significant at 99 percent
Regular estimates	N = 19	$r_{sm} = -.668$	significant at 99 percent

In order to analyze Ullman's hypothesis further, the (BES - Census) / Census rates have also been correlated from most positive to most negative with the Census estimates of area unemployed, Ullman's norm, from largest to smallest.

Oklahoma area results:[13]

Improved estimates	N = 19	$r_{sc} = -.761$	significant at 99.9 percent
Regular estimates	N = 19	$r_{sc} = -.772$	significant at 99.9 percent

Ullman's finding that there is no tendency for the BES estimates to be high relative to the Census in areas with the largest number of persons unemployed applies also to the nineteen Oklahoma areas. But there is a significant correlation for these areas between the number of unemployed

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[8] Ibid.

[9] The percentile values of r for various degrees of freedom are from Walker and Lev, p. 470.

[10] Ullman mentions significance at the one percent and five percent levels. This is comparable to the 99 percent and 95 percent levels used in this study. Significance is assumed to begin at the 95 percent level.

[11] Ullman, p. 441.

[12] Regular area unemployment estimates from Table IV-3, pp. 45-46; improved estimates from Table IV-2, p. 45; Census estimates from Table 83, PC(1)-38C, pp. 211-216.

[13] Ibid.

and the relationship of the BES and Census unemployment estimates. It appears that the greater the number of unemployed, the lower the BES estimates are relative to those of the Census. Thus, there may be a factor in the BES formula that overweights when there is a population of relatively small size, or the Census may overcount by the largest percent in areas with the most population.

Hypothesis 2: The BES estimates are closest to the Census estimates in areas with the largest number of persons unemployed. (The BES formula may estimate most accurately in areas with the largest population.)[14]

Test: Correlate (BES - Census) / Census from smallest to largest without regard to sign with the mean of the Census and BES estimates of number unemployed from largest to smallest.[15]

Ullman finds that "none of these results is significant at the 1 percent level, and only the figure for SMSA's in the Northeast is significant at the 5 percent level. This one result should be discounted in view of the other results. There is no tendency for the Census and BES estimates to be closest together in areas with the largest number of persons unemployed."[16]

Oklahoma area results:[17]

Improved estimates	N = 19	r_s = .653	significant at 99 percent
Regular estimates	N = 19	r_s = .640	significant at 99 percent

For further analysis of the Ullman hypothesis, the (BES - Census) / Census rates have also been correlated from smallest to largest without

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[14]Ullman, p. 441.

[15]Ibid.

[16]Ibid., p. 443.

[17]Regular BES unemployment estimates from Table IV-3, pp. 45-46; improved estimates from Table IV-2, p. 45; Census estimates from Table 83, PC(1)-38C, pp. 211-216.

regard to sign with the Census estimates of number unemployed from largest to smallest.

Oklahoma area results:[18]

Improved estimates	N = 19	r_s = .733	significant at 99.9 percent
Regular estimates	N = 19	r_s = .725	significant at 99.9 percent

Ullman's findings do not apply to the nineteen Oklahoma areas. There is a signficant correlation which indicates that the Census and BES area unemployment estimates are closest in areas with the largest number of persons unemployed. The BES procedures may estimate most accurately in areas with the largest populations.

Hypothesis 3: The BES estimates are closest to the Census estimates in areas where the percentage of insured unemployment to the BES estimate of total unemployment is highest. (....It seems reasonable to expect that the BES estimates would be most accurate in those areas where insured unemployment makes up the largest part of total unemployment.)[19]

Test: Correlate (BES - Census) / Census from smallest to largest without regard to sign with the percent that insured unemployment is of the BES estimates of total unemployment from largest to smallest.[20]

Considering only states, Ullman finds that those in the North Central region were the only ones with a significant correlation. He discards them because the others are not significant: "There is no tendency for the Census and BES estimates to be closest together in areas where the percentage of insured unemployment to the BES total is highest."[21]

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[18] Ibid.

[19] Ullman, p. 443.

[20] Ibid.

[21] Ibid.

Oklahoma area results:[22,23]

Improved estimates	N = 19	r_s = .853	significant at 99.9 percent
Regular estimates	N = 19	r_s = .779	significant at 99.9 percent

Ullman's findings may not apply to the nineteen Oklahoma areas. There is a significant correlation between the relative importance of an item composed primarily of insured unemployment and the closeness of the Census and BES estimates.

Hypothesis 4: The Census estimates are highest relative to the BES estimates in areas of most rapid population growth. (....It may be that this procedure does not adequately reflect the amount of unemployment among recent migrants....Also unemployed re-entrants and new entrants may be underestimated in areas of rapid population growth and overestimated in declining areas.)[24]

Test: Correlate (BES - Census) / Census from most negative to most positive with rate of population growth between 1950 and 1960 from largest to smallest.[25,26]

Ullman finds that "the result for both states and SMSA's is significant at the 1 percent level. There is a tendency for the Census estimates to be high relative to the BES figures in areas of rapid population growth."[27]

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[22]Based on total covered unemployment which includes insured unemployment, exhaustees, the disqualified, and delayed and never filers.

[23]Improved estimates are from Table IV-2, p. 45; Regular estimates from Table IV-3, pp. 45-46; and Census estimates from Table 83, PC(1)-38C, pp. 211-216. Covered unemployment from Appendix Tables 4 and 5 for the improved estimates and 6 for the regular data.

[24]Ullman, pp. 443-444.

[25]Ibid., p. 444.

[26]Ullman uses Statistical Abstract of the United States (Washington, 1961), p. 13, to get population changes.

[27]Ullman, p. 444.

Oklahoma area results:[28]

Improved estimates	N = 19	r_s = .560	significant at 98 percent
Regular estimates	N = 19	r_s = .577	significant at 99 percent

Ullman's findings apply to the Oklahoma areas. There is a tendency for the BES estimates to be lower relative to the Census figures in areas of rapid population growth.

Hypothesis 5: The Census estimates are highest relative to the BES estimates in areas where the largest percentages of residents lived outside the area in 1955.[29]

Test: Correlate (BES - Census) / Census from most negative to most positive with the percent of population living outside the areas in 1955 from largest to smallest.[30]

According to Ullman, the results are significant at the one percent level.[31,32]

Oklahoma area results:[33]

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[28]Regular unemployment estimates from Table IV-3, pp. 45-46; improved estimates from Table IV-2, p. 45; Census estimates from Table 83, PC(1)-38C, pp. 211-216; population changes data from Table 13, "Summary of Population Characteristics, for the State, by Size of Place, and for Standard Metropolitan Statistical Areas, Urbanized Areas, Urban Places, and Counties: 1960," U.S. Census of Population: 1960. General Population Characteristics, Oklahoma. Final report PC(1)-38B, pp. 27-29.

[29]Because growth factors other than total population growth may be important for explaining the difference patterns, Ullman has, with this hypothesis and test and the next one, basically repeated the analysis above: Ullman, p. 444.

[30]Ullman, p. 444.

[31]Ullman uses state estimates only. His data are from U.S. Census of Population: 1960. General Economic and Social Characteristics.

[32]Ullman, p. 444.

[33]Regular area unemployment estimates from Table IV-3, pp. 45-46; improved estimates from Table IV-2, p. 45; Census estimates from Table 83, PC(1)-38C, pp. 211-216. Estimates of area population living outside

Improved estimates	N = 19	r_s = .221	not significant
Regular estimates	N = 19	r_s = .305	not significant

Ullman's findings do not hold for the Oklahoma areas. The results indicate that the number of new residents moving into an area may not be the basis for the differences between the BES and Census estimates.

Hypothesis 6: The Census estimates are highest relative to the BES estimates in areas where the largest percentage change in manufacturing employment has occurred.

Test: Correlate (BES - Census) / Census from most negative to most positive with the percent change in manufacturing employment 1950-1960 from largest to smallest.[34]

Ullman finds a positive correlation significant beyond the one percent level.[35,36]

Oklahoma area results:[37]

Improved estimates	N = 19	r_s = -.391	not significant
Regular estimates	N = 19	r_s = -.477	significant at 95 percent

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county and SMSA in 1955 from Table 82, "Social Characteristics of the Population, for Counties, 1960," U.S. Census of Population: 1960. General Social and Economic Characteristics, Oklahoma. Final Report PC(1)-38C, pp. 205-210.

[34]Ullman, p. 444.

[35]Ullman uses state changes in manufacturing employment, 1947 to 1955, from Victor R. Fuchs, Changes in the Location of Manufacturing in the United States since 1929 (New Haven, 1962), p. 7.

[36]Ullman, p. 444.

[37]Improved estimates from Table IV-2, p. 45; regular estimates from Table IV-3, pp. 45-46; Census estimates from Table 83, PC(1)-38C, pp. 211-216. Based on area changes 1950-1960 from Table 43, 1950 Census of Population, Vol. II, Part 36, pp. 91-100, and Table 85, "Industry Group of Employed Persons and Major Occupation Group of Unemployed, By Sex, for Counties," U.S. Census of Population: 1960. General Social and Economic Characteristics, Oklahoma, Final Report PC(1)-38C, pp. 223-228.

Ullman's findings do not hold for the Oklahoma areas for a slightly different time period. Instead the results suggest that high rates of growth in manufacturing employment may be associated with Census estimates that are low relative to the BES estimates.

In order to provide further insight into the relationship of the Census and BES estimates and other characteristics, the following hypotheses and tests have been made for this study.

Hypothesis A: The BES estimates are closest to the Census estimates in areas with the largest labor force.

Test: Correlate (BES - Census) / Census from smallest to largest without regard to sign with labor force size from largest to smallest.

Oklahoma area results:[38]

Improved estimates	N = 19	r_s = .809	significant at 99.9 percent
Regular estimates	N = 19	r_s = .756	significant at 99.9 percent

The results suggest that the BES procedures are less appropriate for areas with smaller labor forces. Perhaps their employment sectors are less interdependent.

Hypothesis B: The BES estimates are furthest from the Census estimates in areas where the agricultural employment is relatively important. Perhaps the unemployment relationships used by the BES are not applicable to area agricultural employment.

Test: Correlate (BES - Census) / Census from largest to smallest without regard to sign with the percent that agricultural employment is of total area employment from largest to smallest.

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[38]Improved estimates from Table IV-2, p. 45; regular estimates from Table IV-3, pp. 45-46; Census estimates and labor force size from Table 83, PC(1)-38C, pp. 211-216.

Oklahoma area results:[39]

Improved estimates	N = 19	r_s = .818	significant at 99.9 percent
Regular estimates	N = 19	r_s = .796	significant at 99.9 percent

In the nineteen Oklahoma areas, the greatest differences are occurring in areas which are most agricultural.

Hypothesis C: The BES estimates are furthest from the Census estimates in areas where nonagricultural wage and salary employment is most important.

Test: Correlate (BES - Census) / Census from largest to smallest without regard to sign with the percent that nonagricultural wage and salary is of total area employment from largest to smallest.

Oklahoma area results:[40]

Improved estimates	N = 19	r_s = -.858	significant at 99.9 percent
Regular estimates	N = 19	r_s = -.858	significant at 99.9 percent

The estimates are significantly closer together where nonagricultural wage and salary are relatively more important. This tends to confirm the findings of Test B. It further suggests that the differences may be originating in the noncovered employment estimates.

Data Improvement Attempts as a Cause of the Differences

The effect of the efforts to improve the employment inputs can be

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[39]Improved estimates from Table IV-2, p. 45; regular estimates from Table IV-3, pp. 45-46; Census estimates from Table 83, PC(1)-38C, pp. 211-216; agricultural employment data from Table 85, PC(1)-38C, pp. 223-228.

[40]Improved estimates from Table IV-2, p. 45; regular estimates from Table IV-3, pp. 45-46; Census estimates from Table 83, PC(1)-38C, pp. 211-216. Nonagricultural wage and salary employment data from Table 84, "Occupation Group and Class of Worker of Employed Persons, by Sex, for Counties, 1960," U.S. Census of Population: 1960. General Social and Economic Characteristics, Oklahoma, Final Report PC(1)-38C, pp. 217-222; total employment data from Table 85, PC(1)-38C, pp. 223-228.

estimated by comparing the BES - Census differences in Table IV-2 and IV-3, pages 45 and 46. The comparison indicates that the differences are not cut by the improvement attempts. Instead, they are as large or larger. The mean and standard deviation of the area percents of differences are smaller when data from regular BES sources are used. The only exception is the standard deviation of the eight-area group. It rises slightly from 27.38 percent to 29.33 percent.

Inaccurate Employment Inputs as a Cause of the Differences

The BES uses various procedures to find the amount of each type of employment not covered by insurance reports. These data are supposed to be comparable to the Census estimates. If they are not, the data may be causing the observed differences. The differences caused by the use of such data can be estimated by comparing unemployment estimates based on the BES data to those constructed with noncovered employment data from the 1960 Census.

Table V-1 presents April, 1960, corrected unemployment estimates for the nineteen Oklahoma areas. They have been constructed with 1960 Census data for the various types of noncovered employment. The estimates are very similar to the improved and regular estimates. The same national rates, covered employment and unemployment, and net wage and salary employment have been used in their construction. The estimates in Table V-1 are accompanied by an analysis of how they differ from the Census estimates. The analysis is the same as is used for the improved and regular estimates in Tables IV-2 and IV-3, pages 45 and 46. First, the Census unemployment estimates have been subtracted from the results. Then the differences have been divided by the Census estimate of unemployment for the area. Finally, the area percents of difference have

been arrayed, and their mean and standard deviation computed.

TABLE V-1

COMPARISON OF THE CORRECTED BES ESTIMATES WITH THE CENSUS UNEMPLOYMENT ESTIMATES FOR APRIL, 1960

Labor Market Areas	BES[a]	Census[b]	$\frac{\text{BES - Census}}{\text{Census}}$
Adair	573	217	164.06
Atoka	254	198	28.28
Carter	798	710	12.39
Cherokee	505	301	67.77
Coal	287	116	147.41
Comanche	707	1,082	-34.66
Garfield	627	584	7.36
Johnston	242	119	103.36
Kay	595	594	0.17
Latimer	296	232	27.59
LeFlore	953	740	28.78
McClain	376	201	87.06
Muskogee	1,816	1.288	40.99
Oklahoma	6,220	6,326	-1.68
Pittsburg	1,004	700	43.43
Rogers	756	388	94.85
Seminole	779	602	29.40
Tulsa	7,023	7,478	-6.08
Wagoner	515	285	80.70

$\bar{x}_{19} = 48.48$; $s_{19} = 53.03$. $\bar{x}_{8} = 7.74$; $s_{8} = 25.46$.

Sources: [a]Constructed for this study with data from Appendix Table 7.

[b]Table 83, PC(1)-38C, pp. 211-216.

The mean percents of differences and their standard deviations are slightly lower than those found for the improved and regular estimates. But substantial differences remain: t_{19} is 2.129 which is significant at the 95 percent level. Sixteen of the nineteen estimates are higher than the Census estimates. And the means and standard deviations are generally as high or higher than those which Ullman finds for states and SMSA's.

The decrease in the differences indicates that the BES procedures for estimating noncovered employment may be a cause of the differences between the Census and the regular and improved area unemployment estimates. But they are probably not the only cause since differences remain. Assuming the accuracy of the covered and Census employment data, the remaining differences can only be attributable either to the BES noncovered employment data inputs which have not been taken from the Census, or to the basic unemployment estimating procedure.

In view of the changes in the average area differences resulting from what may be more accurate employment inputs, the hypotheses and correlation tests regarding the differences have been repeated:

Hypotheses:

1. $r_{sm} = -.642$ remains significant
   $r_{sc} = -.696$ remains significant
2. $r_{sm} = .540$ remains significant
   $r_{sc} = .605$ remains significant
3. $r_s = .700$ remains significant
4. $r_s = .554$ remains significant
5. $r_s = .319$ remains insignificant
6. $r_s = -.502$ remains significant

A. $r_s = .632$ remains significant

B. $r_s = .689$ remains significant

C. $r_s = -.758$ remains significant

No changes in significance occur as a result of using the corrected estimates.[41]

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[41]The 95 percent level is assumed to be where significance begins.

Non-Residence Employment Inputs as a Cause of the Differences

The use of insurance reports as the basis for employment data allows non-resident employees, resident commuters, and dual job holders to affect area employment totals.[42] It is possible that the presence of these types of individuals causes the differences between the Census and BES estimates.

An estimate of their effect can be obtained by recomputing the area unemployment estimates with Census-level employment inputs for all employment sectors. Table V-2 presents the April, 1960, residence unemployment estimates. They are the result of using 1960 Census employment totals in lieu of estimates of the data obtained from employer reports or other BES sources.[43] Also, the Census estimates have been subtracted from these estimates and the differences divided by the Census estimates. Then the percents have been arrayed and a mean and standard deviation computed.

TABLE V-2

COMPARISON OF BES RESIDENCE UNEMPLOYMENT ESTIMATES WITH CENSUS UNEMPLOYMENT, APRIL, 1960

Labor Market Areas	BES[a]	Census[b]	$\frac{\text{BES} - \text{Census}}{\text{Census}}$
Adair	467	217	115.21
Atoka	229	198	15.66
Carter	789	710	11.13
Cherokee	352	301	16.94
Coal	256	116	120.69
Comanche	690	1,082	-36.23
Garfield	622	584	6.51

[42] Related discussion in Chapter III, pp. 38-40.

[43] The only non-Census employment inputs are the insured employment data. These have been put on a residence basis by the ratio of Census private nonagricultural wage and salary employment minus nonprofit and domestic employment to the BES net wage and salary estimates.

Table V-2 (Continued)

Labor Market Areas	BES[a]	Census[b]	$\frac{\text{BES - Census}}{\text{Census}}$
Johnston	177	119	48.74
Kay	593	594	-0.17
Latimer	186	232	-19.83
LeFlore	832	740	12.43
McClain	337	201	67.66
Muskogee	1,882	1,288	46.12
Oklahoma	6,396	6,326	1.11
Pittsburg	986	700	40.86
Rogers	678	388	74.74
Seminole	764	602	26.91
Tulsa	6,895	7,478	7.80
Wagoner	393	285	37.89

$\bar{x}_{19} = 31.27$; $s_{19} = 40.20$. $\bar{x}_{8} = 9.64$; $s_{8} = 25.62$.

Sources: [a]Constructed for this study with data from Appendix Table 8.

[b]Table 83, PC(1)-38C, pp. 211-216.

The average percents of difference and the standard deviations are lower than those computed for the corrected estimates. This suggests that commuters and dual job holders may possibly be the cause of some of the differences. Nevertheless, substantial differences still remain. The average percent of difference as well as the dispersion is generally as large or larger than those which Ullman has computed. And in sixteen of the nineteen areas, the BES estimates are still higher than the Census estimates. The t-test, however, now yields a t_{19} of 1.274, which is insignificant.

The earlier hypotheses and correlations have been repeated to see if any changes result from putting all the areas on a residence basis:

Hypotheses:

1. $r_{sm} = -.402$ no longer significant
   $r_{sc} = -.525$ remains significant

2. $r_{sm} = .439$ no longer significant
   $r_{sc} = .535$ remains significant

3. $r_s = .653$ remains significant

4. $r_s = .444$ no longer significant

5. $r_s = .402$ remains insignificant

6. $r_s = -.567$ remains significant

A. $r_s = .582$ remains significant

B. $r_s = .604$ remains significant

C. $r_s = .672$ remains significant

The first two changes are of uncertain relevance in view of the lack of changes in the correlations related to the Census unemployment estimates. However, the BES estimates are no longer highest relative to the Census estimates in areas of slowest population growth. This result is merely descriptive. It suggests that the over-estimating tendency has either been lessened in the declining areas or increased in the growing ones. In view of the general decline in the mean percent of difference, it appears that the over-estimating tendency is lessened in the declining areas.

An alternative approach to the construction of residence-level unemployment estimates is possible. It uses the same residence-level employment but with the covered unemployment rates used for the non-residence level estimates. This approach has been attempted, and the results are presented in Table V-3. Each area's Census estimates have been subtracted from the area's estimated unemployment and the remainder divided by the area Census estimate. The mean of the percentages of difference and the standard deviation have been computed.

TABLE V-3

COMPARISON OF THE DECENNIAL CENSUS AND MODIFIED RESIDENCE UNEMPLOYMENT ESTIMATES, APRIL, 1960

Labor Market Areas	BES[a]	Census[b]	$\frac{\text{BES} - \text{Census}}{\text{Census}}$
Adair	881	217	305.99
Atoka	313	198	58.08
Carter	853	710	20.14
Cherokee	999	301	231.89
Coal	375	116	223.28
Comanche	796	1,082	-26.43
Garfield	672	584	15.07
Johnston	386	119	224.37
Kay	635	594	6.90
Latimer	525	232	126.29
LeFlore	1,389	740	87.70
McClain	501	201	149.25
Muskogee	2,033	1,288	57.84
Oklahoma	6,431	6,326	1.66
Pittsburg	1,058	700	51.14
Rogers	1,215	388	213.14
Seminole	873	602	45.02
Tulsa	6,736	7,478	-9.92
Wagoner	989	285	247.02

$\bar{x}_{19} = 106.76$; $s_{19} = 104.42$. $\bar{x}_{8} = 14.55$; $s_{8} = 28.65$.

Sources: [a]Constructed for this study with data from Appendix Table 8.

[b]Table 83, PC(1)-38C, pp. 211-216.

Both the means and the standard deviations are substantially greater than those found for other estimates. The BES estimates exceed the Census estimates in seventeen of the nineteen areas. This suggests that these particular methodological changes do not improve the estimating procedure. Therefore, no further analysis is deemed appropriate.

CHAPTER VI

MODIFYING THE DEPRESSED AREA IDENTIFICATION PROCEDURES

Certain possible modifications in the BES unemployment estimating procedures are presented in this chapter. They are based on the procedural changes required to eliminate the April, 1960, differences. The chapter also includes an attempt to use these modifications in the construction of annual rates of unemployment for nineteen Oklahoma areas. An evaluation of the rates follows their presentation. It is in terms of their effect on area eligibility for certain types of federal aid. The effect of the modifications on area eligibility for federal aid is obtained by comparing the constructed rates to the statutory criteria for designating labor market areas as redevelopment areas.

Knowledge of their effect on eligibility is important because the modifications, or some close approximation of them, may be put into effect. This may occur in response to the uncertain accuracy which is associated with the present unemployment estimating procedures.

Modifying the Employment Data Inputs

The effect, in April, 1960, of using residence-level estimates of employment was described in Chapter V. Generally, the differences between the Census and BES estimates are reduced when the employment data

are placed on a residence basis.[1] Other cuts in the differences occur when employment data from the regular BES sources are used.[2] Thus, possible reforms could involve computing annual unemployment rates and estimates with employment estimates which are on a residence or regular basis.

One possible set of procedures to obtain annual residence unemployment estimates is substantially the same as those used to construct the April, 1960, residence estimates. Basically, the employment totals are obtained by multiplying BES employment data for each type of employment by the April, 1960, ratio of Census to BES employment. Regular level annual area unemployment estimates are obtained in the same fashion as was described in Chapter V for the April, 1960, estimates.

The residence and regular annual unemployment rates derived for the nineteen Oklahoma labor markets with these procedures are presented in Table VI-1. This table also includes improved unemployment rates based on annual employment and unemployment estimates published by the OESC. Annual rates based on a possible modification in the area unemployment estimating procedures are also presented in the table. The modification involves using the employment data from the regular sources and the covered unemployment rates from the residence annual unemployment estimates. These rates are called combination rates.

Table VI-2 follows with the effect of these modifications on area eligibility for designation as redevelopment areas. The Table VI-2 analysis is based on the unemployment rates in Table VI-1.

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[1]See Table V-2, pp. 61-62.

[2]See Table IV-3, pp. 45-46.

TABLE VI-1

ANNUAL IMPROVED, REGULAR, RESIDENCE, AND COMBINATION UNEMPLOYMENT RATES, 1958-1962

Area and Year	Improved Rate[a]	Regular Rate[b]	Residence Rate[c]	Combination Rate[d]
Adair				
1958	18.2	19.2	12.2	11.0
1959	15.5	16.1	10.3	9.1
1960	16.4	16.7	10.8	9.5
1961	17.1	17.6	11.2	10.0
1962	21.2	21.4	13.7	12.3
Atoka				
1958	14.9	13.7	12.4	10.5
1959	11.1	10.0	9.1	7.6
1960	11.6	10.4	9.4	7.8
1961	13.0	11.7	10.4	8.9
1962	13.1	11.6	10.4	8.8
Carter				
1958				
1959	5.7	5.9	5.4	5.4
1960	6.4	6.5	6.0	6.1
1961	6.0	6.1	5.6	5.7
1962	4.9	5.0	4.5	4.6
Cherokee				
1958	11.1	11.6	5.5	4.6
1959	10.4	10.7	5.1	4.2
1960	13.1	13.3	6.3	5.2
1961	11.1	11.4	5.4	4.5
1962	9.4	9.5	4.5	3.8
Coal				
1958	18.7	17.7	15.6	12.8
1959	15.8	14.6	13.0	10.5
1960	18.0	16.6	14.7	12.0
1961	14.3	13.2	11.5	9.4
1962	10.8	9.8	7.7	7.0
Comanche				
1958	5.9	6.5	5.5	5.6
1959	3.9	4.3	3.7	3.8
1960	3.9	4.3	3.7	3.8
1961	4.2	4.7	3.9	4.0
1962	4.3	4.8	4.0	4.2

Table VI-1 (Continued)

Area and Year	Improved Rate[a]	Regular Rate[b]	Residence Rate[c]	Combination Rate[d]
Garfield				
1958	4.3	4.5	4.2	4.2
1959	3.4	3.6	3.3	3.3
1960	3.9	4.0	3.7	3.8
1961	3.9	4.0	3.8	3.7
1962	3.6	3.7	3.4	3.5
Johnston				
1958	8.3	9.2	4.6	4.5
1959	6.5	6.9	3.6	3.5
1960	12.3	13.2	6.6	6.5
1961	17.1	18.7	9.1	9.2
1962	9.6	10.2	5.0	5.0
Kay				
1958				
1959				
1960	3.6	3.7	3.5	3.5
1961	3.8	3.9	3.7	3.7
1962	3.6	3.7	3.5	3.5
Latimer				
1958				
1959	16.5	15.3	7.8	6.1
1960	17.5	15.8	8.0	6.3
1961	18.9	17.6	9.1	7.1
1962	14.5	13.5	7.0	5.4
LeFlore				
1958	16.9	15.7	11.3	10.0
1959	15.1	13.9	10.0	8.9
1960	16.1	14.7	10.4	9.3
1961	17.3	15.8	11.0	10.1
1962	12.4	11.2	7.9	7.1
McClain				
1958	9.0	10.2	7.1	7.2
1959	8.3	9.2	6.5	6.4
1960	8.8	9.8	6.8	6.8
1961	11.7	13.6	9.1	9.5
1962	11.1	12.8	8.6	9.0
Muskogee				
1958	10.1	10.1	9.5	9.4
1959	10.0	10.1	9.4	9.4
1960	9.0	9.1	8.5	8.5
1961	8.5	8.6	7.9	8.0
1962	10.0	10.1	9.3	9.5

Table VI-1 (Continued)

Area and Year	Improved Rate[a]	Regular Rate[b]	Residence Rate[c]	Combination Rate[d]
Oklahoma				
1958	4.2	4.5	4.3	4.5
1959	3.3	3.5	3.4	3.6
1960	3.7	3.9	3.8	3.9
1961	4.3	4.6	4.5	4.7
1962	3.6	3.8	3.7	3.9
Pittsburg				
1958	9.6	9.6	9.3	9.0
1959	8.3	8.2	8.0	7.7
1960	10.0	9.9	9.7	9.2
1961	11.4	11.5	10.9	10.8
1962	8.5	8.7	8.2	8.2
Rogers				
1958	10.1	10.7	7.0	6.4
1959	8.9	9.3	6.1	5.5
1960	9.3	9.7	6.3	5.8
1961	14.7	15.4	9.9	9.2
1962	9.7	10.1	6.4	6.0
Seminole				
1958	10.2	10.1	9.4	9.0
1959	8.9	8.9	8.2	7.9
1960	10.3	10.2	9.5	9.1
1961	10.7	10.7	10.0	9.5
1962	9.1	9.1	8.3	8.0
Tulsa				
1958	5.2	5.4	5.4	5.6
1959	4.2	4.3	4.4	4.5
1960	4.7	4.8	4.9	5.0
1961	5.9	6.1	6.1	6.3
1962	4.7	4.8	4.8	5.0
Wagoner				
1958	11.8	12.7	6.3	5.6
1959	12.5	13.3	6.5	5.8
1960	14.2	15.2	7.4	6.7
1961	20.1	22.1	10.3	9.9
1962	16.5	17.8	8.4	7.8

Sources: [a]Computed from area annual unemployment and employment estimates published in Handbook of Labor Force Data, pp. 8-89.

[b]Based on data in Appendix Tables 19 through 23.

[c]Based on data in Appendix Tables 14 through 18.

[d]Covered rates derived from Appendix Tables 14 through 18; other data from Appendix Tables 19 through 23.

TABLE VI-2

AREA ELIGIBILITY FOR DESIGNATION AS REDEVELOPMENT AREAS BY TYPE OF DATA, 1962 AND 1963[a]

Area and Data Type	Fulfilling Requirements in 1963			Fulfilling Requirements in 1962		
	2-year	3-year	4-year	2-year	3-year	4-year
Adair						
Improved	yes	yes	yes	yes	yes	yes
Regular	yes	yes	yes	yes	yes	yes
Residence	yes	yes	yes	no	yes	yes
Combination	yes	no	yes	no	no	yes
Atoka						
Improved	yes	yes	yes	yes	yes	yes
Regular	yes	yes	yes	no	yes	yes
Residence	no	no	yes	no	no	yes
Combination	no	no	no	no	no	no
Carter						
Improved	no	no	no	no	no	
Regular	no	no	no	no	no	
Residence	no	no	no	no	no	
Combination	no	no	no	no	no	
Cherokee						
Improved	no	no	yes	yes	yes	yes
Regular	no	no	yes	yes	yes	yes
Residence	no	no	no	no	no	no
Combination	no	no	no	no	no	no
Coal						
Improved	yes	yes	yes	yes	yes	yes
Regular	no	yes	yes	yes	yes	yes
Residence	no	no	yes	yes	yes	yes
Combination	no	no	no	yes	yes	yes
Comanche						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Combination	no	no	no	no	no	no
Garfield						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Combination	no	no	no	no	no	no

Table VI-2 (Continued)

Area and Data Type	Fulfilling Requirements in 1963			Fulfilling Requirements in 1962		
	2-year	3-year	4-year	2-year	3-year	4-year
Johnston						
Improved	yes	yes	yes	yes	yes	no
Regular	yes	yes	yes	yes	yes	no
Residence	no	no	no	no	no	no
Combination	no	no	no	no	no	no
Kay						
Improved	no	no		no		
Regular	no	no		no		
Residence	no	no		no		
Combination	no	no		no		
Latimer						
Improved	yes	yes	yes	yes	yes	
Regular	yes	yes	yes	yes	yes	
Residence	no	no	no	no	no	
Combination	no	no	no	no	no	
LeFlore						
Improved	yes	yes	yes	yes	yes	yes
Regular	yes	yes	yes	yes	yes	yes
Residence	no	no	yes	no	yes	yes
Combination	no	no	yes	no	no	yes
McClain						
Improved	no	no	yes	no	no	yes
Regular	yes	yes	yes	yes	yes	yes
Residence	no	no	no	no	no	no
Combination	no	no	no	no	no	no
Muskogee						
Improved	no	no	yes	no	no	no
Regular	no	no	yes	no	no	no
Residence	no	no	yes	no	no	no
Combination	no	no	yes	no	no	no
Oklahoma						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Combination	no	no	no	no	no	no
Pittsburg						
Improved	no	no	yes	no	no	no
Regular	no	no	yes	no	no	no
Residence	no	no	no	no	no	no
Combination	no	no	no	no	no	no

Table VI-2 (Continued)

Area and Data Type	Fulfilling Requirements in 1963			Fulfilling Requirements in 1962		
	2-year	3-year	4-year	2-year	3-year	4-year
Rogers						
Improved	yes	no	yes	yes	no	yes
Regular	yes	yes	yes	yes	no	yes
Residence	no	no	no	no	no	no
Combination	no	no	no	no	no	no
Seminole						
Improved	no	no	yes	no	no	yes
Regular	no	no	yes	no	no	yes
Residence	no	no	no	no	no	no
Combination	no	no	no	no	no	no
Tulsa						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Combination	no	no	no	no	no	no
Wagoner						
Improved	yes	yes	yes	yes	yes	yes
Regular	yes	yes	yes	yes	yes	yes
Residence	no	no	no	no	no	no
Combination	no	no	no	no	no	no

[a]Eligibility is based on the annual area unemployment rates of previous years. Minimum redevelopment area rate levels are presented in Table II-1, p. 8; area unemployment rates are from Table VI-1.

Rates based on improved data qualify more areas as redevelopment areas than would be qualified if residence or combination data were used. It may be significant, however, that exactly the same areas would have been qualified in 1963 or 1962 had employment data from regular sources been used. This suggests that there is no need to engage in periodic surveys of certain types of employers as long as obtaining redevelopment-area designation for areas is the only goal.

Modifying Covered Unemployment

There appears to be no way of determining how much the differences

between the BES and Census estimates can be attributed to inaccuracies in the covered unemployment estimates. It is possible, however, to determine how much each area's April, 1960, covered unemployment would have to change to yield the Census level of unemployment. This can be accomplished by setting the estimating formula equal to Census unemployment and solving for the percentage of initial covered unemployment required to yield the Census unemployment.

If covered unemployment is ever identified as the sole cause of the BES - Census differences, the percentages resulting from applying the above procedure would be a measure of the inaccuracy of the covered unemployment estimates.[3] These percentages, however, can serve another purpose. Since their presence eliminates the differences between the BES and Census estimates, the percentages may be used as an adjustment factor in the BES formula. The formula would then no longer be the same for every area. Instead, it would vary from area to area based on each area's April, 1960, differences.

Such percentages have been constructed for this study for each of the nineteen areas. They are presented in Table VI-3. Table VI-4 follows with the annual unemployment rates which result from using the percentages to modify the BES formula. The unemployment rates cover the time period 1958-1962. Table VI-5 follows. It contains the effects of modifying covered unemployment. The Table VI-5 analysis is based on the unemployment rates in Table VI-4. The effects are measured in terms of area eligibility for designation as redevelopment areas under the unemployment criteria.

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[3]This assumes the applicability of the BES relationships, the adequacy of the employment data, and the accuracy of the Census estimates.

TABLE VI-3

ADJUSTED AREA COVERED UNEMPLOYMENT AS A PERCENT OF INITIAL COVERED UNEMPLOYMENT, APRIL, 1960, FOR REGULAR, IMPROVED, AND RESIDENCE LEVEL UNEMPLOYMENT ESTIMATES

Labor Market Areas	Regular[a]	Improved[b]	Residence[c]
Adair	29.4196	28.8393	44.5982
Atoka	67.1672	66.3664	85.6857
Carter	90.7816	85.1703	89.1784
Cherokee	51.7544	44.7368	84.6491
Coal	32.4759	33.5477	43.6227
Comanche	171.1864	155.2058	164.4068
Garfield	93.4783	92.3913	92.9348
Johnston	40.8200	40.6417	65.2406
Kay	99.7429	98.9717	100.2571
Latimer	67.7083	50.4630	125.0000
LeFlore	72.3971	71.1864	88.3777
McClain	46.2585	51.7007	57.6190
Muskogee	65.1763	64.4024	66.8960
Oklahoma	100.3412	93.6388	96.4660
Pittsburg	64.9374	66.5474	69.4097
Rogers	48.8550	45.2926	55.4707
Seminole	70.2032	72.9120	77.8781
Tulsa	108.4416	105.8644	106.9399
Wagoner	47.3980	51.0204	70.9184

Sources: [a]Based on data from Appendix Table 6 and the unemployment estimating equation in Chapter II, pp. 18, 19.

[b]Based on data from Appendix Tables 4 and 5 and the unemployment estimating equation in Chapter II, pp. 18, 19.

[c]Based on data from Appendix Table 8 and the unemployment estimating equation in Chapter II, pp. 18, 19.

TABLE VI-4

AREA ANNUAL UNEMPLOYMENT RATES, 1958-1962, AFTER ADJUSTMENTS IN COVERED UNEMPLOYMENT

Area and Year	Regular Rate[a]	Improved Rate[b]	Residence Rate[c]
Adair			
1958	6.8	6.3	6.1
1959	5.6	5.4	5.2
1960	5.9	5.7	5.4
1961	6.2	5.9	5.6
1962	7.6	7.4	6.9

Table VI-4 (Continued)

Area and Year	Regular Rate[a]	Improved Rate[b]	Residence Rate[c]
Atoka			
1958	9.8	10.6	10.9
1959	7.1	7.8	8.0
1960	7.4	8.2	8.3
1961	8.3	9.2	9.2
1962	8.2	9.2	9.0
Carter			
1958			
1959	5.4	5.0	4.9
1960	6.0	5.6	5.4
1961	5.6	5.2	5.1
1962	4.6	4.2	4.1
Cherokee			
1958	6.6	5.6	4.8
1959	6.1	5.3	4.4
1960	7.6	6.6	5.5
1961	6.5	5.6	4.7
1962	5.5	4.8	3.9
Coal			
1958	6.9	7.5	7.9
1959	5.6	6.3	6.5
1960	6.4	7.2	7.3
1961	5.1	5.6	5.7
1962	3.8	4.3	4.3
Comanche			
1958	10.2	8.6	8.4
1959	6.7	5.7	5.5
1960	6.8	5.6	5.5
1961	7.4	6.1	5.9
1962	7.6	6.2	6.0
Garfield			
1958	4.3	4.1	4.0
1959	3.4	3.2	3.1
1960	3.8	3.6	3.5
1961	3.8	3.7	3.5
1962	3.5	3.4	3.3
Johnston			
1958	4.3	3.9	3.3
1959	3.3	3.1	2.6
1960	6.1	5.7	4.7
1961	8.8	8.0	6.3
1962	4.8	4.4	3.5

Table VI-4 (Continued)

Area and Year	Regular Rate[a]	Improved Rate[b]	Residence Rate[c]
Kay			
1958			
1959			
1960	3.7	3.6	3.5
1961	3.9	3.8	3.7
1962	3.7	3.6	3.5
Latimer			
1958			
1959	11.1	9.3	9.5
1960	11.5	9.9	9.6
1961	12.8	10.7	11.0
1962	9.8	8.2	8.4
LeFlore			
1958	12.0	12.7	10.2
1959	10.6	11.4	9.0
1960	11.1	12.1	9.4
1961	12.1	13.0	10.0
1962	8.5	9.3	7.1
McClain			
1958	5.3	5.2	4.5
1959	4.8	4.7	4.2
1960	5.1	5.0	4.3
1961	7.0	6.7	5.7
1962	6.6	6.3	5.4
Muskogee			
1958	7.1	6.9	6.8
1959	7.0	6.9	6.7
1960	6.3	6.2	6.0
1961	6.0	5.9	5.7
1962	7.1	6.9	6.7
Oklahoma			
1958	4.4	4.0	4.2
1959	3.6	3.2	3.4
1960	3.9	3.5	3.7
1961	4.6	4.1	4.3
1962	3.8	3.1	3.6
Pittsburg			
1958	6.7	6.8	6.8
1959	5.7	5.9	5.6
1960	6.8	7.1	7.1
1961	8.0	8.1	8.1
1962	6.1	6.1	5.7

Table VI-4 (Continued)

Area and Year	Regular Rate[a]	Improved Rate[b]	Residence Rate[c]
Rogers			
1958	5.8	5.0	4.3
1959	5.1	4.6	3.7
1960	5.3	4.5	3.9
1961	8.4	7.5	6.0
1962	5.7	4.9	3.9
Seminole			
1958	7.5	7.8	7.6
1959	6.6	6.8	6.6
1960	7.2	7.9	7.7
1961	7.6	8.2	7.9
1962	6.8	7.0	6.7
Tulsa			
1958	5.7	5.5	5.8
1959	4.7	4.4	4.6
1960	5.1	4.9	5.1
1961	6.5	6.6	6.5
1962	5.1	6.2	5.1
Wagoner			
1958	6.7	6.6	4.7
1959	7.0	7.0	4.9
1960	8.3	8.0	5.5
1961	11.9	11.5	7.7
1962	9.4	9.4	6.2

Sources: [a]Constructed with data in Appendix Tables 19 through 23 and the formula in Chapter II, pp. 18-19, as modified by the change in covered employment in Table VI-3.

[b]Constructed with data in Appendix Tables 9 through 13, 1 and 3, and the formula in Chapter II, pp. 18-19, as modified by the change in covered employment in Table VI-3.

[c]Constructed with data in Appendix Tables 14 through 18 and the formula in Chapter II, pp. 18-19, as modified by the change in covered unemployment in Table VI-3.

TABLE VI-5

AREA ELIGIBILITY FOR DESIGNATION AS REDEVELOPMENT AREAS AFTER MODIFICATION IN COVERED UNEMPLOYMENT, BY TYPE OF DATA, 1962 AND 1963[a]

Area and Date Type	Fulfilling Requirements in 1963			Fulfilling Requirements in 1962		
	2-year	3-year	4-year	2-year	3-year	4-year
Adair						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Atoka						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Carter						
Improved	no	no	no	no	no	
Regular	no	no	no	no	no	
Residence	no	no	no	no	no	
Cherokee						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Coal						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Comanche						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Garfield						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Johnston						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Kay						
Improved	no	no		no		
Regular	no	no		no		
Residence	no	no		no		

Table VI-5 (Continued)

Area and Date Type	Fulfilling Requirements in 1963			Fulfilling Requirements in 1962		
	2-year	3-year	4-year	2-year	3-year	4-year
Latimer						
Improved	no	no	yes	no	no	yes
Regular	no	yes	yes	yes	yes	yes
Residence	no	no	yes	no	no	yes
LeFlore						
Improved	no	yes	yes	yes	yes	yes
Regular	no	yes	yes	no	yes	yes
Residence	no	no	yes	no	no	yes
McClain						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Muskogee						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Oklahoma						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Pittsburg						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Rogers						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Seminole						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Tulsa						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Wagoner						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no

[a]Eligibility based on annual estimates for previous years; unemployment rates from Table VI-4; redevelopment area eligibility rate levels from Table II-1, p.8.

The same two counties are eligible for redevelopment area designation in each year and for every type of data. It appears that procedural modifications based on the elimination of BES and Census differences would lower the number of areas eligible for designation.

Modifying the Constant Unemployment Relationships

The use of constant unemployment relationships may cause the BES procedures to yield estimates which differ from those of the Census.[4] Unfortunately, there appears to be no way to determine what the relationships actually are in a given area. Nevertheless, one estimate of the appropriate relationships can be derived by setting the estimating equation equal to an area's Census unemployment and solving for the proportional change in the rates required to get that unemployment.[5] Furthermore, since the size of these changes will be affected by the amount of the differences between the BES and Census estimates, the modified relationships might be used as an adjustment factor to offset the effects of whatever is causing BES - Census differences.

The changes in the noncovered employment rates required to yield Census levels of unemployment for the nineteen Oklahoma areas have been determined for this study. They are presented in Table VI-6. Annual unemployment rates which result from using these adjustment factors in the estimation of annual unemployment are in Table VI-7. The rates cover

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[4]See Chapter III, pp. 35-40, for related discussion.

[5]This assumes that all other procedures are appropriate and that the data inputs and the Census estimates are correct.

the time period 1958-1962. Table VI-8 follows with the effects of these modifications on area eligibility for designation as redevelopment areas. The Table VI-8 analysis is based on the unemployment rates in Table VI-7.

TABLE VI-6

DEGREE OF CHANGE IN NONCOVERED UNEMPLOYMENT AREA RELATIONSHIPS REQUIRED TO YIELD CENSUS LEVELS OF UNEMPLOYMENT, APRIL, 1960, WITH REGULAR, IMPROVED, AND RESIDENCE LEVEL UNEMPLOYMENT ESTIMATES

Labor Market Areas	Regular Correction Factor[a]	Improved Correction Factor[b]	Residence Correction Factor[c]
Adair	-.099	-.077	-.169
Atoka	.508	.509	.749
Carter	.684	.548	.632
Cherokee	.175	.142	.477
Coal	.060	.065	.091
Comanche	3.328	2.550	3.054
Garfield	.784	.754	.760
Johnston	.286	.288	.490
Kay	.989	.950	1.012
Latimer	.640	.470	1.436
LeFlore	.552	.535	.769
McClain	.146	.182	.203
Muskogee	-.048	-.034	-.042
Oklahoma	1.014	.762	.961
Pittsburg	.175	.181	.198
Rogers	-.175	-.155	-.253
Seminole	.313	.358	.408
Tulsa	1.446	1.295	1.503
Wagoner	.218	.243	.387

Sources: [a]Based on data from Appendix Table 6 and standardized unemployment estimating equation from Chapter II, pp. 18-19.

[b]Based on data from Appendix Tables 6 and 7 and standardized unemployment estimating equation in Chapter II, pp. 18-19.

[c]Based on data from Appendix Table 8 and standardized unemployestimating equation in Chapter II, pp. 18-19.

TABLE VI-7

AREA ANNUAL UNEMPLOYMENT RATES, 1958-1962, AFTER ADJUSTMENTS IN CERTAIN STANDARD RELATIONSHIPS

Area and Year	Regular Rate[a]	Improved Rate[b]	Residence Rate[c]
Adair			
1958	4.5	5.1	5.5
1959	4.3	4.8	4.9
1960	4.9	5.2	5.3
1961	5.8	6.2	6.2
1962	6.6	6.7	6.6
Atoka			
1958	8.9	10.0	10.6
1959	6.8	7.6	7.9
1960	7.0	8.0	8.2
1961	8.0	9.0	9.1
1962	7.9	9.0	9.1
Carter			
1958			
1959	5.3	4.9	4.8
1960	5.9	5.5	5.4
1961	5.5	5.1	5.0
1962	4.5	4.2	4.1
Cherokee			
1958	5.3	5.1	4.6
1959	5.1	4.8	4.3
1960	6.6	6.2	5.4
1961	5.9	5.5	4.6
1962	5.0	4.6	3.8
Coal			
1958	4.9	5.8	6.2
1959	4.5	5.3	5.6
1960	5.9	7.0	7.2
1961	5.3	6.3	6.4
1962	4.1	4.7	4.8
Comanche			
1958	11.7	9.1	8.9
1959	7.1	5.7	5.6
1960	7.2	5.7	5.6
1961	7.8	6.2	6.0
1962	7.9	6.3	6.2
Garfield			
1958	4.7	4.1	4.0
1959	3.4	5.9	3.2
1960	3.8	3.6	3.5
1961	3.8	3.7	3.5
1962	3.5	3.4	3.3

Table VI-7 (Continued)

Area and Year	Regular Rate[a]	Improved Rate[b]	Residence Rate[c]
Johnston			
1958	4.0	4.0	3.3
1959	3.2	3.2	2.7
1960	5.6	5.6	4.6
1961	7.4	7.4	6.2
1962	4.3	4.2	3.5
Kay			
1958			
1959			
1960	3.7	3.6	3.5
1961	3.9	3.8	3.7
1962	3.7	3.6	3.5
Latimer			
1958			
1959	11.0	9.4	9.5
1960	11.3	9.9	10.1
1961	12.9	11.3	10.9
1962	10.2	9.0	8.4
LeFlore			
1958	11.3	12.3	10.1
1959	10.1	11.0	8.9
1960	10.6	11.6	9.3
1961	11.4	12.6	10.0
1962	8.1	8.9	7.0
McClain			
1958	4.5	4.9	4.4
1959	4.2	4.5	4.0
1960	4.6	4.9	4.3
1961	5.9	6.3	5.5
1962	5.6	5.9	5.2
Muskogee			
1958	6.6	6.8	6.7
1959	6.3	6.5	6.4
1960	5.9	6.0	5.8
1961	5.5	5.7	5.5
1962	6.6	6.7	6.4
Oklahoma			
1958	4.5	4.0	4.3
1959	3.5	3.2	3.4
1960	3.9	3.5	3.8
1961	4.7	4.1	4.4
1962	3.8	3.4	3.7

Table VI-7 (Continued)

Area and Year	Regular Rate[a]	Improved Rate[b]	Residence Rate[c]
Pittsburg			
1958	6.3	6.6	6.7
1959	5.3	5.6	5.7
1960	6.3	6.7	6.7
1961	7.3	7.6	7.6
1962	5.8	5.8	5.8
Rogers			
1958	4.5	4.5	3.6
1959	4.2	4.1	3.5
1960	4.9	4.9	3.9
1961	6.5	6.3	5.3
1962	4.3	4.1	3.4
Seminole			
1958	7.2	7.7	7.5
1959	6.4	6.8	6.6
1960	7.3	7.8	7.6
1961	7.6	8.1	7.9
1962	6.5	7.0	6.7
Tulsa			
1958	5.7	5.5	5.8
1959	4.6	4.4	4.7
1960	5.2	4.9	5.3
1961	6.8	6.2	6.7
1962	5.2	5.0	5.3
Wagoner			
1958	5.9	6.5	4.7
1959	6.2	6.8	4.9
1960	7.1	7.7	5.5
1961	9.1	9.8	7.3
1962	7.2	7.7	5.6

Sources: [a]Constructed with data in Appendix Tables 19 through 23 and formula in Chapter II, pp. 18-19, modified by the changes in standard area relationships presented in Table VI-6.

[b]Constructed with data in Appendix Tables 9 through 13, 1 and 3, and formula in Chapter II, pp. 18-19, modified by the changes in standard area relationships presented in Table VI-6.

[c]Constructed with data in Appendix Tables 14 through 18, and formula in Chapter II, pp. 18-19, modified by the changes in standard area relationships presented in Table VI-6.

TABLE VI-8

AREA ELIGIBILITY FOR REDEVELOPMENT AREA DESIGNATION, 1962 AND 1963, AFTER MODIFICATIONS IN CERTAIN STANDARDIZED ESTIMATING RELATIONSHIPS[a]

Area and Data Type	Fulfilling Requirements in 1963			Fulfilling Requirements in 1962		
	2-year	3-year	4-year	2-year	3-year	4-year
Adair						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Atoka						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Carter						
Improved	no	no	no	no	no	
Regular	no	no	no	no	no	
Residence	no	no	no	no	no	
Cherokee						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Coal						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Comanche						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Garfield						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Johnston						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Kay						
Improved	no	no		no		
Regular	no	no		no		
Residence	no	no		no		

Table VI-8 (Continued)

Area and Data Type	Fulfilling Requirements in 1963			Fulfilling Requirements in 1962		
	2-year	3-year	4-year	2-year	3-year	4-year
Latimer						
Improved	no	no	yes	no	no	yes
Regular	no	yes	yes	yes	yes	yes
Residence	no	no	yes	no	no	yes
LeFlore						
Improved	no	yes	yes	yes	yes	yes
Regular	no	no	yes	no	yes	yes
Residence	no	no	yes	no	no	yes
McClain						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Muskogee						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Oklahoma						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Pittsburg						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Rogers						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Seminole						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Tulsa						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no
Wagoner						
Improved	no	no	no	no	no	no
Regular	no	no	no	no	no	no
Residence	no	no	no	no	no	no

[a]Eligibility based on annual estimates for previous years; unemployment rates from Table VI-7; redevelopment area eligibility rate levels from Table II-1, p. 8.

// The same two areas which would have been qualified with a covered unemployment adjustment factor are also qualified when the annual estimates are affected by an adjustment factor related to noncovered employment. This reaffirms the earlier suggestion that the use of an adjustment factor based on the BES - Census differences would result in fewer areas in Oklahoma qualifying for redevelopment area status. //

Other Possible Procedures

The differences between the Census and BES estimates may lead to a move away from the BES procedure rather than to its reform. One possibility involves the elimination of most of the national relationships. This could be accomplished by limiting the components of area unemployment rates to some form of covered employment and unemployment. The rate of unemployment would then be equal to covered unemployment (U_c) divided either by covered employment (E_i) or the sum of covered employment and unemployment ($E_i + U_c$). Further, the covered employment could either be the employment reported on the unemployment insurance reports or this employment after it has been put on a residence basis. The unemployment related to covered employment could be derived in the same fashion as it is for the current BES unemployment estimates.

The results of computing covered unemployment rates in this manner for the nineteen areas are arrayed in Table VI-9 below. Table VI-10 follows with the effect of these procedures on area eligibility for redevelopment area designation under the Area Redevelopment Act criteria.

TABLE VI-9

AREA ANNUAL COVERED UNEMPLOYMENT RATES, 1958-1962

Area and Year	Covered[a] $\frac{U_c}{E_i}$	Covered[a] $\frac{U_c}{E_i + U_c}$	Residence[b] $\frac{U_c}{E_i}$	Residence[b] $\frac{U_c}{E_i + U_c}$
Adair				
1958	37.4	27.2	19.3	16.2
1959	29.5	22.8	15.2	13.2
1960	30.4	23.3	15.7	13.6
1961	30.9	23.6	15.9	13.7
1962	39.7	28.4	20.5	17.0
Atoka				
1958	28.8	22.3	20.8	17.2
1959	19.4	16.3	14.0	12.3
1960	20.1	16.7	14.5	12.7
1961	22.4	18.3	16.2	13.9
1962	22.3	18.3	16.1	13.9
Carter				
1958				
1959	6.7	6.3	6.2	5.8
1960	7.7	6.6	7.1	6.6
1961	7.0	6.5	6.4	6.1
1962	5.5	5.2	5.0	4.8
Cherokee				
1958	22.3	18.3	7.5	7.0
1959	20.1	16.8	6.7	6.3
1960	25.9	20.6	8.7	8.0
1961	19.6	16.4	6.6	6.2
1962	15.7	13.6	5.3	5.0
Coal				
1958	41.2	29.2	27.7	21.7
1959	32.1	24.3	21.5	17.7
1960	37.2	27.1	24.9	19.9
1961	28.1	21.9	18.8	15.8
1962	19.1	16.1	12.8	11.4
Comanche				
1958	8.4	7.7	7.1	6.7
1959	5.0	4.8	4.3	4.1
1960	5.0	4.8	4.3	4.1
1961	5.4	5.2	4.6	4.4
1962	5.5	5.2	4.7	4.5

Table VI-9 (Continued)

Area and Year	Covered[a] $\frac{U_c}{E_i}$	Covered[a] $\frac{U_c}{E_i + U_c}$	Residence[b] $\frac{U_c}{E_i}$	Residence[b] $\frac{U_c}{E_i + U_c}$
Garfield				
1958	5.5	5.2	5.0	4.8
1959	4.1	3.9	3.7	3.6
1960	4.7	4.5	4.3	4.1
1961	4.6	4.4	4.2	4.0
1962	4.1	3.9	3.8	3.6
Johnston				
1958	14.2	12.4	6.2	5.8
1959	10.1	9.2	4.4	4.2
1960	21.6	17.8	9.5	8.7
1961	31.5	24.0	13.8	12.1
1962	15.8	13.6	6.9	6.5
Kay				
1958				
1959				
1960	3.9	3.8	3.6	3.5
1961	4.2	4.0	3.9	3.7
1962	4.0	3.8	3.7	3.5
Latimer				
1958				
1959	35.9	26.4	11.9	10.6
1960	38.6	27.8	12.8	11.4
1961	38.4	27.8	12.8	11.3
1962	26.1	20.7	8.7	8.0
LeFlore				
1958	26.6	21.0	15.6	13.5
1959	22.8	18.6	13.4	11.8
1960	24.3	19.5	14.2	12.5
1961	26.5	20.9	15.5	13.4
1962	17.4	14.9	10.2	9.3
McClain				
1958	16.9	14.5	11.2	10.0
1959	14.2	12.4	9.3	8.5
1960	15.8	13.6	10.4	9.4
1961	23.0	18.7	15.2	13.2
1962	21.7	17.8	14.3	12.5
Muskogee				
1958	13.7	12.1	12.6	11.2
1959	13.5	11.9	12.4	11.1
1960	12.2	10.9	11.2	10.1
1961	11.3	10.1	10.4	9.4
1962	13.8	12.1	12.7	11.3

Table VI-9 (Continued)

Area and Year	Covered[a] $\frac{U_c}{E_i}$	Covered[a] $\frac{U_c}{E_i + U_c}$	Residence[b] $\frac{U_c}{E_i}$	Residence[b] $\frac{U_c}{E_i + U_c}$
Oklahoma				
1958	4.9	4.7	5.0	4.8
1959	3.6	3.5	3.7	3.6
1960	4.0	3.9	4.1	4.0
1961	5.0	4.8	5.1	4.8
1962	3.9	3.8	4.0	3.8
Pittsburg				
1958	15.6	13.5	14.4	12.6
1959	12.8	11.4	11.9	10.6
1960	15.8	13.7	14.6	12.7
1961	19.1	16.0	17.6	15.0
1962	13.4	11.8	12.4	11.0
Rogers				
1958	16.6	14.3	9.1	8.3
1959	13.9	12.2	7.6	7.0
1960	14.0	12.2	7.6	7.1
1961	25.0	20.0	13.6	12.0
1962	14.8	12.9	8.1	7.5
Seminole				
1958	14.1	12.3	12.2	10.9
1959	11.9	10.7	10.4	9.4
1960	14.2	12.4	12.3	11.0
1961	14.7	12.8	12.8	11.3
1962	12.0	10.7	10.4	9.4
Tulsa				
1958	5.5	5.2	5.8	5.5
1959	4.2	4.1	4.4	4.3
1960	4.8	4.6	5.1	4.8
1961	6.4	6.0	6.7	6.3
1962	4.8	4.6	5.1	4.8
Wagoner				
1958	20.6	17.1	7.9	7.3
1959	22.0	18.0	8.4	7.7
1960	25.7	20.5	9.8	9.0
1961	40.7	28.9	15.5	13.5
1962	31.1	23.7	11.9	10.6

Sources: [a]Computed from covered employment and unemployment data in Appendix Tables 19 through 23.

[b]Computed from covered employment and unemployment data in Appendix Tables 14 through 18.

TABLE VI-10

AREA ELIGIBILITY FOR REDEVELOPMENT AREA DESIGNATION IN 1962 AND 1963 BASED ON COVERED UNEMPLOYMENT[a]

Area and Data Type		Fulfilling Requirements in 1963			Fulfilling Requirements in 1962		
		2-year	3-year	4-year	2-year	3-year	4-year
Adair							
covered	E_i	yes	yes	yes	yes	yes	yes
covered	E_i+U_c	yes	yes	yes	yes	yes	yes
residence	E_i	yes	yes	yes	yes	yes	yes
residence	E_i+U_c	yes	yes	yes	yes	yes	yes
Atoka							
covered	E_i	yes	yes	yes	yes	yes	yes
covered	E_i+U_c	yes	yes	yes	yes	yes	yes
residence	E_i	yes	yes	yes	yes	yes	yes
residence	E_i+U_c	yes	yes	yes	yes	yes	yes
Carter							
covered	E_i	no	no	no	no	no	
covered	E_i+U_c	no	no	no	no	no	
residence	E_i	no	no	no	no	no	
residence	E_i+U_c	no	no	no	no	no	
Cherokee							
covered	E_i	yes	yes	yes	yes	yes	yes
covered	E_i+U_c	yes	yes	yes	yes	yes	yes
residence	E_i	no	no	no	no	no	no
residence	E_i+U_c	no	no	no	no	no	no
Coal							
covered	E_i	yes	yes	yes	yes	yes	yes
covered	E_i+U_c	yes	yes	yes	yes	yes	yes
residence	E_i	yes	yes	yes	yes	yes	yes
residence	E_i+U_c	yes	yes	yes	yes	yes	yes
Comanche							
covered	E_i	no	no	no	no	no	no
covered	E_i+U_c	no	no	no	no	no	no
residence	E_i	no	no	no	no	no	no
residence	E_i+U_c	no	no	no	no	no	no
Garfield							
covered	E_i	no	no	no	no	no	no
covered	E_i+U_c	no	no	no	no	no	no
residence	E_i	no	no	no	no	no	no
residence	E_i+U_c	no	no	no	no	no	no

Table VI-10 (Continued)

Area and Data Type		Fulfilling Requirements in 1963			Fulfilling Requirements in 1962		
		2-year	3-year	4-year	2-year	3-year	4-year
Johnston							
covered	E_i	yes	yes	yes	yes	yes	yes
covered	E_i+U_c	yes	yes	yes	yes	yes	yes
residence	E_i	yes	no	no	yes	no	no
residence	E_i+U_c	no	no	no	no	no	no
Kay							
covered	E_i	no	no		no		
covered	E_i+U_c	no	no		no		
residence	E_i	no	no		no		
residence	E_i+U_c	no	no		no		
Latimer							
covered	E_i	yes	yes	yes	yes	yes	yes
covered	E_i+U_c	yes	yes	yes	yes	yes	yes
residence	E_i	no	yes	yes	yes	yes	yes
residence	E_i+U_c	no	no	yes	yes	yes	yes
LeFlore							
covered	E_i	yes	yes	yes	yes	yes	yes
covered	E_i+U_c	yes	yes	yes	yes	yes	yes
residence	E_i	yes	yes	yes	yes	yes	yes
residence	E_i+U_c	yes	yes	yes	yes	yes	yes
McClain							
covered	E_i	yes	yes	yes	yes	yes	yes
covered	E_i+U_c	yes	yes	yes	yes	yes	yes
residence	E_i	yes	yes	yes	yes	yes	yes
residence	E_i+U_c	yes	yes	yes	yes	yes	yes
Muskogee							
covered	E_i	yes	yes	yes	yes	yes	yes
covered	E_i+U_c	yes	yes	yes	no	yes	yes
residence	E_i	yes	yes	yes	yes	yes	yes
residence	E_i+U_c	yes	yes	yes	no	yes	yes
Oklahoma							
covered	E_i	no	no	no	no	no	no
covered	E_i+U_c	no	no	no	no	no	no
residence	E_i	no	no	no	no	no	no
residence	E_i+U_c	no	no	no	no	no	no
Pittsburg							
covered	E_i	yes	yes	yes	yes	yes	yes
covered	E_i+U_c	yes	yes	yes	yes	yes	yes
residence	E_i	yes	yes	yes	yes	yes	yes
residence	E_i+U_c	yes	yes	yes	yes	yes	yes

Table VI-10 (Continued)

Area and Data Type		Fulfilling Requirements in 1963			Fulfilling Requirements in 1962		
		2-year	3-year	4-year	2-year	3-year	4-year
Rogers							
covered	E_i	yes	yes	yes	yes	yes	yes
covered	E_i+U_c	yes	yes	yes	yes	yes	yes
residence	E_i	yes	no	no	yes	no	no
residence	E_i+U_c	no	no	no	no	no	no
Seminole							
covered	E_i	yes	yes	yes	yes	yes	yes
covered	E_i+U_c	no	yes	yes	yes	yes	yes
residence	E_i	no	yes	yes	yes	yes	yes
residence	E_i+U_c	no	no	yes	no	no	yes
Tulsa							
covered	E_i	no	no	no	no	no	no
covered	E_i+U_c	no	no	no	no	no	no
residence	E_i	no	no	no	no	no	no
residence	E_i+U_c	no	no	no	no	no	no
Wagoner							
covered	E_i	yes	yes	yes	yes	yes	yes
covered	E_i+U_c	yes	yes	yes	yes	yes	yes
residence	E_i	yes	yes	yes	yes	yes	yes
residence	E_i+U_c	yes	yes	yes	yes	no	no

[a]Eligibility is based on the covered unemployment rates from Table VI-9 and the Area Redevelopment Act eligibility rates from Table II-1, p. 8.

It may be significant that the use of nonresidence covered unemployment rates would qualify exactly the same areas that would have qualified on the basis of the improved or regular BES estimates. This phenomenon also exists in 1962 when seventeen of the nineteen areas have the same qualification status. Thus, in 36 of 38 cases, the use of either of the two forms of nonresidence covered rates yields area qualifications identical to those based on improved or regular unemployment. This suggests that the detailed procedures involved in estimating area total unemployment rates may not be necessary. Instead, the use of covered unemployment may be an adequate shortcut for the BES unemployment estimating

procedure whenever redevelopment area designation is the only reason for constructing unemployment rates.

This pattern does not hold when the covered rates are put on a residence basis. More areas are qualified when residence covered rates are used instead of residence total rates. However, all the areas which would qualify under the residence total rates are included in those qualifying under the residence covered rates.

CHAPTER VII

SUMMARY AND CONCLUSIONS

Area unemployment estimates derived by the BES estimating procedure are used with employment estimates to make rates of unemployment. These unemployment estimates are important because large sums of money are being made available to labor market areas having rates equal to or exceeding statutory standards.

The present study attempted to ascertain the accuracy of the estimates for nineteen Oklahoma areas by comparing their April, 1960, estimates to their 1960 Census estimates. Substantial differences were found to exist. Nevertheless, an analysis of the Census and BES estimates indicates that there are factors other than inaccurate BES estimates which may explain the differences. The observed differences, therefore, merely suggest the BES estimates are inaccurate. No definitive conclusions are possible.

Various possible causes of inaccuracies in the BES estimates are suggested in the literature. These were examined with particular emphasis on the possibility that they could be causing the differences observed by this study. Despite the existence of such suggestions, only one study was found which actually attempted to identify the sources of any inaccuracies. It examined state and SMSA estimates of unemployment. Its tests, plus others developed for use in this analysis, were applied to estimates of the areas included in the present study. Certain characteristics of the areas where the differences were the greatest were identified. These characteristics suggested several possible causes of the differences.

The results for the Oklahoma areas differed substantially from those of the earlier study's identical tests. Thus, it is difficult to accept the findings of the earlier study as generally applicable to all labor market areas.

The present study then attempted to discover if inadequate data inputs are the cause of all or part of the observed differences. The average percent of difference did decrease with several different types of data inputs. However, in every case substantial differences remained. This suggests that the data inputs may be one cause of the differences, but not the only cause.

The present study also attempted to quantify several possible causes of the differences under the assumption that there are no other causes. The estimating equations were set equal to the Census unemployment estimates and the equations solved for the changes in various components required to yield the Census level of unemployment. In some cases the required changes were so large as to be impossible measures of the cause of the differences. This suggests that the differences may not be due only to one specific factor. There appears to be no way to identify the portion of the total difference attributable to each possible cause of the differences.

Despite the importance of the area rates and the apparent concern over their accuracy, no studies were found in a review of the literature which suggested either revision or replacement of the BES estimating procedures. And no studies were found that considered the effect of any revisions or replacements on area qualification for federal aid. The present study considered both of these aspects. First, it presented possible changes in the data and procedures used in the estimating process as well as methods which could replace the BES process. Then

these methods were used to construct unemployment rates for the areas included in the study. Finally, these rates were evaluated in terms of statutory requirements for federal aid.

The procedural changes involved the use of adjustment factors taken from the changes in components required to get the BES procedures to yield the Census level of unemployment. Data changes involved the use of annual data comparable to the data inputs whose use affected the BES - Census differences. The study also examined the effect of limiting the rates of unemployment used in qualifying areas to unemployment rates based on covered employment and covered unemployment.

In some cases substantial differences were noted in the number of areas which would have attained eligibility for redevelopment area status. In other cases, exactly the same areas would have qualified. None of the areas which could not have been eligible for this designation during 1962 or 1963 under the procedures currently in use in Oklahoma would have become eligible under any of the twelve other procedures considered by this study. However, two areas would have attained eligibility earlier had any one of the four covered unemployment rates been in use.

The study found that the same areas would qualify if the procedures currently in use were replaced by those based on employment data from the regular BES sources or by rates based on covered employment and unemployment. This suggests that it may be advantageous, in terms of least-cost preparation of rates for the purpose of designating redevelopment areas, either to use employment data from the regular BES sources or to replace the BES rates with covered unemployment rates.

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A P P E N D I X A

TABLE 1

IMPROVED AREA UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1962

Labor Market Area	E_i [1]	E_t [2]	E_{nws} [3]	E_d [4]	E_{su} [5]	E_g [6]	E_{aws} [7]	E_{asu} [8]	E_{np} [9]	U_t [10]	U_c [11]
Adair	567	3,280	795	22	238	372	608	1,192	53	880	225
Atoka	528	2,590	686	45	225	393	405	815	21	390	118
Carter	6,172	12,675	7,368	469	1,656	1,232	689	711	550	650	336
Cherokee	910	4,610	1,113	74	396	1,036	677	1,193	121	480	143
Coal	304	1,660	459	9	131	221	206	604	30	200	58.2
Comanche	8,643	20,475	9,710	731	2,269	5,503	275	1,050	937	925	479
Garfield	8,920	18,850	10,805	352	2,298	2,086	162	2,163	984	700	367
Johnston	194	1,980	363	17	173	483	383	507	54	210	30.6
Kay	9,635	17,925	10,888	480	2,195	1,683	280	1,520	879	675	380
Latimer	350	2,298	543	34	176	651	335	525	34	390	91.2
LeFlore	1,525	5,982	2,220	113	697	525	1,097	1,253	77	850	266
McClain	618	3,270	957	55	435	413	241	1,139	30	410	134
Muskogee	8,564	19,500	10,097	717	2,108	3,813	953	1,147	665	2,175	1,172
Oklahoma	114,729	221,300	128,172	5,986	21,844	51,095	1,536	4,064	8,733	8,200	4,511
Pittsburg	3,545	10,700	4,211	314	1,411	2,709	444	1,031	580	1,000	478
Rogers	1,426	5,330	2,047	102	438	754	530	1,310	149	570	211
Seminole	3,442	8,160	4,499	236	1,214	845	425	865	76	820	414
Tulsa	102,904	163,500	114,951	5,326	17,474	12,662	2,416	3,484	7,187	8,000	4,970
Wagoner	424	2,930	722	39	231	352	452	1,098	36	580	132

TABLE 2

IMPROVED AREA UNEMPLOYMENT ESTIMATING DATA, APRIL 1962

Labor Market Area	E_i[12]	E_t[13]	E_{nws}[14]	E_d[15]	E_{su}[16]	E_g[17]	E_{aws}[18]	E_{asu}[19]	E_{np}[20]	U_t[21]	U_c[22]
Adair	484	2,900	674	26	274	373	503	997	53	950	310
Atoka	498	2,610	676	46	234	393	406	834	21	350	120
Carter	5,964	12,400	7,121	463	1,637	1,233	683	717	546	625	362
Cherokee	972	4,780	1,295	74	396	1,035	667	1,193	120	520	185
Coal	272	1,650	438	9	141	222	203	607	30	190	59.8
Comanche	8,573	20,525	9,840	731	2,269	5,459	269	1,031	926	850	479
Garfield	8,775	18,550	10,612	346	2,254	2,085	159	2,116	978	675	400
Johnston	177	1,980	363	17	173	484	380	510	53	230	38.4
Kay	9,775	18,025	11,015	480	2,195	1,682	275	1,500	878	600	380
Latimer	314	2,238	517	34	176	649	320	510	32	430	114
LeFlore	1,595	5,942	2,191	113	697	525	1,082	1,258	76	740	289
McClain	599	3,190	879	56	444	413	239	1,131	28	460	177
Muskogee	8,598	19,400	10,160	704	2,071	3,802	900	1,100	663	2,125	1,259
Oklahoma	113,568	219,400	127,138	5,943	21,557	50,794	1,451	3,849	8,668	7,400	4,548
Pittsburg	3,414	10,475	4,048	310	1,390	2,700	433	1,017	577	950	497
Rogers	1,455	5,410	2,066	103	447	755	540	1,350	149	770	333
Seminole	3,441	8,190	4,417	249	1,281	846	433	887	77	700	390
Tulsa	101,570	161,300	112,701	5,373	17,627	12,651	2,361	3,439	7,148	7,600	5,247
Wagoner	430	2,920	688	40	240	358	449	1,101	49	580	168

TABLE 3

IMPROVED AREA UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1960

Labor Market Area	E_i[23]	E_t[24]	E_{nws}[25]	E_d[26]	E_{su}[27]	E_g[28]	E_{aws}[29]	E_{asu}[30]	E_{np}[31]	U_t[32]	U_c[33]
Adair	542	3,210	742	22	228	350	562	1,258	48	630	165
Atoka	497	2,590	702	46	234	368	360	860	20	340	99.7
Carter	5,919	12,475	7,059	458	1,617	1,157	753	922	509	850	449
Cherokee	692	4,100	705	75	405	961	608	1,242	104	620	179
Coal	248	1,640	445	9	141	208	184	626	27	360	92.2
Comanche	7,989	19,525	8,642	724	2,251	5,418	327	1,323	840	800	408
Garfield	8,113	18,050	9,464	322	2,103	2,579	185	2,465	932	725	388
Johnston	210	1,990	391	17	173	461	357	543	48	280	45.4
Kay	9,947	18,000	10,959	484	2,216	1,542	295	1,655	849	675	391
Latimer	182	2,069	224	37	193	614	338	632	31	440	70.2
LeFlore	1,590	6,006	2,210	108	667	498	1,038	1,412	73	1,150	386
McClain	716	3,430	1,091	55	435	392	250	1,180	27	330	113
Muskogee	8,573	19,650	10,126	710	2,090	3,634	1,024	1,426	640	1,950	1,037
Oklahoma	107,671	208,500	119,625	5,856	21,244	47,863	1,563	4,237	8,112	7,900	4,373
Pittsburg	3,343	10,125	3,908	314	1,411	2,322	474	1,251	445	1,125	548
Rogers	1,813	5,640	2,360	103	447	711	499	1,381	139	580	253
Seminole	3,359	8,260	4,404	262	1,348	800	430	940	76	950	477
Tulsa	104,144	163,000	115,359	5,256	17,244	12,143	2,396	3,804	6,798	8,000	5,032
Wagoner	606	3,070	846	39	231	333	431	1,139	51	510	156

TABLE 4

IMPROVED AREA UNEMPLOYMENT ESTIMATING DATA, APRIL 1960

Labor Market Area	E_i [34]	E_t [35]	E_{nws} [36]	E_d [37]	E_{su} [38]	E_g [39]	E_{aws} [40]	E_{asu} [41]	E_{np} [42]	U_c [43]
Adair	441	2,805	604	25	263	354	462	1,049	48	224
Atoka	497	2,628	702	48	242	372	362	882	20	99.9
Carter	5,996	12,654	7,151	453	1,598	1,272	745	930	505	476
Cherokee	692	4,035	705	75	405	975	595	1,237	43	228
Coal	220	1,603	395	10	151	210	181	629	27	93.3
Comanche	7,965	19,607	8,616	724	2,251	5,568	319	1,298	831	402
Garfield	7,941	17,795	9,263	316	2,063	2,630	182	2,415	926	416
Johnston	217	2,008	404	17	173	467	354	546	47	56.1
Kay	9,964	18,023	10,978	484	2,216	1,566	292	1,639	848	385
Latimer	168	2,033	207	37	193	624	324	617	31	86.4
LeFlore	1,628	6,066	2,263	108	667	506	1,027	1,423	72	413
McClain	722	3,440	1,100	56	444	397	248	1,168	27	147
Muskogee	8,490	19,449	10,028	698	2,052	3,705	964	1,364	638	1,097
Oklahoma	108,017	209,455	120,008	5,814	21,091	49,008	1,482	4,028	8,024	4,342
Pittsburg	3,484	10,380	4,073	310	1,390	2,365	460	1,231	551	561
Rogers	1,587	5,421	2,066	105	455	721	509	1,427	138	393
Seminole	3,430	8,478	4,497	277	1,422	809	436	961	76	443
Tulsa	105,713	164,968	117,101	5,302	17,396	12,337	2,333	3,743	6,756	5,232
Wagoner	591	3,062	825	40	240	336	429	1,141	51	196

TABLE 5

EIGHT-AREA IMPROVED UNEMPLOYMENT ESTIMATING DATA, APRIL 1960

Labor Market Area	E_i [44]	E_t [45]	E_{nws} [46]	E_d [47]	E_{su} [48]	E_g [49]	E_{aws} [50]	E_{asu} [51]	E_{np} [52]	U_t [53]	U_c [54]
Carter	5,996	12,500	6,874	463	1,637	1,325	745	930	526	825	499
Comanche	7,965	19,175	8,796	724	2,251	5,050	315	1,285	754	725	413
Garfield	7,941	17,650	9,412	322	2,103	2,450	175	2,325	863	625	368
Kay	9,964	18,000	10,972	480	2,195	1,575	291	1,634	853	600	389
Muskogee	8,490	19,350	9,730	704	2,071	3,750	1,014	1,436	645	1,950	1,163
Oklahoma	108,017	208,500	120,557	5,813	21,087	47,900	1,426	3,874	7,843	6,700	4,103
Pittsburg	3,484	10,100	4,092	314	1,411	2,075	469	1,256	483	1,025	559
Tulsa	105,713	164,200	116,564	5,279	17,321	12,300	2,304	3,696	6,736	7,100	4,928

TABLE 6

REGULAR AREA UNEMPLOYMENT ESTIMATING DATA, APRIL 1960

Labor Market Area	E_i[55]	E_t[56]	E_{nws}[57]	E_d[58]	E_{su}[59]	E_g[60]	E_{aws}[61]	E_{asu}[62]	E_{np}[63]	U_c[64]
Adair	441	3,095	604	25	258	348	406	1,418	36	224
Atoka	497	3,190	702	53	270	482	250	1,398	35	99.9
Carter	5,996	11,590	6,874	438	1,549	1,114	416	932	267	499
Cherokee	692	3,883	705	70	377	818	398	1,433	82	228
Coal	220	1,994	395	11	164	273	143	990	18	93.3
Comanche	7,965	15,945	8,796	580	1,803	2,539	384	1,483	360	413
Garfield	7,941	16,967	9,412	311	2,031	1,961	277	2,061	915	368
Johnston	217	2,163	404	15	148	353	366	847	30	56.1
Kay	9,964	17,833	10,972	466	2,129	1,554	408	1,830	474	389
Latimer	168	1,864	207	37	193	542	149	623	113	86.4
LeFlore	1,628	6,986	2,263	133	824	1,062	693	1,826	185	413
McClain	722	3,790	1,100	61	480	468	387	1,214	80	147
Muskogee	8,490	19,561	9,730	688	2,024	3,131	952	2,093	943	1,163
Oklahoma	108,017	184,361	120,557	5,101	18,506	28,599	1,964	4,067	5,567	4,103
Pittsburg	3,484	10,874	4,092	320	1,437	2,431	456	1,888	250	559
Rogers	1,587	5,022	2,066	103	445	663	335	1,278	132	393
Seminole	3,430	9,148	4,497	300	1,538	1,100	462	1,025	226	443
Tulsa	105,713	156,981	116,564	5,035	16,521	8,848	2,153	3,941	3,919	4,928
Wagoner	591	3,478	825	44	264	452	476	1.362	56	196

TABLE 7

CORRECTED AREA UNEMPLOYMENT ESTIMATING DATA, APRIL 1960

Labor Market Area	E_i[65]	E_t[66]	E_{nws}[67]	E_d[68]	E_{su}[69]	E_g[70]	E_{aws}[71]	E_{asu}[72]	E_{np}[73]	U_e[74]
Adair	441	2,193	604	64	374	391	216	491	53	224
Atoka	497	2,201	702	73	372	434	174	423	23	99.9
Carter	5,996	12,173	6,874	514	1,973	1,458	345	430	579	499
Cherokee	692	3,170	705	114	623	1,024	214	445	45	228
Coal	220	1,322	395	31	208	254	90	311	33	93.3
Comanche	7,965	18,208	8,796	709	2,167	4,784	204	834	714	413
Garfield	7,941	17,320	9,412	418	2,311	2,649	112	1,485	933	368
Johnston	217	1,844	404	38	310	532	199	307	54	56.1
Kay	9,964	17,603	10,972	443	2,127	1,669	225	1,263	904	389
Latimer	168	1,448	207	20	206	695	98	187	35	86.4
LeFlore	1,628	5,902	2,263	310	861	1,297	414	573	184	413
McClain	722	3,400	1,100	69	497	798	154	727	55	147
Muskogee	8,490	19,083	9,730	837	2,718	3,730	591	835	642	1,163
Oklahoma	108,017	198,900	120,557	4,376	19,785	43,137	1,070	2,912	7,063	4,103
Pittsburg	3,484	9,689	4,092	390	1,396	2,185	304	813	509	559
Rogers	1,587	4,907	2,066	115	900	888	202	566	170	393
Seminole	3,430	7,952	4,497	209	1,329	1,239	175	386	117	443
Tulsa	105,713	161,406	116,564	4,503	16,494	13,332	1,233	1,979	7,301	4,928
Wagoner	591	2,996	825	134	621	491	232	619	74	196

TABLE 8

RESIDENCE AREA UNEMPLOYMENT ESTIMATING DATA, APRIL 1960

Labor Market Area	E_i^{75}	E_i^{76}	E_t^{77}	E_{nws}^{78}	E_d^{79}	E_{su}^{80}	E_g^{81}	E_{aws}^{82}	E_{asu}^{83}	E_{np}^{84}	U_c^{85}
Adair	441	855	2,760	1,171	64	374	391	216	491	53	224
Atoka	497	688	2,471	972	73	372	434	174	423	23	99.9
Carter	5,996	6,520	12,774	7,475	514	1,973	1,458	345	430	579	499
Cherokee	692	2,067	4,571	2,106	114	623	1,024	214	445	45	228
Coal	220	328	1,516	589	31	208	254	90	311	33	93.3
Comanche	7,965	9,346	19,733	10,321	709	2,167	4,784	204	834	714	413
Garfield	7,941	8,665	18,178	10,270	418	2,311	2,649	112	1,485	933	368
Johnston	217	495	2,362	922	38	310	532	199	307	54	56.1
Kay	9,964	10,771	18,492	11,861	443	2,127	1,669	225	1,263	904	389
Latimer	168	506	1,864	623	20	206	695	98	187	35	86.4
LeFlore	1,628	2,778	7,500	3,861	310	861	1,297	414	573	184	413
McClain	722	1,095	3,969	1,669	69	497	798	154	727	55	147
Muskogee	8,490	9,213	19,912	10,559	837	2,718	3,730	591	835	642	1,163
Oklahoma	108,017	106,159	196,828	118,485	4,376	19,785	43,137	1,070	2,912	7,063	4,103
Pittsburg	3,484	3,774	10,030	4,433	390	1,396	2,185	304	813	509	559
Rogers	1,587	2,913	6,633	3,792	115	900	888	202	566	170	393
Seminole	3,430	3,955	8,640	5,185	209	1,329	1,239	175	386	117	443
Tulsa	105,713	100,797	155,985	111,143	4,503	16,494	13,332	1,233	1,979	7,301	4,928
Wagoner	591	1,546	4,329	2,158	134	621	491	232	619	74	196

TABLE 9

IMPROVED AREA UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1958

Labor Market Area	E_i[86]	E_t[87]	E_{nws}[88]	E_d[89]	E_{su}[90]	E_g[91]	E_{aws}[92]	E_{asu}[93]	E_{np}[94]	U_t[95]	U_c[96]
Adair	420	3,060	590	23	247	337	510	1,310	43	680	157
Atoka	438	2,620	671	55	275	360	320	920	19	460	126
Carter											
Cherokee	600	4,000	634	75	405	927	552	1,318	89	500	134
Coal	170	1,650	424	9	141	201	170	680	25	380	70.0
Comanche	6,973	17,900	7,949	761	2,364	4,075	391	1,684	676	1,125	584
Garfield	7,909	17,650	9,380	329	2,146	2,225	199	2,551	820	800	435
Johnston	226	1,980	378	18	182	449	330	580	43	180	32.0
Kay											
Latimer											
LeFlore	1,580	5,921	2,166	108	667	439	941	1,534	66	1,200	420
McClain	650	3,330	977	54	426	376	258	1,212	27	330	110
Muskogee	9,155	20,350	10,528	717	2,108	3,450	1,117	1,808	622	2,275	1,256
Oklahoma	97,673	193,500	108,279	5,835	21,165	45,000	1,562	4,338	7,321	8,500	4,801
Pittsburg	3,417	10,375	4,012	323	1,452	2,000	528	1,597	463	1,100	534
Rogers	1,334	5,080	1,790	98	422	692	473	1,477	128	570	222
Seminole	3,537	8,730	4,637	293	1,507	777	429	1,011	76	990	498
Tulsa	105,338	159,300	113,712	5,139	16,861	11,000	2,254	3,946	6,388	8,800	5,807
Wagoner	637	3,130	918	38	222	322	411	1,179	40	420	131

TABLE 10

IMPROVED AREA UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1959

Labor Market Area	E_i[97]	E_t[98]	E_{nws}[99]	E_d[100]	E_{su}[101]	E_g[102]	E_{aws}[103]	E_{asu}[104]	E_{np}[105]	U_t[106]	U_e[107]
Adair	499	3,150	691	22	238	343	533	1,277	46	580	147
Atoka	500	2,650	721	53	267	360	340	890	19	330	97.2
Carter	6,125	12,800	7,166	463	1,637	1,325	728	972	509	775	412
Cherokee	646	4,050	680	75	405	933	580	1,280	97	470	130
Coal	204	1,650	451	9	141	203	175	645	26	310	65.5
Comanche	7,824	18,850	8,631	791	2,459	4,425	352	1,473	719	775	395
Garfield	8,012	17,600	9,431	322	2,103	2,225	187	2,488	844	625	326
Johnston	251	2,030	444	17	173	449	342	558	47	140	25.3
Kay											
Latimer	200	2,133	275	39	201	607	321	659	31	420	71.7
LeFlore	1,626	6,027	2,243	108	667	440	1,005	1,495	69	1,075	371
McClain	776	3,640	1,265	57	453	388	254	1,196	27	330	110
Muskogee	8,860	20,450	10,815	710	2,090	3,575	1,049	1,576	635	2,275	1,197
Oklahoma	103,592	202,100	115,676	5,856	21,244	45,900	1,549	4,251	7,624	7,000	3,777
Pittsburg	3,418	10,275	4,101	319	1,431	2,000	510	1,440	474	925	439
Rogers	1,463	5,220	1,948	100	430	699	485	1,425	133	510	203
Seminole	3,577	8,660	4,683	279	1,431	781	431	979	76	850	427
Tulsa	105,890	161,200	115,017	5,139	16,861	11,400	2,325	3,875	6,583	7,100	4,491
Wagoner	624	3,090	883	39	231	325	418	1,152	42	440	137

TABLE 11

EIGHT-AREA IMPROVED UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1960

Labor Market Area	E_i[108]	E_t[109]	E_{nws}[110]	E_d[111]	E_{su}[112]	E_g[113]	E_{aws}[114]	E_{asu}[115]	E_{np}[116]	U_t[117]	U_c[118]
Carter	5,919	12,475	6,845	458	1,617	1,350	753	922	530	850	457
Comanche	7,989	19,525	9,013	724	2,251	5,125	327	1,323	762	800	399
Garfield	8,113	18,050	9,782	322	2,103	2,325	185	2,465	868	725	381
Kay	9,947	18,000	10,896	484	2,216	1,600	295	1,655	854	675	392
Muskogee	8,573	19,650	9,978	710	2,090	3,775	1,024	1,426	647	1,950	1,045
Oklahoma	107,671	208,500	120,372	5,856	21,244	47,300	1,563	4,237	7,928	7,900	4,359
Pittsburg	3,343	10,125	4,185	314	1,411	2,100	474	1,251	390	1,125	529
Tulsa	104,144	163,000	115,423	5,256	17,244	12,100	2,396	3,804	6,777	8,000	5,031

TABLE 12

IMPROVED AREA UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1961

Labor Market Area	E_i[119]	E_t[120]	E_{nws}[121]	E_d[122]	E_{su}[123]	E_g[124]	E_{aws}[125]	E_{asu}[126]	E_{np}[127]	U_t[128]	U_c[129]
Adair	645	3,250	810	21	219	359	579	1,211	51	670	199
Atoka	531	2,620	717	45	225	382	385	845	21	390	119
Carter	5,866	12,600	7,148	458	1,617	1,250	742	833	552	800	411
Cherokee	893	4,470	1,027	75	405	992	642	1,218	111	560	175
Coal	288	1,620	416	9	141	215	195	615	29	270	80.8
Comanche	8,263	19,900	9,245	737	2,288	5,350	299	1,176	805	875	449
Garfield	8,648	18,550	10,607	336	2,189	2,025	174	2,326	893	750	396
Johnston	203	1,990	380	17	173	470	372	528	50	410	64.0
Kay	9,888	18,200	11,141	475	2,175	1,675	288	1,587	859	725	416
Latimer	281	2,228	400	36	184	635	347	593	33	520	108
LeFlore	1,587	5,747	2,023	108	667	499	1,057	1,318	75	1,200	420
McClain	638	3,310	978	54	426	404	248	1,172	28	440	147
Muskogee	8,749	19,900	10,276	717	2,108	3,925	959	1,241	674	1,850	988
Oklahoma	109,081	212,600	122,369	5,878	21,322	49,100	1,550	4,150	8,231	9,600	5,453
Pittsburg	3,228	10,150	3,928	314	1,411	2,425	454	1,121	497	1,300	616
Rogers	1,363	5,170	1,898	103	447	728	512	1,338	144	890	341
Seminole	3,353	8,090	4,346	248	1,272	818	428	902	76	970	494
Tulsa	100,057	160,000	111,729	5,349	17,551	12,500	2,348	3,552	6,971	10,000	6,416
Wagoner	455	2,900	683	39	231	340	442	1,118	47	730	185

TABLE 13

EIGHT-AREA IMPROVED UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1962

Labor Market Area	E_i[130]	E_t[131]	E_{nws}[132]	E_d[133]	E_{su}[134]	E_g[135]	E_{aws}[136]	E_{asu}[137]	E_{np}[138]	U_t[139]	U_c[140]
Carter	6,172	12,675	7,302	469	1,656	1,275	689	711	573	650	338
Comanche	8,643	20,475	9,750	731	2,269	5,550	275	1,050	850	925	477
Garfield	8,920	18,850	10,833	352	2,298	2,125	162	2,163	917	700	366
Kay	9,635	17,925	10,866	480	2,195	1,700	280	1,520	884	675	381
Muskogee	8,564	19,500	9,977	717	2,108	3,925	953	1,147	673	2,175	1,180
Oklahoma	114,729	221,300	128,364	5,986	21,844	51,100	1,536	4,064	8,536	8,200	4,508
Pittsburg	3,545	10,700	4,241	314	1,411	2,750	444	1,031	509	1,000	476
Tulsa	102,904	163,500	114,935	5,326	17,474	12,700	2,416	3,484	7,165	8,000	4,970

TABLE 14

RESIDENCE AREA UNEMPLOYMENT ESTIMATING DATA, ANNUAL, 1958

Labor Market Area	E_i[141]	E_t[142]	E_{nws}[143]	E_d[144]	E_{su}[145]	E_g[146]	E_{aws}[147]	E_{asu}[148]	E_{np}[149]	U_c[150]
Adair	814	2,790	1,143	54	321	372	239	613	48	157
Atoka	606	2,427	929	86	375	420	154	441	22	126
Carter										
Cherokee	1,792	4,310	1,894	127	548	974	199	474	94	134
Coal	253	1,537	632	34	177	243	84	337	30	70.0
Comanche	8,182	18,246	9,327	834	2,238	3,860	254	1,093	640	584
Garfield	8,630	17,999	10,235	427	2,287	2,406	127	1,630	887	435
Johnston	516	2,260	863	43	282	512	185	326	49	32.0
Kay										
Latimer										
LeFlore	2,696	7,112	3,695	335	788	1,127	379	618	170	420
McClain	986	3,735	1,482	70	459	756	160	754	54	110
Muskogee	9,935	20,610	11,425	951	2,487	3,432	650	1,052	613	1,256
Oklahoma	95,993	182,902	106,417	5,253	19,681	40,527	1,173	3,258	6,593	4,801
Pittsburg	3,702	10,165	4,346	439	1,410	2,106	342	1,035	487	534
Rogers	2,448	5,890	3,285	128	693	852	188	586	158	222
Seminole	4,078	8,903	5,346	262	1,410	1,190	172	407	116	498
Tulsa	100,440	151,496	108,424	5,096	15,812	11,923	1,206	2,111	6,924	5,807
Wagoner	1,666	4,386	2,401	126	468	471	223	639	58	131

TABLE 15

RESIDENCE AREA UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1959

Labor Market Area	E_i[151]	E_t[152]	E_{nws}[153]	E_d[154]	E_{su}[155]	E_g[156]	E_{aws}[157]	E_{asu}[158]	E_{np}[159]	U_c[160]
Adair	967	3,002	1,340	56	329	379	249	598	51	147
Atoka	692	2,508	998	87	391	420	163	427	22	97.2
Carter	6,660	13,099	7,814	634	1,846	1,458	337	450	560	412
Cherokee	1,930	4,504	2,031	133	588	980	209	461	102	130
Coal	304	1,580	672	37	187	246	87	319	32	65.5
Comanche	9,181	19,353	10,128	876	2,292	4,192	229	955	681	395
Garfield	8,743	18,027	10,291	429	2,279	2,406	119	1,590	913	326
Johnston	573	2,422	1,013	44	294	512	192	314	53	25.3
Kay										
Latimer	602	2,069	828	26	208	676	97	200	34	71.7
LeFlore	2,774	7,327	3,827	363	821	1,130	405	603	178	371
McClain	1,177	4,230	1,919	76	498	780	158	744	55	110
Muskogee	9,615	20,991	11,736	970	2,569	3,556	611	917	632	1,197
Oklahoma	101,810	190,787	113,686	5,200	19,341	41,338	1,163	3,193	6,866	3,777
Pittsburg	3,703	10,138	4,443	448	1,378	2,106	331	933	499	439
Rogers	2,685	6,275	3,575	134	783	861	193	565	164	203
Seminole	4,124	8,838	5,399	246	1,314	1,196	173	394	116	427
Tulsa	100,966	153,089	109,669	5,091	15,521	12,356	1,244	2,073	7,135	4,491
Wagoner	1,632	4,395	2,310	141	557	475	227	624	61	137

TABLE 16

RESIDENCE AREA UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1960

Labor Market Area	E_i[161]	E_t[162]	E_{nws}[163]	E_d[164]	E_{su}[165]	E_g[166]	E_{aws}[167]	E_{asu}[168]	E_{np}[169]	U_c[170]
Adair	1,051	3,115	1,439	59	325	387	263	589	53	165
Atoka	688	2,444	972	79	355	429	173	413	23	99.7
Carter	6,436	12,779	7,443	645	1,846	1,486	349	427	583	457
Cherokee	2,067	4,637	2,106	139	608	1,009	219	447	109	179
Coal	370	1,582	664	41	191	252	91	310	33	92.2
Comanche	9,374	20,115	10,576	810	2,081	4,855	212	859	722	399
Garfield	8,853	18,560	10,674	441	2,299	2,514	118	1,575	939	381
Johnston	479	2,332	892	47	307	525	201	305	55	45.4
Kay	10,753	18,493	11,779	538	2,068	1,696	228	1,279	905	392
Latimer	548	1,911	674	23	201	684	102	192	35	70.2
LeFlore	2,713	7,451	3,770	391	838	1,279	418	569	186	386
McClain	1,086	3,944	1,655	75	482	788	156	733	55	113
Muskogee	9,303	20,272	10,828	998	2,621	3,755	596	830	644	1,045
Oklahoma	105,819	196,659	118,302	5,129	19,134	42,598	1,174	3,182	7,140	4,359
Pittsburg	3,621	10,083	4,534	455	1,354	2,211	307	811	411	529
Rogers	3,328	7,120	4,332	142	853	876	198	548	171	253
Seminole	3,873	8,423	5,078	227	1,225	1,225	173	378	117	477
Tulsa	99,301	154,761	110,056	5,202	15,725	13,115	1,282	2,035	7,346	5,031
Wagoner	1,585	4,371	2,213	152	593	487	234	617	75	156

TABLE 17

RESIDENCE AREA UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1961

Labor Market Area	E_i[171]	E_t[172]	E_{nws}[173]	E_d[174]	E_{su}[175]	E_g[176]	E_{aws}[177]	E_{asu}[178]	E_{np}[179]	U_c[180]
Adair	1,250	3,242	1,570	60	321	397	271	567	56	199
Atoka	735	2,486	993	80	353	446	185	405	24	119
Carter	6,379	13,017	7,773	664	1,868	1,376	343	386	607	411
Cherokee	2,668	5,671	3,068	146	628	1,042	231	439	117	175
Coal	429	1,556	620	44	196	260	96	305	35	80.8
Comanche	9,696	20,567	10,848	833	2,098	5,068	194	763	763	449
Garfield	9,437	19,211	11,574	472	2,413	2,189	111	1,487	965	396
Johnston	463	2,336	867	50	321	535	209	297	57	64.0
Kay	10,689	18,726	12,043	534	2,015	1,775	223	1,226	910	416
Latimer	846	2,446	1,204	21	192	707	105	180	37	108
LeFlore	2,708	7,156	3,451	418	855	1,282	426	531	193	420
McClain	968	3,787	1,484	75	477	812	154	729	56	147
Muskogee	9,494	20,739	11,152	1,036	2,697	3,904	558	722	670	988
Oklahoma	107,205	200,251	120,264	5,077	18,997	44,219	1,164	3,117	7,413	5,453
Pittsburg	3,497	10,170	4,255	469	1,348	2,554	294	727	523	616
Rogers	2,502	6,331	3,484	146	893	897	203	531	177	341
Seminole	3,866	8,273	5,011	212	1,145	1,253	172	363	117	494
Tulsa	95,404	151,937	106,534	5,288	15,853	13,549	1,256	1,901	7,556	6,416
Wagoner	1,190	3,990	1,787	163	628	497	240	606	69	185

TABLE 18

RESIDENCE AREA UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1962

Labor Market Area	E_i[181]	E_t[182]	E_{nws}[183]	E_d[184]	E_{su}[185]	E_g[186]	E_{aws}[187]	E_{asu}[188]	E_{np}[189]	U_c[190]
Adair	1,099	3,279	1,541	67	359	411	285	557	59	225
Atoka	731	2,467	950	83	364	459	194	392	25	118
Carter	6,711	13,256	7,940	698	1,936	1,403	319	329	631	338
Cherokee	2,718	5,996	3,325	150	633	1,088	244	429	127	143
Coal	453	1,622	684	47	187	267	102	299	36	58.2
Comanche	10,142	21,263	11,441	835	2,064	5,258	179	681	805	477
Garfield	9,734	19,657	11,821	507	2,554	2,298	103	1,383	991	366
Johnston	443	2,326	828	53	334	550	215	285	61	30.6
Kay	10,415	18,439	11,746	545	2,019	1,801	217	1,174	937	381
Latimer	1,053	2,861	1,634	18	185	725	102	159	38	91.2
LeFlore	2,602	7,658	3,788	467	911	1,348	442	505	197	266
McClain	938	3,772	1,452	79	492	830	150	708	61	134
Muskogee	9,294	20,436	10,827	1,065	2,749	3,904	555	667	669	1,180
Oklahoma	112,756	167,016	126,156	5,097	19,249	46,021	1,154	3,052	7,687	4,508
Pittsburg	3,840	10,806	4,594	482	1,342	2,896	288	668	536	476
Rogers	2,617	6,662	3,757	148	914	929	210	520	184	211
Seminole	3,969	8,398	5,187	199	1,082	1,294	171	348	117	414
Tulsa	98,119	155,173	109,591	5,260	15,633	13,766	1,293	1,864	7,766	4,970
Wagoner	1,109	4,133	1,889	174	664	514	245	595	52	132

TABLE 19

REGULAR AREA UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1958

Labor Market Area	E_i[191]	E_t[192]	E_{nws}[193]	E_d[194]	E_{su}[195]	E_g[196]	E_{aws}[197]	E_{asu}[198]	E_{np}[199]	U_c[200]
Adair	420	3,257	590	23	248	348	653	1,359	36	157
Atoka	438	3,302	671	62	311	482	402	1,339	35	126
Carter										
Cherokee	600	3,995	634	70	377	818	641	1,373	82	134
Coal	170	2,058	424	10	155	273	230	948	18	70.0
Comanche	6,973	15,556	7,949	650	2,019	2,539	618	1,421	360	584
Garfield	7,902	17,119	9,380	325	2,117	1,961	446	1,975	915	435
Johnson	226	2,337	378	16	159	353	589	812	30	32.0
Kay										
Latimer										
LeFlore	1,580	7,269	2,166	138	852	1,062	1,116	1,750	185	420
McClain	650	3,841	977	60	471	468	622	1,163	80	110
Muskogee	9,155	20,964	10,528	717	2,108	3,131	1,531	2,006	943	1,256
Oklahoma	97,673	173,448	108,279	5,175	18,772	28,599	3,160	3,896	5,567	4,801
Pittsburg	3,417	11,070	4,012	334	1,501	2,431	733	1,809	250	534
Rogers	1,334	4,864	1,790	97	418	663	540	1,224	132	222
Seminole	3,537	9,643	4,637	318	1,637	1,100	743	982	226	498
Tulsa	105,338	154,943	113,712	4,958	16,267	8,848	3,464	3,775	3,919	5,807
Wagoner	637	3,785	918	42	247	452	765	1,305	56	131

TABLE 20

REGULAR AREA UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1959

Labor Market Area	E_i 201	E_t 202	E_{nws} 203	E_d 204	E_{su} 205	E_g 206	E_{aws} 207	E_{asu} 208	E_{np} 209	U_c 210
Adair	499	3,300	691	22	237	348	636	1,330	36	147
Atoka	500	3,301	721	60	300	482	392	1,311	35	97.2
Carter	6,125	12,069	7,166	440	1,555	1,114	653	874	267	412*
Cherokee	646	3,992	680	69	374	818	625	1,344	82	130
Coal	204	2,058	451	10	154	273	224	928	18	65.5
Comanche	7,824	16,243	8,631	662	2,058	2,539	602	1,391	360	395
Garfield	8,012	17,062	9,431	317	2,071	1,961	434	1,933	915	326
Johnston	251	2,362	444	15	152	353	574	794	30	25.3
Kay										
Latimer	200	1,992	275	40	205	542	233	584	113	71.7
LeFlore	1,626	7,273	2,243	137	846	1,062	1,087	1,713	185	371
McClain	776	4,108	1,265	62	489	468	606	1,138	80	110
Muskogee	8,860	21,119	10,815	704	2,071	3,131	1,492	1,963	943	1,197
Oklahoma	103,592	180,734	115,676	5,186	18,813	28,599	3,079	3,814	5,567	3,777
Pittsburg	3,418	11,071	4,101	329	1,476	2,431	714	1,770	250	439
Rogers	1,463	4,990	1,948	99	424	663	526	1,198	132	203
Seminole	3,577	9,549	4,683	303	1,552	1,100	724	961	226	427
Tulsa	105,890	155,991	115,017	4,937	16,200	8,848	3,375	3,695	3,919	4,491
Wagoner	624	3,715	883	43	257	452	746	1,278	56	137

TABLE 21

REGULAR AREA UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1960

Labor Market Area	E_i 211	E_t 212	E_{nws} 213	E_d 214	E_{su} 215	E_g 216	E_{aws} 217	E_{asu} 218	E_{np} 219	U_c 220
Adair	542	3,227	742	22	225	348	600	1,254	36	165
Atoka	497	3,136	702	51	262	482	369	1,235	35	99.7
Carter	5,919	11,623	6,845	432	1,525	1,114	616	824	267	457
Cherokee	692	3,895	705	68	367	818	589	1,266	82	179
Coal	248	1,985	445	10	153	273	211	875	18	92.2
Comanche	7,989	16,170	9,013	579	1,800	2,539	568	1,311	360	399
Garfield	8,113	17,256	9,782	314	2,052	1,961	410	1,822	915	381
Johnston	210	2,229	391	15	149	353	542	749	30	45.4
Kay	9,947	17,759	10,896	469	2,145	1,554	603	1,618	474	392
Latimer	182	1,882	224	37	195	542	220	551	113	70.2
LeFlore	1,590	7,059	2,210	134	829	1,062	1,025	1,614	185	386
McClain	716	3,816	1,091	60	472	468	572	1,073	80	113
Muskogee	8,573	20,041	9,978	693	2,039	3,131	1,407	1,850	943	1,045
Oklahoma	107,671	184,886	120,372	5,154	18,696	28,599	2,904	3,594	5,567	4,359
Pittsburg	3,343	10,983	4,185	323	1,451	2,431	674	1,669	250	529
Rogers	1,813	5,320	2,360	101	439	663	496	1,129	132	253
Seminole	3,359	9,065	4,404	284	1,463	1,100	682	906	226	477
Tulsa	104,144	156,332	115,423	5,017	16,459	8,848	3,183	3,483	3,919	5,031
Wagoner	606	3,558	846	43	254	452	703	1,204	56	156

TABLE 22

REGULAR AREA UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1961

Labor Market Area	E_i 221	E_t 222	E_{nws} 223	E_d 224	E_{su} 225	E_g 226	E_{aws} 227	E_{asu} 228	E_{np} 229	U_c 230
Adair	645	3,314	810	21	214	348	651	1,234	36	199
Atoka	531	3,149	717	50	248	482	401	1,216	35	119
Carter	5,866	11,986	7,148	436	1,541	1,114	669	811	267	411
Cherokee	893	4,248	1,027	68	366	818	640	1,247	82	175
Coal	288	1,958	416	10	151	273	229	861	18	80.8
Comanche	8,263	16,437	9,245	581	1,804	2,539	617	1,291	360	449
Garfield	8,648	18,239	10,607	335	2,182	1,961	445	1,794	915	396
Johnston	203	2,249	380	14	147	353	588	737	30	64.0
Kay	9,888	17,969	11,141	457	2,095	1,554	655	1,593	474	416
Latimer	281	2,054	400	36	182	542	239	542	113	108
LeFlore	1,587	6,949	2,023	136	840	1,062	1,114	1,589	185	420
McClain	638	3,722	978	58	461	468	621	1,056	80	147
Muskogee	8,749	20,426	10,276	692	2,034	3,131	1,528	1,822	943	988
Oklahoma	109,081	186,921	122,369	5,120	18,573	28,599	3,153	3,540	5,567	5,453
Pittsburg	3,228	10,648	3,928	303	1,361	2,431	732	1,643	250	616
Rogers	1,363	4,879	1,898	100	435	663	539	1,112	132	341
Seminole	3,353	8,950	4,346	268	1,377	1,100	741	892	226	494
Tulsa	100,057	153,113	111,729	5,076	16,654	8,848	3,457	3,430	3,919	6,416
Wagoner	455	3,441	683	43	257	452	764	1,186	56	185

TABLE 23

REGULAR AREA UNEMPLOYMENT ESTIMATING DATA, ANNUAL 1962

Labor Market Area	E_i 231	E_t 232	E_{nws} 233	E_d 234	E_{su} 235	E_g 236	E_{aws} 237	E_{asu} 238	E_{np} 239	U_c 240
Adair	567	3,229	795	21	230	348	612	1,187	36	225
Atoka	528	3,044	686	49	246	482	377	1,169	35	118
Carter	6,172	12,107	7,302	445	1,571	1,114	628	780	267	338
Cherokee	910	4,230	1,113	66	351	818	601	1,199	82	143
Coal	304	1,941	459	10	138	273	215	828	18	58.2
Comanche	8,643	16,820	9,750	573	1,777	2,539	580	1,241	360	477
Garfield	8,920	18,471	10,833	348	2,271	1,961	418	1,725	915	366
Johnston	194	2,165	363	14	143	353	553	709	30	30.6
Kay	9,635	17,605	10,866	460	2,104	1,554	616	1,531	474	381
Latimer	350	2,148	543	33	172	542	224	521	113	91.2
LeFlore	1,525	7,036	2,220	139	856	1,062	1,046	1,528	185	226
McClain	618	3,630	957	59	468	468	583	1,015	80	134
Muskogee	8,564	19,961	9,977	691	2,032	3,131	1,436	1,751	943	1,180
Oklahoma	114,729	192,955	128,364	5,175	18,885	28,599	2,963	3,402	5,567	4,508
Pittsburg	3,545	10,780	4,241	290	1,302	2,431	687	1,579	250	476
Rogers	1,426	4,937	2,047	98	422	663	506	1,069	132	211
Seminole	3,442	8,937	4,499	254	1,305	1,100	696	857	226	414
Tulsa	102,904	155,847	114,935	5,046	16,554	8,848	3,248	3,297	3,919	4,970
Wagoner	424	3,387	722	43	256	452	718	1,140	56	132

APPENDIX FOOTNOTES

Special Note: Unless stated otherwise: figures in the Appendix tables will be for both sexes; figures will be for the time period covered by the appendix table.

Also note: the government and total employment figures published in the Handbook of Labor Force Data for Latimer and LeFlore Counties are amended to allow for known errors in government employment. The data changes are taken directly from unpublished UCFE data made available by the OESC; the UCFE data are as of June of each year.

[1]Annual average of area insured employment monthly totals presented in Oklahoma Labor Market, Table VII (October, 1962), pp. 31-35; Table VII (December, 1962), pp. 31-35; Table IX (March, 1963), pp. 33-37; and Table IX (June, 1963), pp. 33-37: all entitled "Employment and Wages by County in Oklahoma of Employers Covered by the Oklahoma Employment Security Act with Industrial Breakdown for Selected Counties."

[2]The figures for "Employed" in Handbook of Labor Force Data, pp. 8-89.

[3]The figures for "Wage and salaried workers" in Handbook of Labor Force Data, pp. 8-89, minus the figures in columns E_g and E_{np} of Appendix Table 1.

[4]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-89, times the rate obtained by dividing the figures for "Private households" in Table 43, Vol. II, Part 36, pp. 91-100, by the net sum of the Table 43 figures for "Self-employed workers," "Unpaid family workers," and "Private households" minus the Table 43 figures for "Farmers and farm managers" and "Farm laborers, unpaid family."

[5]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-89, minus Column E_d of Appendix Table 1.

[6]The sum of estimated federal government and state and local government employment. The estimate for federal government is obtained by multiplying the OESC June, 1962, federal employment figures from unpublished UCFE tabulations by a rate obtained when the figures for "Federal" for annual average 1962 are divided by the figures for "Federal" for June, 1962, both from Table A-4, "Oklahoma Labor Force and Employment Trends," Handbook of Oklahoma Employment Statistics: 1939-1962 (Oklahoma City, 1963), p. 14. State and local government employment is the figure for "Government" reported in Handbook of Labor Force Data, pp. 8-89, for June, 1962, minus figures on federal government obtained from unpublished UCFE

tabulations for June, 1962. The initial result is then multiplied by a rate computed when the figures for "State and local" under the column headed "Annual average" are divided by the figures for "State and local" under the column headed "June," both columns in Table A-4.

[7]Figures for "Agricultural" from Handbook of Labor Force Data, pp. 8-89, times a rate which is the sum of two other rates. The first rate is constructed when the figures for "Private wage and salary workers" are divided by the sum of figures for "Self-employed workers," "Unpaid family workers," and "Private wage and salary workers," all three under "Employed in agriculture" from Table 84, PC(1)-38C, pp. 217-222. The second rate is constructed when 26.5/120 is multiplied by the initial rate minus a comparable rate for 1950 derived from the figures for "Agriculture" and those figures minus figures for "Farmers and farm managers" and "Farm laborers, unpaid family," all from Table 43, Vol. II, Part 36, pp. 91-100.

[8]The figures for "Agricultural" reported in the Handbook of Labor Force Data, pp. 8-89, for the annual average 1962 minus the figures in Column E_{aws} of Appendix Table 1.

[9]The sum of estimates of private educational services employment, private hospital employment, and welfare, religious and nonprofit membership organization employment times the rate constructed when Column E_g of Appendix Table 4 is divided by the figures for "Government workers" from Table 84, PC(1)-38C, pp. 217-222. Private educational services is the sum of the figures for "Educational services: private" reported in Table 85, PC(1)-38C, pp. 223-228, plus 26.5/120 times the difference between those figures and the figures for "Educational services, private" recorded in Table 43, Vol. II, Part 36, pp. 91-100. Welfare, religious and nonprofit membership organization employment is the sum of the figures for that item reported in Table 85 plus those figures multiplied by 26.5/120 of the percent derived when the Table 43 figures are subtracted from the Table 85 figures and the difference is divided by the Table 85 figures. Private hospital employment is the sum of two figures. The first estimates are derived when figures for "Hospitals" in Table 85 are multiplied by the percent of total privately controlled hospital beds in the area. The hospital beds rate is computed from Hospitals, XXXVI:ii (August 1, 1962), pp. 184-188. The second estimate is derived by multiplying the first estimate by the rate derived when 26.5/120 is multiplied by the percent change in medical employment, 1950-1960. The percent change is obtained by subtracting the figures for "Medical and other health services" of Table 43 from the Table 84 figures for "Medical and other health workers" and dividing the difference by the Table 84 figure.

[10]The figures for "Unemployed" from Handbook of Labor Force Data, pp. 8-89.

[11]Derived by setting the data described in footnotes 1 through 9 into the annual BES unemployment equation equal to the figures in Column U_t of Appendix Table 1.

[12]The figures for area insured employment from Table VII, Oklahoma Labor Market, December, 1962, pp. 31-35.

[13]The figures for "Employed" in Handbook of Labor Force Data, pp. 8-89.

[14]The figures for "Wage and salaried workers" in Handbook of Labor Force Data, pp. 8-89, minus the figures described in footnotes 17 and 20.

[15]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-89, multiplied by a rate constructed when the figures for "Private households" in Table 43, Vol. II, Part 36, pp. 91-100, are divided by the sum of the figures for "Private households," "Self-employed workers," and "Unpaid family workers" minus "Farmers and farm managers," and "Farm laborers, unpaid family," also of Table 43.

[16]Figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-89, minus Column E_d of Appendix Table 2.

[17]The sum of estimates of federal government and state and local government employment. The estimate for federal government is obtained by multiplying the OESC June, 1962, area federal employment figures from unpublished UCFE tabulations by a rate obtained when the figures for "Federal" for April, 1962, are divided by the figures for "Federal" for June, 1962, both from Table A-4, Handbook of Oklahoma Employment Statistics: 1939-1962, p. 14. State and local government employment is the figure for "Government" reported in Handbook of Labor Force Data, pp. 8-89, for June, 1962, minus the figures on June, 1962, federal government obtained from unpublished UCFE tabulations. The initial result is then multiplied by a rate constructed when the 1962 figures for "April" are divided by the 1962 figures for "State and local" under the column headed "June," Table A-4.

[18]The figures for "Agricultural" from Handbook of Labor Force Data, pp. 8-89, times a rate which is the sum of two other rates. The first rate is obtained when the figures for "Private wage and salary workers" are divided by the sum of figures for "Self-employed workers," "Unpaid family workers," and "Private wage and salary workers," all three under "Employed in agriculture," from Table 84, PC(1)-38C, pp. 217-222. The second rate is equal to 20 percent of the difference between the first rate and a comparable rate for 1950 derived from the figures for "Agriculture" and those figures minus the figures for "Farmers and farm managers" and "Farm laborers, unpaid family," all of Table 43, Vol. II, Part 36, pp. 91-100.

[19]The 1962 "Annual average" figures for "Agricultural" reported in Handbook of Labor Force Data, pp. 8-89, minus the figures in Column E_{aws} of Appendix Table 2.

[20]The sum of estimates of private educational services employment, private hospital employment, and welfare, religious, and nonprofit membership organization employment times the rate constructed when Column E_g of Appendix Table 4 is divided by the figures for "Government workers"[g]from Table 84, PC(1)-38C, pp. 217-222. Private educational services is the sum of the figures reported for "Educational services: private" in Table 85, PC(1)-38C, pp. 223-228, plus 20 percent of the result when the figures for "Educational services, private" from Table

43, Vol. II, Part 36, pp. 91-100, are subtracted from the Table 85 figures. Welfare, religious, and nonprofit membership organization employment is the sum of the figures for that item reported in Table 85 plus those figures multiplied by 20 percent of the rate obtained when Table 43 figures for "Other professional and related services" are subtracted from the Table 85 figures and the difference is divided by the Table 85 figures. Private hospital employment is the sum of two numerical estimates. The first estimate is derived when the figures for "Hospitals" in Table 85 are multiplied by the percent of privately controlled hospital beds in the area. The hospital bed rate is computed from Hospitals, pp. 184-188. The second estimate is obtained by multiplying the first estimate by 20 percent of the percent change in area medical employment, 1950-1960. The percent change is obtained by subtracting the figures for "Medical and other health services" of Table 43 from the Table 84 figures for "Medical and other health workers" and dividing the difference by the Table 84 figures.

[21]The figures for "Unemployed" from the Handbook of Labor Force Data, pp. 8-89.

[22]Derived by setting the data described in footnotes 12-20 into the April BES unemployment estimating equation equal to the figures described in footnote 21.

[23]The figures for annual 1960 from Table I, "Average Yearly Covered Employment by County," County Employment Data, Oklahoma: 1960-1961 (Oklahoma City, 1962), pp. 3-5.

[24]The figures for "Employed" in Handbook of Labor Force Data, pp. 8-89.

[25]The figures for "Wage and salaried workers" in Handbook of Labor Force Data, pp. 8-89, minus the data described in footnotes 28 and 31.

[26]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-89, multiplied by a rate constructed when the figures for "Private households" in Table 43, Vol. II, Part 36, pp. 91-100, are divided by the sum of the Table 43 figures for "Private households," "Self-employed workers," and "Unpaid family workers," minus "Farmers and farm managers" and "Farm laborers, unpaid family," also of Table 43.

[27]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-89, minus the data described in footnote 26.

[28]The sum of estimates of federal government and state and local government employment. The estimate for federal government is obtained by multiplying June, 1960, area federal employment figures from unpublished UCFE tabulations by a rate obtained when the figures for "Federal" for Annual 1960 are divided by the figures for "Federal" for June, 1960, both from Table A-4, Handbook of Oklahoma Employment Statistics: 1939-1962, p. 12. State and local government is the figure for June, 1962, "Government" reported in Handbook of Labor Force Data, pp.

8-89, minus the figures on June, 1962, federal employment obtained from unpublished UCFE tabulations. This initial estimate is then multiplied by a rate constructed when the 1960 "State and local" figures for annual average are divided by those in the 1962 column headed "June," both in Table A-4, pp. 12, 14.

[29]The figures for "Agricultural" from the Handbook of Labor Force Data, pp. 8-89, times a rate which is the sum of two other rates. The first rate is obtained when the figures for "Private wage and salary workers" are divided by the sum of figures for "Self-employed workers," "Unpaid family workers," and "Private wage and salary workers," all three from "Employed in agriculture," Table 84, PC(1)-38C, pp. 217-222. The second rate is equal to 5/240 of the difference between the first rate and a comparable rate for 1960 derived from the figures for "Agriculture" and these figures minus figures for "Farmers and farm managers" and "Farm laborers, unpaid family," all of Table 43, Vol. II, Part 36, pp. 91-100.

[30]The 1960 "Annual average" figures for "Agricultural" reported in Handbook of Labor Force Data, pp. 8-89, minus the figures in Column E_{aws} of Appendix Table 3.

[31]The sum of estimates of private educational services employment, private hospital employment, and welfare, religious, and nonprofit membership organization employment times the rate constructed when the figures for Column E_g of Appendix Table 4 are divided by the figures for "Government workers" from Table 84, PC(1)-38C, pp. 217-222. Private educational services employment is the sum of the figures reported for "Educational services: private" in Table 85 PC(1)-38C, pp. 223-228, plus 5/240 of the result when the figures for "Educational services, private" from Table 43, Vol. II, Part 36, pp. 91-100, are subtracted from the Table 85 figures. Welfare, religious, and nonprofit membership organization employment is the sum of the figures from a line with that title in Table 85 plus those figures multiplied by 5/240 of the rate obtained when the Table 43 figures for "Other professional and related services" are subtracted from the Table 85 figures and the difference is divided by the Table 85 figures. Private hospital employment is the sum of two numerical estimates. The first estimate is derived when the figures for "Hospitals" in Table 85 are multiplied by the percent of privately controlled hospital beds in the area. The hospital bed rate is computed from Hospitals, pp. 184-188. The second estimate is obtained when the figures for "Medical and other health services" of Table 43 are subtracted from the Table 84 figures for "Medical and other health workers" and the difference is divided by the Table 84 figures.

[32]The figures for "Unemployed" from Handbook of Labor Force Data, pp. 8-89.

[33]Derived by setting the data described in footnotes 23 through 31 into the annual BES unemployment estimating equation equal to the figures described in footnote 32.

[34]The figures for "April" from Table II, "Total Covered Employment and Wages by County, 1960-1961," County Employment Data, Oklahoma: 1960-1961 (Oklahoma City, 1962), pp. 6-14.

[35]The sum of the employment data defined in footnotes 36 through 42.

[36]The figures from Column E_{nws} of Appendix Table 3 times the rate constructed when figures for Column E_i of Appendix Table 4 are divided by those for Column E_i of Appendix Table 3.

[37]The sum of the figures in Columns E_d and E_{su} of Appendix Table 3 times a rate computed when the sum of the figures in Columns E_d and E_{su} of Appendix Table 2 are divided by the sum of the figures in Columns E_d and E_{su} of Appendix Table 1. The resulting estimate is then multiplied by the rate obtained when the figures for "Private households" in Table 43, Vol. II, Part 36, pp. 91-100, are divided by the net sum of the following: Table 43 figures for "Private households," "Self-employed workers," and "Unpaid family workers" minus "Farm laborers, unpaid family," and "Farmers and farm managers."

[38]The initial estimate is the sum of the figures in Columns E_d and E_{su} of Appendix Table 3 times a rate computed when the sum of the figures in Columns E_d and E_{su} of Appendix Table 2 are divided by the sum of the figures in Columns E_d and E_{su} of Appendix Table 1. The data described in footnote 37 is then subtracted from the initial estimate described above.

[39]The sum of estimates of federal government and state and local government employment. The estimate for federal government is obtained by multiplying June, 1960, federal employment figures from unpublished UCFE tabulations by a rate obtained when the figures for "Federal" for April, 1960, are divided by the figures for "Federal" for June, 1960, both from Table A-4, Handbook of Oklahoma Employment Statistics: 1939-1962, p. 12. State and local government employment is the figure for June, 1962, "Government" reported in Handbook of Labor Force Data, pp. 8-89, minus the figures for June, 1962, federal employment obtained from unpublished UCFE tabulations. This initial estimate is then multiplied by a rate constructed when the 1960 "State and local" figures for "April" are divided by those in the 1962 "June" column, both from Table A-4, pp. 12, 14.

[40]The sum of the figures in Columns E_{aws} and E_{asu} of Appendix Table 3 multiplied by a rate obtained when the sum of the figures from Columns E_{aws} and E_{asu} of Appendix Table 2 are divided by the sum of the figures from Columns F_{aws} and E_{asu} of Appendix Table 1. The result is then multiplied by a rate obtained by dividing the Table 84, PC(1)-38C, pp. 217-222, "Employed in agriculture" figures for "Private wage and salary workers" by the sum of the "Employed in agriculture" figures reported in that table for "Self-employed workers," "Unpaid family workers," and "Private wage and salary workers."

[41]The sum of the figures in Columns E_{aws} and E_{asu} of Appendix Table 3 times a rate computed when the sum of the figures in these columns for Appendix Table 2 is divided by the sum of the comparable figures from Appendix Table 1. The data described in footnote 40 are then subtracted from the result.

[42]The sum of estimates of private educational services employment, private hospital employment, and welfare, religious, and nonprofit membership organization employment times a rate constructed when the figures for Column E_g of Appendix Table 4 are divided by the figures for "Government workers" from Table 84, PC(1)-38C, pp. 217-222. The education estimates are the figures for "Educational services: private"

reported in Table 85, PC(1)-38C, pp. 223-228. The hospital estimates are the figures for "Hospitals" in Table 85 multiplied by the percent of privately controlled hospital beds in each area as computed from Hospitals, pp. 184-188. The other estimates are the figures from "Welfare, religious, and nonprofit membership organizations," of Table 85.

[43]Column U_c of Appendix Table 3 multiplied by the rate obtained when Column U_c of Appendix Table 2 is divided by Column U_c of Appendix Table 1. The initial result is then multiplied by a rate obtained when one rate is divided by another. The first rate is obtained when the annual average of 1962 state insured unemployment is divided by the April figures for state insured unemployment. The figures used in constructing the annual average as well as the April figures are from Oklahoma Labor Market, Table IV (April, 1962), p. 24; Table IV (July, 1962), p. 26; Table IV (October, 1962), p. 26; Table IV (December, 1962), p. 26; and Table IV (March, 1963), p. 26, all entitled "Insured Unemployment in Oklahoma by Major Areas." The rate into which the first rate is divided is obtained when the annual average of 1960 state insured unemployment is divided by the April figures for state insured unemployment. The figures used in constructing the annual average as well as the April figures are from Oklahoma Labor Market, Table III (April, 1960), p. 21; Table IV (July, 1960), p. 22; Table IV (October, 1960), p. 22; and Table IV (January, 1961), p. 22, all entitled "Insured Unemployment in Oklahoma by Major Areas, 1957-1960."

[44]The figures for "April" from Table II, County Employment Data, Oklahoma: 1960-1961, pp. 6-14.

[45]The figures for "Employed" in Handbook of Labor Force Data, pp. 8-50.

[46]The figures for "Wage and salaried workers" in Handbook of Labor Force Data, p. 8-50, minus the figures in Columns E_g and E_{np} of Appendix Table 5.

[47]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-50, times a rate obtained when the figures for "Private households" in Table 43, Vol. II, Part 36, pp. 91-100, are divided by the sum of the Table 43 figures for "Private households," "Self-employed workers," and "Unpaid family workers," minus "Farm laborers, unpaid family," and "Farmers and farm managers," also of Table 43.

[48]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-50, minus Column E_d of Appendix Table 5.

[49]The figures for "Government" in Handbook of Labor Force Data, pp. 8-50.

[50]The figures for "Agricultural" in Handbook of Labor Force Data, pp. 8-50, multiplied by the rate constructed when the Table 84, PC(1)-38C, pp. 217-222, "Employed in agriculture" figures for "Private wage and salary workers" are divided by the sum of the Table 84 "Employed in

agriculture" figures for "Self-employed workers," "Unpaid family workers," and "Private wage and salary workers."

[51]The figures for "Agricultural" in Handbook of Labor Force Data, pp. 8-50, minus the figures in Column E_{aws} of Appendix Table 5.

[52]The sum of estimates of private educational services employment, private hospital employment, and welfare, religious, and nonprofit membership organization employment times a rate constructed when the figures for Column E_g of Appendix Table 5 are divided by the figures for "Government workers" from Table 84 PC(1)-38C, pp. 217-222. The education estimates are the figures for "Educational services: private" reported in Table 85, PC(1)-38C, pp. 223-228. The hospital estimates are the figures for "Hospitals" in Table 85 multiplied by the percent of privately controlled hospital beds in each area as computed from Hospitals, pp. 184-188. The other estimates are the figures from "Welfare, religious, and nonprofit membership organizations" of Table 85.

[53]The figures for "Unemployed" from Handbook of Labor Force Data, pp. 8-89.

[54]Derived by setting the data in footnotes 46 through 52 into the BES unemployment estimating equation equal to the data described in footnote 53.

[55]The figures for April, 1960, from Table II, County Employment Data, Oklahoma: 1960-1961, pp. 6-14.

[56]The sum of the figures described in footnotes 57 through 63.

[57]Eleven-area figures from Column E_{nws} of Appendix Table 4 and eight-area figures from Column E_{nws} of Appendix Table 5.

[58]The figures for Column E_d of Appendix Table 4 for the eleven-area group and Column E_d of Appendix Table 5 for the eight-area group multiplied by a rate constructed when the sum of the figures for the Appendix Table 6 Columns E_{nws}, E_g, and E_{np} is divided by the sum of the figures from the same columns from Appendix Table 4 for the eleven-area group and Appendix Table 5 for the eight-area group.

[59]The figures for Column E_{su} of Appendix Table 4 for the eleven-area group and Column E_{su} of Appendix Table 5 for the eight-area group multiplied by a rate constructed when the sum of the figures for the Appendix Table 6 Columns E_{nws}, E_g, and E_{np} is divided by the sum of the figures from the same columns from Appendix Table 4 for the eleven-area group and Appendix Table 5 for the eight-area group.

[60]The figures for "Government workers" in Table 43, Vol. II, Part 36, pp. 91-100.

[61]The rate for "Hired workers" from Handbook on Development of Basic Labor Market Information for Small Areas, p. 26, multiplied by a rate constructed when the figures for "Private wage and salary workers" of "Employed in agriculture" from Table 83, "Race and class of worker of

employed persons in industry and sex, for the state and for standard metropolitan areas of 100,000 or more: 1950," U.S. Census of Population: 1950, Vol. II, Characteristics of the Population, Part 36, Oklahoma, p. 228, are divided by the figures for "Hired workers" for "April 1, 1950," from State Table 7, "Farm labor and specified farm expenditures: censuses of 1920 to 1954," U.S. Census of Agriculture: 1954, Vol. I, Counties and State Economic Areas, Part 25, Oklahoma, p. 31. The derived rate is then multiplied by the figures for the column headed "Hired" from the table, "Workers on farms, April, 1960," Farm Labor (Washington, May, 1960), p. 4. The estimate which results is then divided by the figures for "Private wage and salary workers" from Table 83, Vol. II, Part 36, p. 228. The rate which results is multiplied by the area figures obtained when the area figures for "Farmers and farm managers" and "Farm laborers, unpaid family workers" from Table 43, Vol. II, Part 36, pp. 91-100, are subtracted from the Table 43 area figures for "Agriculture."

[62]The rate for "Self-employed and unpaid family workers" from Handbook on Development of Basic Labor Market Information for Small Areas, p. 126, is multiplied by a rate constructed when the sum of state figures for "Self-employed workers" and "Unpaid family workers" who are "Employed in agriculture" from Table 83, Vol. II, Part 36, p. 228, is divided by the figures for "Family workers, including operators" for "April 1, 1950" from State Table 7, Vol. I, Part 25, p. 31. The derived rate is then multiplied by the figures for the column headed "Family" from the table, "Workers on farms, April, 1960," Farm Labor (May, 1960), p. 4. The estimate which results is then divided by the sum of the state Table 83 figures for "Self-employed workers" and "Unpaid family workers" who are "Employed in agriculture." The rate which results is then multiplied by the sum of the area figures for "Farmers and farm managers" and "Farm laborers, unpaid family workers," both from Table 43, Vol. II, Part 36, pp. 91-100.

[63]The sum of the figures for "Educational services, private" and one-half of the figures for "Medical and other health services," and "Other professional and related services," all from Table 43, Vol. II, Part 36, pp. 91-100.

[64]The figures from Column U_C of Appendix Table 4 for the eleven-area group. The figures from Column U_C of Appendix Table 5 for the eight-area group.

[65]The figures for "April" in the 1960 section of Table II, County Employment Data, Oklahoma: 1960-1961, pp. 6-14.

[66]The sum of the figures defined in footnotes 67 through 73.

[67]Figures for the eleven-area group from Column E_{nws} of Appendix Table 4; figures for the eight-area group from Column E_{nws} of Appendix Table 5.

[68]The figures for "Private households" from Table 85, PC(1)-38C, pp. 223-228.

[69]The figures for "Self-employed workers" and "Unpaid family workers" from "Employed in nonagricultural industries" of Table 84, PC(1)-38C, pp. 217-222.

[70]The figures for "Government workers" in Table 84, PC(1)-38C, pp. 217-222.

[71]The figures for "Private wage and salary workers" from "Employed in agriculture" of Table 84, PC(1)-38C, pp. 217-222.

[72]The sum of the figures for "Self-employed" and "Unpaid family workers" from "Employed in agriculture" of Table 84, PC(1)-38C, pp. 217-222.

[73]The sum of the figures from the following sources: the figures for "Educational services: private" and "Welfare, religious, and non-profit membership organizations" from Table 85, PC(1)-38C, pp. 223-228; the figures for "Hospitals" from Table 85 multiplied by the percent of privately controlled hospital beds in each area as computed from Hospitals, pp. 184-188.

[74]The figures from Column U_c of Appendix Table 4 for the eleven-area group. And the figures from Column U_c of Appendix Table 5 for the eight-area group.

[75]The figures for "April" in the 1960 section of Table II, County Employment Data, Oklahoma: 1960-1961, pp. 6-14.

[76]The figure for footnote 75 multiplied by rates computed when the figures in Column Enws of Appendix Table 8 are divided by the figures in Column Enws of Appendix Table 4 for the eleven-area group and figures for Column Enws of Appendix Table 5 for the eight-area group.

[77]The sum of the figures described in footnotes 78 through 84.

[78]The figures for "Private wage and salary workers" from Table 84, PC(1)-38C, pp. 217-222, minus the figures in Columns Ed and Enp of Appendix Table 8.

[79]The figures for "Private households" from Table 85, PC(1)-38C, pp. 223-228.

[80]The figures for "Self-employed workers" and "Unpaid family workers" from "Employed in nonagricultural industries" of Table 84, PC(1)-38C, pp. 217-222.

[81]The figures for "Government workers" in Table 84, PC(1)-38C, pp. 217-222.

[82]The figures for "Private wage and salary workers" from "Employed in agriculture" of Table 84, PC(1)-38C, pp. 217-222.

[83]The figures for "Self-employed" and "Unpaid family workers" from "Employed in agriculture" of Table 84, PC(1)-38C, pp. 217-222.

[84]The sum of the figures for "Educational services: private," "Welfare, religious, and nonprofit membership organizations," both from Table 84, PC(1)-38C, pp. 223-228, and an estimate of private hospital employment. The figures for the hospitals are from "Hospitals," of Table 85, multiplied by the percent of privately controlled hospital beds in each area as computed from Hospitals, pp. 184-188.

[85]The figures in Column U_c of Appendix Table 4 for the eleven-area group and Column U_c of Appendix Table 5 for the eight-area group.

[86]The figures for "1958" from Table II, "Average Yearly Covered Employment by County Employment Data, Oklahoma: 1958-1959 (Oklahoma City, 1960), pp. 4-6.

[87]The figures for "Employed" in Handbook of Labor Force Data, pp. 8-89.

[88]The figures for "Wage and salaried workers" in Handbook of Labor Force Data, pp. 8-89, minus the figures in Columns E_g and E_{np} of Appendix Table 9.

[89]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-89, multiplied by a rate computed when the Table 43, Vol. II, Part 36, pp. 91-100, figures for "Private households" are divided by the sum of the Table 43 figures for "Self-employed workers," "Unpaid family workers," "Private households," minus "Farm laborers, unpaid family," and "Farmers and farm managers," also of Table 43.

[90]The figures for "Domestic, self-employed, unpaid family workers," in Handbook of Labor Force Data, pp. 8-89, minus the figures in Column E_d of Appendix Table 9.

[91]The figures for the eight-area group are from "Government" in Handbook of Labor Force Data, pp. 8-89. The figures for the eleven-area group are the sum of estimates of federal and state and local government employment. Federal estimates are obtained by multiplying the figures for June, 1958, federal employment figures from unpublished UCFE reports by the rate constructed when the "Annual average" 1958 figures for "Federal" are divided by the June, 1958, figures for "Federal," both from Table A-4, Handbook of Oklahoma Employment Statistics: 1939-1962, p. 10. State and local government estimates are the figures for "Government" reported in Handbook of Labor Force Data, pp. 8-89, minus the unpublished figures for June, 1962, federal employment. The result is then multiplied by a rate constructed when the Table A-4 "Annual average" 1958 figures for "State and local" are divided by the Table 4-A, June, 1962, figures for "State and local," p. 14.

[92]The figures for "Agricultural" from Handbook of Labor Force Data, pp. 8-89, times a rate which is the sum of the two other rates. The first rate is obtained when the figures for "Private wage and salary workers" are divided by the sum of the figures for "Self-employed workers," "Unpaid family workers," and "Private wage and salary workers," all of "Employed in agriculture," Table 84, PC(1)-38C, pp. 217-222. The second rate is equal to -43/240 multiplied by the first rate minus a comparable

rate derived from the Table 43, Vol. II, Part 36, pp. 91-100, figures for "Agriculture" and those figures minus "Farmers and farm managers" and "Farm laborers, unpaid family," also of Table 43.

[93]The figures for "Agricultural" from Handbook of Labor Force Data, pp. 8-89, minus the figures in Column E_{aws} of Appendix Table 9.

[94]The sum of estimates of private educational services employment, private hospital employment, and welfare, religious, and nonprofit membership organization employment times the rate constructed when the figures from Column E_g of Appendix Table 5 for the eight-area group and the figures from Column E_g of Appendix Table 4 for the eleven-area group are divided by the figures for "Government workers" from Table 84, PC(1)-38C, pp. 217-222. Private educational services employment is the sum of the figures reported for "Educational services: private" in Table 85, PC(1)-38C, pp. 223-228, minus 43/240 of the result when the figures for "Educational services: private," from Table 43, Vol. II, Part 36, pp. 91-100, are subtracted from the Table 85 figures. Welfare, religious, and nonprofit membership organization employment is the sum of the figures from a line with that title in Table 85 minus those figures multiplied by 43/240 of the rate obtained when the Table 43 figures for "Other professional and related services" are subtracted from the Table 85 figures and the difference is divided by the Table 85 figures. Private hospital employment is the sum of two numerical estimates. The first estimate is derived when the figures for "Hospitals" in Table 85 are multiplied by the percent of privately controlled hospital beds in the area. The hospital bed rate is computed from Hospitals, pp. 184-188. The second estimate is obtained by multiplying the first estimate by minus 43/240 of the percent change in area medical employment, 1950-1960. The percent change is obtained by subtracting the figures for "Medical and other health services" of Table 43 from the Table 84 figure for "Medical and other health workers," and dividing the difference by the Table 84 figures.

[95]The figures for "Unemployed" from Handbook of Labor Force Data, pp. 8-89.

[96]Derived by setting the data described in footnotes 86-94 into the annual BES unemployment estimating equation equal to the figures in Column U_t of Appendix Table 9.

[97]The figures for "1959" from Table II, County Employment Data, Oklahoma: 1958-1959, pp. 4-6.

[98]The figures for "Employed" in Handbook of Labor Force Data, pp. 8-89.

[99]The figures for "Wage and salaried workers" in Handbook of Labor Force Data, pp. 8-89, minus the figures in Columns E_g and E_{np} of Appendix Table 10.

[100]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-89, multiplied by a rate computed when the Table 43, Vol. II, Part 36, pp. 91-100, figures for "Private households" are divided by the sum of the Table 43 figures for "Self-

employed workers," "Unpaid family workers," "Private households," minus "Farm laborers, unpaid family," and "Farmers and farm managers," both of Table 43.

[101]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-89, minus the figures in Column E_d of Appendix Table 10.

[102]The figures for the eight-area group are from "Government" in Handbook of Labor Force Data, pp. 8-50. The figures for the eleven-area group are the sum of estimates of federal and state and local government employment. Federal estimates are obtained by multiplying the June, 1959, federal employment figures from unpublished UCFE reports by the rate constructed when the "Annual average" 1959 figures for "Federal" are divided by the June, 1959, figures for "Federal," both from Table A-4, Handbook of Oklahoma Employment Statistics: 1939-1962, p. 11. State and local government estimates are the figures for "Government" reported in the Handbook of Labor Force Data, pp. 8-89, for June, 1962, minus the unpublished figures for June, 1962, federal employment. The result is then multiplied by a rate constructed when the Table A-4 "Annual average" 1959 figures for "State and local" are divided by the Table A-4, p. 14, "June," 1962, figures for state and local.

[103]The figures for "Agricultural" from Handbook of Labor Force Data, pp. 8-89, multiplied by a rate which is the sum of two other rates. The first rate is obtained when the figures for "Private wage and salary workers" are divided by the sum of the figures for "Self-employed workers," "Unpaid family workers," and "Private wage and salary workers," all in "Employed in agriculture," Table 84, PC(1)-38C, pp. 217-222. The second rate is equal to minus 19/240 multiplied by the first rate minus a comparable rate derived from the Table 43, Vol. II, Part 36, pp. 91-100, figures for "Agriculture" and those figures minus "Farmers and farm managers" and "Farm laborers, unpaid family," both of Table 43.

[104]The figures for "Agricultural" from Handbook of Labor Force Data, pp. 8-89, minus the figures in Column E_{aws} of Appendix Table 10.

[105]The sum of estimates of private educational services employment, private hospital employment, and welfare, religious, and nonprofit membership organization employment times the rate constructed when the figures from Column E_g of Appendix Table 5 for the eight-area group and the figures from Column E_g of Appendix Table 4 for the eleven-area group are divided by the figures for "Government workers" from Table 84, PC(1),-38C, pp. 217-222. Private educational services employment is the sum of the figures reported for "Educational services: private" in Table 85, PC(1)-38C, pp. 223-228., minus 19/240 of the result when the figures for "Educational services, private" from Table 43, Vol. II, Part 36, pp. 91-100, are subtracted from the Table 85 figures. Welfare, religious, and nonprofit membership organization employment is the sum of the figures from a line with that title in Table 85 minus those figures multiplied by 19/240 of the rate obtained when the Table 43 figures for "Other professional and related services" are subtracted from the Table 85 figures and the difference is divided by the Table 85 figures. Private hospital employment is the sum of two numerical estimates. The first estimate is derived

when the figures for "Hospitals" in Table 85 are multiplied by the percent of privately controlled hospital beds in the area. The hospital beds rate is computed from Hospitals, pp. 184-188. The second estimate is obtained by multiplying the first estimate by minus 19/240 of the percent change in area medical employment, 1950-1960. The percent change is obtained by subtracting the figures for "Medical and other health services" of Table 43 from the Table 84 figures for "Medical and other health workers" and dividing the difference by the Table 84 figures.

[106]The figures for "Unemployed" in Handbook of Labor Force Data, pp. 8-89.

[107]Derived by setting the data described in footnotes 97 through 105 into the annual BES unemployment estimating equation equal to the figures in Column U_t of Appendix Table 10.

[108]The figures for "1960" from Table I, County Employment Data, Oklahoma: 1960-1961, pp. 3-5.

[109]The figures for "Employed" in Handbook of Labor Force Data, pp. 8-50.

[110]The figures for "Wage and salaried workers" in Handbook of Labor Force Data, pp. 8-50, minus the figures in Columns E_g and E_{np} of Appendix Table 11.

[111]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-50, multiplied by a rate computed when the Table 43, Vol. II, Part 36, pp. 91-100, figures for "Private households" are divided by the sum of the Table 43 figures for "Self-employed workers," "Unpaid family workers," "Private households," minus "Farm laborers, unpaid family," and "Farmers and farm managers," both of Table 43.

[112]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-50, minus the figures in Column E_d of Appendix Table 11.

[113]The figures for "Government" in Handbook of Labor Force Data, pp. 8-50.

[114]The figures for "Agricultural" from Handbook of Labor Force Data, pp. 8-50, multiplied by a rate which is the sum of two other rates. The first rate is obtained when the figures for "Private wage and salary workers" are divided by the sum of the figures for "Self-employed workers," "Unpaid family workers," and "Private wage and salary workers," all in "Employed in agriculture," Table 84, PC(1)-38C, pp. 217-222. The second rate is equal to 5/240 multiplied by the first rate minus a comparable rate derived from the Table 43, Vol. II, Part 36, pp. 91-100, figures for "Agriculture" and those figures minus "Farmers and farm managers," and Farm laborers, unpaid family," both of Table 43.

[115]The figures for "Agricultural" from Handbook of Labor Force Data, pp. 8-50, minus the figures in Column E_{aws} of Appendix Table 11.

[116]The sum of estimates of private educational services employment, private hospital employment, and welfare, religious and nonprofit membership organization employment times the rate constructed when the figures from Column E_g of Appendix Table 5 are divided by the figures for "Government workers" from Table 84, PC(1)-38C, pp. 217-222. Private educational services employment is the sum of the figures reported for "Educational services: private" in Table 85, PC(1)-38C, pp. 223-228, plus 5/240 of the result when the figures for "Education services, private" from Table 43, Vol. II, Part 36, pp. 91-100, are subtracted from the Table 85 figures. Welfare, religious, and nonprofit membership organization employment is the sum of the figures from a line with that title in Table 85 plus those figures multiplied by 5/240 of the rate obtained when the Table 43 figures for "Other professional and related services" are subtracted from the Table 85 figures and the difference is divided by the Table 85 figures. Private hospital employment is the sum of two numerical estimates. The first estimate is derived when the figures for "Hospitals" in Table 85 are multiplied by the percent of privately controlled hospital beds in the area. The hospital bed rate is computed from Hospitals, pp. 184-188. The second estimate is obtained by multiplying the first estimate by 5/240 of the percent change in area medical employment, 1950-1960. The percent change is obtained by subtracting the figures for "Medical and other health services" of Table 43 from the Table 84 figures for "Medical and other health workers" and dividing the difference by the Table 84 figures.

[117]The figures for "Unemployed" from Handbook of Labor Force Data, pp. 8-50.

[118]Derived by setting the figures described in footnotes 108 through 116 in the unemployment estimating equation equal to the figures in Column U_t of Appendix Table 11.

[119]The figures for "1961" from Table I, County Employment Data, Oklahoma: 1960-1961, pp. 3-5.

[120]The figures for "Employed" in Handbook of Labor Force Data, pp. 8-89.

[121]The figures for "Wage and salaried workers" in Handbook of Labor Force Data, pp. 8-89, minus the figures in Columns E_g and E_{np} of Appendix Table 12.

[122]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-89, multiplied by a rate computed when the Table 43, Vol. II, Part 36, pp. 91-100, figures for "Private households" are divided by the sum of the Table 43 figures for "Self-employed workers" "Unpaid family workers," "Private households," minus "Farm laborers, unpaid family," and "Farmers and farm managers," also of Table 43.

[123]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-89, minus the figures in Column E_d of Appendix Table 12.

[124]The figures for the eight-area group are from "Government" in Handbook of Labor Force Data, pp. 8-50. The figures for the eleven-area group are the sum of estimates of federal and state and local government employment. Federal estimates are obtained by multiplying the June, 1961, federal employment figures from unpublished UCFE reports by the rate constructed when the "Annual average" 1961 figures for "Federal" are divided by the June, 1961, figures for "Federal," both from Table A-4, Handbook of Oklahoma Employment Statistics: 1939-1962, p. 13. State and local government estimates are the figures for "Government" reported in Handbook of Labor Force Data, pp. 8-89, for June, 1962, minus the unpublished figures for June, 1962, federal employment. The result is then multiplied by a rate constructed when the Table A-4 "Annual average" 1961 figures for "State and local" are divided by the Table A-4 "June," 1962, p. 14, figures for state and local.

[125]The figures for "Agricultural" from Handbook of Labor Force Data, pp. 8-89, multiplied by a rate which is the sum of two other rates. The first rate is obtained when the figures for "Private wage and salary workers" are divided by the sums of the figures for "Self-employed workers," "Unpaid family workers," and "Private wage and salary workers," all in "Employed in agriculture," Table 84, PC(1)-38C, pp. 217-222. The second rate is equal to 29/240 multiplied by the first rate minus a comparable rate derived from the Table 43, Vol. II, Part 36, pp. 91-100, figures for "Agriculture" and those figures minus "Farmers and farm managers" and "Farm laborers, unpaid family," both of Table 43.

[126]The figures for "Agricultural" from Handbook of Labor Force Data, pp. 8-89, minus the figures in Column E_{aws} of Appendix Table 12.

[127]The sum of estimates of private educational services employment, private hospital employment, and welfare, religious, and nonprofit membership organization employment times the rate constructed when the figures from Column E_g of Appendix Table 5 for the eight-area group and the figures from Column Eg of Appendix Table 4 for the eleven-area group are divided by the figures for "Government workers" from Table 84, PC(1)-38C, pp. 217-222. Private educational services employment is the sum of the figures reported for "Educational services: private" in Table 85, PC(1)-38C, pp. 223-228, plus 29/240 of the result when the figures for "Educational services, private" from Table 43, Vol. II, Part 36, pp. 91-100, are subtracted from the Table 85 figures. Welfare, religious, and nonprofit membership organization employment is the sum of the figures from a line with that title in Table 85 plus those figures multiplied by 29/240 of the rate obtained when the Table 43 figures for "Other professional and related services" are subtracted from the Table 85 figures and the difference is divided by the Table 85 figures. Private hospital employment is the sum of two numerical estimates. The first estimate is derived when the figures for "Hospitals" in Table 85 are multiplied by the percent of privately controlled hospital beds in the area. The hospital bed rate is computed from Hospitals, pp. 184-188. The second estimate is obtained by multiplying the first estimate by 29/240 of the percent change in area medical employment, 1950-1960. The percent change is obtained by subtracting the figures for "Medical and other health services" of Table 43 from the Table 84 figures for "Medical and other health workers" and dividing the difference by the Table 84 figures.

[128]The figures for "Unemployed from Handbook of Labor Force Data, pp. 8-89.

[129]Derived by setting the figures described in footnotes 119 through 128 into the annual BES unemployment equation equal to the figures in Column U_t of Table 12.

[130]The annual average of area insured employment monthly totals presented in Oklahoma Labor Market, Table VII (October, 1962), pp. 31-35; Table VII (December, 1962), pp. 31-35; Table IX (March, 1963), pp. 33-37; and Table IX (June, 1963), pp. 33-37.

[131]The figures for "Employed" in Handbook of Labor Force Data, pp. 8-50.

[132]The figures for "Wage and salaried workers" in Handbook of Labor Force Data, pp. 8-50, minus Columns E_g and E_{np} of Appendix Table 13.

[133]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-50, multiplied by a rate computed when the Table 43, Vol. II, Part 36, pp. 91-100, figures for "Private households" are divided by the sum of the Table 43 figures for "Self-employed workers," "Unpaid family workers," "Private households," minus "Farm laborers, unpaid family" and "Farmers and farm managers," both of Table 43.

[134]The figures for "Domestic, self-employed, unpaid family workers" in Handbook of Labor Force Data, pp. 8-50, minus the figures in Column E_d of Appendix Table 13.

[135]The figures for "Government" in Handbook of Labor Force Data, pp. 8-50.

[136]Figures for "Agricultural" from Handbook of Labor Force Data, pp. 8-50, times a rate which is the sum of two other rates. The first rate is constructed when the figures for "Private wage and salary workers" are divided by the sum of figures for "Self-employed workers," "Unpaid family workers," and "Private wage and salary workers," all three under "Employed in agriculture" from Table 84, PC(1)-38C, pp. 217-222. The second rate is constructed when 53/240 is multiplied by the initial rate minus a comparable rate for 1950 derived from the figures for "Agriculture" and those figures minus figures for "Farmers and farm managers" and "Farm laborers, unpaid family," all from Table 43, Vol. II, Part 36, pp. 91-100.

[137]The figures for "Agricultural" from Handbook of Labor Force Data, pp. 8-50, minus the figures in Column E_{aws} of Appendix Table 13.

[138]The sum of estimates of private educational services employment, private hospital employment, and welfare, religious, and nonprofit membership organization employment times the rate constructed when Column E_g of Appendix Table 5 is divided by the figures for "Government workers" from Table 84, PC(1)-38C, pp. 217-222. Private educational services is the sum of the figures for "Educational services: private" reported in Table 85, PC(1)-38C, pp. 223-228, plus 53/240 times the difference between those

figures and the figures for "Educational services, private" recorded in Table 43, Vol. II, Part 36, pp. 91-100. Welfare, religious, and nonprofit membership organization employment is the sum of the figures for that item reported in Table 85 plus those figures multiplied by 53/240 of the percent derived when the Table 43 figures for "Other professional and related services" are subtracted from the Table 85 figures and the difference is divided by the Table 85 figures. Private hospital employment is the sum of two figures. The first estimates are derived when figures for "Hospitals" in Table 85 are multiplied by the percent of total privately controlled hospital beds in the area. The hospital bed rate is computed from Hospitals, pp. 184-188. The second estimate is derived by multiplying the first estimate by the rate derived when 53/240 is multiplied by the percent change in medical employment, 1950-1960. The percent change is obtained by subtracting figures for "Medical and other health services" of Table 43 from the Table 84 figures for "Medical and other health workers" and dividing the difference by the Table 84 figures.

[139]The figures for "Unemployed" from Handbook of Labor Force Data, pp. 8-50.

[140]Derived by setting the figures described in footnotes 130 through 138 into the unemployment estimating equation equal to the data in Column U_t of Appendix Table 13.

[141]The figures for "1958" from Table II, County Employment Data, Oklahoma: 1958-1959, pp. 4-6, multiplied by the rate constructed when the figures in Column E_{nws} of Appendix Table 8 are divided by the figures in Column E_{nws} of Appendix Table 4 for the eleven-area group and Column E_{nws} of Appendix Table 5 for the eight-area group.

[142]The sum of the figures described in footnotes 143 through 149.

[143]The figures for Column E_{nws} of Appendix Table 9 multiplied by the rates constructed when the figures for Column E_{nws} of Appendix Table 8 are divided by the figures in Column E_{nws} of Appendix Table 4 for the eleven-area group and Column E_{nws} of Appendix Table 5 for the eight-area group.

[144]The figures for Column E_d of Appendix Table 9 plus those figures multiplied by rates constructed for the eight-area group and the eleven-area group. The eight-area group rates are obtained by first subtracting the figures for Column E_d of Appendix Table 5 from those in Column E_d of Appendix Table 8 and dividing the differences by the Appendix Table 5 figures. The resulting percent is multiplied by 197/240. The eleven-area group rates are obtained by first subtracting the figures for Column E_d of Appendix Table 4 from those of Column E_d of Appendix Table 8 and dividing the differences by the Appendix Table 4 figures; then the resulting percent is multiplied by 197/240.

[145]The figures for Column E_{su} of Appendix Table 9 plus those figures multiplied by rates constructed for the eight-area group and the eleven-area group. The eight-area group rates are obtained when first the figures in Column E_{su} of Appendix Table 5 are subtracted from those in Column E_{su} of Appendix Table 8 and the differences are divided by the

Appendix Table 5 figures. Then the resulting percent is multiplied by 197/240. The eleven-area group rates are obtained when first the figures from Column E_{su} of Appendix Table 4 are subtracted from those in Column E_{su} of Appendix Table 8 and the differences are divided by the Appendix Table 4 figures. The resulting percent is then multiplied by 197/240.

[146]The figures for Column E_g of Appendix Table 9 multiplied by rates constructed for the eight-area group and the eleven-area group. The rates are obtained when the figures for Column E_g of Appendix Table 8 are divided by those from Column E_g of Appendix Table 5 for the eight-area group and Column E_g of Appendix Table 4 for the eleven-area group.

[147]The figures in Column E_{aws} of Appendix Table 9 multiplied by the rate obtained when the figures in Column E_{aws} of Appendix Table 8 are divided by the figures in Column E_{aws} of Appendix Table 4.

[148]The figures in Column E_{asu} of Appendix Table 9 multiplied by the rate obtained when the figures in Column E_{asu} of Appendix Table 8 are divided by the figures in Column E_{asu} of Appendix Table 4.

[149]The figures in Column E_{np} of Appendix Table 9 multiplied by a rate constructed when the figures for "Government workers" in Table 84, PC(1)-38C, pp. 217-222, are divided by the figures in Column E_g of Appendix Table 5 for the eight-area group and the figures in Column E_g of Appendix Table 4 for the eleven-area group.

[150]Derived by setting the data described in footnotes 86 through 94 into the annual BES unemployment estimating equation equal to the figures in Column U_t of Appendix Table 9.

[151]The figures for "1959" from Table II, County Employment Data, Oklahoma: 1958-1959, pp. 4-6, multiplied by the rate constructed when the figures in Column E_{nws} of Appendix Table 8 are divided by the figures in Column E_{nws} of Appendix Table 4 for the eleven-area group and Column E_{nws} of Appendix Table 5 for the eight-area group.

[152]The sum of the figures described in footnotes 153 through 159.

[153]The figures for Column E_{nws} of Appendix Table 10 multiplied by the rates constructed when the figures for Column E_{nws} of Appendix Table 8 are divided by the figures in Column E_{nws} of Appendix Table 4 for the eleven-area group and Column E_{nws} of Appendix Table 5 for the eight-area group.

[154]The figures for Column E_d of Appendix Table 10 plus those figures multiplied by rates constructed for the eight-area group and the eleven-area group. The eight-area group rates are obtained by first subtracting the figures for Column E_d of Appendix Table 5 from those in Column E_d of Appendix Table 8 and dividing the differences by the Appendix Table 5 figures. The resulting percent is multiplied by 221/240. The eleven-area group rates are obtained by first subtracting the figures for Column E_d of Appendix Table 4 from those of Column E_d of Appendix Table 8 and dividing the differences by the Appendix Table 4 figures. The resulting percent is multiplied by 221/240.

[155]The figures for Column E_{su} of Appendix Table 10 plus those figures multiplied by rates constructed for the eight-area group and the eleven-area group. The eight-area group rates are obtained when first the figures in Column E_{su} of Table 5 are subtracted from those in Column E_{su} of Appendix Table 8 and the differences are divided by the Appendix Table 5 figures. The resulting percent is multiplied by 221/240. The eleven-area group rates are obtained when first the figures from Column E_{su} of Appendix Table 4 are subtracted from those in Column E_{su} of Appendix Table 8 and the differences are divided by the Appendix Table 4 figures. The resulting percent is multiplied by 221/240.

[156]The figures for Column E_g of Appendix Table 10 multiplied by rates constructed for the eight-area group and the eleven-area group. The rates are obtained when the figures for Column E_g of Appendix Table 8 are divided by those from Column E_g of Appendix Table 5 for the eight-area group and Column Eg of Appendix Table 4 for the eleven-area group.

[157]The figures in Column E_{aws} of Appendix Table 10 multiplied by the rate obtained when the figures in Column E_{aws} of Appendix Table 8 are divided by the figures in Column E_{aws} of Appendix Table 4.

[158]The figures in Column E_{asu} of Appendix Table 10 multiplied by the rate obtained when the figures in Column E_{asu} of Appendix Table 8 are divided by the figures in Column E_{asu} of Appendix Table 4.

[159]The figures in Column E_{np} of Appendix Table 10 multiplied by a rate constructed when the figures for "Government workers" in Table 84, PC(1)-38C, pp. 217-222, are divided by the figures in Column E_g of Appendix Table 5 for the eight-area group and the figures in Column E_g of Appendix Table 4 for the eleven-area group.

[160]Derived by setting the data described in footnotes 97 through 105 into the annual BES unemployment estimating equation equal to the figures in Column U_t of Appendix Table 10.

[161]The figures for "1960" from Table I, County Employment Data, Oklahoma: 1960-1961, pp. 3-5, multiplied by the rate constructed when the figures in Column E_{nws} of Appendix Table 8 are divided by the figures in Column E_{nws} of Appendix Table 4 for the eleven-area group and Column E_{nws} of Appendix Table 5 for the eight-area group.

[162]The sum of the figures described in footnotes 163 through 169.

[163]The figures for Column E_{nws} of Appendix Table 11 for the eight-area group and Column E_{nws} of Appendix Table 3 for the eleven-area group multiplied by the rates constructed when the figures for Column E_{nws} of Appendix Table 8 are divided by the figures in Column Enws of Appendix Table 4 for the eleven-area group and Column E_{nws} of Appendix Table 5 for the eight-area group.

[164]The figures for Column E_d of Appendix Table 11 for the eight-area group and Column E_d of Appendix Table 3 for the eleven-area group plus those figures multiplied by rates constructed for the eight-area group and the eleven-area group. The eight-area group rates are obtained by first

subtracting the figures for Column E_d of Appendix Table 5 from those in Column E_d of Appendix Table 8 and dividing the differences by the Appendix Table 5 figures. The resulting percent is multiplied by 245/240. The eleven-area group rates are obtained by first subtracting the figures for Column E_d of Appendix Table 4 from those of Column E_d of Appendix Table 8 and dividing the differences by the Appendix Table 4 figures. The resulting percent is multiplied by 245/240.

[165]The figures for Column E_{su} of Appendix Table 11 for the eight-area group and Column E_{su} of Appendix Table 3 for the eleven-area group plus those figures multiplied by rates constructed for the eight-area group and the eleven-area group. The eight-area group rates are obtained when first the figures in Column E_{su} of Appendix Table 5 are subtracted from those in Column E_{su} of Appendix Table 8 and the differences are divided by the Appendix Table 5 figures. The resulting percent is multiplied by 245/240. The eleven-area group rates are obtained when first the figures from Column E_{su} of Appendix Table 4 are subtracted from those in Column E_{su} of Appendix Table 8 and the difference is divided by the Appendix Table 4 figures; the resulting percent is multiplied by 245/240.

[166]The figures for Column E_g of Appendix Table 11 for the eight-area group and Column E_g of Appendix Table 3 for the eleven-area group multiplied by rates constructed for the eight-area group and the eleven-area group. The rates are obtained when the figures for Column E_g of Appendix Table 8 are divided by those from Column E_g of Appendix Table 5 for the eight-area group and Column E_g of Appendix Table 4 for the eleven-area group.

[167]The figures in Column E_{aws} of Appendix Table 3 multiplied by the rate obtained when the figures in Column E_{aws} of Appendix Table 8 are divided by the figures in Column E_{aws} of Appendix Table 4.

[168]The figures in Column E_{asu} of Appendix Table 3 multiplied by the rate obtained when the figures in Column E_{asu} of Appendix Table 8 are divided by the figures in Column E_{asu} of Appendix Table 4.

[169]The figures in Column E_{np} of Appendix Table 3 multiplied by a rate constructed when the figures for "Government workers" in Table 84, PC(1)-38C, pp. 217-222, are divided by the figures in Column E_g of Appendix Table 5 for the eight-area group and the figures in Column E_g of Appendix Table 4 for the eleven-area group.

[170]The data are obtained by setting the figures described in footnotes 108 through 116 of Appendix Table 11 for the eight-area group and footnotes 25 through 31 of Appendix Table 3 for the eleven-area group into the annual unemployment estimating equation equal to the figures in Column Ut of Appendix Table 11 for the eight-area group and in Column U_t of Appendix Table 3 for the eleven-area group.

[171]The figures for "1961" from Table I, County Employment Data, Oklahoma: 1960-1961, pp. 3-5, multiplied by the rates constructed when the figures in Column E_{nws} of Appendix Table 8 are divided by the figures in Column E_{nws} of Appendix Table 4 for the eleven-area group and the figures in Column E_{nws} of Appendix Table 5 for the eight-area group.

[172]The sum of the figures described in footnotes 173 through 179.

[173]The figures for Column E_{nws} of Appendix Table 12 multiplied by the rates constructed when the figures for Column E_{nws} of Appendix Table 8 are divided by the figures in Column E_{nws} of Appendix Table 4 for the eleven-area group and Column E_{nws} of Appendix Table 5 for the eight-area group.

[174]The figures for Column E_d of Appendix Table 12 plus those figures multiplied by rates constructed for the eight-area group and the eleven-area group. The eight-area group rates are obtained by first subtracting the figures for Column E_d of Appendix Table 5 from those in Column E_d of Appendix Table 8 and dividing the differences by the Appendix Table 5 figures. The resulting percent is multiplied by 269/240. The eleven-area group rates are obtained by first subtracting the figures for Column E_d of Appendix Table 4 from those of Column E_d of Appendix Table 8 and dividing the differences by the Appendix Table 4 figures. The resulting percent is multiplied by 269/240.

[175]The figures for Column E_{su} of Appendix Table 12 plus those figures multiplied by rates constructed for the eight-area group and the eleven-area group. The eight-area group rates are obtained when first the figures in Column E_{su} of Appendix Table 5 are subtracted from those in Column E_{su} of Appendix Table 8 and the differences are divided by the Appendix Table 5 figures. The resulting percent is multiplied by 269/240. The eleven-area group rates are obtained when first the figures from Column E_{su} of Appendix Table 4 are subtracted from those in Column E_{su} of Appendix Table 8 and the differences are divided by the Appendix Table 4 figures; the resulting percent is multiplied by 269/240.

[176]The figures for Column E_g of Appendix Table 12 multiplied by rates constructed for the eight-area group and the eleven-area group. The rates are obtained when the figures for Column E_g of Appendix Table 8 are divided by those from Column E_g of Appendix Table 5 for the eight-area group and Column E_g of Appendix Table 4 for the eleven-area group.

[177]The figures in Column E_{aws} of Appendix Table 12 multiplied by the rate obtained when the figures in Column E_{aws} of Appendix Table 8 are divided by the figures in Column E_{aws} of Appendix Table 4.

[178]The figures in Column E_{asu} of Appendix Table 12 multiplied by the rate obtained when the figures in Column E_{asu} of Appendix Table 8 are divided by the figures in Column E_{asu} of Appendix Table 4.

[179]The figures in Column E_{np} of Appendix Table 12 multiplied by a rate constructed when the figures for "Government workers" in Table 84, PC(1)-38C, pp. 217-222, are divided by the figures in Column E_g of Appendix Table 5 for the eight-area group and the figures in Column E_g of Appendix Table 4 for the eleven-area group.

[180]Derived by setting the figures described in footnotes 119 through 128 into the annual BES unemployment equation equal to the figures in Column U_t of Appendix Table 12.

[181]The annual average of area insured employment monthly totals presented in Oklahoma Labor Market, Table VII (October, 1962), pp. 31-35; Table VII (December, 1962), pp. 31-35; Table IX (March, 1963), pp. 33-37; and Table IX (June, 1963), pp. 33-37. These initial figures are then multiplied by the rates constructed when the figures in Column E_{nws} of Appendix Table 8 are divided by the figures in Column E_{nws} of Appendix Table 4 for the eleven-area group and the figures in Column E_{nws} of Appendix Table 5 for the eight-area group.

[182]The sum of the figures described in footnotes 183 through 189.

[183]The figures for Column E_{nws} of Appendix Table 13 for the eight-area group and Column E_{nws} of Appendix Table 1 for the eleven-area group multiplied by the rates constructed when the figures for Column E_{nws} of Appendix 8 are divided by the figures in Column E_{nws} of Appendix Table 4 for the eleven-area group and Column E_{nws} of Appendix Table 5 for the eight-area group.

[184]The figures for Column E_d of Appendix Table 13 for the eight-area group and Appendix Table 1 for the eleven-area group plus those figures multiplied by rates constructed for the eight-area group and the eleven-area group. The eight-area group rates are obtained by first subtracting the figures for Column E_d of Appendix Table 5 from those in Column E_d of Appendix Table 8 and dividing the differences by the Appendix Table 5 figures. The resulting percent is multiplied by 293/240. The eleven-area group rates are obtained by first subtracting the figures for Column E_d of Appendix Table 4 from those of Column E_d of Appendix Table 8 and dividing the differences by the Appendix Table 4 figures. The resulting percent is multiplied by 293/240.

[185]The figures for Column E_{su} of Appendix Table 13 for the eight-area group and Column E_{su} of Appendix Table 1 for the eleven-area group plus those figures multiplied by rates constructed for the eight-area group and the eleven-area group. The eight-area group rates are obtained when first the figures in Column E_{su} of Appendix Table 5 are subtracted from those in Column E_{su} of Appendix Table 8 and the differences are divided by the Appendix Table 5 figures. The resulting percent is multiplied by 293/240. The eleven-area group rates are obtained when first the figures from Column E_{su} of Appendix Table 4 are subtracted from those in Column E_{su} of Appendix Table 8 and the differences are divided by the Appendix Table 4 figures. The resulting percent is multiplied by 293/240.

[186]The figures for Column E_g of Appendix Table 13 for the eight-area group and Column E_g of Appendix Table 1 for the eleven-area group multiplied by rates constructed for the eight-area group and the eleven-area group. The rates are obtained when the figures for Column E_g of Appendix Table 8 are divided by those from Column E_g of Appendix Table 5 for the eight-area group and Column E_g of Appendix Table 4 for the eleven-area group.

[187]The figures in Column E_{aws} of Appendix Table 1 multiplied by the rate obtained when the figures in Column E_{aws} of Appendix Table 8 are divided by the figures in Column E_{aws} of Appendix Table 4.

[188]The figures in Column E_{asu} of Appendix Table 1 multiplied by the rate obtained when the figures in Column E_{asu} of Appendix Table 8 are divided by the figures in Column E_{asu} of Appendix Table 4.

[189]The figures in Column E_{np} of Appendix Table 1 multiplied by a rate constructed when the figures for "Government workers" in Table 84, PC(1)-38C, pp. 217-222, are divided by the figures in Column E_g of Appendix Table 5 for the eight-area group and the figures in Column E_g of Appendix Table 4 for the eleven-area group.

[190]The data are obtained by setting the figures described in footnotes 130 through 138 of Appendix Table 13 for the eight-area group and 1 through 9 of Appendix Table 1 for the eleven-area group into the annual unemployment estimating equation equal to the figures in Column U_t of Appendix Table 13 for the eight-area group and to those in Column U_t of Appendix Table 1 for the eleven-area group.

[191]The figures for "1958" from Table II, County Employment Data, Oklahoma: 1958-1959, pp. 4-6.

[192]The sum of the figures described in footnotes 193 through 199.

[193]The figures for "Wage and salaried workers" in Handbook of Labor Force Data, pp. 8-89, minus the figures in Columns E_g and E_{np} of Appendix Table 9.

[194]The figures in Column E_d of Appendix Table 9 multiplied by the rate constructed when the sum of the figures in Columns E_{nws}, E_g and E_{np} of Appendix Table 19 are divided by the sums of the figures in Columns E_{nws}, E_g, and E_{np} of Appendix Table 9.

[195]The figures in Column E_{su} of Appendix Table 9 multiplied by the rate constructed when the sum of the figures in Columns E_{nws}, E_g, and E_{np} of Appendix Table 19 are divided by the sum of the figures in Columns E_{nws}, E_g, and E_{np} of Appendix Table 9.

[196]The figures for "Government workers" in Table 43, Vol. II, Part 36, pp. 91-100.

[197]The rate for "Hired workers" from Handbook on Development of Basic Labor Market Information for Small Areas, p. 26, multiplied by a rate constructed when the figures for "Private wage and salary workers" of "Employed in agriculture" from Table 83, Vol. II, Part 36, p. 228, are divided by the figures for "Hired workers" for "April 1, 1950," from State Table 7, Vol. I, Part 25, p. 31. The derived rate is then multiplied by the figures for the column headed "Hired" from the table "Annual average number of workers on farms, 1958, by regions and selected states, with comparisons," Farm Labor (January, 1959), p. 7. The estimate which results is then divided by the figures for "Private wage and salary workers" from Table 83. The rate which results is multiplied by the area figures obtained when the area figures for "Farmers and farm managers" and "Farm laborers, unpaid family workers" from Table 43, Vol. II, Part 36, pp. 91-100, are subtracted from the Table 43 area figures for "Agriculture."

[198]The rate for "Self-employed and unpaid family workers" from Handbook on Development of Basic Labor Market Information for Small Areas, p. 126, is multiplied by a rate constructed when the sum of state figures for "Self-employed workers" and "Unpaid family workers" who are "Employed in agriculture" from Table 83, Vol. II, Part 36, p. 228, is divided by the figures for "Family workers, including operators" for "April 1, 1950" from State Table 7, Vol. I, Part 25, p. 31. The derived rate is then multiplied by the figures for the column headed "Family" from the table "Annual average number of workers on farms, 1958, by regions and selected states with comparisons," Farm Labor (January, 1959), p. 7. The estimate which results is then divided by the sum of the state Table 83 figures for "Self-employed workers" and "Unpaid family workers" who are "Employed in agriculture." The rate which results is then multiplied by the sum of the area figures for "Farmers and farm managers" and "Farm laborers, unpaid family workers," both from Table 43, Vol. II, Part 36, pp. 91-100.

[199]The sum of the figures for "Educational services, private," 50 percent of the figures for "Medical and other health services," and 50 percent of "Other professional and related services," all of Table 43, Vol. II, Part 36, pp. 91-100.

[200]Derived by setting the data described in footnotes 86 through 94 into the annual BES unemployment estimating equation equal to the figures in Column U_t of Appendix Table 9.

[201]The figures for "1959" from Table II, County Employment Data, Oklahoma: 1958-1959, pp. 4-6.

[202]The sum of the figures described in footnotes 203 through 209.

[203]The figures for "Wage and salaried workers" in Handbook of Labor Force Data, pp. 8-89, minus the figures in Columns E_g and E_{np} of Appendix Table 10.

[204]The figures in Column E_d of Appendix Table 10 multiplied by the rate constructed when the sum of the figures in Columns E_{nws}, E_g, and E_{np} of Appendix Table 20 are divided by the sums of the figures in Columns E_{nws}, E_g, and E_{np} of Appendix Table 10.

[205]The figures in Column E_{su} of Appendix Table 10 multiplied by the rate constructed when the sums of the figures in Columns E_{nws}, E_g, and E_{np} of Appendix Table 20 are divided by the sums of the figures in Columns E_{nws}, E_g, and E_{np} of Appendix Table 10.

[206]The figures for "Government workers" in Table 43, Vol. II, Part 36, pp. 91-100.

[207]The rate for "Hired workers" from Handbook on Development of Basic Labor Market Information for Small Areas, p. 26, multiplied by a rate constructed when the figures for "Private wage and salary workers" of "Employed in agriculture" from Table 83, Vol. II, Part 36, p. 228, are divided by the figures for "Hired workers" for "April 1, 1950," from State Table 7, Vol. I, Part 25, p. 31. The derived rate is then multiplied by the figures for "Oklahoma" from the column headed "Average" from

the table, "Hired workers on farms, 1959," Farm Labor (January, 1960), p. 11. The estimate which results is then divided by the figures for "Private wage and salary workers" from Table 83. The rate which results is multiplied by the area figures obtained when the area figures for "Farmers and farm managers" and "Farm laborers, unpaid family workers" from Table 43, Vol. II, Part 36, pp. 91-100, are subtracted from the Table 43 area figures for "Agriculture."

[208]The rate for "Self-employed and unpaid family workers" from Handbook on Development of Basic Labor Market Information for Small Areas, p. 126, is multiplied by a rate constructed when the sum of state figures for "Self-employed workers" and "Unpaid family workers" who are "Employed in agriculture" from Table 83, Vol. II, Part 36, p. 228, is divided by the figures for "Family workers, including operators" for "April 1, 1950," from State Table 7, Vol. I, Part 25, p. 31. The derived rate is then multiplied by the figures for "Oklahoma" from the column headed "Average" from the table "Family workers on farms, 1959," Farm Labor (January, 1960), p. 9. The estimate which results is then divided by the sum of the Table 83 figures for "Self-employed workers" and "Unpaid family workers" who are "Employed in agriculture." The rate which results is then multiplied by the sum of the area figures for "Farmers and farm managers" and "Farm laborers, unpaid family workers," both from Table 43, Vol. II, Part 36, pp. 91-100.

[209]The sum of the figures for "Educational services, private," 50 percent of the figures for "Medical and other health services," and 50 percent of "Other professional and related services," all of Table 43, Vol. II, Part 36, pp. 91-100.

[210]Derived by setting the data described in footnotes 97 through 105 into the annual BES unemployment estimating equation equal to the figures in Column U_t of Appendix Table 10.

[211]The figures for "1960" from Table I, County Employment Data, Oklahoma: 1960-1961, pp. 3-5.

[212]The sum of the figures described in footnotes 213 through 219.

[213]The figures for "Wage and salaried workers" in Handbook of Labor Force Data, pp. 8-89, minus the figures in Columns E_g and E_{np} of Appendix Table 11 for the eight-area group and the figures in Columns E_g and E_{np} of Appendix Table 3 for the eleven-area group.

[214]The figures in Column E_d of Appendix Table 3 multiplied by the rate constructed when the sum of the figures in Columns E_{nws}, E_g, and E_{np} of Appendix Table 21 are divided by the sum of the figures from Columns E_{nws}, E_g, and E_{np} of Appendix Table 3 for the eleven-area group and by the sum of the figures from Columns E_{nws}, E_g, and E_{np} of Appendix Table 11 for the eight-area group.

[215]The figures in Column Esu of Appendix Table 3 multiplied by the rate constructed when the sum of the figures in Columns E_{nws}, E_g, and E_{np} of Appendix Table 21 are divided by the sum of the figures from Columns Enws, E_g, and E_{np} of Appendix Table 3 for the eleven-area group and the

sum of the figures from Columns E_{nws}, E_g, and E_{np} of Appendix Table 11 for the eight-area group.

[216]The figures for "Government workers" from Table 43, Vol. II, Part 36, pp. 91-100.

[217]The rate for "Hired workers" from Handbook on Development of Basic Labor Market Information for Small Areas, p. 26, multiplied by a rate constructed when the figures for "Private wage and salary workers" of "Employed in agriculture" from Table 83, Vol. II, Part 36, p. 228, are divided by the figures for "Hired workers" for "April 1, 1950," from State Table 7, Vol. I, Part 25, p. 31. The derived rate is then multiplied by the figures for "Oklahoma" from the column headed "Average" in the table "Hired workers on farms, 1960," Farm Labor (January, 1961), p. 11. The estimate which results is then divided by the figures for "Private wage and salary workers" from Table 83. The rate which results is multiplied by the area figures obtained when the area figures for "Farmers and farm managers" and "Farm laborers, unpaid family workers" from Table 43, Vol. II, Part 36, pp. 91-100, are subtracted from the Table 43 area figures for "Agriculture."

[218]The rate for "Self-employed and unpaid family workers" from Handbook on Development of Basic Labor Market Information for Small Areas, p. 126, is multiplied by a rate constructed when the sum of state figures for "Self-employed workers" and "Unpaid family workers" who are "Employed in agriculture" from Table 83, Vol. II, Part 36, p. 228, is divided by the figures for "Family workers, including operators" for "April 1, 1950" from State Table 7, Vol. I, Part 25, p. 31. The derived rate is then multiplied by the figures for "Oklahoma" from the column headed "Average" in the table "Family workers on farms, 1960," Farm Labor (January, 1961), p. 9. The estimate which results is then divided by the sum of the Table 83 figures for "Self-employed workers" and "Unpaid family workers" who are "Employed in agriculture." The rate which results is then multiplied by the sum of the area figures for "Farmers and farm managers" and "Farm laborers, unpaid family workers," both from Table 43, Vol. II, Part 36, pp. 91-100.

[219]The sum of the figures for "Educational services private," 50 percent of the figures for "Medical and other health services," and 50 percent of "Other professional and related services," all of Table 43, Vol. II, Part 36, pp. 91-100.

[220]The eight-area group data are derived by setting the figures described in footnotes 108 through 116 in the unemployment estimating equation equal to the figures in Column U_t of Appendix Table 11. The eleven-area group data are derived by setting the figures described in footnotes 23 through 31 equal to the figures in Column U_t of Appendix Table 3.

[221]The figures for "1961" from Table I, County Employment Data, Oklahoma: 1960-1961, pp. 3-5.

[222]The sum of the figures described in footnotes 223 through 229.

[223]The figures for "Wage and salaried workers" in Handbook of Labor

Force Data, pp. 8-89, minus the figures in Columns E_g and E_{np} of Appendix Table 12.

[224]The figures in Column E_d of Appendix Table 12 multiplied by the rate constructed when the sum of the figures in Columns E_{nws}, E_g, and E_{np} of Appendix Table 22 are divided by the sum of the figures in Columns E_{nws}, E_g, and E_{np} of Appendix Table 12.

[225]The figures in Column E_{su} of Appendix Table 12 multiplied by the rate constructed when the sum of the figures in Columns E_{nws}, E_g, and E_{np} of Appendix Table 22 are divided by the sum of the figures in Columns E_{nws}, E_g, and E_{np} of Appendix Table 12.

[226]The figures for "Government workers" in Table 43, Vol. II, Part 36, pp. 91-100.

[227]The rate for "Hired workers" from Handbook on Development of Basic Labor Market Information for Small Areas, p. 26, multiplied by a rate constructed when the figures for "Private wage and salary workers" of "Employed in agriculture" from Table 83, Vol. II, Part 36, p. 228, are divided by the figures for "Hired workers" for "April 1, 1950," from State Table 7, Vol. I, Part 25, p. 31. The derived rate is then multiplied by the figures for "Oklahoma" from the column headed "Average" in the table "Hired workers on farms, 1961," Farm Labor (January, 1962), p. 11. The estimate which results is then divided by the figures for "Private wage and salary workers" from Table 83. The rate which results is multiplied by the area figures obtained when the area figures for "Farmers and farm managers" and "Farm laborers, unpaid family workers" from Table 43, Vol. II, Part 36, pp. 91-100, are subtracted from the Table 43 area figures for "Agriculture."

[228]The rate for "Self-employed and unpaid family workers" from Handbook on Development of Basic Labor Market Information for Small Areas, p. 126, is multiplied by a rate constructed when the sum of state figures for "Self-employed workers" and "Unpaid family workers" who are "Employed in agriculture" from Table 83, Vol. II, Part 36, p. 228, is divided by the figures for "Family workers, including operators" for "April 1, 1950," from State Table 7, Vol. I, Part 25, p. 31. The derived rate is then multiplied by the figures for "Oklahoma" from the column headed "Average" in the table "Family workers on farms, 1961," Farm Labor (January, 1962), p. 9. The estimate which results is then divided by the sum of the state Table 83 figures for "Self-employed workers" and "Unpaid family workers" who are "Employed in agriculture." The rate which results is then multiplied by the sum of the area figures for "Farmers and farm managers" and "Farm laborers, unpaid family workers," both from Table 43, Vol. II, Part 36, pp. 91-100.

[229]The sum of the figures for "Educational services, private," 50 percent of the figures for "Medical and other health services," and 50 percent of "Other professional and related services," all of Table 43, Vol. II, Part 36, pp. 91-100.

[230]Derived by setting the figures described in footnotes 119 through 128 into the annual BES unemployment equation equal to the figures in Column U_t of Table 12.

[231]The annual average of area insured employment monthly totals presented in Oklahoma Labor Market, Table VII (October, 1962), pp. 31-35; Table VII (December, 1962), pp. 31-35; Table IX (March, 1963), pp. 33-37; and Table IX (June, 1963), pp. 33-37.

[232]The sum of the figures described in footnotes 233 through 239.

[233]The figures for "Wage and salaried workers" in Handbook of Labor Force Data, pp. 8-89, minus the figures in Columns E_g and E_{np} of Appendix Table 13 for the eight-area group and the figures in Columns E_g and E_{np} of Appendix Table 1 for the eleven-area group.

[234]The figures in Column E_d of Appendix Table 1 multiplied by the rate constructed when the sum of the figures in Columns E_{nws}, E_g, and E_{np} of Appendix Table 23 are divided by the sum of the figures from Columns E_{nws}, E_g, and E_{np} of Appendix Table 1 for the eleven-area group and by the sum of the figures from Columns E_{nws}, E_g, and E_{np} of Appendix Table 13 for the eight-area group.

[235]The figures in Column E_{su} of Appendix Table 1 multiplied by the rate constructed when the sum of the figures in Columns E_{nws}, E_g, and E_{np} of Appendix Table 23 are divided by the sum of the figures from Columns E_{nws}, E_g, and E_{np} of Appendix Table 1 for the eleven-area group and the sum of the figures from Columns E_{nws}, E_g, and E_{np} of Appendix Table 13 for the eight-area group.

[236]The figures for "Government workers" from Table 43, Vol. II, Part 36, pp. 91-100.

[237]The rate for "Hired workers" from Handbook on Development of Basic Labor Market Information for Small Areas, p. 26, multiplied by a rate constructed when the figures for "Private wage and salary workers" of "Employed in agriculture" from Table 83, Vol. II, Part 36, p. 228, are divided by the figures for "Hired workers" for "April 1, 1950," from State Table 7, Vol. I, Part 25, p. 31. The derived rate is then multiplied by the figures for "Oklahoma" from the column headed "Average" in the table "Hired workers on farms, 1962," Farm Labor (January, 1963), p. 7. The estimate which results is then divided by the figures for "Private wage and salary workers" from Table 83. The rate which results is multiplied by the area figures obtained when the area figures for "Farmers and farm managers" and "Farm laborers, unpaid family workers" from Table 43, Vol. II, Part 36, pp. 91-100, are subtracted from the Table 43 area figures for "Agriculture."

[238]The rate for "Self-employed and unpaid family workers" from Handbook on Development of Basic Labor Market Information for Small Areas, p. 126, is multiplied by a rate constructed when the sum of state figures for "Self-employed workers" and "Unpaid family workers" who are "Employed in agriculture" from Table 83, Vol. II, Part 36, p. 228, is divided by the figures for "Family workers, including operators" for "April 1, 1950," from State Table 7, Vol. I, Part 25, p. 31. The derived rate is then multiplied by the figures for "Oklahoma" from the column headed "Average" in the table "Family workers on farms, 1962," Farm Labor (January, 1963), p. 6. The estimate which results is then divided by the

sum of the state Table 83 figures for "Self-employed workers" and "Unpaid family workers" who are "Employed in agriculture." The rate which results is then multiplied by the sum of the area figures for "Farmers and farm managers" and "Farm laborers, unpaid family workers," both from Table 43, Vol. II, Part 36, pp. 91-100.

[239]The sum of the figures for "Educational services, private," 50 percent of the figures for "Medical and other health services," and 50 percent of "Other professional and related services," all of Table 43, Vol. II, Part 36, pp. 91-100.

[240]The eight-area group data are derived by setting the figures described in footnotes 131 through 139 into the unemployment estimating equation equal to the figures in Column U_t of Appendix Table 13. The eleven-area group data are derived by setting the figures described in footnotes 1 through 9 equal to the figures in Column U_t of Appendix Table 1.

VITA

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