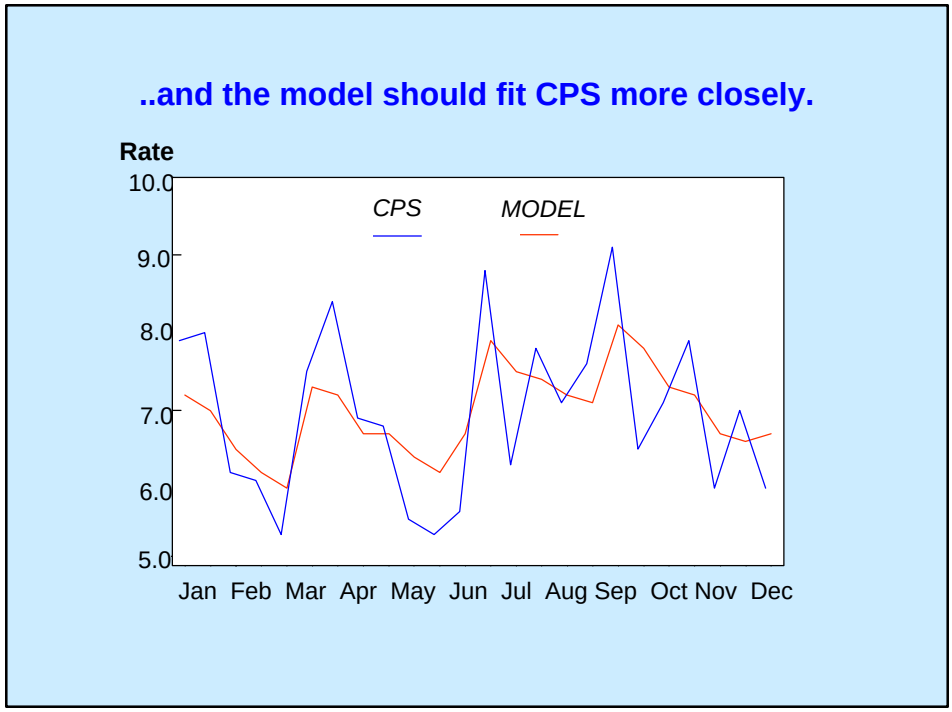
Local Area Unemployment Statistics
Program Manual



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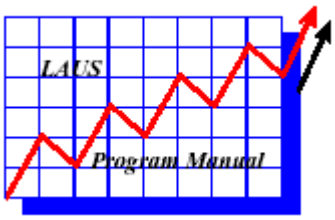

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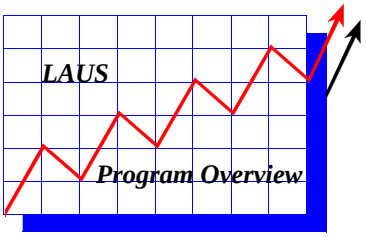


1 *Local Area Unemployment Statistics Program: Introduction and Overview*

The Local Area Unemployment Statistics (LAUS) program is a Federal/State cooperative program which produces monthly employment and unemployment estimates for approximately 6,700 geographic areas. The areas include all States, the District of Columbia, labor market areas (LMAs), counties, cities with a population of 25,000 or more, and all cities and towns in New England, regardless of population. These estimates, which are produced by State employment security agencies, are key indicators of local economic conditions. They are used by State and local governments for planning and budgetary purposes and as determinants of the need for local employment and training services and programs. LAUS estimates are also used to determine the eligibility of an area for preferential treatment or benefits under various Federal assistance programs.

The underlying concepts and definitions of all labor force data developed from the LAUS program are consistent with those of the Current Population Survey (CPS). Annual average data for all States are derived directly from the CPS. Monthly estimates for all States, the District of Columbia, New York City, Los Angeles-Long Beach, and the respective balances of New York and California, are produced using estimating equations based on time series and regression techniques. These models combine current and historical data from the CPS, the Current Employment Statistics (CES) program, and State unemployment insurance (UI) systems. Monthly estimates for Puerto Rico are produced from a survey modeled on the CPS survey. This survey is conducted by Puerto Rico and provided to BLS by the Puerto Rican Bureau of Employment Security. Estimates for substate labor market areas (other

than New York and Los Angeles, but including Puerto Rico) are produced using a standard methodology called the “Handbook” method. This method also uses data from several sources, including the CPS, CES, State UI systems, and the decennial census, to create estimates which are then adjusted to the State CPS-based measures of employment and unemployment. Below the labor market area level, estimates are prepared for all counties and cities of 25,000 population, using disaggregation techniques based on decennial and annual population estimates and current UI statistics.

History

For nearly fifty years, subnational estimates of employment and unemployment have been developed by States under the guidance of the Federal government. These estimates were initially developed in response to a need to quantify labor dislocations during World War II. To meet this need, the War Manpower Commission developed an estimation program to supply figures on local area labor and material shortages. With the end of the war, the Labor Department's Bureau of Employment Security (BES) (now the Employment and Training Administration) took over responsibility for manpower programs.

As the need for more detailed statistics increased, there was also a need for more conformity in estimation in the individual States. In 1950, BES introduced guidelines on estimation, entitled *Techniques for Estimating Employment*, and distributed them to the States. A decade later, revised and updated techniques were republished in the *Handbook on Estimating Unemployment*. This was a 70-step method of estimating procedures for producing unemployment data for the State and for labor market areas. The Handbook method used a series of "building blocks", including establishment employment and unemployment insurance data, to produce unemployment rates equivalent to the Current Population Survey (CPS) but without the high cost of a household survey. As early as 1961, the local area unemployment statistics were used to distribute federal funds to local areas under such programs as the Area Redevelopment Act.

In 1962, the President's Committee to Appraise Employment and Unemployment Statistics (the Gordon Committee) criticized the validity of the Handbook method. This was followed by a series of independent studies comparing the Handbook estimates to those from the Census or from the CPS. They reported the existence of biases and inaccuracies in the Handbook procedures. In 1971, the General Accounting Office, after a year-long audit of two States' unemployment estimating programs, came to the same conclusions, and also found that States were independently introducing their own changes into the Handbook Method. The GAO recommended that the States' procedures be reviewed and monitored in order to reestablish methodological conformity, that any State change which improved the accuracy and comparability of the statistics be integrated into the methodology, and that "high priority" be given to a general improvement in the estimating methods.

In the early 1970's, BLS was publishing CPS-based labor force statistics for selected States and large areas while BES was publishing Handbook-based statistics for all States and areas. Shortly after the GAO report was issued, OMB, as part of its review of statistical programs in the Department of Labor, determined that general purpose statistics should be the responsibility of BLS. In November 1972, the responsibility for local area unemployment statistics was

transferred to BLS. Therefore, beginning in 1973, BLS (with the cooperation of all States) published monthly labor force data for all States and labor market areas, based on the Handbook procedures. One year later, BLS introduced the first major revisions to the program. The revisions had a two-fold purpose: to introduce more conformity between LAUS and CPS data, and to achieve a greater level of consistency of procedures among the States.

The most important of the methodological changes introduced by BLS in November 1973 was the direct use of CPS data. At that time, the CPS was a nationally-based sample. In order to identify usable State CPS data, a reliability criterion was established which required that State samples be sufficiently large to estimate the unemployment level with a coefficient of variation (CV) of no more than 10 percent at one standard error when the unemployment rate is 6 percent. Applying this standard resulted in the identification of 19 States and 30 metropolitan areas for which CPS data could be used directly as the annual average benchmark for 1970-73. During 1974, the Census Bureau revised the procedure used to weight up State sample data to reflect the universe, which resulted in a lower estimated variance. Thus, 8 more States were able to be benchmarked to the CPS. In 1975, BLS contracted with the Census Bureau to expand the sample by 9,000 households in the 23 remaining States and the District of Columbia, so that all States were able to be benchmarked to annual average CPS estimates in 1976.

In 1978, BLS broadened the applicability of the reliability criterion for use of CPS data by also considering monthly data, within the context of a budget proposal to expand the CPS to yield monthly employment and unemployment data for all States by June 1981. Under the expanded criterion, which specified a 10-percent CV on monthly data, monthly CPS levels were used directly for 10 States, 2 areas, and the respective balance-of-State areas. The use of annual average CPS data for the other 28 metropolitan areas was discontinued at that time, so that all substate areas not meeting the monthly reliability criterion would be treated the same. Ultimately, the budget proposal which initiated the direct use of monthly State CPS data was rejected as too costly.

In addition to the 1975-76 increase to the CPS to obtain reliable annual average data for all States, in 1980, 9,000 households were added to improve the reliability in the 40 nondirect-use States. A final sample increase of 6,000 was implemented in 1981 to improve the reliability of data in 30 specific metropolitan areas, 10 of their central cities, and the respective balance-of-State areas. In 1982, however, because of the Federal budget cut, the 1981 supplement and one-half of the 1980 supplement were eliminated.

Another part of the improvement commitment supported by the budget supplements was a $2.5 million effort to standardize and improve the unemployment insurance data which provide the only current unemployment

measure for all substate areas. Funding for this initiative was provided to BLS in 1975-76, and used through contracts with States to correct and augment unemployment insurance statistics to make them more appropriate for use in LAUS estimation. Inconsistencies within and among States were eliminated, quality control measures were instituted, and manual tallies were replaced with computer-generated tabulations. Through such improvements as the use of place-of-residence of the claimant, the CPS reference week, and the elimination of claimants who had earnings due to employment, closer adherence to CPS concepts was achieved. The resultant improved unemployment insurance data were implemented in LAUS estimation in 1978.

In July 1985, the CPS redesign based on the incorporation of 1980 Census data was fully implemented. A key part of the redesign involved a change in the sample structure of the CPS from a national-based one to a State-based stratified sample. Based on the redesign and sample restructuring, the reliability of the CPS data at the State level was improved such that the monthly and annual CVs for direct use of CPS data were reduced to 8 percent.

In 1986, updated inputs to the Handbook based on 1980 Census data and a number of important methodological improvements in component groups of the Handbook employed and unemployed not covered by unemployment insurance were implemented.

Also in 1986, efforts to utilize econometric techniques to estimate monthly State employment and unemployment were strengthened. The earliest BLS attempts to explore regression methods go back to the late 1970's. In addition to internal work, BLS contracted with Mathematica Policy Research, Inc., which conducted extensive State and area research using time series and cross-sectional models. Their final report was delivered in 1981.

Internal model research continued through the 1980's, resulting in the identification of variable coefficient models as a possible substitute for the nondirect-use State method used at that time—Handbook estimation adjusted to a six-month moving average CPS. In 1986, the State Research Group was established with participation of selected State research directors to facilitate the evaluation of model-based estimates and to ensure adequate communication of State needs. In 1987, a subsequent group of State research directors was established—the Regression Implementation Committee—to further evaluate the model approach during the one-year period of dual estimation in 1988. In addition to internal and State review of the model-based estimating method, Professor Art Dempster of Harvard University participated in the evaluation effort. The result of these efforts was the implementation of variable coefficient models in the nondirect-use States in January 1989.

Following the incorporation of the first generation of State econometric models, model research continued. Since seasonally-adjusted estimates were available for the direct-use States, efforts were focused on the seasonal adjustment of the model-based State estimates. A BLS workgroup was established in 1989 to evaluate the appropriateness of seasonally adjusting the model estimates using the X-11 ARIMA software used for the CPS. The workgroup's positive report in the Fall of 1991 led to the introduction of monthly seasonally-adjusted nondirect-use State estimates in 1992.

Also in the early 1990's, a major effort was undertaken to improve the model specifications. Research was conducted to explicitly account for important characteristics of the CPS sample design. This led to better control of the effects of sampling error on the model estimates. In addition, a more flexible modeling of State-specific seasonal and trend effects was identified. The resultant second-generation models were referred to as "signal-plus-noise" models. These modeling results were provided to States for comment in early 1993, and were implemented in 1994.

In January 1996, the Bureau reduced the number of households in the Current Population Survey, to accommodate lower funding levels for the labor force program. One result was that the sample was no longer sufficient to provide monthly data directly for the 11 large States, New York City, and the Los Angeles Metropolitan Area. Monthly estimates for these States and areas are now produced based on the time series modeling methodology used for the other 39 States and the District of Columbia. Also in January 1996, the LAUS substate estimation process was streamlined and input options were eliminated to accommodate the reduction of resources for the LAUS program.

LAUS Time Line

Year	Historical Developments Related To LAUS
1933	Wagner-Peyser Act created Employment Service for registering the unemployed
1935	Social Security Act created Unemployment Insurance System
1937	Works Projects Administration began collecting household-based labor force data
1939-1945	War Manpower Commission developed program on local area labor and material shortages
1943	Responsibility for conducting household survey transferred to Bureau of the Census
1948	Monthly Report on the Labor Force renamed Current Population Survey (CPS)
1950	BES (now ETA) published the manual “Techniques for Estimating Unemployment”
1959	Responsibility for analyzing and publishing CPS data given to BLS; Census continues to conduct survey
1960	Manual for estimating area unemployment revised by BES, title changed to “Handbook on Estimating Unemployment” (70-Step Method)
1961	Area Redevelopment Act passed
1962	President’s Committee to Appraise Employment & Unemployment Statistics (Gordon Committee) issued final report
1965	Public Works and Economic Development Assistance Act (PWEDA) passed
1972	Responsibility for LAUS program transferred to BLS
1973	Comprehensive Employment and Training Act (CETA) passed
1975	CPS sample expansion; CPS benchmarking extended to 27 States
1975	First round of UI Database Survey conducted by BLS
1976	CPS benchmarking extended to all States.
1976	Public Works Employment Act (PWEA) passed
1976	National Commission on Employment and Unemployment Statistics (Levitan) and National Commission on Unemployment Compensation established
1978	Direct use of monthly CPS estimates for limited number of States and areas introduced
1978	First UI database improvements incorporated into the Handbook estimates
1979	Levitan Commission issued recommendations
1982	Job Training Partnership Act (JTPA) replaced CETA

(Continued) LAUS Time Line

Year	Historical Developments Related To LAUS
1983	Second round of UI Database Survey conducted; Quality Assurance Program instituted
1985	Updated State-based CPS sample based on 1980 Census introduced
1986	Major revisions to Handbook methodology incorporated
1989	Variable coefficient model estimates incorporated for nondirect-use States
1992	Seasonal adjustment of model-based estimates introduced.
1994	Second generation of LAUS models introduced; 1990 Census data incorporated into LAUS; new CPS questionnaire and data collection method implemented
1996	Direct-use States adopt model based estimation method; Handbook method streamlined to 13 steps

Data Sources

LAUS estimates are designed to reflect the labor force concepts embodied in the Current Population Survey (CPS) and, thus, are conceptually comparable to each other.

LAUS estimates are based on data from a number of different sources. Primary source data for the creation of employment and unemployment estimates include the Current Population Survey (CPS); the State Unemployment Insurance (UI) systems; the Current Employment Statistics (CES) program; the Quarterly Report of Employment, Wages, and Employer Contributions (ES-202); and the Decennial Census. Each of these inputs to LAUS estimation is described in detail in the following four chapters. A brief summary of each data source is provided below.

The Current Population Survey

The CPS is a monthly sample survey of households, conducted by the Bureau of the Census under contract to the Bureau of Labor Statistics. It provides statistics on the labor force status of the civilian noninstitutional population 16 years of age and over. CPS data are collected each month from a probability sample of approximately 50,000 occupied households and yield estimates of demographic, social, and economic characteristics of the population.

The Bureau of Labor Statistics has responsibility for analyzing and publishing monthly employment and unemployment estimates for the Nation. CPS data are valuable inputs into LAUS monthly estimation due to their regular availability, comparability across States, and measurable statistical error. The CPS statewide annual averages are used as benchmarks for LAUS estimates for all States, the District of Columbia, the Los Angeles Metropolitan Area, and New York City. (See Chapter 2 for more details on the CPS.)

Unemployment Insurance Systems

Under the Unemployment Insurance system, an employer must pay a tax for each employee covered by the State law. Coverage includes the State UI program and the Federal Civilian Employment program. This tax is, in effect, an insurance premium paid to provide for possible unemployment benefits. When any employee in a covered job becomes unemployed, he/she may file an Initial Claim to receive unemployment insurance benefits. A determination of whether the individual is covered by the State unemployment insurance system and, if so, how much in benefits is due, will then be made by the State. A qualifying claimant will receive weekly compensation until the maximum benefit amount is exhausted or until the person returns to work, whichever is earlier.

The UI administrative statistics created in this process are useful for LAUS estimation because they are current and are generally available for a great many geographic areas. (See Chapter 3 for more details on the UI system.)

Current Employment Statistics and ES-202

Both the CES and ES-202 programs are Federal/State cooperative ventures which obtain employment data from employers. The CES is a voluntary sample survey of establishments covered by State and Federal UI laws. It is designed to produce monthly estimates of employment, hours, and earnings for the Nation, all States, and most major metropolitan areas.

The ES-202 data series is a universe of monthly employment and quarterly wage information by industry, county, and State. Completion of a quarterly contribution report, which is basis for the ES-202, is mandatory in industries covered by Federal and State UI laws.

Data obtained through these two programs are used in LAUS employment estimation. (See Chapter 4 for a detailed discussion of the CES and ES-202 programs.)

Decennial Census

The Decennial Census is a universe count of the national population conducted each decade by the Bureau of the Census. Though primarily intended to apportion seats to the U.S. House of Representatives and for determining legislative district boundaries, the census also is a source of socioeconomic and demographic data in great geographic detail.

The LAUS program methodology uses decennial census data for adjusting establishment-based employment estimates to residency-based employment estimates, for estimating certain employment and unemployment components in the Handbook methodology, and disaggregating or apportioning labor market area estimates to smaller areas. (See Chapter 5 for additional details on the decennial census.)

Summary of Estimation Methods

Monthly estimates of employment and unemployment are prepared for approximately 6,700 geographic areas, which include all States, labor market areas, counties, cities with a population of 25,000 or more, and all cities and towns in New England, regardless of population. At each level of geographic detail, the estimation method used depends on the most current data sources available.

Statewide Estimates

Monthly labor force estimates for all States, the District of Columbia, the Los Angeles-Long Beach metropolitan area, New York City, and the respective balances of California and New York are based on dynamic time series regression models that utilize data from the CPS, UI systems, and the CES survey. Both seasonally-adjusted and unadjusted estimates are produced each month. Estimates are benchmarked annually to the annual average CPS Statewide employment and unemployment estimates. (See Chapter 6.)

Labor Market Area Estimates

States are divided into Labor Market Areas (LMAs) which exhaust the geographic area of the State. Independent estimates are produced for all LMAs (except for New York City and Los Angeles, as noted above) using a standard procedure known as the "Handbook" method. The Handbook method is an effort to estimate employment and unemployment for an area using available information, comparable to what would be produced by a random sample of households in the area, without the expense of a large labor force survey like the CPS. Handbook estimates are adjusted for additivity to the LAUS Statewide estimates to create the official LMA estimates. LAUS estimates for sub-LMA areas, such as individual counties within multi-county LMAs and cities with populations over 25,000, are derived by a disaggregation technique using population estimates and UI statistics, or data from the decennial census. (See Chapters 7, 8, and 9 for further details.) At the end of the year, State and substate areas are revised and benchmarked to reflect updated, revised data. (See Chapter 10.)

LAUS Estimation Techniques

Area	Estimation Method
50 States	***Signal-plus-noise regression model***
District of Columbia	***Signal-plus-noise regression model***
New York City, Balance of NY State	***Signal-plus-noise regression model***
Los Angeles, Balance of California	***Signal-plus-noise regression model***
Labor Market Areas (LMAs)	***Handbook, Additivity***
Sub-LMA Areas	***Disaggregation***

Uses and Publication of LAUS Estimates

The uses and geographic detail of LAUS estimates are subject to changing legislative requirements. Responsibility for methodology under the Federal-State cooperative arrangement and requirements for publication have been provided to BLS under OMB Statistical Policy Directive No. 11, "Standard Data Source for Statistical Estimates of Labor Force and Unemployment." The complete text of this Directive is provided at the end of this Chapter.

Legislative Uses of LAUS Estimates.

The following tabulation, "Administrative Uses of Local Area Unemployment Statistics", presents information on the programs which utilize LAUS data in allocating funds to States. Allocation formulas, reference periods, and geographic coverage information are presented. Total funding for these programs amounted to $43,875.1 million in Fiscal Year 2002. These programs are described in greater detail in the section following the tabulation.

ADMINISTRATIVE USES OF LOCAL AREA UNEMPLOYMENT STATISTICS

USER AGENCY/PROGRAM	FY 2002 Funding (Millions)	Geographic Areas Used	Reference Period	Allocation Formulas/Qualifying Criteria
DOL-ETA				
Economically Disadvantaged Adults and Dislocated Workers (Workforce Investment Act Title II--Adult Education and Literacy)	$ 950.0	States and areas of substantial unemployment (ASUs). An ASU is a contiguous piece of geography, consisting of counties, cities, and/or parts of each, with a population of at least 10,000 and an unemployment rate of at least 6.5 percent. (7) (12)	Most recent program year (July-June).	State funding allocation for WIA Title II is based on the following proportions: 1/3 on relative number of unemployed in ASUs, 1/3 on relative excess number of unemployed (i.e., number of unemployed in excess of 4.5 percent of labor force), and 1/3 on relative number of economically disadvantaged.
Youth Activities (Title I, Chapter 4)	$ 1,128.0	States and ASUs. (7) (8) (9) (12)	Most recent program year (July-June).	Same as above for state funding, with 0.25% of funds allocated to "outlying areas."
Youth Opportunity Grants (Title I, Chapter 4)	$ 225.1	States and ASUs. (7) (8) (9) (12)	Most recent program year (July-June).	Same as above, with 0.25% of funds allocated to "outlying areas."
Dislocated Workers (Title I, Chapter 5)	$ 1,549.0	States and substate areas. (7) (8) (9) (12)	Most recent program year (July-June) for unemployed and excess unemployed; most recent calendar year for unemployed 15+ weeks.	State funding is based on the following proportions: 1/3 on relative number of unemployed, 1/3 on relative excess number of unemployed, and 1/3 on relative number of unemployed for 15 weeks or more. Also, 0.25% funds allocated to "outlying areas."
Wagner-Peyser Act (Title III, Subtitle A)	$ 987.4	States. (10) (12)	Most recent calendar year.	State funding algorithm is based on the following proportions: 2/3 on relative number in labor force and 1/3 on relative number of unemployed.
Labor Surplus Areas	(1)	Counties, cities over 25,000 population, and balance of counties. (12)	Most recent 2-calendar year average.	An area qualifies as a LSA when its average unemployment rate is 20 percent or more above the national rate (including Puerto Rico) for the period, with the threshold being no lower than 6 percent and no higher than 10 percent.

ADMINISTRATIVE USES OF LOCAL AREA UNEMPLOYMENT STATISTICS				
USER AGENCY/PROGRAM	**FY 2002 Funding (Millions)**	**Geographic Areas Used**	**Reference Period**	**Allocation Formulas/Qualifying Criteria**
DOL-ETA				
Federal-State Extended Unemployment Benefits (EB)	(2)	States. (7) (12)	Most recent 3 months for total unemployment trigger (TUR) or most recent 13 weeks for insured unemployment trigger (IUR).	State is eligible to pay EB if: (1) the seasonally adjusted total unemployment rate (TUR) for the most recent 3-month period is at least 6.5 percent, and at least 10 percent above the State TUR for the same 3-month period in either of the 2 preceding years, or (2) the insured unemployment rate (IUR) is at least 5 percent, and at least 120 percent of the average IUR for the same 13-week period in either of the 2 preceding years.
FEMA				
Emergency Food and Shelter Program	$ 140.0	Counties, cities, and balance of counties. (7) (8) (12)	Most recent 12-month average.	Jurisdictions qualify for FEMA funding if they meet one of the following criteria: (1) 18,000 or more unemployed with a jobless rate of no more than 1 percentage point below the national rate, (2) 400-17,999 unemployed with a jobless rate of at least 1.2 to 1.5 percentage points above the national rate, or (3) 400 or more unemployed with a poverty rate of at least 11.7 percent.
Commerce-EDA				
Public Works Program	$ 250.0	Areas defined by geographic/political boundaries, e.g., States, cities, counties, Indian reservations. (7) (8) (9) (12)	Most recent 24-month average.	An area qualifies if: (1) the unemployment rate is at least one percentage point above the national rate, (2) the per capita income is 80 percent or less of the national average per capita income, or (3) there is a special need, as determined by EDA, arising from actual or threatened severe unemployment or economic adjustment problems resulting from severe short-term or long-term changes in economic conditions.
Economic Adjustment (Title 9)	$ 41.0	Same geographic areas used in the Public Works Program.	Most recent 24-month average.	Same qualifying criteria used in the Public Works Program
USDA				
Temporary Emergency Food Assistance Program (TEFAP)	$ 150.0	States. (7) (8) (9) (12)	Fiscal year average.	Farm commodities and funds are allocated based on the following proportions: 3/5 on relative number of persons in households below the poverty line and 2/5 on relative number of unemployed persons.
Welfare Reform Act--Waivers to Food Stamp Time Limits	$ 21,170.0 (3)	States, metropolitan areas (MAs), counties, cities Indian reservations, and specially designated areas (e.g., census tracts). (7) (12)	Generally 12-month periods, but no less than 3 months for unemployment rate. Not specified for insufficient jobs criterion.	Waivers are granted to areas with: (1) an unemployment rate over 10 percent for the latest 12-month (or 3-month) period or (2) insufficient jobs.
DOJ-INS				
Immigration Act of 1990 Employment Creation Visas	(4)	MAs and counties, cities and subareas within MAs.	Most recent calendar year or 12-month average.	Visas are granted for lower investment amounts in rural areas or areas with an unemployment rate at least 50 percent above the national average.

ADMINISTRATIVE USES OF LOCAL AREA UNEMPLOYMENT STATISTICS				
USER AGENCY/PROGRAM	**FY 2002 Funding (Millions)**	**Geographic Areas Used**	**Reference Period**	**Allocation Formulas/Qualifying Criteria**
DOD-DLA				
Procurement Technical Assistance (PTA)	$ 18.2	States, counties, cities, and townships. (7) (12)	Most recent 24-month average.	An area qualifies for assistance if: (1) the unemployment rate is at least one percentage point above the national average for the most recent 24-month period or (2) the per capita income is 80 percent or less of the State average.
HHS				
Temporary Assistance to Needy Families (TANF)—Contingency Fund Drawdown	(11) (5)	States. (10)	Most recent 3-month average.	States can access funds if they are determined to be "needy," based on a seasonally adjusted unemployment rate that is at least 6.5 percent for the 3-month period and at least 110 percent of the rate for the corresponding period in either of the 2 preceding calendar years; or if the number of food stamp recipients increases at least 10 percent during the 3-month period. TANF automatically gives block grants (with an upper limit of $71 million) to Puerto Rico.
TANF—Exemption from Benefit Limitation	$ 17,128.0 (11) (6)	States. (9) (10)	Not available.	In transitioning from welfare to work, individuals are granted up to 6 weeks for which a job search or participation in a workfare program will be counted as work. This time limit is extended to 12 weeks if the State unemployment rate is at least 50 percent above the national rate. TANF automatically gives block grants (with an upper limit of $71 million) to Puerto Rico.
Treasury				
Riegle Community Development and Regulatory Improvement Act of 1994--Bank Enterprise Awards	$17.0	MAs, counties, cities, and possible sub-areas (e.g., census tracts). (7) (8) (9) (10) (12)	Most recent 12-month period before announcement of application period.	An institution may qualify if (part or all of) its service area: (1) is located within one unit of general local government, (2) has a contiguous boundary, (3) (a) has a population of 4,000 or more, if in a metropolitan area; (b) has a population of 1,000 or more, if outside of a metropolitan area; (c) is entirely within an Indian reservation, (4) has a poverty rate of at least 30 percent, and (5) has an unemployment rate at least 1.5 times the national rate. Puerto Rico is treated like a State.
Riegle Community Development and Regulatory Improvement Act of 1994— Small and Emerging CDFI Assistance Component	$5.6	Same geographic areas used for the Bank Enterprise Awards	Same reference period used for the Bank Enterprise Awards.	Same qualifying criteria used for the Bank Enterprise Award.
North American Development Bank (NADBank) Community Adjustment and Investment Program (CAIP)	$ 6.0 (11)	Communities (discrete geographical areas) i.e., counties, towns, or cities.	Most recent 12-month average	Eligibility of CAIP financing includes: (1) a significant job loss connected to the passage of NAFTA and (2) a substantial continued need for transition assistance.

ADMINISTRATIVE USES OF LOCAL AREA UNEMPLOYMENT STATISTICS				
USER AGENCY/PROGRAM	**FY 2003 Funding (Millions)**	**Geographic Areas Used**	**Reference Period**	**Allocation Formulas/Qualifying Criteria**
ARC (Appalachian Regional Commission)				
Distressed County Non-Highway Program (DCNHP)	$14.0	All of West Virginia and parts of 12 other states, by county.	Most recent 3-year period for which data are available at the beginning of application process.	An area qualifies if its: (1) per capita income is 2/3 the national average or less, (2) poverty rate is at least 1.5 times the U.S. rate, and (3) unemployment rate is at least 1.5 times the national average.
General Area Development Program	$34.0	Same geographic areas used for the DCNHP.	Same reference period used for the DCNHP.	Same qualifying criteria used for the DCNHP.
Distressed City Initiative	$2.0	Same geographic areas used for the DCNHP.	Same reference period used for the DCNHP.	Same qualifying criteria used for the DCNHP.
Small Business Administration				
Historically Underutilized Business Zones (HUBZones)	(1)	Census tracts, non-metropolitan counties, or Indian reservations. (7) (12)	Most recent annual average for unemployment rate.	An area qualifies if it is: (1) a "qualified" census tract (as defined in the 1986 IRS code), (2) a non-metropolitan county with (a) median household income less than 80% of the statewide non-metropolitan median or (b) an unemployment rate at least 140% of the statewide average, or (3) within the boundaries of an Indian reservation.
HUD				
Youthbuild Program	$59.8	Census tracts, non-metropolitan counties.	Not specified.	An area can qualify if it is an underserved area, which is defined as an area comprised of census tracts with the following distress criteria: (i) a census tract where the unemployment remains high (50 percent or more above the nation's unemployment rate) and (ii) a census tract where high rates of poverty persists.
Total Appropriations	**$ 43,875.1**			

NOTE: The term "cities" also includes townships and boroughs in selected states for various programs.

(1) Program does not allocate funds, but gives preference to firms in bidding on federal procurement.
(2) Under regular state extended benefits, monies are not appropriated, but are drawn from the Unemployment Insurance Trust Fund. If the 3-month average TUR is at least 8%, and at least 10% above the TUR for the same 3-month period in either of the 2 preceding years, the State enters a "high unemployment period" during which 20 weeks of EB are payable.
(3) Dollar amount is full cost of Food Stamp Program. Soup Kitchen and Food Bank funding was merged into the Welfare Reform Act of 1996, and, though the program may continue to receive donations, there is no separate funding.
(4) Under IMMACT, a total of 3,000 visas are distributed to eligible immigrant entrepreneurs who establish a new commercial enterprise in a targeted employment area (rural area or other area with high unemployment)
(5) Under the Welfare Reform Act, a Contingency Fund of State Welfare Programs was established, with a $2 billion limit for FY 1997-2001.
(6) Dollar amount is the full cost of the TANF program.
(7) The District of Columbia and Puerto Rico are considered states.
(8) Outlying areas include the U.S. Virgin Islands, Guam, American Samoa, Northern Marianas Islands, Marshall Islands, Micronesia, and Palau.
(9) Native American Program includes Indians, Native Hawaiians, and Alaska Natives.
(10) The District of Columbia is considered a state.
(11) Currently funded by previous grants and awaiting new legislation. Dollar amount shown pertains to FY 2001.
(12) Program treats Puerto Rico as a state, and its areas as substate areas.

July 10, 2002

Department of Commerce:

Economic Development Administration, Public Works

Program Objectives: To assist States and local areas in the development and implementation of strategies designed to arrest and reverse the problems associated with long-term economic deterioration. Grants are provided to help distressed communities attract new industry, encourage business expansion, diversify local economies, and generate long-term, private sector jobs.

Among the types of projects funded are water and sewer facilities primarily serving industry and commerce; access roads to industrial parks or sites; port improvements; and business incubator facilities. Proposed projects must be located within an EDA-designated Redevelopment Area (RA) or Economic Development Center. Projects in other areas of an EDA-designated Economic Development District are also eligible if they will directly benefit a RA within the District. Projects must be consistent with an approved Overall Economic Development Program (OEDP). An applicant may be a state, political subdivision of a state, Indian tribe, special-purpose unit of government, or a public or private nonprofit organization or an association representing the RA or part thereof.

Economic Development Administration, Economic Adjustment

Program Objectives: The Economic Adjustment Program helps States and local areas design and implement strategies for facilitating adjustment to changes in their economic situation that are causing or threaten to cause serious structural damage to the underlying economic base. Such changes may occur suddenly (Sudden and Severe Economic Dislocation) or over time (Long-Term Economic Deterioration) and result from industrial or corporate restructuring, new Federal laws or requirements, reductions in defense expenditures, depletion of natural resources, or natural disasters.

Strategy grants provide the recipient with the resources to organize and carry out a planning process resulting in an adjustment strategy tailored to the particular economic problems and opportunities of the impacted area(s). Implementation grants may be used to support one or more activities identified in an adjustment strategy approved, though not necessarily funded, by EDA. Implementation activities may include, but are not limited to: the creation or expansion of

strategically targeted business development and financing programs including grants for revolving loan funds, infrastructure improvements, organizational development, and market or industry research and analysis.

Department of Labor:

Employment and Training Administration, Employment Service

Program Objectives: The employment service is available to all those legally authorized to work in the United States in order to assist millions of job seekers and employers and, in some areas, provide job training and related services. The Federal Government, through the Employment and Training Administration, provides general direction, funding, and oversight, and also assists the States with programs of test development, occupational analysis, and maintenance of an occupational classification system. The State employment security agencies operate 1,800 local Employment Service offices. In accordance with their needs, States may provide specialized assistance to such groups as youth ages 16-22, women, older workers, persons with disabilities, rural residents and workers, and the economically disadvantaged.

Public employment service assistance, including employability assessment and referral to training if necessary, is free to job seekers. Most of the service's appropriations come from the trust funds collected under the Federal Unemployment Tax Act (FUTA), with a small portion coming from general revenues.

Employment and Training Administration, Dislocated Workers

Program Objectives: To assist dislocated workers to obtain unsubsidized employment through training and related employment services using a decentralized system of State and local programs. The Economic Dislocation and Worker Adjustment Assistance Act (EDWAA) provides funds to States and local substate grantees. The Act authorizes employment and training help for dislocated workers. Workers who lose their jobs in mass layoffs or plant closings and others who have been laid off and are unlikely to return to their jobs can take advantage of early intervention programs, occupational skill training, job search assistance, support services, and relocation assistance.

Employment and Training Administration, Job Training Partnership Act, Title II-A: Adult Training Program

Program Objectives: To provide job training and related assistance to economically disadvantaged individuals and others who face significant employment barriers. The ultimate goal of the Act is to move trainees into permanent, self-sustaining employment. This legislation authorizes training and services for the economically disadvantaged and others who face significant employment barriers. Training is afforded through grants to States for local training and employment programs. States are responsible for further allocating funds to their Service Delivery Areas (SDAs) and for overseeing the planning and operation of local programs. Program services include an assessment of an unemployed individual's needs and abilities and a strategy of services such as classroom training, on-the-job training, job-search assistance, work experience, counseling, basic skills training, and support services.

Employment and Training Administration, Job Training Partnership Act, Title II-B: Summer Youth

Program Objectives: To provide a summer youth employment and training program for economically disadvantaged youths. The purpose of the Summer Youth Employment and Training Program is to enhance the basic educational skills of youth, encourage school completion or enrollment in supplementary or alternative school programs, provide eligible youth with exposure to the world of work, and enhance the citizenship skills of youth. Programs offer these individuals jobs and training during the summer. This includes work-experience programs and support services such as transportation. Academic enrichment also is a major part of the program and may include basic and remedial education.

Employment and Training Administration, Job Training Partnership Act, Title II-C: Disadvantaged Youth

Program Objectives: To provide for the long term employability of youth; enhance educational, occupational, and citizenship skills; encourage school completion or enrollment in alternative school programs; reduce welfare dependency; and assist in the transition from school to work, apprenticeship, military, or post secondary education and training. Program services may include all authorized adult services, limited internships in the private sector school-to-work transition services, and alternative high school services.

Employment and Training Administration, Federal-State Extended Unemployment Compensation Program

Program Objectives: Unemployment compensation is designed to provide benefits to most workers out of work due to no fault of their own for periods between jobs. Most States pay a maximum of 26 weeks of benefits, except for

two states-- Massachusetts and Washington --which pay up to 30 weeks of benefits. In periods of very high unemployment in individual States, benefits are payable for as many as 13 additional weeks, up to a maximum of 39 weeks. These "extended benefits" are funded on a shared basis: approximately half from State funds and half from Federal sources.

Employment and Training Administration, Labor Surplus Areas

Program Objectives: The purpose in classifying labor surplus areas is to put the Federal Government's procurement contracts into areas of high unemployment. Employers located in these labor surplus areas are eligible for preference in bidding on Federal procurement contracts to direct government funds into areas where people are in the most severe economic need.

Federal Emergency Management Agency:

Emergency Food and Shelter Program

Program Objectives: To help meet the needs of hungry and homeless people in the U.S. and its territories by allocating Federal funds to the neediest areas, ensuring quick response, fostering public and private cooperation, ensuring local decision-making, and maintaining minimal reporting. The program began in 1983 to help meet the needs of hungry and homeless people throughout the United States and its territories by allocating federal funds for the provision of food and shelter to those impacted by natural disasters or emergencies. The program is governed by a national board composed of representatives of the American Red Cross; Catholic Charities, USA; Council of Jewish Federations; the National Council of the Churches of Christ in the USA; the Salvation Army; and the United Way of America. The national board awards funds to jurisdictions based upon a formula. Once an award is made, local boards decide which agencies are to receive funds, and then those agencies are paid directly by the national board.

Funds are used to provide the following, as determined by the local board in funded jurisdictions: (1) food, in the form of served meals or groceries; (2) lodging in a mass shelter or hotel; (3) one month's rent or mortgage payment; (4) one month's utility bill; (5) minimal repairs to allow a mass feeding or sheltering facility to function during the program year; and (6) equipment necessary to feed or shelter people, up to $300 per item.

Department of Agriculture:

Temporary Emergency Food Assistance Program

Program Objectives: To make funds available to States for storage and distribution costs incurred by nonprofit eligible recipient agencies in providing nutrition assistance in emergency situations and to aid needy people. TEFAP was created to reduce excess USDA inventories of surplus commodities in storage, especially dairy products such as cheese, and to supplement the diets of low-income households at a time of high unemployment. Each State designates one agency to administer TEFAP. Once USDA commodities are made available to the States, State officials are responsible for determining the eligibility of organizations to receive the commodities and for entering into agreements regarding allocation and distribution. In addition, States are responsible for determining the types and amounts of each commodity to be made available to organizations within the State.

The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 provided for the absorption of the Soup Kitchens/Food Banks Program into TEFAP and requires the Secretary to use $100 million yearly from the Food Stamp account to purchase commodities for TEFAP during Fiscal Years 1997 through 2002.

Food, Nutrition, and Consumer Services—Food Stamps

Program Objectives: The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 limits receipt of Food Stamp benefits to 3 months in a 3-year period for able-bodied adults who are not working, participating in a work program for 20 hours or more each week, or in workfare. States may request a waiver of this provision in areas with an unemployment rate above 10 percent, or for those residing in an area that has an insufficient number of jobs to provide employment for individuals.

In addition, waiver of this provision may also occur in recognition of the challenges that low-skilled workers may face in finding and keeping permanent employment. In some areas, including parts of rural America, the number of unemployed persons and the number of job seekers may be far larger than the number of vacant jobs. This may be especially so for persons with limited skills and minimal work history.

Department of Justice:

Immigration and Naturalization Service, Immigration Act of 1990 (IMMACT)

Program Objectives: To make 10,000 visas available each fiscal year to qualified immigrants seeking to enter the U.S. for the purpose of engaging in a new commercial enterprise. The new commercial enterprise may take any lawful business form and must both benefit the U.S. economy and create full-time employment for not fewer than 10 U.S. citizens, lawful permanent residents, or other immigrants lawfully authorized to be employed.

To encourage the establishment of new enterprises in areas which would most benefit from employment creation, 3,000 of the employment creation visas are reserved for qualified aliens who have made investments in "targeted employment areas." Such areas are defined to include rural areas and areas which have experienced high unemployment. A rural area is defined as any area other than an area within a metropolitan statistical area (MSA) or within the outer boundary of any town having a population of 20,000 or more. An area of high unemployment under the Act is defined as a non-rural area with an average unemployment rate of 150 percent of the national average in the previous calendar year. Alternatively, a letter from an authorized body of the government may certify that the area has been designated a high unemployment area.

Department of Defense:

Defense Logistics Agency—Office of Small and Disadvantaged Business Utilization

Program Objectives: To provide funding assistance to civil jurisdictions and non-profit agencies working with small and disadvantaged businesses. The purpose of the Procurement Technical Assistance (PTA) Cooperative Agreement Program is to (1) generate employment and improve the general economy of a locality by assisting business firms in obtaining and performing under Federal, State, and local government contracts; (2) increase Department of Defense assistance for

eligible entities furnishing PTA to business entities; and (3) assist eligible entities in the payment of the costs of establishing and carrying out new PTA programs and maintaining existing PTA programs.

Department of Health and Human Services:

Administration for Children and Families, Temporary Assistance for Needy Families

Program Objectives: Temporary Assistance for Needy Families (TANF) was established under the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 to replace Aid to Families with Dependent Children (AFDC), Job Opportunities and Basic Services (JOBS), and Emergency Assistance (EA) programs. In order to receive the new block grants under TANF, States must submit a State TANF plan outlining how they intend to conduct a program that provides assistance to needy families with children and provide parents with job preparation, work, and support services to enable them to leave the program and become self-sufficient. States must submit plans every two years and may submit amendments to keep the plan current whenever they wish to make changes in the administration or operation of the program. In addition to State plans, federally recognized Indian Tribes and approved Alaskan Native entities are also eligible to submit TANF plans to the Secretary of Health and Human Services.

Office of Community Services, Community Food and Nutrition Program

Program Objectives: The Community Food and Nutrition Program provides assistance to public and private agencies at the community, local, and national levels to meet the nutrition needs of low-income people. This is done by coordinating existing food assistance resources, assisting in identifying sponsors of child nutrition programs, and initiating new programs in under-served and un-served areas and developing innovative approaches at the State and local levels.

Department of the Treasury:

Community Development Financial Institutions Fund, Bank Enterprise Award Program

Program Objectives: To promote the formation and expansion of Community Development Financial Institutions (CDFIs); promote community lending and investment activities by banks and thrifts; enhance the liquidity of community lending products; and enhance the capacity of CDFIs, banks and thrifts to engage in community lending and investment activities. The Bank Enterprise Award Program is intended to encourage banks and thrifts to invest in and support community development financial institutions and to increase the lending and services provided in distressed communities by traditional financial institutions

North American Development Bank (NADBank), Community Adjustment and Investment Program

Program Objectives: To finance community adjustment and investment efforts throughout the United States and Mexico. U.S. appropriations of $225 million will be leveraged into financing for community adjustment projects that will provide significant benefits for U.S. citizens and businesses. The NADBank's U.S. community adjustment window will operate nationwide to offer financing directly through existing federal credit programs to assist communities and businesses adjust to the new trade environment created by NAFTA.

Appalachian Regional Commission:

Non-Highway Program

Program Objectives: The Commission was established to assist in the long-term development of the chronically depressed region. Its main objectives are the creation of new jobs and preparation of the people in the region to compete for jobs wherever they choose to work and live. The non-highway program focuses on the creation of new jobs and private investments and special help for the region's poorest or distressed counties. New jobs and private investment are encouraged by grants supporting education, water and sewer services for industrial and commercial needs, housing, small business development, health care, development of natural resources, and research on topics directly related to the region's economic development.

Small Business Administration:

Historically Underutilized Business Zones (HUBZones)

Program Objectives: To encourage economic development and create jobs in urban and rural communities by providing contracting preferences to small businesses located in and hiring employees from historically underutilized business zones. A firm may be determined to be a qualified HUBZone small business if it is located in a historically underutilized business zone, it is owned and controlled by one or more U.S. citizens, and at least 35 percent of its employees reside in a HUBZone.

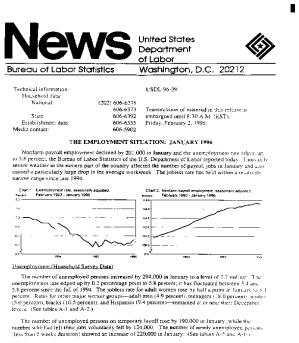
Under the program, three types of contracts exist: (1) A competitive contract, in which at least two qualified small businesses are expected to submit offers, and at least one of which will be at a fair market price; (2) a sole source contract , and (3) an open competition award, in which a qualified HUBZone small business receives a price preference over another non-HUBZone bidder that is other than small.

Environmental Protection Agency:

EPA Acquisition Regulations [proposed rules]

Program Objectives: The Environmental Protection Agency is amending its Acquisition Regulation to include a new regulation on Socioeconomic Contract Clauses. These amendments will allow contractors to receive technical points in the bidding process for their use of local employment and training while performing under EPA contracts. The use of the solicitation provision and contract clause is expected to aid in decreasing the local unemployment rate and support economic development in the area where contractual requirements will be performed.

Publication of LAUS Estimates


News United States Department of Labor
Bureau of Labor Statistics Washington, D.C. 20212

USDL 96-39

THE EMPLOYMENT SITUATION: JANUARY 1996

Data from the LAUS program are made available to users in a variety of ways. Labor force and unemployment data are published monthly for all States and selected metropolitan areas in a news release entitled" State and Metropolitan Area Employment and Unemployment" and in the Bureau's periodical *Employment and Earnings*. Estimates of labor force, employment and unemployment for all States, metropolitan areas, labor market areas, counties, cities with a population of 25,000 or more, and other areas used in the administration of various Federal economic assistance programs, are provided in "Unemployment in States and Local Areas", which is available monthly in microfiche form by subscription from the U.S. Government Printing Office.


EMPLOYMENT AND EARNINGS

Annual average employment status data are provided each year in a press release entitled "State and Regional Unemployment, Annual Averages", which is typically issued in the spring. It presents data on the population, civilian labor force, employed, unemployed, and unemployment rate for regions, divisions, and States. Annual average information for States and selected metropolitan areas is also published each spring in *Employment and Earnings*.

The annual publication, *Geographic Profile of Employment and Unemployment*, provides annual average data for census regions and divisions, the 50 States and the District of Columbia, 50 large metropolitan areas, and 17 central cities. Data are provided on the employed and unemployed by selected demographic and economic characteristics.

Current and historical data from the LAUS program are also available on-line via LABSTAT, the Bureau's public database. (Access via anonymous FTP or Gopher is stats.bls.gov; via World Wide Web, stats.bls.gov/blshome.html.)

Office of Management and Budget Statistical Policy Directive Number 11

Standard Data Source for Statistical Estimates of Labor Force and Unemployment

Accurate, consistent, publicly available estimates of the labor force and of unemployment in the Nation, the States, and local areas are needed for use in the formulation, implementation, and evaluation of public policy.

1. Source of Data

Federal executive branch departments, agencies, and establishments (hereinafter Federal executive branch agency) shall use the most current national, State, or local area labor force or unemployment data published by the Bureau of Labor Statistics, United States Department of Labor, with respect to all program purposes, including the determination of eligibility for and/or the allocation of Federal resources, requiring the use of such data unless otherwise directed by statute. In order to maintain equity among local areas, comparable data series are to be used for all program purposes. Further, unless otherwise required by statute, data adjusted for seasonal variation shall be used for all program purposes as soon as the Bureau of Labor Statistics shall have published such data for local areas being examined for the program purpose then under consideration.

No Federal executive branch agency shall begin or continue collecting or using State or local area labor force or unemployment data other than that published by the Bureau of Labor Statistics, without the written approval of the Secretary of Commerce. This does not preclude the collection of labor force and unemployment data by the Bureau of the Census, United States Department of Commerce, for the Bureau of Labor Statistics or in its conduct of a periodic or other census or statistical survey, and the publication or other distribution thereof.

2. Data Consistency

With respect to any month, a consistent reference time period shall be used for all national, State, and local area labor force and unemployment data. The data for each State and area, to the extent technically feasible, shall be conceptually consistent with the data for the Nation as a whole and the State totals shall sum, within a range of acceptable sampling error, to the national total.

3. Data Publication

The Bureau of Labor Statistics, in accordance with the provisions of Directive No. 4, Prompt Compilation and Release of Statistical Information, shall establish a monthly release date or dates for all regularly published labor force and unemployment data and shall provide the release date schedule to the Office of Federal Statistical Policy and Standards for publication in the *Statistical Reporter*.

The monthly publication or publications by the Bureau of Labor Statistics shall contain data for the Nation as a whole, and for each State and each local area for which the Bureau of Labor Statistics has agreed to publish data. No agreement between the Bureau of Labor Statistics and other Federal executive branch agencies shall be used to limit the number or types of areas for which data are developed and/or published by the Bureau of Labor Statistics. The data published by area shall at a minimum provide the current estimates before seasonal adjustment, and as soon as possible, and to the extent technically feasible, shall also provide the estimate adjusted for seasonality.

4. Notification of Data Need

Federal executive branch agencies requiring State and local area labor force or unemployment data shall notify the Commissioner, Bureau of Labor Statistics, United States Department of Labor, of their need for such data. The notification shall include information about the purpose for which the data are needed and the specification(s) (i.e., statistical reliability, geographic and other) for the data.

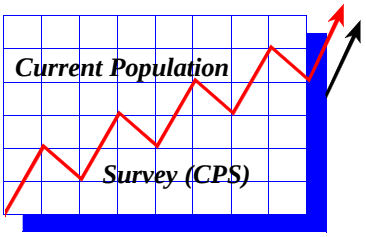
Any Federal executive branch agency required by legislation to use labor force or unemployment data other than that directed by this Directive and any Federal executive branch agency notified by the Commissioner, Bureau of Labor Statistics that the needed data cannot be provided according to specification shall notify the Director, Office of Federal Statistical Policy and Standards, Department of Commerce of that fact. The notification shall include identification of the program(s) affected, legislation implemented by those programs, data specifications, and a report on consultations with the Bureau of Labor Statistics in respect to such data.

5. Definitions

a. Labor Force and Unemployment Data. The term labor force and unemployment data is defined to include all counts or estimates of the total labor force, the civilian labor force, total employment, total civilian employment, total unemployment, and total unemployment rates. The term excludes data, obtained solely from administrative records of the unemployment insurance system, pertaining to counts of covered employment, the insured unemployed, and to the insured unemployment rate.

b. Current Data. For the purposes of this Directive, the term current data means the most current, complete data published by the Bureau of Labor Statistics.

c. Local Area. A local area, for purposes of this Directive, is any geopolitical unit of the United States of America and any combination or part of any such unit or units.



2 *Inputs to LAUS Estimation: The Current Population Survey*

Introduction to the CPS

The Current Population Survey (CPS) is a monthly household survey conducted by the Bureau of the Census for the Bureau of Labor Statistics (BLS). The CPS collects current labor force status about the 16+ civilian noninstitutional population of the United States. It is a cooperative BLS/Census effort with its design and methodology jointly planned by both bureaus. Responsibilities for the survey are divided; the Census Bureau conducts data collection, the BLS analyzes and publishes the data. The CPS data are used directly to produce demographic labor force estimates for the nation and indirectly as input to the models used to develop labor force estimates for States.

For current official State labor force estimation, monthly CPS estimates are included in the LAUS signal/noise estimation procedure. Annual average CPS data for States and selected areas are used as annual benchmarks. In addition, national monthly and annual average CPS data are inputs to area Handbook line items. For the Handbook estimation of Labor Market Areas (LMAs), various ratios for estimating components of employment and unemployment not available at the area level are developed using monthly and annual average data.

Background

The CPS has its origin in a program set up in 1940 to provide direct measurement of unemployment each month from a sample survey. Several earlier attempts to estimate the number of unemployed used various devices, ranging from guesses to enumerative counts. During the latter half of the 1930's, the Work Projects Administration (WPA) (the Works Progress Administration prior to 1939) began developing techniques for measuring unemployment. The Enumerative Check Census, taken as part of the 1937 unemployment registration, was the first to

estimate unemployment on a nationwide basis using probability sampling. This research and the experience with the Enumerative Check Census led to the Sample Survey of Unemployment which was started in March 1940 as a monthly activity by WPA. The survey was transferred to the Bureau of the Census in 1942 and its title was changed to The Monthly Report on the Labor Force. The survey was renamed as The Current Population Survey in 1948. BLS assumed responsibility for publication and analysis of CPS data in 1959.

The CPS is the oldest continuous household survey in the world. Throughout its history, the CPS has constantly been improved and updated to keep pace with statistical and technological advances. Major changes that have occurred in the CPS include improved identification of households covered in the sample, improvements to sample design and methodology, improved estimation procedures, and modifications to the questionnaire and interview process.

In 1957, the Bureau of the Census began seasonally adjusting selected CPS data series with its X-11 model. In January 1989 the X-11 model was updated to the X-11 Auto-Regressive Integrated Moving Average (ARIMA) method which is in use today.

Throughout the 1970's, a series of State-only sample expansions were undertaken, in response to greatly expanded data needs at the subnational level. While providing reliability needed to introduce CPS annual average benchmarks in all States, this method was recognized as an inefficient way of developing State estimates. In 1985, the national-based design was changed to a State-based sampling design. A requirement of this design was that annual average State estimates fall within specified levels of reliability, while maintaining the current reliability of the national estimates.

In 1994, computer assisted telephone interviewing (CATI) and computer assisted personal interviewing (CAPI), as well as a new questionnaire design, were phased in as part of continuing survey improvement.

Survey Process

The CPS survey process consists of three main phases. These phases are sampling, data collection, and estimation.

Sampling involves (1) the determination, stratification, and selection of a sample of Primary Sampling Units (PSUs) and (2) the selection of sample households within those PSUs.

During the data collection phase, households are asked about activities during the week that contains the 12th day of the month, the reference week. A questionnaire is completed, either by a personal interview or by phone, for each household member 16 years of age and over to determine the labor force status for the previous week.

The goal of the estimation process is to take sample data and make estimates for the population as a whole. Estimation involves a number of steps, including data editing and imputation, basic weighting, noninterview adjustment, ratio adjustment, compositing of estimates, and seasonal adjustment.

CPS Labor Force Concepts and Definitions

The CPS classification of persons as “employed,” “unemployed,” or “not in the labor force” are used in the LAUS estimation methodology. These classifications are based on a person's labor force status during the survey reference week (the week including the 12th of the month). The CPS questionnaire is designed to first determine whether a person is employed. If a person is not employed, the next series of questions are designed to determine whether the person is unemployed and still in the labor force, or out of the labor force entirely.

Because the CPS is a household-based survey, it counts each person only once—at their place of residence—even if they hold more than one job. It thus produces an unduplicated count of employed or unemployed persons. The CES survey, on the other hand, is establishment-based and is designed to produce counts of the number of jobs in the economy. Therefore, persons holding more than one job could be counted more than once depending on which establishments were in the survey sample. Since the LAUS program uses employment numbers from both sources, a reconciliation must be made to adjust CES data to a residency base. (See Residency Adjustment Ratio.)

Labor Force

Civilian Noninstitutional Population (CNP): The CNP is the base population used in the calculation of labor force statistics. This category includes all persons 16 years of age and older residing in the 50 States and the District of Columbia who are not inmates of institutions (e.g. penal and mental facilities, homes for the aged) and who are not on active duty in the Armed Forces.

Labor Force: The labor force is comprised of all persons classified as employed or unemployed with respect to the criteria described below.

Not in the Labor Force: This category includes all persons in the civilian noninstitutional population who are not classified as employed or unemployed. This classification is based on information about their desire and availability for work collected during the CPS interview, job search activity in the prior year, and reason for not looking in the 4-week period ending with the reference week. This group includes the discouraged workers category which is described below.

- Discouraged workers are defined as persons not in the labor force who want and are available for a job and who have looked for work

sometime in the past 12 months (or since the end of their last job if they held one within the past 12 months), but are not currently looking, because they believe there are no jobs available or there are none for which they would qualify.

Employed and Unemployed

Employed Persons: There are two categories of employed persons. The first category includes all civilians who, during the survey week, did any work at all as paid employees in their own business, profession, or on their own farm, or who worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family. The second category includes all those who were not working but who had jobs or businesses from which they were temporarily absent because of illness, bad weather, vacation, child care problems, maternity or paternity leave, labor-management disputes, job training, or other family or personal reasons, whether they were paid for the time off or were seeking other jobs.

Each employed person is counted only once, even if he or she holds more than one job. Multiple jobholders are counted in the job at which they worked the greatest number of hours during the reference week. Included in the total are employed citizens of foreign countries who are residing in the United States, but are not living on the premises of an embassy. Excluded are persons whose only activity consisted of work around their own home (such as housework, painting, repairing, etc.) or volunteer work for religious, charitable, or similar organizations.

Employed workers are also defined by the following class-of-worker groupings:

- *Wage and salary workers who receive wages, salary, commissions, tips, or pay-in-kind from an employer. This category is further subdivided into private and government workers.*
- *Self-employed persons who work for profit or fees in their own business, profession, or trade, or farm. Only the unincorporated self-employed are included in this category. Self-employed persons who report that their business is incorporated are included among the wage and salary workers because they are technically paid employees of a corporation.*
- *Unpaid family workers are persons who work without pay for 15 hours a week or more on a farm or in a business operated by a member of the household to whom they are related by birth or marriage.*
- *Multiple jobholders are employed persons who, during the reference week, had either two or more jobs as a wage and salary worker, were self-employed and also held a wage and salary job, or worked as an unpaid family worker and also held a wage and salary job. A person employed only in private households (cleaner, gardener, baby-sitter, etc.) who worked for two or more*

employers during the reference week is not counted as a multiple jobholder, since working for several employers is considered an inherent characteristic of private household work. Also excluded are self-employed persons with multiple businesses and persons with multiple jobs as unpaid family workers.

Unemployed Persons: This category includes all persons who (1) had no employment during the reference week, (2) were available for work except for temporary illness, and (3) had made specific efforts, such as contacting employers, to find employment some time during the 4-week period ending with the reference week.

Only active methods—which have the potential to result in a job offer without further action on the part of the jobseeker—qualify as "efforts to find employment." Examples include going to an employer directly or to a public or private employment agency, seeking assistance from friends or relatives, placing or answering ads, or using some other active method. Examples of the "other" category include being on a union or professional register, obtaining assistance from a community organization, or waiting at a designated labor pickup point. Passive methods, which do not qualify as job search, include reading (as opposed to answering or placing) "help wanted" ads and taking a job training course.

Persons waiting to be recalled to a job from which they were laid off need not be looking for work to be classified as unemployed.

Unemployed persons are further categorized according to their status at the time they began their current job search. Five major reasons for unemployment are defined as follows:

- *Job losers, comprised of persons on temporary layoff, who have been given a date to return to work or who expect to return within six months (persons on layoff need not be looking for work to qualify as unemployed), and permanent job losers, whose employment ended involuntarily and immediately began looking for work.*
- *Job leavers, persons who quit or otherwise terminated their employment voluntarily and are looking for work.*
- *Persons who completed temporary jobs, who began looking for work after the jobs ended.*
- *Re-entrants, persons who previously worked but were out of the labor force prior to beginning their job search.*
- *New entrants, persons who never worked.*

All unemployed persons who made specific efforts to find a job sometime during the 4-week period preceding the survey week are classified as job seekers. Job seekers do not include those person classified as on temporary layoff, who although often looking for work, are not required to do so to be classified as unemployed.

Unemployment Rate: This rate represents the number unemployed as a percent of the civilian labor force. This measure can also be computed for groups within the labor force classified by sex, age, race, Hispanic origin, marital status, etc.

Duration of Unemployment: Duration represents the length of time through the current reference week that persons classified as unemployed had been looking for work, and thus is a measure of an in-progress spell of joblessness. For persons on layoff, duration of unemployment represents the number of full weeks they had been on layoff. Two useful measures of the duration of unemployment are the mean and the median. Mean duration is the arithmetic average computed from single weeks of unemployment. Median duration is the midpoint of a distribution of weeks of unemployment.

Reliability of CPS Estimates

There are two types of errors possible in an estimate based on a sample survey—sampling and nonsampling. The mathematical discipline of sampling theory provides methods for estimating standard errors when the probability of selection of each member of a population can be specified. The standard error, a measure of sampling variability, can be used to compute confidence intervals that indicate a range of differences from true population values that can be anticipated because only a sample of the population has been surveyed. Nonsampling errors, such as response variability, response bias, and other types of bias occur in complete censuses as well as sample surveys. In some instances, nonsampling error can be more tightly controlled in a well-conducted survey where it is feasible to collect and process the data more skillfully. Reinterview programs are often used to measure response variability and response bias. Estimation of other types of bias is one of the most difficult aspects of survey work, and often adequate measures of bias cannot be made

Nonsampling Error

The full extent of nonsampling error is unknown, but special studies have been conducted to quantify some sources of nonsampling error in the CPS. The effect of nonsampling error has been found to be small on estimates of change, such as month-to-month change. Estimates of monthly levels are generally more severely affected by nonsampling error. Response error, nonresponse error, error in independent population controls, processing error, and coverage error are types of nonsampling error that affect the CPS.

Response Error. CPS estimates are subject to response errors made during data collection. These errors include the inability to obtain information about all persons in the sample, differences in the interpretation of questions, inability or unwillingness of respondents to provide correct information, and inability to recall information. Errors occurring during the interview phase of the survey are studied by means of a reinterview program. This program is used to estimate various sources of error as well as to evaluate and control the work of the interviewer. A random sample of each interviewer's work is inspected through reinterview at regular intervals. The results indicate, among other things, that the data published from the CPS are subject to moderate systematic biases.

Nonresponse Error. In a typical month, about 6-7 percent of occupied sample households are not interviewed because residents are not at home, refuse to cooperate, or are unavailable for other reasons. During estimation, sample weights are adjusted to account for households not interviewed. To the extent that interviewed households differ from those not interviewed, the estimates are biased. Similarly, for a relatively few households, some questions are left unanswered, either because respondents were unable or unwilling to answer or because of interviewer error. Entries for omitted items are usually imputed on the basis of the distributions of these items for persons of similar demographic characteristics.

Independent Population Controls. Although the use of independent population estimates in the estimation procedure substantially improves the statistical reliability of many CPS estimates, the independent estimates are also subject to error. Population controls used in CPS estimation are derived from the 1990 census counts, adjusted for the census undercount. Errors may arise in the independent population estimates because of underenumeration of certain population groups or errors in age reporting in the last census, or similar problems in the components of population change (mortality, immigration, etc.) since that date. Also, errors in estimated components of change since the last census affect the accuracy of inter-censal population estimates; these in turn add to error in CPS estimates. The Census Bureau used data from the 1990 Post Enumeration Survey (a sample survey) to estimate the undercount. The adjusted census population estimates are thus subject to sampling error as well as nonsampling error.

Processing Error. Although the CPS employs computer-assisted interviewing and a quality control program on coding and all other phases of data processing, some processing error is inevitable in large surveys. Net CPS processing error is probably negligible relative to sampling error and other nonsampling errors.

Coverage Error. Undercoverage in the CPS results from missed housing units and missed persons within sample households. The CPS covers about 92 percent of the decennial census population (adjusted for the undercount). It is known that the CPS undercoverage varies with age, sex, race, and Hispanic origin. Generally undercoverage is larger for men than for women and larger for blacks, Hispanics, and other races than for whites.

Ratio adjustment to independent age-sex-race-origin population controls, described later in the Estimation section, partially corrects for the biases due to survey undercoverage. However, biases exist in the estimates to the extent that missed persons in missed households or missed persons in interviewed households have different characteristics than interviewed persons in the same age-sex-race-origin group.

Sampling Error

When a sample rather than the entire population is surveyed, estimates differ from the true population values that they represent. This difference, or sampling error, occurs by chance, and its variability is measured by the standard error of the estimate. Sample estimates from a given survey design are considered unbiased when an average of the estimates from all possible samples would yield, hypothetically, the true population value. In this case, the sample estimate and its standard error can be used to construct approximate confidence intervals, or ranges of values, that include the true population value with known probabilities.

If the process of selecting a sample from the population were repeated many times and an estimate and its standard error calculated for each sample, then:

1.) **Approximately 68 percent of the intervals from one standard error below the estimate to one standard error above the estimate would include the true population value.**

2.) **Approximately 90 percent of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the true population value.**

3.) **Approximately 95 percent of the intervals from two standard errors below the estimate to two standard errors above the estimate would include the true population value.**

Although, as indicated above, the estimating methods used in the CPS do not produce unbiased estimates, biases for most estimates are believed to be small enough so that these confidence interval statements are approximately true. Since it would be too costly to develop standard errors for all CPS estimates, generalized variance function techniques are used to calculate sets of standard errors for various types of labor force characteristics. Standard errors computed from these methods reflect contributions from sampling errors and some kinds of nonsampling errors and indicate the general magnitude of an estimate's standard error rather than its precise value. Standard error tables are provided in the monthly publication Employment and Earnings.

CPS Monthly and Annual Reliability Criterion

Data reliability is measured by calculating the coefficient of variation (CV) of the unemployment level, where the CV is defined as the standard error of the estimate divided by the estimate itself. The CPS sample design takes into consideration both national and State reliability.

The sample design maintains a 1.9 percent CV on national monthly estimates of unemployment level. A 6-percent unemployment rate is assumed. This means a month-to-month change in the unemployment rate must exceed 0.2 percentage point to be considered statistically significant at a 90-percent confidence level.

For each of the 50 States and for the District of Columbia, the design maintains a CV of at most 8 percent on the annual average estimate of unemployment level, again assuming a 6-percent unemployment rate. Due to the national reliability criterion, samples for the more populous States are substantially larger than the State design criterion requires. As a result, annual average unemployment estimates for large States such as California, Florida, New York, and Texas, for example, carry a CV of less than 4 percent.

Sample Design

Introduction

Since the inception of the survey, there have been various changes in the design of the CPS sample. The sample is redesigned and a new sample selected after each decennial census. Also, the number of sample areas and the number of sample persons are changed occasionally. Most of these changes are made in order to improve the efficiency of the sample design, increase the reliability of the sample estimates, or control cost. The CPS sample is designed to produce reliable monthly unemployment estimates for the nation and reliable annual average estimates for the 50 States and the District of Columbia.

In the first stage of sampling, sample areas, called Primary Sampling Units (PSUs), are chosen. In the second stage, Ultimate Sampling Unit (USUs) clusters, composed of about four housing units each, are selected. Sample sizes and sampling rates are determined by the specified reliability requirements. A sample rotation scheme is used to improve reliability of month-to-month and year-to-year change estimates without overburdening any specific group of households with an unduly long period of inquiry.

Selection of PSUs (First Stage of Sampling)

The entire area of the United States, consisting of 3,141 counties and independent cities, is divided into 2,007 primary sampling units (PSUs). There are several criteria used for determining PSUs.

1.) PSUs are defined within States and do not cross State boundaries.

2.) In most States, a PSU consists of a county or a number of contiguous counties. In New England and Hawaii, minor civil divisions are used instead of counties.

3.) Metropolitan areas within a State are used as a basis for forming many PSUs.

4.) They are usually less than 3,000 square miles, with population of at least 7,500. They are not of extreme length in any direction and include no natural boundaries

5.) Outside of metropolitan areas, two or more counties are normally combined to form PSUs except where the geographic area of the sample county is too large. Combining counties to form a PSU

provides greater heterogeneity; a typical PSU includes urban and rural residents of both high and low economic levels, and encompasses, to the extent feasible, diverse occupations and industries. Another important consideration is that the PSU be sufficiently compact so that, with a small sample spread throughout, it can be efficiently canvassed without undue travel cost.

Stratification of Primary Sampling Units

The most populous PSUs in a State are generally included in the CPS with certainty. These are called self-representing (SR) PSUs. The remaining PSUs in a State are called non-self-representing (NSR) PSUs. A probability sample of these NSR PSUs is selected for the CPS from defined strata. There are 428 SR PSUs and 326 NSR PSUs in the 1997 CPS sample.

The non-self-representing PSUs in a State are stratified and one PSU is sampled per stratum. Stratification refers to the technique of splitting a larger population (the State) into smaller subpopulations which are sampled separately. The number of strata formed varies by State, and ranges from 1 in the District of Columbia to 42 in Texas. Information on PSU population, travel costs for data collection, and other costs is used to determine the optimum number of strata. The NSR PSUs in a stratum do not have to be contiguous. An algorithm is used to place "similar" NSR PSUs in the same stratum, then any one PSU can appropriately represent the entire stratum. A variety of demographic and economic variables are used to stratify the PSUs, and these differ by State. The basic variables used in most States are: male unemployed, female unemployed, families with a female head of household, and proportion of households with 3 or more persons.

A typical stratum has 2-6 non-self-representing PSUs. The one NSR PSU chosen from a stratum represents not just itself, but the entire stratum.

The probability of selecting a particular PSU in a non-self-representing stratum is proportional to its 1990 population. For example, within a stratum, the chance that a PSU with a population of 50,000 would be selected for the sample is twice that for a PSU having a population of 25,000.

The chosen NSR PSU represents the stratum for the entire decade of the sample design. A technique called "controlled selection" is actually used to maximize the overlap of NSR PSUs between designs.

Selection of Households Using Census Data

Because the sample design is State-based, the sampling ratio differs by State and depends on State population size as well as national and State reliability requirements. The State sampling ratios range roughly from 1 in every 100

households to 1 in every 2,500 households. The sampling ratio used within a sample PSU depends on the probability of selection of the PSU and the sampling ratio for the State.

The 1990 within-PSU sample design uses census block level data from the 1990 decennial census. A census block is a geographic area, patterned after a "normal" city block, which encompasses approximately 40 housing units. Normally, census blocks are bounded by streets and other prominent physical features such as rivers or railroad tracks. County, Minor Civil Division, and census place limits also serve as block boundaries. In cities, blocks can be bounded by four streets and be quite small in land area. In rural areas, blocks can be several square miles in size.

For purposes of sample selection, census blocks are grouped into three strata: "units", "group quarters", and "area". The unit stratum contains regular housing units with addresses that are easy to locate (e.g., most single family homes, townhouses, condominiums, apartment units, and mobile homes). The group quarters stratum contains housing units where residents share common facilities or receive formal or authorized care or custody. The area stratum contains blocks with addresses that are more difficult to locate. Area blocks exist primarily in rural areas.

These strata are then sampled using sampling intervals which preserve each individual State's sampling ratio. To reduce the variability of the survey estimates and to ensure that the within-PSU sample reflects the demographic and socioeconomic characteristics of the PSU, blocks within the unit, group quarters, and area strata are sorted using geographic and block-level data from the census. Examples of the census variables used for sorting include proportion of minority renter-occupied housing units, proportion of housing units with female householders, and proportion of owner-occupied housing units.

By grouping, sorting, and systematically sampling these strata, the sampling process insures that the ultimate sampling units (USUs) selected within the PSU reflect the demographic and socio-economic characteristics of the PSU as a whole. This design reduces the within-PSU variance, compared to the variances associated with a simple random sample of units within the PSU.

A USU is a cluster of four, mostly contiguous, housing unit addresses which come into the sample and are interviewed at the same time. It is more efficient, in terms of travel time and cost, to sample clusters of housing units, as opposed to sampling individual units.

Units in the three strata described above all existed at the time of the 1990 decennial census. A sample of building permits, collected by the States in an ongoing cooperative procedure, is included in the CPS to represent housing units built after the decennial census. Adding these newly-built units keeps the sample up-to-date and representative of the population. It also helps to keep the sample size stable. Over the life of the sample, the addition of newly-built housing units compensates for the loss of "old" units which may be abandoned, demolished, or converted to nonresidential use.

CPS State Sample Sizes and Sampling Ratios

The CPS sample is selected from within the PSUs identified above. The CPS has a State-based sample design which allocates the sample in such a way that each of the States and the District of Columbia has the same minimum target reliability on their annual average estimates. A national reliability criterion is also set. Because the sample design is State-based, the sampling ratio differs by State and depends on the various demographic characteristics of each State. The State sampling ratios vary from approximately 1 in every 100 to 1 in every 3,000 households in each stratum of the State. The sampling ratio is occasionally modified slightly to hold the size of the sample relatively constant given the overall growth of the population. (This is called "sample maintenance reduction".) In determining sample size, a number of factors are taken into account including population density, average household size, and variance in the unemployment rate across areas in the State. The preliminary sample size estimate for households is adjusted by a factor which increases the sample size to account for the normal sample loss of eligible households that occurs due to household vacancies, buildings demolished, etc.

The table below provides CPS sample sizes, assigned and eligible, for each State, Los Angeles PMSA, balance of California, New York City, balance of New York State, the District of Columbia, and the United States, as of January 1996.

CPS Sample Sizes, as of January 1996

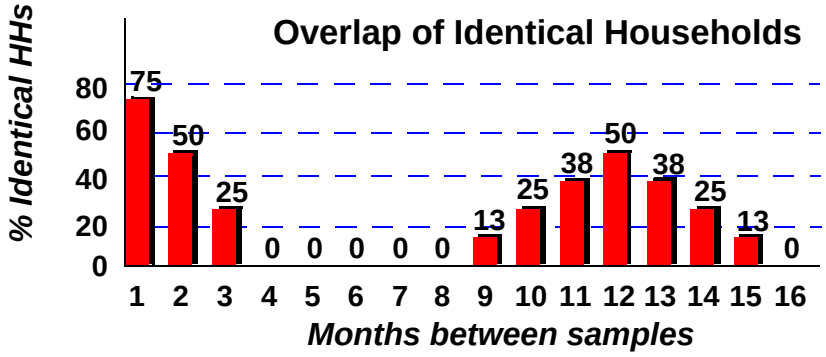
Area	Assigned	Eligible	Area	Assigned	Eligible
United States	59,181	50,052	Missouri	778	668
Alabama	845	717	Montana	990	777
Alaska	887	662	Nebraska	823	710
Arizona	962	745	Nevada	722	616
Arkansas	874	732	New Hampshire	682	517
California	4,573	4,055	New Jersey	1,706	1,501
Los Angeles PMSA	1,828	1,626	New Mexico	894	695
Balance of California	2,745	2,429	New York	3,869	3,307
Colorado	824	713	New York City	1,691	1,472
Connecticut	618	550	Balance of New York	2,178	1,835
Delaware	678	545	North Carolina	1,594	1,297
District of Columbia	797	662	North Dakota	862	691
Florida	3,051	2,468	Ohio	2,144	1,924
Georgia	999	849	Oklahoma	1,027	822
Hawaii	670	560	Oregon	763	653
Idaho	940	740	Pennsylvania	2,574	2,193
Illinois	2,270	2,005	Rhode Island	678	566
Indiana	821	707	South Carolina	777	627
Iowa	813	710	South Dakota	915	760
Kansas	828	709	Tennessee	803	681
Kentucky	844	713	Texas	2,761	2,333
Louisiana	891	731	Utah	729	629
Maine	845	607	Vermont	769	556
Maryland	784	628	Virginia	938	823
Massachusetts	1,382	1,177	Washington	871	724
Michigan	1,995	1,765	West Virginia	960	797
Minnesota	864	732	Wisconsin	869	739
Mississippi	847	689	Wyoming	956	725

The probability design of the CPS is self-weighting, meaning that each housing unit in a State is given an equal chance of selection. The sampling ratio used within a sample PSU depends on the probability of selection of the PSU and the sampling ratio for each State. In a sample PSU with a probability of selection of 1 in 10 and a state sampling ratio of 3,000, a within-PSU sampling ratio of 1 in 300 achieves the desired overall ratio of 1 in 3,000 for the stratum.

The Sample Rotation Design

The best estimates of month-to-month change would be obtained by surveying the same households each month, or 100-percent sample overlap. However, indefinitely surveying a single sample of households could lead to respondent "fatigue" or "exhaustion" and the probability of increases in refusals and in respondent errors.

Therefore, part of the sample is changed each month. Each monthly sample is divided into eight representative subsamples, or rotation groups. A given rotation group is interviewed for a total of 8 months, divided into two equal periods. It is in the sample for 4 consecutive months, leaves the sample during the following 8 months, and then returns for another 4 consecutive months. In any one month, one of the eight rotation groups is in the first month of enumeration, another rotation group is in the second month, and so on. Under this system, 75 percent of the sample is common from month to month and 50 percent from year to year for the same month. (See following chart.) This procedure provides a substantial amount of month-to-month and year-to-year overlap in the sample, thus providing better estimates of change and reducing discontinuities in the series of data without burdening any specific group of households with an unduly long period of inquiry. However, the overlap creates a correlated error which must be taken into account in the State-estimation modeling process. (See Chapter 6.)



The rotation plan used for the CPS sample also introduces nonsampling error, referred to as month-in-sample bias. This bias generally refers to the observed phenomenon of rotation groups differing, when theoretically they should have approximately equal measurements. The 4-8-4 rotation pattern adds an additional dimension to the month-in-sample bias because of factors related to the large overlap of households from one month to the next and one year to the next. Samples with large numbers of overlapping units should have a high degree of consistency with regard to interview responses. However, in repeated CPS interviews, the later interviews yield consistently higher or lower estimates than earlier interviews.

Unemployment data exhibit the most pronounced month-in-sample bias, with various subgroups, such as nonwhites and females, exhibiting more bias than the general population. Historically, the following national trends have been fairly regularly demonstrated:

- *The unemployment rate drops from month-in-sample one to month-in-sample two and from month-in-sample five to month-in-sample six.*
- *There is an overall trend for the rate to decline from month-in-sample one to month-in-sample eight.*
- *There is an increase, or surge, in the unemployment rate from month-in-sample three to month-in-sample four and from month-in-sample seven to month-in-sample eight.*
- *There is general agreement that the month-in-sample four and eight "surges" are attributable to the probing questions on discouraged workers asked in those months. These questions apparently elicit information that changes previous negative responses regarding the "looking for work" questions, to positive responses. Thus, more unemployed persons are identified. This probing was formerly done in months-in-sample one and five, and significant changes in reported responses result when the shift was made to months-in-sample four and eight.*

It has also been observed that CPS sample responses vary from one month to the next. There are a number of theories to explain this phenomenon. One suggests that for a variety of reasons, sub-groups of potential respondents are successfully interviewed at different rates. The degree of differential response can change from one month-in-sample to another. For example, suppose that employed persons living alone are harder to find than other persons in month-in-sample one (since, often, no one is at home when the interviewer calls). If arrangements are made with those contacted in month-in-sample one to retain them in month-in-sample two,

then month-in-sample two could have a better representation of employed persons living alone, relative to other persons, than month-in-sample one.

Because month-in-sample bias is believed to exist in the CPS, it is controlled for in the compositing portion of the estimation process covered later in this chapter. When the two components of the composite estimate are combined, a month-in-sample bias adjustment is added to adjust for the relative bias associated with month-in-sample.

Data Collection

The housing units which belong to the selected USUs are called "designated" households. The list of designated households is a preliminary list of potential addresses to be sampled. Nationally, there are approximately 59,000 designated households on this list. This list of designated household units is then refined by adding households found by reviewing building permits and subtracting housing units that have been demolished, converted to business use, relocated, or are in the sample by mistake (i.e., units are nonresidential). The result of this refining process is a list of "assigned" households.

This group of assigned households undergoes further refinement when interviewers canvas the areas removing vacant housing units, vacant sites for tents or mobile homes, units occupied by persons with usual residence elsewhere, or units converted to temporary nonresidential use. These are called "Type B" noninterviews. An additional noninterview type, "Type C", occurs when the CPS collector finds a building demolished, converted to permanent nonresidential use, or moved from a site.

The remaining households are called "eligible" households. There are approximately 50,000 eligible households nationally.

CPS data are collected each month during the week containing the 19th day of the month. Respondents are asked about their labor force activity for the entire preceding week—the week containing the 12th. A week is defined as Sunday through Saturday. The data are collected by approximately 1,650 interviewers.

Personal visits are required in the first and fifth months that the household is in the sample. If no one is at home when the interviewer visits, the respondent may be contacted by telephone after the first month. Approximately 60 percent of the households in any given month are interviewed by telephone. About 12 percent of the households are interviewed via the Computer Assisted Telephone Interview (CATI) system from the CATI Collection Centers in Hagerstown, Maryland; Jefferson, Indiana; and Tucson, Arizona.

On the first visit, the interviewer prepares a roster of the household members and completes a questionnaire for each person 16 years of age and older. The roster is updated with each visit. The interviewer does not ask directly if the person is employed, unemployed, or not in the labor force because of potential bias from the different interpretations these terms might have. Instead, a series of questions are asked that allow a

basic assignment to one of these three categories to be made. A Computer Assisted Personal Interview (CAPI) is conducted by the interviewers during each visit. Each interviewer has a laptop computer with a computerized version of the CPS questionnaire. When the interviewer has completed a day's interviews, the data are transmitted to the Census Bureau's central computer in Washington, D.C. Once files are transmitted to the main computer, they are deleted from the laptops.

Each month about 50,000 occupied units and approximately 100,000 individuals are eligible for interview, and information is obtained for about 94,000 persons aged 16 and older. On average, between 6 and 7 percent of these households are contacted but interviews are not obtained because the occupants are not at home (after repeated calls) or are unavailable for other reasons. These are called "Type A" noninterviews.

Training and Quality Control

The sophisticated computer-based technology for the CPS requires specific training and quality control procedures. CPS interviewers receive a combination of home study, classroom, and field training, with monitoring and periodic review and evaluation by CPS supervisory staff. Initial training includes fifteen hours of home study, five days of classroom training sessions with mock interview practice sessions, additional home study exercises during the first few months in the field, supervised field data collection on selected days, and closely monitored official data collection. Ongoing training includes two day-long classroom refresher training sessions per year, monthly home study exercises, and one annual observed field data collection (by supervisory staff). Staff at the CATI data collection centers are subject to random monitoring of interviewing by supervisory staff.

The data collection technology and the questionnaire provide an opportunity to build functions to assist and improve data quality into the system itself. The automated skip pattern not only allows more complex relationships between questions, but also eliminates the chance that an interviewer might inadvertently follow an incorrect skip path. Built-in range checks for responses alert interviewers to possible inaccuracies.

Quality control procedures for the CPS are extensive, with more than 20 percent of the CPS budget spent on training and quality control. The procedures include extensive data checking and editing of the raw data by Census staff. Using information from the completed questionnaire as well as additional comments provided by the interviewer in a "real-time" comments file stored in the computer, the Census Bureau staff review and edit the information obtained for each person in the sample, and, where possible, identify and correct omissions, unintelligible entries, and other errors.

Quality control procedures also include monitoring “on line” CATI interviews by Census Bureau supervisory staff; a system of reinterviews where about 5 percent of the sample is reinterviewed and responses compared with initial interview responses; and monthly feedback to the field staff on any errors, omissions, or inconsistencies detected by the computer edits.

Estimation Procedures

There are six main steps to the estimation process in the CPS; editing of raw data and imputation, basic weighting, noninterview adjustment, ratio adjustment, compositing estimates, and seasonal adjustment. This process takes the raw data from the CPS interviews, edits it, weights it to represent the population as a whole, adjusts the data for nonresponse and consistency with independently derived population counts for demographic sub-groups, combines current estimates with estimates for the prior month to reduce the variability of the data, and adjusts for seasonality.

Data Editing and Imputation

Raw CPS data are corrected for inconsistencies or missing items to make them suitable for use in estimation. This process is completed by Census staff at a central location in Suitland, MD, and involves two steps: editing of the raw data and imputing for missing or unacceptable data items.

Editing involves identifying and, where possible, correcting inconsistencies, omissions, illegible entries, and other errors in the raw data. When the data are received at the national Census Bureau, they are once again reviewed for completeness and consistency. Responses to various survey questions are interpreted and combined to classify respondents as employed, unemployed, or not in the labor force.

Imputation involves correcting for item nonresponse – the case in which interviewed persons do not respond to all of the survey questions or their answers to some questions are deleted during the editing process. The empty data cells are filled using the "hot deck" method of imputation, which is based on the premise that persons with similar characteristics provide data that are a good approximation for the missing responses. In the "hot deck" method, data for all interviewed persons are cross-classified by age/sex/race and geography. Missing answers are imputed from the most recently processed record for a person in the same age/sex/race/geography cell.

Basic Weighting

The basic weighting procedure begins the process of inflating the sample data to produce an estimate for the entire population. In the basic weighting procedure, data from each sample person are weighted by the inverse of the probability of the person being in the sample. This is roughly equal to the number of actual persons the sample person represents. Thus, adding the basic weights of all sample persons having a given characteristic yields a simple unbiased estimate of the number of persons in the population possessing that characteristic.

When a selected cluster of housing units is found to have many more units than expected, field subsampling is carried out. Appropriate special weights, reflecting the subsampling of the cluster, are then applied to the sample data.

Noninterview Adjustment

The weights for all interviewed households are adjusted to account for occupied sample households for which no information was obtained because of absence, impassable roads, refusals, or unavailability of the respondents for other reasons (Type A noninterviews). This noninterview adjustment is made separately for clusters of similar sample areas that are usually, but not necessarily, contained within a State. Similarity of sample areas is based on Metropolitan Statistical Area (MSA) status and size. Within each cluster, there is a further breakdown by residence. Each MSA cluster is split by "central city" and "balance of the MSA". Each non-MSA cluster is split by "urban" and "rural" residence categories. The proportion of sample households not interviewed averages between 6 and 7 percent, depending upon weather, vacations, etc.

Sample units found vacant, demolished, or converted to nonresidential use (Types B and C noninterviews) are excluded from those counted for the numerator of this ratio because such units are out of the scope of the survey.

Ratio Adjustment

The distribution of the population selected for the sample may differ somewhat, by chance, from that of the population as a whole in such characteristics as age, race, sex, and State of residence. Because these characteristics are closely correlated with labor force participation and other principal measurements made from the sample, the survey estimates can be substantially improved when weighted appropriately by the known distribution of these population characteristics. This is accomplished through two stages of ratio adjustment, as follows:

1.) **First-stage ratio adjustment - The purpose of the first-stage ratio adjustment is to reduce the contribution to variance that results from selecting a sample of PSUs rather than drawing sample households from every PSU in the Nation. This adjustment is made to the CPS weights in two race cells: black and nonblack. It is applied only to PSUs that are non-self-representing in States that have a substantial number of black households (approximately 20 States). The first-stage ratio adjustment procedure corrects for differences that existed in each State cell at the time of a decennial census between a) the race distribution of the population in sample PSUs and b) the race**

distribution of all PSUs. Both a) and b) above exclude self-representing PSUs. This adjustment is not made to housing units but to the individual household member record.

The first stage ratio adjustment factors do not depend on response data and remain the same from month to month during the entire intercensal period. The factors change when a new sample of PSUs is drawn after a decennial census. The factors also change if the non-self-representing PSU composition of a State changes for any other reason.

2.) Second-stage ratio adjustment - The second-stage ratio adjustment procedure substantially reduces the variance of the estimates and corrects, to some extent, for CPS undercoverage at the national level. The CPS sample weights are adjusted to ensure that sample-based estimates of population match national independent population controls. Each month, independent estimates of various civilian noninstitutional population distributions at the national level are produced based on the decennial census and birth and death data from several sources. Since those characteristics are correlated with labor force status and other items of interest, weighted CPS sample estimates are forced to agree with the known distributions of selected population characteristics.

The second-stage ratio adjustment (also known as "raking") is carried out in three basic steps. In the first step, the sample population and the labor force estimates are adjusted within each State and the District of Columbia using an independent control for the population 16 years and over. This forces the CPS State estimate to equal the independent State estimate. The second adjustment involves an adjustment by Hispanic origin to a national estimate for 14 Hispanic and 5 non-Hispanic age-sex cells. In the third step, a national adjustment is made by the race categories of white, black, and other races to independent estimates by age and sex. The white and black categories contain 66 and 42 age-sex groups, respectively; the other races category has 10 age-sex cells. The entire second-stage ratio adjustment procedure is iterated six times, each iteration beginning with the weights developed during the previous iteration. This insures that the adjusted sample population estimates for both the States and the national age/sex/race/Hispanic origin categories will be virtually equal to the independent population controls for these categories.

The monthly independent State controls for the civilian noninstitutional population 16 years and over in the raking process are based on an arithmetic extrapolation of the trend in population growth (or decline) using the two most recent July 1 estimates, with all State estimates prorated to a current estimate of the U.S. population. The projections are derived by updating demographic census data with information from a variety of other data sources that account for births, deaths, and net migration. The National Center for Health Statistics (NCHS) provides the Census Bureau with data on births by age, sex, race, and Hispanic origin, although data for the latest month must be projected. Deaths by age, sex,

and race are also provided by NCHS, although the latest 6 months must be projected from a life table based on NCHS and Social Security Administration data. (The entire series of deaths for the Hispanic-origin population is projected.) Data on legal international immigration are obtained from the Immigration and Naturalization Service, the Puerto Rican Planning Board, and the Office of Refugee Settlement. Estimates of net undocumented immigration and permanent emigration of legal United States residents are modeled using data from surveys and other censuses. The net movement of U.S. citizens from overseas to the United States is estimated based on data provided by the Department of Defense and the Office of Personnel Management (for military and civilian Federal Government personnel and their dependents). Other net migration is assumed to be zero. Most of the data are characterized as administrative, although some data for recent months must be projected. Thus, while the data are not subject to sampling error, they may contain nonsampling error and bias. Estimates of net census undercount, determined from the Post Enumeration Survey, are added to the population projections.

Composite Estimation

The last step in the preparation of most CPS estimates makes use of a composite estimation procedure. Statistical theory states that the estimate of a quantity can be improved if two (or more) estimates of that quantity, obtained by different methods, are combined. This technique is called compositing.

The composite estimate consists of a weighted average of two estimates:

1.) **The second-stage ratio estimate based on the entire sample from the previous month. (This estimate receives a weight of 60 percent.)**

and

2.) **An estimate for the current month obtained from the prior month's final (composited) estimate updated by adding an estimate of over-the-month change based on the sample common to both months (about 75 percent of households). (This estimate receives a weight of 40 percent.)**

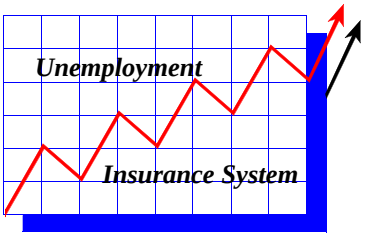
In addition, a bias adjustment term is added to the weighted average to account for relative bias associated with month-in-sample estimates. This month-in-sample bias is exhibited by unemployment estimates for persons in their first and fifth months in the CPS being generally higher than estimates obtained for the other months.

The composite estimate results in a reduction in the sampling error beyond that which is achieved after the two stages of ratio adjustment by taking advantage of the sample overlap of the survey. For some items, the reduction is substantial. The resultant gains in reliability are greatest in estimates of month-to-month change, although gains are also usually obtained for estimates of level in a given month, change from year to year, and change over other interval of time.

Seasonal Adjustment

Seasonal events, such as weather changes, harvests, major holidays, and school openings and closings cause fluctuations in employment and unemployment levels. Seasonality, which may account for as much as 95 percent of month-to-month unemployment change, obscures nonseasonal trends and cyclical movements. Since seasonal fluctuations follow fairly regular annual patterns, their influence can be eliminated from data series through seasonal adjustment. The X-11 ARIMA procedure, a process employed by the CPS, is based on the standard ratio-to-moving average method from time series analysis.

Seasonal adjustment involves using past data to approximate seasonal patterns. The seasonally adjusted series therefore have a broader margin for error than the original data series. They are subject to the same errors as the original series plus the uncertainties of the seasonal adjustment process. Adjusted series are, however, useful in analyzing nonseasonal economic and social trends. (See Chapter 6 for a more complete discussion of seasonal adjustment.



3 *Inputs to LAUS Estimation: The Unemployment Insurance System*

The Federal-State Unemployment Insurance (UI) system was established in 1935 as part of the Social Security Act. It was intended by its founders to serve both as a counter-cyclical economic stabilizer for the economy and as a central part of the nation's economic security system for workers with a strong attachment to the labor force who are temporarily laid off or permanently lose their jobs. The program is funded through mandatory payroll taxes paid by employers. In addition to the State UI programs which cover the bulk of nonfarm workers, separate Federal UI programs exist for railroad workers through the Railroad Retirement Board (RRB), for Federal employees through Unemployment Compensation for Federal Employees (UCFE), and for ex-servicemen through the Unemployment Compensation for Ex-Servicemen (UCX).

Each State law, subject to federal requirements, establishes guidelines determining employer coverage, individual employee eligibility, the amount and duration of benefits paid for claims, and disqualification provisions. State UI laws also determine the amount of payroll taxes, used to fund regular UI benefits, that employers must pay.

Statistics from the UI systems are the only current measure of unemployment at the substate level available at the county (and in some States, city) level. They are the major input to the Unemployment Rate models used to estimate unemployment for the 50 States, the District of Columbia, Los Angeles-Long Beach, the balance of California, and New York State minus New York City. (The UI claims series for New York City did not provide a reliable predictor of the unemployment level and are, therefore, not included in the regression model for

New York City.) Claims data from the UI systems are inputs to the Handbook method for estimating LMA unemployment, and their use in the claims-based unemployment disaggregation yields more accurate sub-LMA estimates than are obtained from decennial census-based approaches.

While these statistics are biased for estimating total unemployment between States in so far as they reflect the particular State's UI law and administrative practices, the statistics have the advantage of being current and, with proper coding and tabulation, are consistent among areas within States.

State Role

States are responsible for the following UI activities.

1.) **Claims-taking. The State UI offices accept initial claims information from individuals who are filing for benefits. This information may be obtained in person from the claimant in an Employment Service office, electronically from the claimant entering information in an Employment Service kiosk established for claims-taking, or over the telephone.**

2.) **Monetary eligibility determination. In accordance with the State's laws, the State determines if the individual is covered by the UI system and, if so, how much in benefits the individual is eligible to receive.**

3.) **Nonmonetary determination. The State disqualifies ineligible individuals from receiving benefits based on nonmonetary issues. These include the circumstances surrounding the loss of employment, ability to work, availability for work, and activity in seeking work.**

4.) **Benefits delivery. The State provides benefit payments to the unemployed individuals who successfully certify to a week of compensated unemployment. Benefits may be delivered under any of the following arrangements:**

- *Intrastate Benefit Arrangements. The State provides benefits to individuals who reside and worked in that State. The State also provides benefits to individuals who worked (and would continue to seek work) in the State but reside in a border (contiguous) State.*
- *Interstate Benefit Arrangements. To encourage a claimant to move from a State where no suitable work is available to one where there is a demand for the type of service the claimant is able to render, States have made agreements to protect the rights of workers who make such moves. These arrangements permit the collection of benefits from the State in which an individual has qualifying wages (Liable State) even though the claimant is not physically present in that State. The State in which the individual is located may accept the claim, acting as Agent for the State that is liable for the benefits claimed. The liable State may also accept the claim directly from the claimant by telephone or electronic means. Determinations on eligibility, disqualifications, and the amount and duration of benefits are made by the liable State.*
- *Wage-Combining Arrangements. This arrangement permits multi-State workers to combine their wages and employment in more than one State. This holds for situations where there are insufficient wages and employment to qualify for benefits in any one State and where, having sufficient wages and employment to qualify for benefits in one State, the benefit amount would be increased by combining wages and*

employment in other States. In addition, this arrangement permits workers having sufficient wages and employment to qualify for benefits in more than one State, to combine their wages in those and any other States in which they had wages and employment in the base period of the liable State.

UI Coverage

Each State has determined its own laws regarding UI coverage, but they have been greatly influenced by the federal government. The Federal Unemployment Tax Act (FUTA) provides tax incentives that have ensured States' conformity with the minimum coverage standards set down in FUTA.

In general, a covered employer is defined under the FUTA as one who has a quarterly payroll of $1500 in the calendar year or preceding calendar year, or one worker in 20 weeks. While many States have chosen to expand coverage beyond the FUTA standards, the notable exceptions and limitations are noted below.

Agriculture

For the majority of States, only employers with ten or more workers in twenty weeks, or who paid $20,000 or more in wages in any quarter, are subject to unemployment insurance laws. Farm owners/operators are excluded from coverage in all states.

Domestic Service

Private households, social clubs, and college fraternities and sororities which employ domestic help and pay wages of $1,000 or more in a quarter are subject to unemployment insurance laws.

Nonprofit Organizations

Coverage is required for nonprofit organizations with four or more employees in 20 weeks. Almost half of the States, however, have elected more expansive coverage, typically covering any organization with even one employee in twenty weeks. Ministers employed by religious organizations to perform ministerial duties are excluded from nonprofit coverage.

Self-employed Individuals and Unpaid Family Members

As defined by the unemployment insurance laws, employment is the hiring of workers by others for wages. Self-employed individuals are therefore excluded, except in California, where they may elect to pay contributions for self-coverage. Relatives are not covered unless they receive pay from the official business payroll. However, the employment of minors by their parents, or parents by their children, is excluded.

Railroads

Interstate railroad workers are covered by the Railroad Unemployment Insurance Act administered by the Railroad Retirement Board. Workers on intrastate and scenic railroads may be covered.

State and Local Government Elected Officials and Others

All State and local government employees are covered under State UI laws with the exception of elected officials, members of the judiciary, State national and air national guardsmen, temporary emergency employees, and policy and advisory positions.

Student Workers at Universities, Interns and Student Nurses

College and university students employed by the school at which they are enrolled, such as work-study students, are excluded from coverage. Many States also exclude the spouses of students who work at the university if the employment is part of a program to provide financial assistance to the student. Student nurses employed by hospitals as part of a training program are not covered. Similarly, medical school graduates working as interns in hospitals are excluded from coverage.

Armed Forces

Military personnel are excluded from State unemployment insurance coverage. They are covered under a separate program, Unemployment Compensation for Ex-Servicemen, but are not included in ES-202 data. Civilian defense workers, however, and all other federal employees covered under the Unemployment Compensation for Federal Employees (UCFE) program are part of the data reported to the ES-202 program.

Agents on Commission

Insurance and real estate agents who are paid only by commission are excluded from coverage in almost all of the States.

Differences: UI Data versus the CPS

CPS data are used directly to produce official labor force estimates for the nation. According to CPS concepts, a person who did any work at all for pay (or at least 15 hours unpaid in a family business) during the survey reference week (generally the week including the 12th of the month) is employed. Differences between the State UI count of continued claimants without earnings and CPS unemployed result primarily from differences in program coverage of the unemployed by the UI system.

Certain industries and occupations are excluded from UI coverage, including:

- *employees of certain nonprofit organizations;*
- *insurance and real estate agents on commission;*
- *agricultural workers on small farms and certain seasonal farm workers;*
- *some domestic workers;*
- *self-employed persons;*
- *unpaid family workers;*
- *some State and local government employees;*
- *student nurses and interns in hospitals; and*
- *railroad workers (covered under the RRB program).*

Certain individuals may not be able to receive UI benefits, including:

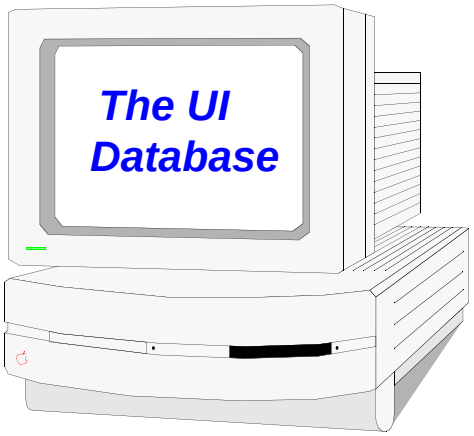
- *people who have not worked long enough and therefore have insufficient wages to establish eligibility for benefits under UI;*
- *people who quit a job or were discharged for misconduct;*
- *people who have exhausted their benefits and could not re-establish a benefit year; and*
- *people with no recent earnings, such as new entrants or reentrants to the labor market.*

Most States require a waiting period before individuals can receive benefits. A waiting period is a noncompensable period of unemployment in which the individual must otherwise have been eligible for benefits. Typically, the waiting period is one week.

BLS Standards for UI Data

UI Data Standardization: The UI Database Survey

Beginning in 1975 an effort was undertaken by BLS to survey the State UI database systems. There were two primary reasons for the survey. The first was to determine the nature of the data obtained for LAUS purposes, and the second was to contract with States to modify their systems where necessary to achieve more uniform data series.



A plan of action was developed to eliminate inconsistencies in UI statistics both between and within States as compared to official labor force concepts. Claimant data that represented an unduplicated count of individuals by State and county of residence for the appropriate reference period and with maximum adherence to the CPS definition of unemployment in terms of any earnings due to employment in the week of certification was the focus. These characteristics—unduplicated count of persons, residency, reference period, and exclusion of persons with any earnings—are essential elements for UI claimant statistics used in unemployment estimation, and are areas where improvement efforts have been concentrated.

To obtain an unduplicated count of persons, Social Security numbers are used. Also, the use of the week of certification precludes multiple counting because an individual can certify only once to a week of unemployment.

Basing the UI statistics on claimant residency rather than more program-related locations such as local office or place of employment ensures correspondence with official labor force concepts. Proper residency coding affects all LAUS uses of UI data.

The requirement that UI statistics relate to the week including the 12th of the month also ensures correspondence with the official labor force estimates.

The exclusion of persons with any earnings make the data consistent with the CPS, where one hour of pay qualifies an individual as employed.

Standards for Residency Coding

With Federal funds allocated to areas below the State level, the use of claims data by residence is imperative, not only as a determinant of the labor market area's total unemployment estimate, but also in the development, through disaggregation, of county and subcounty estimates.

State and County of Residence

The residency requirement for claims data calls for the coding and tabulating of claimants by State and county of residence. The geographic requirement applies to counties within the State paying the benefits (or acting as agent State for interstate claims) and to counties in contiguous States whose residents cross State lines to file intrastate claims in the State holding their wages and paying the benefits (commuter claimants). If State claims documents (either intrastate or interstate) are preprinted with the State code, border State codes must be entered for commuter claimants to insure correct residency information.

Commuter Claimants

Commuter claimants are individuals who worked and would continue to seek work in one State while living in another State. These claimants are treated as if they reside in the State of employment and file intrastate initial claims in the State in which they had worked.

Interstate Claimants

Interstate claimants are individuals who file claims for compensation either through the facilities of an agent State (usually their State of residence) or directly to the liable State (the State in which the last employer is located) via the telephone or electronically.

Continued Claimants and Final Payment Recipients

Two insured unemployed counts, continued claimants and final payment recipients, are used in the development of Handbook LMA unemployment estimates and for the model-based unemployment estimation procedure. Continued claimants are persons certifying to a compensated or noncompensated week of unemployment under the State UI and UCFE programs. Because

measurement is limited to the labor force status of the civilian population, the UCX program is excluded. Continued claimant groups include intrastate claimants, commuter claimants (based on State of residence), and interstate claimants (based on State of residence).

Persons receiving final payments are continued claimants certifying to a compensated week of unemployment which represents the last regular benefit payment in the benefit year because no further benefits are available until the beginning of a new benefit year.

The BLS standard of quality for these two insured unemployment counts is as follows:

- *the counts reflect the State and county of residence of the unemployed;*
- *the counts are unduplicated and based on the week of unemployment for which the claimant certified;*
- *for continued claimants, the claimant's week of certification is consistent with the CPS reference week (i.e., the week including the 12th of the month);*
- *for persons receiving final payments, the counts are weekly, based on the week for which the claimant is certifying; and*
- *the counts exclude persons with any earnings due to employment, regardless of their entitlement to full weekly UI benefits.*

Standards for Initial Claims

Initial claims counts may be used in atypical or exception procedures in the Handbook method to develop an estimate of those unemployed who are eligible for UI but delay filing or never file for unemployment benefits. (Estimates of delayed and never filers are no longer required in Handbook estimation, but it is useful to define the standards for initial claims.)

An initial claim is a notice filed to request determination of entitlement to and eligibility for compensation. A new initial claim is the first claim filed by the claimant within the benefit year. An additional initial claim is a second or subsequent claim filed by the claimant within the benefit year

after an intervening period of employment. The initial claims count which can be used in LAUS estimation includes both new and additional initial claims filed for State UI in the week including the 19th of the month.

Reference Period

Unlike continued claims which relate to a certification period in the past, initial claims do not refer to a reference period, but rather represent a point in time. Information requested on the initial claim form typically includes the date of filing, and the date of separation and the separating employer.

Excluded Groups

The following types of initial claims are excluded from consideration:

- *Invalid new initial claim. An initial claim where the individual is found to be monetarily ineligible for UI.*
- *Transitional initial claim. An initial claim filed by a claimant during a spell of unemployment in the last week of his/her benefit year, requesting an eligibility determination and establishment of a new benefit year. Because the claimant is in a continuous spell of unemployment and is also filing a continued claim, such transitional initial claims are excluded from the count representing new, emerging unemployment.*
- *Reopened claims. A claimant may cease certifying to unemployment and withdraw from the labor force. If this atypical action does not reflect an intervening spell of employment, the State may administratively reopen the claims series and allow the claimant to resume filing continued claims. These claims are not to be considered initial claims.*

Residency

Since the initial claims count may be an input into the Handbook estimate at the area level, the count must be tabulated by the State and county of residence of the claimant.

Standards for Nonmonetary Disqualification

Nonmonetary disqualification may be used in atypical or exception situations in the Handbook procedure to estimate the unemployed who are disqualified from receiving benefits but still meet the definition of unemployed in the CPS.

Unemployed Disqualified

All States disqualify claimants who voluntarily quit without good cause, who are discharged for misconduct, who refuse an offer of suitable work without good cause, as well as those whose unemployment results from a labor dispute. In

addition, individuals must also participate in reemployment services, such as job search assistance, if he/she is determined through a profiling system as likely to exhaust regular benefits. But, the definition of key terms like “good cause”, “misconduct”, and “suitable work” may differ from one jurisdiction to another.

In the UI system, a person not complying with requirements to be able, available, and actively seeking work will be disqualified from receiving benefits. In the CPS, if a person is not able to work or is not available for work, that person is out of the labor force, as is a person who has not actively sought a job in the previous four weeks. Therefore, in general, the outcome of unavailability for work is the same under UI and the CPS, that is, out of the labor force. However, in the UI system, the requirement is more stringent in terms of weekly activity.

In the UI system, a claimant will be considered unemployed and will receive benefits only if the claimant lost the job through no fault of his/her own. Therefore, people who voluntarily quit or are discharged for misconduct will not receive UI benefits. However, these individuals are counted as unemployed in the CPS.

Issues

In order to estimate the unemployed who are disqualified from receiving UI benefits only separation issue denials should be used. This count encompasses disqualifications for voluntary separation, termination for misconduct, and special statutory requirements including issues based on leaving a job, misconduct, and other issues.

Denials involving issues whereby disqualified claimants would be classified as out of the labor force are not used. This applies to denials for able, available, and actively seeking work requirements. Denials for refusal of suitable work are viewed as voluntary withdrawals from the labor market on the part of the disqualified claimants. Denials for disqualifying income are not used because of problems in differentiating between short-term postponement penalties and penalties of reductions in benefits which allow the individual to receive a reduced check. In the latter case, the claimant would appear in most cases as a continued claimant but with earnings. For the former, problems exist with the identification of the reference week in short-term disqualifications.

Reference Period

The basis for the week designation may be the week in which the determination was made, or the effective week of the penalty (disqualification), as defined by the State UI law. In most cases, the week

of the imposition of the penalty is used, due to the extensive revisions that would be required by using other determinations, such as the effective week of the penalty.

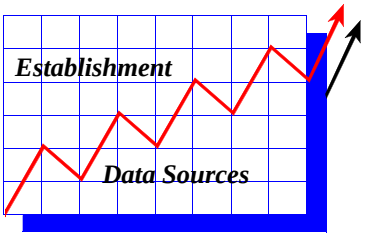
Types of Penalties

The penalties imposed on disqualified claimants vary considerably among the States. They may include one or a combination of the following: a postponement of benefits for some prescribed period, ordinarily in addition to the waiting period required of all claimants; a cancellation of benefit rights; or, a reduction of benefits otherwise payable. Disqualification means that benefits are denied for a definite period or for the duration of the period of unemployment.

The disqualification period may be for the week of the disqualifying act and a specified number of consecutive calendar weeks following, or for the duration of unemployment, or longer by requiring a specified amount of work or wages to re-qualify. The theory of a specified period of disqualification is that, after a time, the reason for a worker's continued unemployment is related more to the general conditions of the labor market than his/her disqualifying act.

Residency

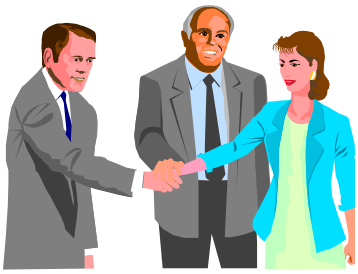
Since the separation issue disqualification count may be an atypical input to the Handbook estimate at the area level, the count should pertain to the State and county of residence of the claimant.



4 *Inputs to LAUS Estimation: Establishment Data Sources*

There are two establishment-based data sources for employment estimates. These are the Current Employment Statistics (CES) program and the Covered Employment and Wages Program, commonly referred to as the ES-202 program. The next two sections provide an overview of these two programs.

The Current Employment Statistics Program



The Current Employment Statistics (CES) survey is a Federal-State cooperative survey of approximately 400,000 business establishments nationwide. The program produces monthly employment estimates for the nation, each State, and 272 of the 334 Metropolitan Statistical Areas (MSAs) defined by the U.S. Office of Management and Budget.

The CES is an establishment survey that measures payroll jobs, unlike the Current Population Survey (CPS) which is a household survey that measures employed persons.

CES Concepts

Establishment. An establishment is defined in the CES as an economic unit, such as a factory, mine, or store, which produces goods or provides services. It is generally at a single physical location and engaged in one, or predominantly one,

type of economic activity. Where a single location encompasses two or more distinct activities, these are treated as separate establishments, provided that separate payroll records are available.

Employment. Employment is the total number of persons employed full- or part-time in nonfarm establishments during a specified payroll period. Temporary employees are included. In general, data refer to persons who worked during, or received pay, for any part of the pay period that includes the 12th of the month. For Federal government establishments, employment statistics relate to civilian employees only and are reported for the number of persons who occupied positions on the last day of the calendar month. Persons are considered employed if they receive pay for any part of the specified pay period, but they are not considered employed if they receive no pay at all for the pay period. Therefore, persons who are on paid sick leave (when pay is received directly from the firm), on paid holiday, on paid vacation, or who work during a part of the pay period even though they are unemployed or on strike the rest of the period are counted as employed. Not counted as employed are persons who are on layoff, on leave without pay, on strike for the entire period, or who were hired but have not yet reported to work during the pay period.

Since proprietors, the self-employed, and unpaid family workers do not have the status of paid employees, they are not included. Also excluded from the employed are farm workers and domestic workers in households. Salaried officers of corporations are included.

CES Estimation

The estimation methodology for the CES combines annual benchmarks from the Covered Employment and Wages program with monthly data from a sample survey to produce estimates of employment, hours, and earnings. All firms with 250 employees or more are asked to participate in the survey. A sample of smaller firms, with probability of selection proportionate to size, is also selected. The sample frame is the master list of establishments reporting to the Unemployment Insurance system and maintained as the Universe Maintenance System by BLS.

Sample distribution is obtained by stratifying the universe of establishments for each industry into employment-size classes. A total sample size sufficient to produce adequate employment estimates is then determined and distributed among the size classes in each industry based on the average employment per establishment and the relative importance of each size class to its industry. This amounts to distributing the total

number of establishments needed in the sample among the cells according to the ratio of the employment in each cell to the total employment in the industry.

Data are collected from the establishments surveyed on the report form BLS 790 or electronic equivalent. (The CES survey is often referred to as the 790 program.) CES estimates are made at a basic estimating cell level and then aggregated to industry total levels by simple addition. The CES employment estimates at the cell level are derived by the following steps:

Step 1. *A total annual benchmark is taken from ES-202 data.*

Step 2. *Employment data are gathered from a CES sample for the current month.*

Step 3. *A ratio of all employees from the current month to those in the previous month for each cell is computed from the sample of establishments reporting for both months. This ratio is called the "link relative".*

Step 4. *The final all-employee estimate from the previous month is multiplied by the link relative for the current month. This process begins with the benchmark month and moves forward to the next benchmark.*

In some States, and for the national estimates, a bias adjustment factor to account for new business births during the month is applied to the estimate for the current month creating a final all-employee estimate for the current month.

This method, the "link-relative technique", produces month-to-month changes for a matched sample of industry establishments. Aggregate monthly estimates are produced by industry and geographic area.

Benchmarks

The establishment survey constructs annual benchmarks in order to realign the sample-based employed totals for March of each year with the UI-based universe counts for March. These population counts provide an annual point-in-time census for employment.

Universe counts are derived from the administrative file of employees covered by UI. Approximately 99 percent of in-scope private employment is covered by UI. A benchmark for the remaining 1 percent is constructed from alternate sources, primarily records from the Interstate Commerce Commission and the Social Security Administration. The full benchmark developed for March replaces the March sample-based estimate for each basic cell. The monthly sample-based estimates for the year preceding and the year following the benchmark are also then subject to revision.

Monthly estimates for the year preceding the March benchmark are readjusted using a "wedge back" procedure. The difference between the final benchmark level and the previously published March sample estimate is calculated and spread back across the previous 11 months. The wedge is linear; eleven-twelfths of the March difference is added to the February estimates, ten-twelfths to the January estimates, and so on, back to the previous April estimates which receive one-twelfth of the March difference. This assumes that the total estimation error since the last benchmark accumulated at a steady rate throughout the current benchmark year.

Estimates for the 11 months following the March benchmark are also recalculated each year. These post-benchmark estimates reflect the application of sample-based monthly changes to new benchmark levels for March, and the recomputation of bias adjustment factors for each month. Bias factors are updated to take into account the most recent experience of the estimates generated by the monthly sample versus the full universe counts derived from the UI.

Reliability of Estimates

Although the relatively large size of the CES sample assures a high degree of accuracy, the estimates derived from it may differ from the figures that would be obtained if it were possible to take a complete census using the same procedures. Although the estimates are adjusted annually to new benchmarks, estimates subsequent to the benchmark month have several potential sources of error. The amount added each month for new establishments, for example, may be too high or too low. Changes in the industrial classification of establishments that result from changes in their product or activity between benchmark months are not reflected. In addition, small sampling and response errors may accumulate over several months as a result of the link relative technique of estimation used between benchmarks.

The Covered Employment and Wages Program

Background

The Covered Employment and Wages program, commonly called the ES-202 program, is a cooperative endeavor of BLS and the employment security agencies of the 50 States, the District of Columbia, Puerto Rico, and the Virgin Islands. Using quarterly data submitted by the agencies, BLS summarizes employment and wage data for workers covered by State unemployment insurance (UI) laws and for civilian workers covered by the program of Unemployment Compensation for Federal Employees (UCFE).

The ES-202 program is a comprehensive source of employment and wage data, by industry, at the national, State, and county levels. Unlike the CPS and CES programs which are monthly sample surveys, the ES-202 program is quarterly and provides a virtual census of nonagricultural employees and their wages. In addition, about 44 percent of all workers in agricultural industries are covered.

Sources of Data

There are five sources of data for the ES-202 program. They are initial status reports, quarterly contribution reports, multiple worksite reports, Federal Government reports, and annual refiling survey forms.

Initial Status Reports

Initial status reports are filed by new employers with the State UI tax unit to initially register their business. These reports provide basic business identification and classification information to establish a UI account. The employer's liability for UI taxes is determined from information provided in this report.

Quarterly Contributions Report (QCR)

QCRs are filed quarterly by all UI-liable employers to the State UI tax unit. These reports provide the name and social security number of covered workers who worked or received pay for the pay period which included the 12th of each month, the total wages paid to covered workers, the portion of total wages subject to unemployment insurance tax, and the employer contribution amount.

Multiple Worksite Report (MWR)

The MWRs are filed quarterly with the State ES-202 unit by most employers with more than one business establishment. The MWR provides establishment-level employment and wages data not otherwise available on the QCR.

Federal Government Reports

These reports are filed quarterly by most federal government agencies to report employment and wages data to the State ES-202 unit, in accordance with the Unemployment Compensation for Federal Employees (UCFE) program. Data for non-defense federal agencies are provided to the State ES-202 unit; information for civilian employees of the Department of Defense are reported directly to BLS-Washington.

Annual Refiling Survey Forms

UI-liable employers are surveyed by the State ES-202 units periodically to verify their location(s) and industry activity(ies). Employers are asked to verify physical location, mailing address, and industry and ownership information and to provide corrections if necessary.

Data Compilation

State agencies code and summarize the raw data, check for missing information and errors, and prepare imputations of data for delinquent reports. Each establishment is classified by its industrial activity and then independently by one of five ownership categories. (The five ownership categories into which establishments are classified are private industry, Federal government, State government, local government, and foreign or international government.) An establishment is an economic unit, such as a factory, mine, or store, which produces goods or provides services. It usually is at a single physical location and engaged in one, or predominantly one, type of economic activity, for which a single industrial classification may be applied. The Standard Industrial Classification Manual is used to classify the industry of each establishment.

Employment data represent the number of workers on the payroll of covered employers during the pay period including the 12th day of the month. Persons on the payroll of more than one firm are counted in each firm. Workers are reported in the State and county of the physical location of their job. Persons on paid sick leave, paid holiday, paid vacation, and so on, are included, but those on leave without pay for the entire payroll period, are excluded. The employment count also excludes employees who earned no wages during the entire applicable period because of work stoppages, temporary layoffs, illness, or unpaid vacations, and employees who earned wages during the month but not during the applicable pay period.

UI Coverage

Each State has determined its own laws regarding UI coverage, but they have been greatly influenced by the federal government. The Federal Unemployment Tax Act (FUTA) provides tax incentives that have ensured States' conformity with the minimum coverage standards set down in FUTA.

In general, a covered employer is defined under the FUTA as one who has a quarterly payroll of $1500 in the calendar year or preceding calendar year, or one worker in 20 weeks. While many States have chosen to expand coverage beyond the FUTA standards, the notable exceptions and limitations are noted below.

Agriculture

For the majority of States, only employers with ten or more workers in twenty weeks, or who paid $20,000 or more in wages in any quarter, are subject to unemployment insurance laws. Farm owners/operators are excluded from coverage in all states.

Domestic Service

Private households, social clubs, and college fraternities and sororities which employ domestic help and pay wages of $1,000 or more in a quarter are subject to unemployment insurance laws.

Nonprofit Organizations

Coverage is required for nonprofit organizations with four or more employees in 20 weeks. Almost half of the States, however, have elected more expansive coverage, typically covering any organization with even one employee in twenty weeks. Ministers employed by religious organizations to perform ministerial duties are excluded from nonprofit coverage.

Self-employed Individuals and Unpaid Family Members

As defined by the unemployment insurance laws, employment is the hiring of workers by others for wages. Self-employed individuals are therefore excluded, except in California, where they may elect to pay contributions for self-coverage. Relatives are not covered unless they receive pay from the official business payroll. However, the employment of minors by their parents, or parents by their children, is excluded.

Railroads

Interstate railroad workers are covered by the Railroad Unemployment Insurance Act administered by the Railroad Retirement Board. Workers on intrastate and scenic railroads may be covered.

State and Local Government Elected Officials and Others

All State and local government employees are covered under State UI laws with the exception of elected officials, members of the judiciary, State national and air national guardsmen, temporary emergency employees, and policy and advisory positions.

Student Workers at Universities, Interns and Student Nurses

College and university students employed by the school at which they are enrolled, such as work-study students, are excluded from coverage. Many States also exclude the spouses of students who work at the university if the employment is part of a program to provide financial assistance to the student. Student nurses employed by hospitals as part of a training program are not covered. Similarly, medical school graduates working as interns in hospitals are excluded from coverage.

Armed Forces

Military personnel are excluded from State unemployment insurance coverage. They are covered under a separate program, Unemployment Compensation for Ex-Servicemen, but are not included in ES-202 data. Civilian defense workers, however, and all other federal employees covered under the Unemployment Compensation for Federal Employees (UCFE) program are part of the data reported to the ES-202 program.

Agents on Commission

Insurance and real estate agents who are paid only by commission are excluded from coverage in almost all of the States.

Earnings Data

Total wages, for purposes of the UI quarterly reports submitted by employers, include gross wages and salaries, bonuses, tips and other gratuities, and the value of meals and lodging, where supplied. In a majority of the States, employer contributions to certain deferred compensation plans, such as 401(k) plans, are included in total wages. Total wages, however, do not include employer contributions to Old-Age, Survivors', and Disability (OASDI); health insurance; unemployment insurance; workers' compensation; and private pension and welfare funds.

Uses

The ES-202 data serve as the basic source of benchmark information for employment by industry and by size of establishment in the Current Employment Statistics program.

The Unemployment Insurance Name and Address File, developed in conjunction with the ES-202 report, also serves as a national sampling frame for establishment surveys by the Producer Price Index, Occupational Safety and Health Statistics, Employment Cost Index, and other compensation programs.

Differences: Establishment Data Sources versus the CPS

The household and establishment data complement one another, each providing information that the other cannot supply. Population characteristics, for example, are obtained only from the CPS, whereas detailed industrial classifications are much more reliably derived from establishment reports. Certain differences can be accounted for, others cannot. It is useful to be aware of the CPS/CES/ES-202 differences for estimation and analysis purposes. Some of the important differences are discussed below.

Place of Work vs. Place of Residence. CES and ES-202 data are produced according to the location of the establishment; CPS data provide residency-based employment estimates.

Jobs versus Employed People: Workers holding more than one job may be included more than once in the CES and ES-202 employment counts since they may appear on more than one payroll record or contribution report. Persons counted by the CPS are counted only once even if they hold multiple jobs.

Reference Period Differences. The reference period for the CPS is the calendar week including the 12th of the month, except in December when it is often the 5th. The reference period for CES and ES-202 is the payroll period including the 12th of each month, which could be weekly, bi-weekly, semi-monthly, etc.

Employment Coverage Differences. The CPS definition of employment comprises wage and salary workers (including domestics and other private household workers), self-employed persons, and unpaid workers who worked 15 hours or more during the reference week in family-operated enterprises. Employment in both agricultural and nonagricultural industries is included. The CES and ES-202 do not include self-employed and unpaid family workers. They include some, but not all, domestics in private households and agricultural workers.

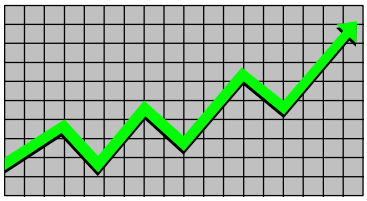
CES and ES-202 estimates include 14- and 15-year olds while the universe for the CPS is limited to 16 years of age and older. CES does not cover workers who are on unpaid absence for the duration of the pay period. These workers may be considered employed in the CPS depending on their job attachment as determined in the course of the

interview. Workers who are on strike for the entire pay period of the establishment are not included in the CES and ES-202 estimates, but are considered employed in the CPS.

Uses of CES Data in the LAUS Program

The nonagricultural wage-and-salary estimates from the CES survey are used as basic employment inputs for several LAUS estimating procedures. CES estimates are used as variables for the State employment models. CES data are used in adjusting place of work employment to place of residence and as current inputs to labor market area employment, where available.

Use of CES in the State Employment Models



The statewide CES employment is a variable in the State employment/ population model. In the model, the CES is used as the major data source for the employed portion of the labor force. The CES data are adjusted to include individuals involved in labor-management disputes. Those differences between the CPS and CES discussed in the previous section do not require separate adjustments in the model because coefficients are computed separately for each State from their own data and the data relationships. The coefficients represent data relationships and are used to account for differences between the two data sources. The CES variable is always included in the employment-population model because nonagricultural wage and salary workers represent such a large proportion of the employed. See Chapter 6, Statewide Estimation, for more information on modeling techniques.

Use of CES for Estimating Current LMA Employment

Labor Market Areas (LMAs) which are officially participating in the CES program use the nonagricultural wage and salary CES estimates in developing monthly LAUS total employment estimates. If a LMA is not covered by the CES program, but does have a sample-based employment series developed under State auspices, these estimates are used in the Handbook methodology. For small LMAs without sample-based employment estimates, nonsample (synthetic) estimation methods, using covered employment and wages estimates, are used to yield place-of-work nonfarm employment. See Chapter 7, for details on producing estimates for areas outside the CES program.

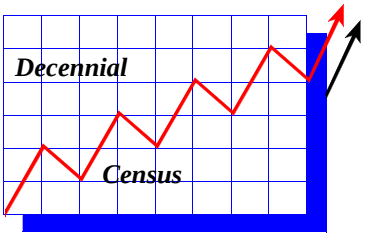
Use of CES in the Residency-Adjustment Ratio

Current monthly area nonfarm employment estimates, which are establishment-based, are converted to residency based by the application of the Census/790 ratio. This ratio, also known as the Total Nonagricultural Wage and Salary Residency Adjustment Ratio, is computed for each area as:

> The area's decennial census estimates of total employment divided by the area's CES (790) employment estimate for March/April 1990.

When multiplied by the current month's sum of CES total nonagricultural wage and salary employment and the number of labor disputants, this ratio yields the residency-based LAUS total nonagricultural wage and salary employment.

See Chapter 7 for a more detailed description of this adjustment.



5 *Inputs to LAUS Estimation: Census Data*

The Census of Population and Housing, conducted every ten years by the Bureau of the Census, is primarily intended to provide the population counts necessary for apportionment of seats to the U.S. House of Representatives and for determining legislative district boundaries. The decennial census also has increasingly become a source of data for other uses and provides socioeconomic and demographic data in addition to population estimates.

The LAUS program methodology uses decennial census data for adjusting establishment-based employment estimates to residency-based employment estimates, for estimating certain employment and unemployment components in the Handbook methodology, and disaggregating or apportioning labor market area estimates to smaller areas.

The Decennial Census: Enumerated and Sample-Based Data

General Description of the Census Questionnaire and Resulting Tabulations

The census questionnaire comes in two forms: the short form, which includes questions found on every form (100-percent questions) and the long form, which also includes sample questions. The majority of individuals receive a short form where questions regarding household relationships, sex, race, age, marital status,

Hispanic origin and housing are asked. Approximately one-sixth of the population receive the long form where sample questions include the following topics: (1) social characteristics such as education, place of birth, ancestry, disability, and veteran status; (2) economic characteristics such as labor force status, occupation, industry, class of worker, place of work, work experience, and income; and (3) more detailed housing questions.

Tabulations based on the 100-percent enumerated questions are prepared down to the block level. Tabulations for the sample questions are also prepared down to the block level, but because they are based on a sample, the data are reliable only for larger areas. Areas for which statistics are derived include Census regions and divisions, Metropolitan Statistical Areas, Urbanized Areas, Urban/Rural areas, Census county divisions, Census Designated Places, Census tracts, Block Numbering Areas, Block groups, Blocks, Alaska Native village statistical areas, Tribal designated statistical areas, and Tribal jurisdictional statistical areas.

Sampling for Designation of Long Form Recipients

The basic sampling unit for the long form census is the housing unit, including all occupants. For persons living in group quarters, the sampling unit is the person. Two sampling rates are employed. In counties, incorporated places, and minor civil divisions estimated to have fewer than 2,500 persons, one-half of all housing units and persons in group quarters are included in the sample. In all other places, one-sixth of the housing units and persons in group quarters are sampled. The purpose of this sample design is to provide reliable estimates for small places. When both sampling rates are taken into account, approximately 19 percent of the housing units in the nation are included in the sample.

Estimation of Census Sample Data

The estimation procedure used for the sample survey involves an iterative ratio estimation technique, called proportional fitting, similar in concept to the estimation procedures used for the Current Population Survey. In each tabulation area, a characteristic total is estimated by summing the weights assigned to the persons or housing units in the area. Initial weights for both households and persons are assigned as the approximate inverse of the probability of selection for the Census sample. Weighting areas are then created with a minimum sample of 400 persons.

Within a weighting area, the ratio estimation procedure is conducted in four stages for both persons and occupied housing units. The first stage identifies 17 household-type groups which include classification by the number of persons in a house and type of housing unit (e.g., persons in a housing unit with or without children, group quarters, etc.). The second stage determines the sampling rate of the weighting area. The third stage classifies persons as household/non-householder and housing units as single- or multiple-units in a structure. The fourth stage applies 180 aggregate age/sex/race/Hispanic origin categories. Groups within these four categories are combined, if needed, to increase reliability. In the final step, the initial weights undergo four stages of ratio adjustment by which each group within each stage is multiplied in two iterations by the ratio of the complete census count to the sum of the initial and subsequent stage weights for each sample person.

Sample data are considered less reliable than enumeration, or 100-percent questionnaire, data. However, estimated standard errors can be used to construct confidence intervals around the sample estimates. These reliability estimates do not account for nonsampling errors that are inevitable in a survey as extensive as the decennial census, and which occur in enumerated as well as sample-based data.

Nonsampling Errors

Nonsampling error can occur in the enumerated and the sample-based data, and can introduce bias into the data as well as increase the total error associated with the estimates. The Census Bureau tries to control for such error during collection and processing procedures. Types of nonsampling error include undercoverage, respondent and enumerator error, processing error, and nonresponse.

Every census results in an undercount, i.e., some people are missed. These undercounts can occur by age, sex, and race categories. The Census Bureau compares its data to other aggregate data sources to analyze the demographic count differences. It also conducts a post-enumeration survey by taking a sample of areas within the US and doing a very accurate count of the persons in those areas. This allows the Census Bureau to estimate the extent of undercount. For the 1990 census, the total undercount of the population was less than 2 percent.

Differences: Census versus CPS/LAUS Estimates

Historically, there have always been differences between the Census and the CPS programs in their respective estimates of unemployment. Prior to 1990, however, the census-based unemployment estimates generally tended to be very close to the CPS estimates. For the 1990 census, this relationship changed, with the 1990 census unemployment estimates considerably higher than those from the CPS.

There are several important differences between methodology used in CPS/LAUS and the methodology used in the decennial census. These produce differing unemployment estimates. It is important to know how to interpret these differences and explain why the CPS/LAUS estimates are regarded as the more reliable and accurate estimates.

1.) **The census is a self-enumeration survey, while the CPS survey is conducted in an interviewer-controlled environment. This provides the CPS with more accurate and detailed response information because interviewers are present to clarify questions.**

2.) **The CPS questionnaire asks seven specific employment-related questions to arrive at the labor force classification. The census questionnaire asks only four. Misclassification can occur as a result of fewer employment-specific questions.**

3.) **The CPS has rigorous quality control procedures. Interviewers are trained extensively, proficiency checks are conducted regularly, and a portion of each month's households are reinterviewed as a quality control measure.**

4.) **The CPS has a definite reference period, i.e., generally the week including the 12th of the month. The census reference period is officially April 1, but the questionnaire instructs the respondent to provide information as of the week before the questionnaire is completed. In 1990, 75 percent of the census questionnaires were completed by mid-May, however, some were not completed until August. (This could have biased the estimates toward higher unemployment because in August of 1990, the economy had entered a recession.)**

5.) **There is a known first month-in-sample reporting bias whereby unemployment rates tend to be higher the first time a household reports information. In the CPS, households are interviewed for 4 months, not interviewed for 8 months, and then interviewed again for 4 months, so that 25 percent of the sample could be reflecting this bias. The census is a one-time survey. Consequently, the entire census could be affected by first-time reporting bias.**

Because of these reasons, both BLS and the Census Bureau have agreed that the superior estimator of the labor force is the CPS.

The LAUS program uses decennial census data only where no other source of data is available. The direct use of decennial census data is generally avoided because of the superiority of the CPS and because relationships in the data are unlikely to remain fixed over an entire decade.

Uses of Decennial Census Data in LAUS

Uses of Labor Force Estimates

Census employment estimates are used in the employment/population index share disaggregation method, which is used in conjunction with the claims-based unemployment disaggregation method for counties and cities. Because more current estimates of employed residents are not available, the decennial Census estimate of this group is moved over time by changes in annually prepared population estimates. In other words, the Census E/P ratio is maintained over the decade.

Decennial labor force estimates of total employed and unemployed for sub-county areas are the basis of the Census-share disaggregation method. The use of Census data for disaggregating labor force estimates is required when UI claims data by county or city of residence are not available. The method uses ratios of employment and unemployment in subareas to the respective larger area total. In this method, the relative distribution of employed and unemployed is fixed for the decade.

In order to develop place-of-residence employment estimates for LMA's, census nonfarm employment levels, in combination with CES payroll employment levels, are used as residency adjustment factors for monthly establishment-based employment estimates. (Net commutation patterns are fixed.)

The census employment levels of agricultural employment and all-other employment (self-employed, unpaid family workers, and domestics in private households) are the benchmark levels for current LMA estimates of these components.

The census estimates of all-other employment are also used in the stratification of States into three groups for the purpose of developing monthly change factors. The monthly change factors, referred to as Step-3 Ratios, are then used to estimate monthly all-other employment levels.

Census journey to work commutation data, which identify place of residence and place of work estimates, are used in the designation of LMA's, including metropolitan areas and small labor market areas.

Uses of Population Data

Census total population data have been used in the population-share disaggregation method for determining sub-county estimates. This method is used only when subarea UI claims data or census labor force data are not available. The disaggregation is based on the ratio of total population in a subarea to total population in the larger area, applied to current employment and unemployment estimates for the larger area. This method is applied only after the claims-based/population-based disaggregation and census-share methods have been used to establish estimates for the larger areas. Approval from the appropriate regional office must be obtained before employing this disaggregation method.

Decennial census population estimates for States, and the subsequent intercensal estimates, serve as the population controls in CPS estimation. In a ratio estimation procedure, known population totals are applied to sample ratios to improve the accuracy of the sample-based estimates of levels.

In the Handbook methodology, decennial Census State population counts by age are used to establish age categories used in the calculation of Youth Population Ratios (YPR) for the estimation of unemployed entrants and reentrants. In subsequent years, survival rates are used below the State level to update the YPR's.

Age-specific population counts are also used in the claims-based unemployment disaggregation of LMA entrants and reentrants. The age groups used in this method, 16-19 and 20 and older, are consistent with those used in calculating the YPR.

Employment/Unemployment Data

Data	Use
Total Employment: county and sub-county levels	*Disaggregation of employment estimates*
Total Unemployment	*Disaggregation of unemployment estimates*
Employment: for Selected SICs	*Determination of appropriate weighting for combined residency-adjustment factor*
Agricultural Employment	*Agricultural employment benchmark*
All-other Employment	*Stratification of areas based on 1980/90 relative change and domestics and self-employed/unpaid family benchmark*
Commutation Data	*MSA and small LMA redefinition*

Population Data

16+ Civilian, Non-institutional Population for States	*CPS population controls*
Total Population by Age Group for LMAs	*Youth Population Ratios for estimating unemployed entrants*
Total Population to Sub-County Levels	*Disaggregation of employment from LMAs to counties and counties to places*
Total Population 16-19, 20+ to Sub-county Levels (cities over 25,000)	*Claims disaggregation of LMA unemployment estimates*

Post-Censal Population Estimation

Post-censal population estimates are used in the State CPS estimation methodology and the LAUS employment/population index share disaggregation of the estimates for counties and, in some States, cites over 25,000. Ongoing population estimation is conducted by the Bureau of the Census through a Federal/State cooperative program. Statewide population estimates are produced annually for the United States and counties; sub-county estimates are produced biennially. Data are additive to the next level of geography, i.e., the State is the sum of its counties. Except for the decennial census year, population estimates pertain to July 1 of the reference year.

Statewide Estimation

National population estimates from the Bureau of the Census, which account directly for births, deaths, and legal immigration, are done on a relatively straightforward basis. The population of the States must be estimated using less direct methods, because interstate migration, a large component of the change in State populations, cannot be accounted for directly in the way that births, death, and legal immigration can. There are two methods that are used, and the official State estimates are an average of the two. The sum of the States is made to equal the national total in a process known as proportional “raking”.

The first method for Statewide estimation uses available administrative records. This method measure interstate migration for persons under age 65 by using address changes on tax returns and the number of exemptions claimed. For the population of age 65 and over, migration is measured using the change in the number of Medicare enrollees.

The second method uses a composite of a number of different factors. They are:

- *migration of the school-age population based on school enrollments;*
- *a regression on changes in various population indicators measurable from various data sources, for the population of adults under 65 years old; and*
- *Medicare enrollments, for the change in the population 65 and older.*

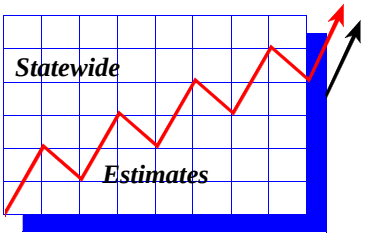
The age pattern of migration used in producing estimates of State populations by age and sex (which affects the total 16 and over) depends primarily on the age distribution of the base population, changes in school enrollments, and the relationship between school-age migration and adult migration as of the last census.

Substate Estimation

Substate population estimates are issued by the Bureau of the Census in two series. In the P-25 series, Census publishes provisional estimates for States, counties, MSA's, and incorporated places. The annual P-26 series includes revised estimates for all levels except incorporated places.

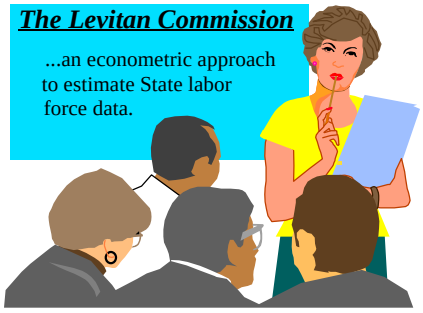
The estimation methodology is unique for each State, but generally includes an average of three methodologies, with an appropriate "rake" to insure that areas sum to the Statewide total.

- ***Regression (ratio-correlation) Method.*** *A multiple regression equation is used to relate changes in a number of different data series to change in population distribution. Independent variables may include automobile registrations, elementary school enrollments, resident births for various periods, and Federal income tax returns, among others.*
- ***Component Method II.*** *This method employs vital statistics to measure natural increase and school enrollment to measure net migration. These estimates are specific to the civilian population under age 65. To this are added an estimate of the population 65 and older based on Medicare statistics and an estimate of the resident military population based on Department of Defense data.*
- ***Administrative Records Method.*** *This is an alternative component method which uses individual Federal income tax returns to measure civilian inter-county migration, and reported birth and death statistics to estimate natural increase.*



6 *Development of Statewide Estimates*

Background



Historically, CPS samples have not been sufficiently large, in all but the most populous States, to produce reliable monthly estimates directly from the survey. As a result, indirect methods have been used to estimate employment and unemployment. As far back as 1960, Statewide estimates of employment and unemployment were developed under uniform Federal procedures, using the Handbook method. With the introduction of CPS State estimates in the 1970's, a six-month moving average ratio adjustment to CPS levels augmented the Handbook estimate. In the late 1970's, the Levitan Commission was established to review the measurement of the labor force in the United States. Among the recommendations made by the Commission in its report of 1978 was that BLS explore replacing the Handbook with an econometric approach to subnational estimation.

Building on work done by Mathematica Policy Research under contract to BLS, preliminary models were developed in the mid-1980's. In order to involve States directly in the research, the State Research Group, made up of State Research Directors and BLS staff, was established in 1986 with the support of the Interstate Conference of Employment Security Agencies. Regression and time series techniques were employed, with the models extensively evaluated using empirical methods as well as recognized statistical theory.

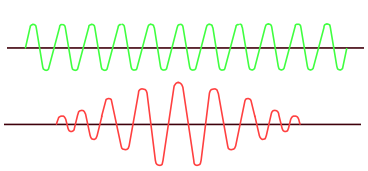
A type of regression model known as the Variable Coefficient Model (VCM) best met the criteria. The VCM is so named because the coefficients in its equations are allowed to vary over time to reflect structural changes in the State's data. The changing coefficients are estimated by the Kalman Filter, a widely used statistical technique that evaluates structural change against sampling variability. The Kalman Filter thus enables the VCM to handle the different relative accuracies that result when an estimate draws upon data from several sources.

In 1988, a year of dual estimation of BLS and the States helped the states make the transition from the Handbook to the VCM. In 1989, this new method was implemented in 40 States.

During the early 1990's, ongoing research at BLS brought about another, improved model that better dealt with error estimation and incorporated new time series variables. Known as the Signal-Plus-Noise model, it also uses variable coefficients and the Kalman Filter. The Signal-Plus-Noise model was implemented in January 1994. In 1996, time series modeling was extended to the 11 more populous states because of reductions in the size of the CPS sample.

Signal-Plus-Noise Estimation Model

The Signal/Noise Approach



The estimates of CPS data used by the LAUS program consist of a true employment or unemployment level, or "signal," in addition to a certain amount of "noise." That is, the observed CPS estimate consists of a true, but unobserved labor force value plus noise, which occurs because the estimates are derived from a probability sample and not the entire population.

$$CPS_t = Signal_t + Noise_t \quad \text{(EQ 1)}$$

where:

CPS_t = CPS employment or unemployment at time t.

$Signal_t$ = True employment or unemployment value at time t.

$Noise_t$ = CPS sampling error at time t, outliers, and irregular movements.

The signal/noise estimation models are based on a modeling approach that accounts for and extracts the noise from the CPS time series data, thus providing a better estimate of the signal. An important component of the noise in the CPS data is sampling error; its characteristics are known, or at least can be estimated from survey design information. Two other factors that account for the noise are irregular movements in the data and occasional outliers. When there is a change in the CPS level of employment or unemployment, that change is a combination of the change in the true labor force signal and the change in the noise. The goal of the models is to isolate the signal from the noise to avoid distortions in the CPS estimates and obtain the best possible estimates of the true labor force values.

The models for the employment and unemployment estimates are a combination of two processes: a signal estimation and a noise estimation. The signal is a time series model that is based on historical data relationships that are used in estimating current true labor force values, so a long historical CPS time series is required. While the time series model of the signal depends on past relationships, it does not require that these relationships be fixed over time. A very important feature of this model is a built-in self-tuning mechanism (implemented by the Kalman Filter) that automatically adjusts the regression coefficients and trend and seasonal components to adapt to gradual structural changes as they occur.

Sudden, unpredictable changes in the time series relationships are handled by incorporating outlier effects into the model.

The noise estimation clears up the distortion caused by the CPS sampling error and accounts for outliers and irregular movements in the data.

The Signal and Noise formulas are:

- *Signal = Variable Coefficient Regression Component + Trend + Seasonal + Signal Outliers*
- *Noise = CPS sampling error + Noise Outliers + Irregular*

The signal estimation process consists of Regression, Trend, and Seasonal components. The Regression component allows the coefficients of the explanatory variable to vary over time. The Trend and Seasonal components add even more flexibility to the models by accounting for trend and seasonal variation in the CPS not explained by the regression component. The noise estimation process controls for CPS sampling error and historical outliers, and has a component to account for irregular movements as well. The employment and unemployment rate model specifications, as well a technical description of signal/noise models, are included later in this chapter.

Accounting for CPS Sampling Error

There are two properties of the CPS, all controlled through the models, that affect the time series data: changing reliability and the correlated sampling error.

Changing Reliability

Changing reliability is due to one or a combination of several factors. These factors include survey redesigns after decennial censuses, sample size changes due to budget cuts or special supplementation, and variations in labor force levels. Because of these factors, the CPS sampling error variance is not fixed over time.

As the reliability of the CPS estimates changes, so do the weights used to estimate the signal. The estimated signal is a combination of an estimate based on the time series model of the signal historical data and current CPS estimates corrected by a model-based estimate of sampling error. The reliability of the CPS can change over the years. As it improves, less weight is given to the time series model and more weight to current CPS estimates. The reverse is true for periods when the reliability weakens.

Thus, the estimated signal is a weighted average of a predicted signal based on historical data and the current CPS estimate. This is represented by the equation below:

$$\mathbf{Signal_t = (1\text{-}w_t)\ Signal_t\ (prediction) + w_t\ (CPS_t - N_t)} \qquad \textbf{(EQ 2)}$$

where:

$\mathbf{Signal_t}$ = the model estimate of the signal.

$\mathbf{w_t}$ = the weight, between 0 and 1, given to the current CPS.

$\mathbf{Signal_t}$ (prediction) = the model-based prediction of the signal based on historical relationships.

$\mathbf{N_t}$ = the noise.

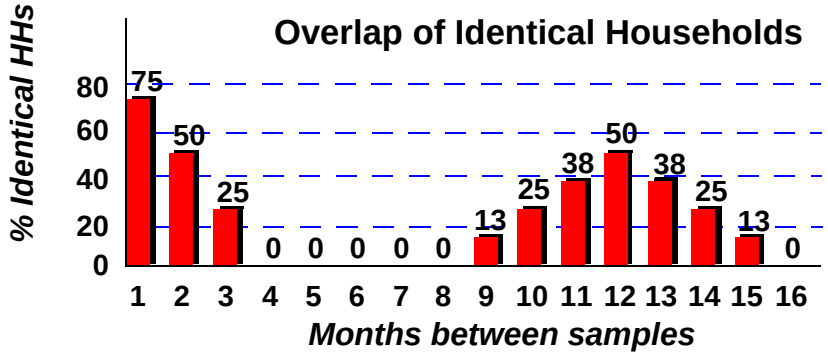
$\mathbf{N_t}$ (prediction) = the prediction of the noise.

The lower the reliability of the CPS, the less weight is placed on the current CPS; the higher the reliability, the higher the weight.

Correlated Sampling Error

Because of the CPS 4-8-4 sample rotation method, there are significant overlaps in the samples used by the CPS. (See Chapter 2.) Each month three-fourths of the sample from the previous month is interviewed, one-eighth of the sample is interviewed for the first time, and one-eighth is resuming interviews after being out of the sample for 8 months. Each month one-half of the households from 12 months earlier are interviewed. The chart below shows the proportion of the households in the current sample that were also in the sample k months ago. For example, 75 percent of the households in the sample this month were in sample

last month, 50 percent were in two months ago, etc. Note that samples from 4 to 8 months and over 15 months apart have no households in common.



The use of a rotation system requires the periodic replacement of the sample. To cover a decade under the 4-8-4 scheme, 15 samples are needed. A key feature of the replacement scheme is that successive samples are generated in a dependent way. Once an initial sample of households is selected, replacements are obtained from nearby addresses. For each original sample, the 14 succeeding ones needed to cover the decade are usually taken from the same neighborhood.

The overlap in the CPS sample is important because it introduces strong autocorrelation in the sampling error. That is, the current value of the sampling error (either an overestimate or an underestimate of the true value) will depend on its own past values. For example, suppose the unemployment rate for the sampled households in the current month is higher than the rate for the entire population. Since 75 percent of these households will remain in the sample next month, the unemployment is likely to be overestimated again.

The extent of this autocorrelation depends not only on the overlap in the sample but also on the stability of the labor force characteristic being estimated. The overwhelming majority of workers spend most of their time in the labor force as employed rather than unemployed. Accordingly, errors in the employment estimates will be more strongly autocorrelated than in unemployment estimates since employment is a more stable characteristic of the households being sampled.

While CPS standard error estimates have been routinely produced for State CPS data, estimates of the error autocorrelations have not. Obtaining this information is potentially very costly, involving complex calculations

on huge micro data files. However, as part of BLS model research activities, a method has been developed to estimate the autocorrelations that requires only State CPS data for each rotation group.

The following graph presents the time profile of a CPS error series for a typical State for both employment and unemployment. The vertical axis gives the weights that show how the effect of a CPS error occurring in a given month is distributed over future months, and the horizontal axis indicates the number of months following the occurrence of the error. For the current month (zero months ahead), the weight equals one since the full impact of the error is felt in the month that it occurs. A value of 0.6 for 1-month ahead, for example, indicates that 60 percent of the error in the current month carries over into the next month's estimate.

Time Profile of CPS Error

The strong autocorrelation in the CPS sampling error has important consequences. First, sampling error will account for long-run movements in the CPS. Ordinarily we think of sampling error as having a transitory effect on a series. If completely random, its effects would quickly average out. This means the weights would drop to zero for all months following the occurrence of the error. The following table quantifies the effects that autocorrelated errors have on variation in the CPS for a typical State. This table shows the percent contribution of sampling error to the CPS over increasing spans of time. For employment, about 57 percent of the

variation in the CPS from month to month is accounted for by sampling error. If this error were completely random, its contribution to over-the-year variation in the CPS should be small, since normally the trend-cycle movements in the signal dominate over that span of time. However, the table indicates that this does not happen—sampling error accounts for 58 percent of the over-the-year variation in the CPS.

While not as strong as for employment, the long-run effect of the error on unemployment is still very important.

Another important consequence of correlated sampling error is that these errors are unlikely to average out over a 12-month period. If the error were completely random, the number of overestimates and underestimates should be about the same. However, because of the strong autocorrelation in the error, if the CPS underestimates one year, it is likely to do so the next year.

Outliers

CPS data are occasionally affected by outliers. These outliers are CPS values that are inconsistent with the expected behavior of either the signal or noise component. There are two possible causes—a nonrepresentative sample resulting in a noise outlier, or a real non-repeatable event, such as bad weather, strikes, etc., that cause an outlier in the signal. Because these outliers represent sudden changes, they may cause special problems for a model. In fact, we define an outlier as an observation that breaks the pattern of behavior predicted by the model. It is not necessarily an extreme value in the observed series. For example, a series may not change much from one month to the next, but an outlier may have occurred if the series normally has a large seasonal increase.

Even though there may be extreme observations in the CPS accompanied by a few large prediction errors, it is not necessarily good practice to make special adjustments to the model to fit those observations more closely.

The purpose of the model is to capture the normal time series behavior of the signal. Thus, the model must be flexible enough to adapt to structural changes in the signal, but if too flexible, it will fail to filter out the noise. If there is prior information about the occurrence of an outlier, then an adjustment may be justified. Otherwise, adjusting the model for outliers is important only to the extent that they distort diagnostic testing, cause bias in parameter estimates, or lead to a deterioration in current performance.

Determining the type of outlier is crucial to deciding how to adjust the model for its effects. Even though there are many complex patterns of outliers, the three below tend to be the most common types of outliers that occur in time series data:

1.) **An additive outlier (AO) affects the series for only one month, such as a sudden increase followed by a decrease.**

2.) **A temporary change (TC) in the level of the series causes an abrupt change in the series followed by a gradual return to its former level**

3.) **A permanent level shift (LS) refers to an abrupt shift that persists indefinitely into the future, or until an offsetting shift in the opposite direction occurs.**

The outlier may be due to a real change in the labor force or result from the measurement process, which includes sampling and other types of measurement errors. The origin of the outlier determines whether it should be included in the signal or the noise component. Ideally, this should be resolved by seeking external information about the potential causes. In practice, such information is rarely available. Since highly transitory outliers in the CPS are more likely to be due to the measurement process than a real economic event, the usual procedure is to assign these types of outliers (AO and TC) to the noise component. On the other hand, a permanent shift in level is considered a real effect and assigned to the trend component of the signal. However, such identification requires that significant number of months of data be available following the occurrence of the outlier in order to identify the type of outlier that occurred. Therefore, outlier identification cannot be made in current estimates. Models are monitored on a current basis to detect the occurrence of outliers in the current year. Once enough data become available to identify the nature of the outlier, its effects are incorporated into the model specification and implemented during the annual reestimation of the models.

Description of the Employment Model

Overview

The basic form for the LAUS signal/noise employment model is a regression equation that uses the monthly CPS employment-to-population ratio as the endogenous variable and the CES employment-to-population ratio as the explanatory variable. Each State employment model can be thought of as having a regression equation form, with a variable coefficient component (CES employment-to-population ratio for the employment model) and two time series components, which reflect the State's CPS seasonal and trend movements not accounted for by the CES.

Chapter 4 discusses the conceptual and coverage differences between the CPS and CES series. While the time series model adjusts for these differences, knowledge of the CPS/CES differences is important to understanding the nature of the model's CES variable. The model accounts for these differences automatically because the regression coefficients, residual trend and seasonal components are computed separately for each State using State-specific data. Knowledge of the survey differences is also useful in understanding why the trends in these two series diverge at times.

Illustrated below is the basic structure of the employment model. The model consists of three components.

E/P = EP Signal + EP Noise **(EQ 3)**

Signal = bCESEP + Trend Residual + Seasonal Residual

Noise = CPS Error, Irregular, Transitory Outliers

Description of Signal Component

CES Base Variable

From the CES survey, a monthly estimate is developed of the total number of persons on establishment payrolls who received pay for any part of the employer's pay period that includes the 12th of the month. In the model, the CES employment-to-population ratio is used as the major data source for the model's target: the employed portion of the labor force. Data for major strikes are added to the CES estimate from which the employment-to-population ratio is calculated.

Time Series Components

The part of the signal that is unaccounted for by the CES variable is represented by the residual seasonal and trend components. The trend component is adjusting for long-run systematic differences between the CES and the CPS series. Time trend equations with variable intercepts and slopes are used to estimate the trend. By allowing the parameters of the trend component to change, the estimated trend component can adapt to change in the data. If there are frequent changes in the level and/or slope of the trend, more weight is given to recent observations in estimating the trend.

The seasonal component is estimated by fitting six trigonometric functions of time with periodicities no longer than 12 months in duration to the data. As is the case for the trend, the component is allowed to vary to permit adaptation to changing relationships between the seasonal patterns of the CPS and CES. Because of definitional differences between the CPS and CES, this component is necessary. Differences in seasonality between the two series occur principally because there are large seasonal variations in employed persons on unpaid absences who are counted as employed in the CPS but not in the CES, and to seasonal variation in agricultural employment. For a complete discussion of these differences, see Chapter 4.

See ***Table A,*** page 6-23, for employment-to-population model specifications.

Description of the Unemployment Rate Model

Overview

The basic form for the LAUS signal/noise unemployment model is a regression equation that uses the monthly unemployment rate as the endogenous variable and the unemployment insurance claims rate as the explanatory variable. Each State model can be thought of as having a regression equation form, with a variable coefficient component and two time series components which provide flexibility for the State's CPS seasonal and trend movements not accounted for by the explanatory variable.

Below is the mathematical representation of the basic structure of the unemployment rate model.

The model consists of three variables.

Urate = Urate Signal + Urate Noise **(EQ 4)**

Urate Signal = bCLRST + Trend Residual + Seasonal Residual

Urate Noise = CPS Error, Irregular, Transitory Outlier

Description of Signal Component

The Base Variable—UI Claims Rate

The most important variable in the unemployment rate model is the UI claims rate. This rate is defined in percentage terms as the ratio of State continued claimants without earnings to total State CES employment. This is a relative measure of the number of workers who are currently unemployed and receiving UI benefits. Since the CES data are adjusted to include strikers (CESADJ), the continued claimant count should exclude any known strikers. (In some States, strikers may be eligible for unemployment compensation). The statewide estimate of continued claimants without earnings follows the standards outlined in Chapter 3.

The main weakness of the claims data is that these data are the by-product of the UI tax system and therefore are subject to changes in the State’s laws and administration, making them a biased cyclical indicator. Since 1980 there has been a marked deterioration in the cyclical sensitivity of the claims data. Several factors may account for this. For example, in the latter stages of a severe recession, many workers exhaust their UI benefits and are dropped from the administrative count. As a result, the UI

claimant count tends to diverge from the total rate when unemployment is high and converge with the total rate when unemployment is low. Nationally, there have been changes in the long-term relationships between the total unemployment rate and the claims rate. From the 1970's through the 1980's, the proportion of unemployed job losers collecting UI benefits nationally dropped from 75 percent to less than 50 percent. This has reduced the sensitivity of the claims rate to recessions. The seasonal pattern of the claims data also differs in important ways from the CPS. Most notably, in the summer months, the entry of students into the labor force is not reflected in the UI data. The seasonal component in the model controls for this as well as for other seasonal differences. The model controls for the cyclical bias in the UI data by changing the magnitude of the regression and trend components. (See Chapter 3 for a discussion of the differences between the CPS and UI systems.)

Time Series Components

The part of the signal that is unaccounted for by the claims rate is accounted for by the seasonal and trend variables. Time trend equations with variable intercepts and slopes are used to estimate the trend. By allowing the parameters of the trend component to change, the estimated trend component can adapt to change in the data. If there are frequent changes in the level and/or slope of the trend, more weight is given to recent observations in estimating the trend.

The seasonal component is estimated by fitting six trigonometric functions of time with periodicities no longer than 12 months in duration. As is the case for the trend, the coefficients are allowed to vary to permit adaptation to changing seasonal patterns.

See ***Table B,*** page 6-24, for unemployment rate model specifications.

Detailed Description of the Estimation Process

Time Series Parameter Estimation

The models are made up of two parts: the signal and the noise. These parts, jointly estimated, sum to the observed CPS estimate. The CPS labor force estimate can be represented as follows:

$$y(t) = \theta(t) + e(t) \quad \text{(EQ 5)}$$

where:

y(t) = the observed CPS

θ**(t)** = signal

e(t) = noise

The signal and noise portions of this equation can be broken down even further. The signal is decomposed into a regressor component, a trend component, a seasonal component, and an irregular component.

The form of the equation for the signal estimate is:

$$\theta(t) = M(t) + T(t) + S(t) + I(t) \quad \text{(EQ 6)}$$

where the terms on the right side of the equation denote the regressor, trend, seasonal, and irregular respectively.

Description of Signal Components

The regressor component is comprised of an observable economic variable (either the CES or the UI) and a coefficient. The coefficient can be variable or fixed. If the coefficient is variable, it is modeled as a "random walk." This means that the coefficient is equal to its previous period's value plus a current random disturbance.

$$M(t) = B(t)\,X(t) \quad \text{(EQ 7)}$$

$$B(t) = B(t-1) + V_B(t) \quad \text{(EQ 8)}$$

If the variance of the random disturbance is zero, the coefficient will be constant over time.

The trend component T(t), represented by the two equations below, is a local approximation of a linear trend.

When an approximation is local, it can allow for a changing trend over time. The trend level is shifted by a variable $V_T(t)$ and the trend growth rate is shifted by the white noise $V_R(t)$ of the variable. The trend component can be represented by the following equations.

$$T(t) = T(t-1) + R(t-1) + V_T(t) \quad \text{(EQ 9)}$$

$$R(t) = R(t-1) + vt(t) \quad \text{(EQ 10)}$$

If R(t) is zero, the trend follows a simple random walk in levels. If the variances of the disturbances to the trend line are zero, the trend take a global linear form with the intercept and slope fixed over the entire observation period.

The seasonal component is the sum of six trigonometric terms each within a periodicity that repeats itself from 1 to 6 times within one year period. Each of the six terms is subject to a white noise shock, Vj(t). Over a 12-month period, the expected seasonal effects add to zero. If the variance of the seasonal component is positive, the seasonal pattern is evolving over time. If the variance is zero, there is a fixed seasonal pattern.

The irregular component, assumed to be stationary, is a residual not explained by the trend or seasonal components. Sometimes the irregular component is just white noise. If it is not white noise, it can be accounted for by using a low order autoregressive (AR) process.

Description of Noise Term

The second part of the observed CPS estimate, the noise, represents CPS sampling error. Sampling error can be accounted for through the variance-covariance structure of the error term. Sampling error can take the form of both autocorrelated error (caused by the 4-8-4 rotation scheme) and heteroscedasticity, caused by sample redesigns, sample size changes, and a changing signal.

The error term can be represented as follows:

$$e(t) = \lambda(t)e_*/e^*(t) \quad \text{(EQ 11)}$$

The $\lambda(t)$ variable represents the changing variance over time. This can also be referred to as the variance inflation factor. The e(t) variable represents the autocovariance structure which is assumed to follow an Auto Regressive Moving Average (ARMA) process.

Description of Estimation Process

State agency staff prepare their official current monthly labor force estimates using software developed at BLS that implements the Kalman Filter. This algorithm is particularly well suited for the preparation of current estimates as

new CPS data become available each month Since it is a recursive data processing algorithm, it does not require all previous data to be kept in storage and reprocessed every time a new CPS observation becomes available. All that is required are estimates of the signal and noise components and their variances for the previous month. This information is combined with the current CPS data to produce an estimate of the signal for the current month.

The Kalman Filter

Current estimates are calculated by the Kalman filter in a two-step process.

Step 1. *Prediction*

Make predictions of the signal and noise components for the current month based on data up to the previous month. That is, predictions are made for each of the components of the signal—regression, trend, and seasonal—and the noise component (primarily sampling error).

Make a prediction of the CPS value for the current month by adding up the predictions of the signal and noise components.

$$predicted\ CPS_t = predicted\ Signal_t + predicted\ Noise_t$$

These predictions are the model based estimates made independently of the current month's CPS value.

Compute the variance of the error in predicting the CPS.

$$Variance\ of\ error\ in\ predicting\ CPS_t = variance\ of\ error\ in\ predicting\ Signal_t + variance\ of\ error\ in\ predicting\ Noise_t$$

Step 2. *Update*

Use the current month's CPS value to compute the model's error in predicting the current CPS value.

$$prediction\ error_t = CPS_t - (predicted\ Signal_t + predicted\ Noise_t)$$

$$= error\ in\ predicting\ Signal_t + error\ in\ predicting\ Noise_t$$

Update the predictions of the Signal and Noise components by allocating the prediction error to the signal and noise components in proportion to their relative accuracies.

$updated\ Signal_t = predicted\ Signal_t + gs_t * prediction\ error_t$

$updated\ Noise_t = predicted\ Noise_t + gn_t * prediction\ error_t$

$gs_t = variance\ of\ error\ in\ predicting\ signal_t / variance\ of\ error\ in\ predicting\ CPS_t$

$gn_t = variance\ of\ error\ in\ predicting\ noise_t / variance\ of\ error\ in\ predicting\ CPS_t$

Note: $gs_t + gn_t = 1$. Updated $Signal_t$ + updated $Noise_t$ = CPS $_t$.

The quantities gs_t and gn_t are referred to as the gain of the signal and the noise component, respectively. To the extent that sampling error accounts for most of the variation in the monthly CPS estimates, the gain for the estimated signal will be low relative to the gain of the estimated noise component. In this way much of the sampling error in the CPS is allocated to the noise component rather than to the estimated signal.

Each month as new CPS data become available, the two basic steps of the Kalman filter algorithm are repeated. That is, when new data become available at time t + 1, the KF produces an updated estimate that incorporates the CPS data at t + 1, but does not revise the previous period's estimate of the signal and noise at time t using the newly acquired CPS data. For this reason, the algorithm is referred to as a "forward filter" since it always proceeds forward in time processing the latest available data but never looks backward to revise earlier estimates with the most current data. At the end of the year, all estimates are revised to incorporate all the CPS data using the Kalman smoother.

Data Revision

Revised Estimates

In most statistical programs, revisions to estimates are made on a regular basis. The schedule for these revisions depends on a variety of different factors related to the availability of revised inputs, the amount of work involved, and the publication schedule. In the LAUS program, estimates have usually been revised in two ways. The first revision occurs one month after the initial (preliminary) estimate is made. The primary reason for this "prior month" revision is that better, more complete, input data are generally available by the time the following month's estimate is to be made. The second type of revision to the LAUS data occurs during the annual benchmarking process. See Chapter 10 for a more detailed discussion about annual processing.

Regression estimation has provided an additional source of information for revising estimates. In time series regression, data from one month becomes input for estimating subsequent months. This is true of both fixed and variable

regression models because the time series estimates have strong relationships over time, and each month’s estimate is a potential benefit to all future months' estimations. The result is that the best estimate is obtained when all the available data are used in a monthly estimate. The process of using all the available data to estimate a given month is called “smoothing,” and this technique is used in the annual reestimation and benchmarking process.

Seasonal Adjustment of Statewide Estimates

Seasonality is defined as repetitive behavior that occurs on a regular calendar basis, i.e., in cycles with periodicity that is annual, semiannual, quarterly, monthly, or some other calendar unit. Seasonal fluctuations occur in labor force, employment and unemployment levels. Examples of seasonal events include weather changes, school schedules, industrial production schedules, harvests, and major holidays. Fluctuations occur in the form of peaks and troughs and can sometimes be observed simply by direct observation of a time series. However, seasonal fluctuations often may not be immediately distinguishable from other fluctuations in the data. Seasonal adjustment attempts to remove the seasonal fluctuations in a time series. Once the seasonality is removed, the resulting series can aid in further estimation and in the observation of underlying trend and cyclical movements.

Research into the feasibility of seasonally adjusting LAUS model estimates began with the formation of a workgroup in 1989. The workgroup evaluated the appropriateness of applying X-11 ARIMA seasonal adjustment methodology to model-based labor force estimates. The results of the testing indicated that seasonal adjustment of the model-based series developed for this project was satisfactory. X-11 ARIMA was able to remove seasonal variation in the modeled series effectively without introducing distortions in the nonseasonal components of the series. Adjustment factors related to the model series were similar to the factors of the published full-sample CPS series, indicating that the models were not forcing artificial patterns but rather were introducing seasonal patterns consistent with the underlying CPS series.

Seasonal adjustment of State labor force estimates was introduced in 1992. Twice each year, in July and January, seasonal adjustment factors for the labor force series are produced for the next six months, updated to incorporate the experience of the previous six months. Historical factors for the most recent five years are updated during the January production of seasonal adjustment factors.

The Importance of Seasonal Adjustment

There are several reasons why seasonal adjustment is important. Without seasonal adjustment, month-to-month comparisons of data within a time series are often misleading. As a consequence, it is difficult to produce effective and meaningful analysis over time without the availability of seasonally-adjusted series.

Seasonal adjustment is particularly important for State labor force statistics because the data are used extensively to make economic decisions. Without seasonally adjusted series, analysts, policy makers, and other data users would be

hindered in their efforts to make adequate assessments of economic health, and they would not be able to accurately follow trends in State labor markets.

The Seasonal Adjustment Process

Seasonal adjustment of time series data is designed to remove seasonal fluctuations in order to better expose the trend or cycle. A seasonally-adjusted series is produced through the application of seasonal adjustment factors to an original (not seasonally adjusted) series. These seasonal factors are produced using the X-11 ARIMA seasonal adjustment software. X-11 ARIMA is a model-based signal adjustment package that allows the user to select the most appropriate options to obtain the best seasonal adjustment results. Diagnostics and quality control information provided as output from the application of X-11 ARIMA are used in the option selection process.

In X-11-based procedures, seasonal adjustment can be additive (sum of components equals original series) or multiplicative (product of components equals original series). The additive model can be expressed as follows:

$$O = TC + S + I \qquad \text{(EQ 12)}$$

where:

O = original series.

TC = trend/cycle component.

S = seasonal component.

I = regular component.

Similarly, the multiplicative model can be expressed as follows:

$$O = TC_{*}S_{*}I \qquad \text{(EQ 13)}$$

The basic step in X-11 seasonal adjustment is described below. The X-11 ARIMA expands upon these basic steps to produce reliable factors.

- Use a centered 12-month moving average of the data to extract the trend from the original series to obtain a preliminary estimate of the seasonal irregular.
- Estimate the seasonal component (factor). This is done by averaging all values for the same month (stable seasonal) or by computing a moving average of values for the same month.

  - *In additive terms: estimate S from S + I.*
  - *In multiplicative terms: estimate S from S*I.*
- Extract the seasonal components (factors) computed from the original series to get the seasonally adjusted series.
  - *In additive terms: TC + I = O - S = adjusted series.*
  - *In multiplicative terms: TC*I = O/S = adjusted series.*

Note that in the last step, an additive seasonal factor is subtracted from the original series and a multiplicative seasonal factor is divided into the original series. The seasonal series may be further smoothed with a Henderson moving average and a second set of seasonal adjustment coefficients may be produced. Several iterations of the process may be necessary.

Table 6-1 Employment-to-Population Ratio Model Specifications, 1997

States	Regression Variable	Trend Level Shifts		Additive Outliers				Regression coefficient 12/96	Std of coeff change over 1 month span	Std of Trend change over 1 month span	Std of Seasonal change over 1 year span
AL	CESEP			Jun-90				0.686	0	0	0.0063
AK				Dec-80	Sep-81	Jul-85		.	.	0	0.0277
AZ	CESEP	Jan-94		Feb-79	Jun-85	Jul-85	Nov-90	0.401	0	0.1397	0.0116
AR	CESEP			Oct-82	Oct-84	Nov-84		0.518	0	0	0.0143
CA											
LA-LB	CESEP	Sep-90						0.424	0	0.204	0.0305
Balance	CESEP	Jun-84	Sep-90	Mar-91				0.315	0	0.1398	0
CO	CESEP			Jan-83				0.567	0	0.0579	0.0112
CT	CESEP			Aug-87	Dec-88			0.442	0	0.0246	0
DE	CESEP							0.432	0.0008	0	0.0292
DC	CESEP			Sep-87	Jun-90			0.211	0	0.2155	0.0038
FL	CESEP							0.69	0	0.0236	0
GA	CESEP			Aug-81	Aug-82			0.459	0	0	0.0315
HI	CESEP			Jan-80	Nov-87			0.275	0.0009	0	0
ID	CESEP	Jan-94		Sep-78				0.426	0.001	0.1699	0.012
IL	CESEP	Feb-89	Jan-92					0.562	0.001	0.1366	0.0001
IN	CESEP			Aug-90				0.667	0.0015	0	0
IA	CESEP							0.504	0.0019	0	0.0162
KS	CESEP			Oct-82				0.405	0	0	0
KY	CESEP			Jul-84	May-86			0.492	0.0001	0.0258	0.0004
LA	CESEP							0.605	0.0025	0	0.0066
ME	CESEP			Apr-85	Jan-87	Feb-87	May-87	0.503	0.0014	0	0
MD	CESEP			Nov-90	Dec-90			0.668	0	0.0112	0.0096
MA	CESEP							0.562	0	0.0056	0
MI	CESEP	Apr-81	Apr-85					0.858	0.0001	0.1378	0.0104
MN	CESEP			Jan-83	May-87	Apr-89	Feb-91	0.568	0	0.0106	0.0015
MS	CESEP			Jul-83	Dec-91			0.513	0	0.0176	0
MO	CESEP							0.832	0	0	0.0147
MT	CESEP							0.645	0.0004	0.0372	0.0047
NE	CESEP			Aug-90	Jan-94			0.58	0	0	0.0137
NV	CESEP							0.335	0.0005	0	0.0085
NH	CESEP			Dec-90	Nov-84	Jan-91		0.559	0	0	0
NJ	CESEP							0.787	0	0.0199	0
NM	CESEP							0.675	0	0.0202	0.0035
NY											
NYC	CESEP			Jun-84				0.647	0.0004	0	0
Balance	CESEP	Jan-90						0.857	0.0004	0.0961	0.0003
NC	CESEP	Sep-85		Nov-80	Oct-83			0.683	0	0.1085	0.0312
ND	CESEP	Nov-93		Aug-81				0.172	0	0.1883	0.0061
OH	CESEP							0.729	0	0	0
OK	CESEP							0.479	0	0.052	0.0029
OR	CESEP			Dec-79	Jan-80			0.345	0.0044	0	0
PA	CESEP			Jan-89				0.669	0	0.0415	0.0059
RI	CESEP			Sep-85	Dec-91			0.609	0.001	0.0079	0.0219
SC	CESEP			Feb-80	Mar-80			0.359	0	0.0191	0.0154
SD	CESEP			Dec-85				0.354	0	0	0
TN	CESEP			Jun-88				0.651	0	0	0.0052
TX	CESEP							0.519	0	0.0218	0
UT	CESEP			Jan-83				0.437	0.0004	0	0.0032
VT	CESEP			Sep-88				0.819	0	0	0.0541
VA	CESEP							0.375	0	0	0
WA	CESEP							0.828	0	0.0697	0.0333
WV	CESEP			Oct-82				0.783	0	0	0
WI	CESEP							0.814	0	0	0
WY	CESEP			Nov-83				0.409	0	0.0013	0

NOTE: *A measure of coefficient stability is provided by the standard deviation (Std) of the change in the coefficient over a one month span. An exact value of zero for the standard deviation indicates the respective (smoothed) component has a constant value over time. For example, a Std of zero for the CESEP regression coefficient in AZ's EP model means that the coefficient is fixed at a value of 0.401 for the historical series 1976-96.*

Table 6-2 Unemployment Rate Model Specifications, 1997

States	Regression Variable	Trend Level Shifts		Additive Outliers				Regression coefficient 12/96	Std of coeff change over 1 month span	Std of Trend change over 1 month span	Std of Seasonal change over 1 year span
AL	CLRSTFE			Jul-77				1.47	0.0081	0.0759	0
AK	CLRSTFE							0.86	0.0056	0.0286	0.0119
AZ	CLRSTFE			Jul-84	Jan-88	Oct-89		2.029	0.0165	0.0381	0.0063
AR	CLRSTFE			May-80	Oct-80	Sep-83		0.756	0.0063	0.0323	0.0374
CA											
LA-LB	CLRSTFE			Apr-88	Apr-92			1.89	0.0284	0.0246	0
Balance	CLRSTFE							0.836	0.0694	0.0615	0.0004
CO	CLRSTFE			Oct-78	Mar-81	Oct-84		2.133	0.0079	0.0202	0.0136
CT	CLRSTFE							1.317	0.0011	0.0239	0.0112
DE	CLRSTFE	Sep-90		Mar-79	Nov-81			0.43	0	0.1672	0.0011
DC	CLRSTFE			Sep-84	Jan-94			1.609	0	0.1666	0
FL	CLRST							1.177	0.024	0.0005	0.0078
GA	CLRSTFE	Mar-91	Jan-92	Jul-78	Aug-82	May-91	Jan-94	1.339	0	0.2089	0
HI	CLRST			Jun-82				1.107	0	0.0535	0.0087
ID	CLRFADJ			Dec-77	May-83	Feb-90		1.076	0	0.0351	
IL	CLRST	Aug-92	Nov-93	Mar-85				1.157	0.0071	0.1513	0.0068
IN	CLRST			Aug-90				1.004	0.0007	0.1071	
IA	CLRST			Jan-79	Aug-80			1.027	0	0.0277	0
KS	CLRSTFE	Jul-82	Aug-92	Apr-79				1.007	0	0.0877	0.0102
KY	CLRSTFE			Aug-77	Aug-79	Jul-84	May-86	0.987	0.0244	0.0076	0
LA	CLRSTFE							0.662	0	0.1385	0.0065
ME	CLRADJ			Jun-80				1.037	0	0.0526	0
MD	CLRSTFE							1.328	0.0049	0.0203	0
MA	CLRST							1.25	0	0.0948	0.0051
MI	CLRSTFE	Apr-80	Dec-81	Jan-88				0.561	0	0.2505	0
MN	CLRADJ			Mar-83	Apr-84	Mar-90		1.136	0	0.0419	0
MS	CLRSTFE			Feb-79				1.014	0.0051	0.1439	0.0154
MO	CLRST			Jul-81	Jan-79			0.449	0.0032	0.0888	0
MT	CLRSTFE							0.658	0	0.0678	0
NE	CLRST							1.363	0.0058	0.0252	0.0086
NV	CLRST							1.61	0	0.0589	0
NH	CLRSTFE			Sep-86	Apr-87			0.766	0	0.102	0
NJ	CLRST	Jun-84	May-92	Dec-89				1.261	0.0129	0.1447	0.0041
NM	CLRADJ							2.006	0.001	0	0
NY											
NYC		Jun-84	Apr-89							0.2724	0
Balance	CLRSTFE	Jun-77	Jul-83					0.57	0	0.1536	0
NC	CLRST	Oct-81						0.996	0	0.1566	0
ND	CLRSTFE							1.457	0.0133	0.0127	0
OH	CLRSTFE							1.141	0.0014	0.1225	0.0018
OK	CLRADJ HBEXR	Jun-80	Dec-80						0.001	0.1992	0
OR	CLRFADJ			Sep-88				1.373	0.0148	0.0328	0
PA	CLRSTFE							0.862	0.007	0.0452	0.0201
RI	CLRSTFE	Dec-89		Mar-90	Jan-94			0.562	0	0.157	0.0081
SC	CLRSTFE			Jun-87	Apr-83			0.965	0	0.1084	0.0241
SD	CLRST			Jan-88				1.463	0.0113	0.0119	0.015
TN	CLRSTFE			Dec-82				1.441	0.0086	0.0507	0.0033
TX	CLRSTFE	Feb-86		Jun-84	Jan-90	Jun-91		1.461	0	0.0877	0
UT	CLRST							1.372	0.0195	0.0129	0.0084
VT	CLRSTFE							1.362	0	0.0016	0.0069
VA	CLRSTFE			Jun-87	Apr-81			1.753	0.0111	0.0065	0
WA	CLRST							1.029	0	0.0555	0.0146
WV	CLRSTFE							0.96	0.0159	0.1055	
WI	CLRST							0.876	0.004	0.0752	0
WY	CLRST			Jul-91	Jan-94			1.672	0.0087	0.0122	0.0143

NOTE: *A measure of coefficient stability is provided by the standard deviation (Std) of the change in the coefficient over a one month span An exact value zero for the standard deviation indicates the respective (smoothed) component has a constant value over time. For example, a Std of zero for GA's residual seasonal component means that the monthly seasonal factors, while they differ from month-to-month, are fixed from year-to-year.*

7 LAUS Estimation: Labor Market Area Estimates

Introduction

In the late 1940's when subnational labor force estimation was first attempted, employment and unemployment estimates were developed for large labor market areas as well as States, underscoring the importance of substate labor market information. Labor market areas (LMAs) are identified in order to standardize and promote comparability for the collection and use of labor force information in administering various government programs. In the LAUS program, substate estimates of employment and unemployment are prepared for all LMAs in the Nation. Labor market areas are defined in terms of full counties in all areas except New England, where Minor Civil Divisions (MCDs) are used to define LMAs. In the criteria below, the term "county" includes county equivalents and, in New England, refers to MCDs.

A general definition for a labor market area is an economically integrated geographic area within which individuals can reside and find employment within a reasonable distance or can readily change employment without changing their place of residence. LMAs are either metropolitan areas (MAs) or small labor market areas, and exhaust the geography of each of the States, the District of Columbia, and Puerto Rico. The Office of Management and Budget (OMB) is responsible for defining the MAs while the Local Area Unemployment Statistics Division (LAUS) of the BLS performs this function for small labor market areas. Currently, there are 332 metropolitan areas and 2,049 small labor market areas.

Metropolitan areas are designated on the basis of population, urban area, and commutation data. Since population and urban area data are inappropriate for defining the generally less populous small labor market areas, commutation data are used to determine which counties are deemed single-county areas and which

are combined into multi-county areas. Regardless of population size, commuting flows are an indication of the degree of integration of labor markets among counties; commutation data show the extent to which workers have been willing and able to commute to other counties.

Every 10 years the Nation's system of labor market areas is reevaluated and redefined, using the latest Decennial Census information on population and commutation.

Standards for Defining Metropolitan Areas

The general concept of a metropolitan area is that of a core area containing a large population nucleus, together with adjacent communities that have a high degree of economic and social integration with that core. Included among metropolitan areas are Metropolitan Statistical Areas (MSAs), Consolidated Metropolitan Statistical Areas (CMSAs), and Primary Metropolitan Statistical Areas (PMSAs). In addition, New England County Metropolitan areas (NECMAs) are an alternative set of areas defined for the six New England States.

Metropolitan Statistical Area (MSA)

An MSA consists of one or more counties that contain a city of 50,000 or more inhabitants, or contain a Census Bureau-defined urbanized area and have a total population of at least 100,000 (75,000 in New England). Counties containing the principal concentration of population—the largest city and surrounding densely settled area—are components of the MSA. Additional counties qualify to be included by meeting a specified level of commuting to the counties containing the population concentration and by meeting certain other requirements of metropolitan character, such as a specified minimum population density or percentage of the population that is urban. MSAs in New England are defined in terms of cities and towns, following rules concerning commuting and population density.

Consolidated Metropolitan Statistical Area (CMSA)

A CMSA is a metropolitan area that has a population of at least 1 million and which has been divided into two or more PMSAs. A CMSA comprises the same geographical area as its constituent PMSAs.

Primary Metropolitan Statistical Area (PMSA)

Subareas may be defined within an area that meets the requirements to qualify as an MSA and also has a population of one million or more. The definition of these subareas, called PMSAs, requires meeting specified statistical criteria and having the support of local opinion. A PMSA consists of a large urbanized county or cluster of counties (cities and towns in New England) that demonstrate strong internal economic and social links in addition to close ties with the central core of the larger area. Upon the recognition of PMSAs, the entire area of which they are parts becomes a CMSA. All territory within a CMSA is also within some PMSA.

New England County Metropolitan Areas

NECMSAs are county-based alternatives to the city-town based MSAs and CMSAs in the six New England States. The county composition of a NECMA reflects the geographic extent of the corresponding MSA(s) or CMSA(s). NECMSAs are not defined for individual PMSAs.

Standards for Defining Small Labor Market Areas

The following criteria were applied to those areas of the Nation not already included in the OMB-defined Metropolitan Areas, in identifying small labor market areas:

1.) **If 15.0 percent (rounded to the nearest tenth of one percent) or more of the employed workers residing in a county commute to another county, then the two counties were combined into one labor market area.**

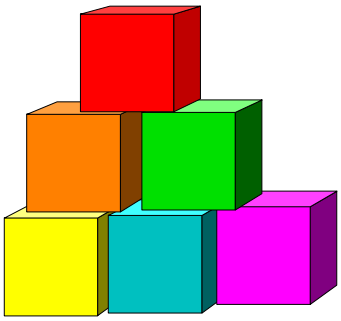
2.) **After combining counties based on the "county-to-county" commuting criteria in (1) above, county-to-LMA flows were checked. If two or more counties were combined into one LMA, an additional county was added if 15.0 percent or more of the employed workers residing in that additional county commuted to the combined LMA (not necessarily to any one county within the LMA). This procedure may have required several iterations.**

3.) **In the case of existing multi-county LMAs, attempts were made to maintain historical continuity. Thus, if the commuting flows were only marginally below the new criteria (that is, within 1.645 standard errors of 15.0 percent), the counties remained combined.**

4.) **Counties were first combined based on the commutation criteria, and then potential multi-county LMAs were checked for contiguity. Noncontiguous portions of potential LMAs were considered separately. If the noncontiguous area contained more than one county, it was reevaluated using (1), (2), and (3) above. If the noncontiguous area was a single county, it was designated as a single LMA.**

5.) **In the New England States, due to the number of small cities and towns, residual MCDs were added to contiguous multi-area LMAs based on commuting flows and/or other economic ties. That is, if after applying the commutation data, an MCD had been identified as an individual LMA, the State could recommend that the MCD be added to a contiguous multi-area LMA, especially if the MCD was extremely small.**

Handbook Estimates



Estimates for the LMAs, which geographically exhaust each State, are produced independently by a building block approach which uses current unemployment insurance data and current nonfarm employment estimates as basic inputs. In addition, components of the labor force not covered by the basic source data are developed using larger-area and decennial census relationships. This methodology is referred to as the Handbook procedure.

When the Handbook was first introduced as a standard procedure for subnational labor force estimation in 1960, it was viewed as an attempt to approximate the results of a CPS-type household survey, but without the prohibitive cost of conducting such a survey. The Handbook utilized a system of estimates which was reflective of the employment and unemployment structure in terms of coverage for UI in the 1960's. Over the years, refinements were made to the components and to the basic input data, to improve comparability and consistency within the States and with the standard definitions of the labor force as embodied in the CPS. In addition, the Handbook procedure has been streamlined to reflect expanded UI coverage and economic and behavioral changes in the labor market.

Additivity of the substate estimates to the State estimates was introduced in 1977, to address a methodology issue and a Federal program allocation need. The sum of substate area unemployment was significantly less than the State level because of greater difficulty in estimating new and

reentrants to the labor market for areas. Forcing area unemployment estimates to the State total corrected for this methodological problem in a proportional manner. This correction also allowed for the complete, to-the-dollar distribution of federal funds to areas when LAUS unemployment was used as the allocation algorithm. (Additivity is discussed in detail in Chapter 8.)

Labor Market Area Employment

Employment comprises all persons who did any work at all as paid employees, worked in their own business, own profession, or on their own farm, or who worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family, and all those who were not working but who had jobs or businesses from which they were temporarily absent because of vacation, illness, bad weather, labor-management dispute, job training, child-care problems, maternity or paternity leave, or other family or personal reasons, whether or not they were paid for the time off or were seeking other jobs. (See Chapter 2 for more detail.)

In brief, total employment is composed of nonagricultural wage and salary employment, all other nonagricultural employment, and agricultural employment.

Nonagricultural Wage and Salary Employment

The nonfarm payroll estimate for a particular labor market area may be based on data from several sources. The principal source is the estimate from the CES survey for the area. If the LMA is not covered by the CES program, a sample-based employment series developed under State auspices is the next best source.

For small LMAs without sample-based employment estimates, extrapolated quarterly ES-202 employment data are used. The current quarter's monthly employment estimates are projected based on actual same quarter one year ago and previous quarter one year ago data. That is, to determine an area's employment estimate for a given month, the over-the-year change in employment for that area is multiplied by its employment level for the same month one year earlier. Employment levels for each area are estimated using the following formulas:

$$M1_c = (AME_p \div AME_{py}) \times M1_{cy}$$
$$M2_c = (AME_p \div AME_{py}) \times M2_{cy}$$
$$M3_c = (AME_p \div AME_{py}) \times M3_{cy}$$

Where:

M1 = first month employment

M2 = second month employment

M3 = third month employment

AME = average monthly employment

c = current quarter

p = prior quarter

cy = current quarter one year ago

py = prior quarter one year ago

The "place-of-work" nonfarm employment estimates must be adjusted to a place-of-residence basis, as in the CPS. Estimated adjustment factors for several categories of employment have been developed on the basis of employment relationships which existed at the time of the most recent decennial census. These factors are appropriately weighted and combined into a single factor which is then applied to the place-of-work nonfarm employment estimates for the current period to obtain nonfarm wage and salary employment estimates adjusted to place of residence.

Nonagricultural wage & salary employment	**933,100**
+ **Labor disputants**	**0**
Unadjusted wage & salary employment	***933,100***

Unadjusted wage & salary employment	**933,100**
× **Residency adjustment ratio**	**0.967100**
Total nonagricultural wage & salary employment	***902,401***

"All-Other" Employment

The term "all-other" employment represents the self-employed, unpaid family, and private household workers (domestics) in the nonagricultural industries. These people work, but generally are not listed on payroll records. Two sources of all-other employment data exist—the decennial census and the CPS. The census provides more geographic detail while the CPS is available on a monthly basis. Total all-other employment is calculated using CPS estimates of all-other employment, CES estimates of nonagricultural wage and salary data, and census counts of area nonagricultural wage and salary employment and all-other employment data. The census counts are used as a base period estimate.

This section explains the development of estimates of self-employed, unpaid family, and private household employment. During intercensal years, data for all-other employment are available in the CPS. While these data are published on a monthly basis only for the nation as a whole, unpublished data are available at the State level. Research has shown that the national and State CPS data, together with national and area wage-and-salary employment, can be used to extrapolate the census all-other benchmark for areas.

The original analysis which led to the first estimating methodology was based on an examination of the relationship between all-other employment and wage-and-salary employment in the Nation as a whole and in a randomly selected sample of areas using the 1940 and 1950 census data. It was found that, in both the areas and the U.S. total, the relative change in wage-and-salary employment was accompanied by a proportional relative change in all-other employment. In other words, slow wage and salary growth was accompanied by slow all other employment growth, and rapid wage and salary growth was accompanied by rapid all-other growth.

It was also found that the proportional relative changes in all-other employment in the areas and in the Nation were very close to each other. This meant that the relative change in area all-other employment could be derived given the relative change in area wage-and-salary employment and the ratio of the relative national change in all-other employment to the relative national change in wage-and-salary employment.

Analyses utilizing data from subsequent censuses corroborated the findings of the original study. However, discrepancies between individual areas, on the one hand, and areas and the Nation on the other, proved quite common, and pointed out the need for area adjustment. The CPS sample expansion of the 1970's provided additional geographic detail on all-other employment and allowed the opportunity for analysis and testing of differences in the proportionality factor between States.

Following each census, each State's *k* value, where *k* equals the relative change in wage and salary employment divided by the relative change in all-other employment, is calculated and reviewed. Clusters of States with similar proportionality constants are grouped into strata. Four strata were defined following the 1980 census; three were defined following the 1990 census. By grouping States into strata based on their ratio of relative change, it was found that all-other employment estimates could be improved. Specifically, using the strata *k*s for estimating the all-other employment significantly reduced the range of error in estimating all-other employment.

An area k-value assigns areas to one of the three strata developed following the 1990 census. It remains in use for the entire intercensal period for the application of a Step 3 ratio provided monthly by BLS.

For each area, the area k is calculated with the following formula:

$$k = \frac{w_t \div w_{t-1}}{a_t \div a_{t-1}}$$

Where:

k = proportionality constant for area data

w = area March/April nonagricultural wage and salary employment

a = area Census all-other employment

t = current time period: 1990 for Census all-other employment; March/April 1990 for nonagricultural wage and salary employment

t-1 = prior time period: 1980 for Census all-other employment; March/April 1980 for nonagricultural wage and salary employment

Strata from the 1990 Census are as follows:

Stratum 1	Stratum 2	Stratum 3
(k < 0.900)	**(0.900≤ k < 0.990)**	**(k ≥ 0.990)**

Estimating All-Other Employment

Each month, BLS calculates a Step 3 Ratio for each stratum and provides the Ratios to the States. States provide their current month's statewide nonagricultural wage and salary employment estimates to BLS according to a schedule provided annually. The following steps are used by BLS to calculate the Step 3 Ratios.

Step 1. ***Determine the all-other employment change ratio.*** *The current month CPS all-other employment estimates for each State in the stratum are summed and divided by the sum of the March/April 1990 census all-other employment estimates for the States in the stratum.*

Step 2. ***Determine the nonagricultural wage and salary employment change ratio.*** *The current month CES nonagricultural wage and salary estimates for each State in the stratum are summed and divided by the sum of the March/April 1990 (two-month average) nonagricultural wage and salary estimates for the States in the stratum.*

Step 3. ***Determine the ratio of relative change for each stratum.*** *Divide each stratum all-other employment change ratio by the corresponding stratum wage and salary employment change ratio, i.e., Step 1 divided by Step 2.*

Table 7-1 presents the monthly Step 3 ratios by stratum for 1990 through September 1997

States utilize the Step 3 ratios to estimate all-other employment for each LMA, as follows.

1.) Calculate the area nonagricultural wage and salary employment change ratio. Divide the current month CES nonagricultural wage and salary employment (including persons involved in labor-management disputes) by the March/April 1990 nonagricultural wage and salary employment.

Nonagricultural wage & salary employment	**933,100**
÷ March/April 1990 nonagricultural employment	**53,589**
Area employment change ratio	***0.994663***

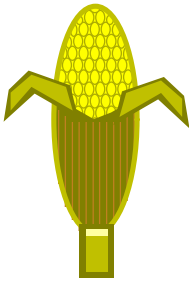
2.) Calculate the area all-other employment change from the 1990 census to the current month. Multiply the ratio calculated above (the nonagricultural wage and salary employment ratio) times the 1990 census all-other employment estimate for the area.

Area Wage and Salary Employment Ratio	**0.994663**
× Census All Other Employment	**53,589**
All other employment change	***53,303***

3.) Calculate the area all-other employment for the current month. Multiply the estimate calculated above (the area all-other employment change figure) by the stratum-specific Step 3 ratio provided by BLS.

All other employment change	**53,303**
× Step 3 ratio	**0.894000**
Area All other employment	**47,653**

Total Agricultural Employment



Due to the lack of an adequate current database, the methodology for estimating agricultural employment utilizes relationships between various series of agricultural employment to project current agricultural employment. In addition to the decennial census, the other sources of data used for this purpose are the CPS and the Department of Agriculture's Agricultural Labor Survey (ALS). CPS data on agricultural employment published in *Employment and Earnings* are for the national level only, but the unpublished CPS agricultural employment estimates for the States are indirectly incorporated into the estimates as monthly change factors. The ALS data on agricultural employment for States are used as part of the annual benchmarking process.

Neither the ALS nor the CPS yields current monthly estimates reliable enough to set the level of farm jobs for the desired areas. From the ALS, agricultural employment estimates for the first month of a calendar quarter are published for fifteen regions and three States. The July level is used each year at benchmark time to rebase to the decennial census level. From the CPS, unpublished monthly agricultural employment estimates are available and are used to develop monthly change factors by ALS region. (See Table 7-2 for monthly factors by ALS region for 1990-1997.)

The ALS utilizes two sampling frames. The list frame of agricultural producers is a stratified random sample of employers likely to have hired workers. The area frame contains all land units in the nation and is used to compensate for the incompleteness of the list of employers. Since the relative error on the number of workers at the ALS regional level is smaller than the comparable relative error using CPS data, it is used to adjust the agricultural employment estimate annually.

Unpublished CPS data, aggregated to ALS regions, are used to develop monthly agricultural change factors.

Defining the Census Benchmark

The agricultural employment benchmark level for all areas is established by the decennial census. The 1990 agricultural data consist of workers in the following industrial classifications:

Description	SIC
Agricultural production - crop	01
Agricultural production - livestock	02
Agricultural services	07 (part)

SICs 074 (Veterinary Services), 075 (Animal Services, except Veterinary), and 078 (Landscape and Horticultural Services) are excluded from the agricultural data. These industries are included in the CES program in the monthly estimation of the Services Industry.

Forestry and fisheries (SICs 08 and 09) data may be included in the census benchmark at the State's option. States including these SICs should notify the appropriate regional office. If a State chooses to include data for these two industrial groups, estimates for all LMAs within the State should also include such data.

Composition and Use of Agricultural Employment Estimating Regions

The following table lists the States included in each of the agricultural employment regions. All areas in each State generally use the factors developed for the respective region as a whole. On an annual basis, the July-to-July percentage change in the agricultural employment region is used to adjust the census-based level for the LMA.

Agricultural Employment Estimating Regions

Region	*Geographic Region*	*State*
1	Northeast I	CT, ME, MA, NH, NY, RI, & VT
2	Northeast II	DE, MD, NJ, & PA
3	Appalachian I	NC & VA
4	Appalachian II	TN, & WV
5	Southeast	Al, GA, & SC
6	Florida	FL
7	Lake	MI, MN, & WI
8	Corn Belt I	IL, IN, KY, & OH
9	Corn Belt II	IA & MO
10	Delta I	LA, AR, & MS
11	Northern Plains	KS, NE, ND, & SD
12	Southern Plains	OK & TX
13	Mountain I	ID, MT, & WY
14	Mountain II	CO, NV, & UT
15	Mountain III	AZ & NM
16	Pacific	OR & WA
17	California	CA
18	Hawaii	HI
19	Michigan	MI
20	Minnesota	MN
21	Wisconsin	WI

The States have the option to make use of data from agricultural regions other than their own. This may be done for any LMA in a State if local knowledge of the agricultural economy indicates that another region better reflects local agricultural employment. (In the case of interstate areas, the subarea calculation is determined by the controlling State's regional selection.) Once the selection of an alternate regional factor has been made, it must be continued until the next census. The production of all current and benchmarked data must also reflect this selection. The use of alternative agricultural factors is requested using the atypical/exception procedure.

At benchmarking, the most recent July-to-July regional change factors are made available for creation of the new July adjusted number. New monthly change factors are also provided at this time to revise monthly estimates from July of the previous year forward. The new July base is then used until the next year's benchmark. The preliminary August-December estimates should therefore be replaced with revised estimates, based on the new July adjusted base, providing a consistent series through the next calendar year.

Description of Agricultural Estimating Procedure

Each year at benchmarking time, a new agricultural employment level is set for the previous July with ALS data. Using this level and the similar ALS level for the July one year earlier, the months from August through June are wedged. The months from August following the most recent ALS release through December are revised using the new July base level and the CPS monthly change factors. (See Chapter 10.)

The current calculation is:

$$\mathbf{A}_{ij} = \mathbf{F}_{ik} \times \mathbf{C}_{ij}$$

where,

1.) **A_{ij} = total agricultural employment for month i in LMA j**

2.) **F_{ik}= monthly factor for total agricultural employment for month i in agricultural employment estimating region k, and**

3.) **C_{ij}= 1990 decennial census agricultural employment benchmark level for the LMA.**

Census agricultural employment	**2,572**
× Monthly factor	**0.743000**
Total agricultural employment	***1,911***

Labor Market Area Unemployment

In the current month, the estimate of unemployment is an aggregate of the estimates for each of the two building-block categories, those unemployed covered by UI and new and reentrants (the noncovered).

Covered Unemployment: Claims Data

Statistics from the UI systems are the only current measure of unemployment at the substate level.

The "covered" category consists of (1) those who are currently collecting UI benefits, and (2) those who have exhausted their benefits. Only the insured unemployed are obtained directly from an actual count of current UI claimants for the reference week under State UI, Federal, and Railroad programs. Two insured unemployed counts, continued claimants and final payment recipients, are used in the development of LMA unemployment estimates. Continued claimants are persons certifying to a compensated or noncompensated week of unemployment including the 12th of the month under the State UI and UCFE programs. (See Chapter 3.)

The exhaustee component represents a significant part of the overall unemployed estimates, second in size to the active insured count, and is a major contributor to inter-area variability in the estimates. Although States know the number of individuals who receive final payments, they are unable to track them after they leave the UI system. Each month, tabulations of weekly counts (and monthly counts in some areas receiving intrastate commuter claims) of persons who have received final payments from the UI system are used to estimate the number of people who do not immediately find a job.

Estimates are made to reflect unemployment in the same CPS reference week as continued claims, that is, the week including the 12th of each month. In addition, persons receiving final payments in previous weeks or months are carried forward in decreasing numbers into successive periods, by applying a CPS-based "survival" or continuation rate. This rate refers to individuals who are still actively seeking and available for work. The estimate of current exhaustees for an area is therefore "built up" over the period including the 19th of the previous month through the week including the 12th of the current month, and includes an estimate of the prior month's unemployed exhaustees who remain unemployed in the current month. The level of the pool of exhaustees can rise or fall depending on the volume of final payments and the survival rate.

Based on research conducted by Hyman Kaitz, a formula which utilizes the parallel relationship between the rate of unemployment and the duration of unemployment spells, and quarterly average CPS State duration data, yields survival rates for each of the four unemployment ranges. On a monthly basis, areas can select a survival rate from these four ranges which most closely relates to recent local unemployment rate conditions. Thus, high unemployment rate areas select a higher survival rate and have higher exhaustee levels and Handbook estimates than low unemployment rate areas.

Research established a lagged correlation of two quarters between the unemployment rate and the survival rate. Adding an operational lag of one quarter results in the use of a given survival rate based on the area's unemployment rate nine months prior. Each quarter the 50 States and the District of Columbia are divided into four unemployment rate groups. Each of four ranges represents a set of States within a given range of unemployment rates. Each group contains roughly 25 percent of the quarterly average nationally-weighted unemployment.

In implementing this procedure, the following occurs:

1. Every January, April, July, and October, four survival rates are issued based on CPS data for the most recent quarter (4th, 1st, 2nd, and 3rd). (See Table 7-3 for survival rates.)

2. Each month during a given quarter, areas select from among these survival rates in developing LAUS estimates for the quarter of receipt (1st, 2nd, 3rd, and 4th).

3. The selection of the rate is based on the area's total unemployment rate nine months prior to the estimate month. This lag represents the two-quarter lagged relationship between the unemployment rate and the survival rate and a one-quarter operational lag.

Calculation of Exhaustees from Weekly Final Payments

Following is an illustration of the steps involved in calculating exhaustees. Each column of the worksheet is described below along with the calculations needed to obtain a column's result.

Unemployed Exhaustee Worksheet

Est. Month.	Month	LAUS Rate	Weekly Rate	Week Ending	A.F.P.*	P.W.*	U.E.* (4 × 7)
1	2	3	4	5	6	7	8
4/96	7/95	7.8	0.949	3/23	120	1,484	1,408
4/96	7/95		0.949	3/30	135	1,528	1,450
4/96	7/95	-	0.949	4/06	117	1,585	1,504
4/96	7/95	-	0.949	4/13	87	1,621	1,5380
5/96	8/95	8.1	0.958	4/20	100	1,652	1,557
5/96	8/95		0.958	4/27	72	1,657	1,587
5/96	8/95	-	0.958	5/04	93	1,659	1,589
5/96	8/95	-	0.958	5/11	114	1,659	1,589

Column	Explanation / Entry
1	The month for which the LAUS estimate is made.
2	The month for use in survival rate selection.
3	Enter the State or area's LAUS unemployment rate for the month indicated in Column 2.
4	Based on the Column 3 rate, enter the appropriate weekly survival rate obtained from accessing Sungard file: &&&YBDBLS.A130.SURVIVAL:CHART
5	The week ending date from the reference week of the last month of the prior quarter through the current quarter.
	Weekly Final Payment Data
6	AFP = Actual Final Payments. Final payments collected on a weekly basis.
7	Sum of final payments for the previous week and unemployed exhaustees from previous week.
8	Unemployed exhaustee estimate. Column 7 times the Column 4 weekly rate.

Noncovered Unemployment

Unemployment for groups not covered by unemployment insurance is not specifically calculated. Rather, noncovered unemployment is assumed to be distributed proportionally among LMAs in relation to their share of total unemployment, through the additivity process. This proportional relationship may not be appropriate in States with a significant agricultural component, particularly where UI coverage of agricultural employment does not go beyond the Federal minimum. To address situations where there is a relative concentration of agricultural employment in small labor market areas, States can include a specific agricultural unemployment component to the Handbook.

Agricultural Unemployment

Direct estimation of agricultural unemployment may be used in States with at least one LMA where agricultural employment is 25 percent or more of total employment. States which qualify must obtain approval from BLS to estimate agricultural unemployment directly. In such cases, this direct estimation must be used in all labor market areas of the State. Other States may request approval for atypical treatment of agricultural unemployment for a specific LMA if it can be demonstrated that the lack of such an estimate has a deleterious effect on estimates for that area.

In order to develop this estimate, the relationship between the unemployment rate for agricultural workers and for those from nonagricultural activities is used. This relationship varies monthly, reflecting differences in the seasonal patterns for the two groups. Monthly fractional rates for estimating agricultural unemployment are provided by the national office via the LAUS State software. These rates were developed by combining separate rates for agricultural wage and salary and agricultural self-employed and unpaid family workers. Each group was appropriately weighted, based on CPS monthly employment levels for the previous two years; the weighted rates are combined by addition. The appropriate rate is then applied to the noncovered agricultural employment estimate.

Unemployed New Entrants and Reentrants

For many unemployed individuals, the current spell of unemployment has not been immediately preceded by employment. These unemployed entered the labor market from outside the labor force after having completed military service, family responsibilities, education, or other situations. These individuals are known as unemployed entrants.

Unemployed entrants can be further divided into two groups. One group includes the individuals who enter the labor market for the first time and do not find jobs. These persons are defined as unemployed new entrants. The other group includes those who enter the labor market after period of retirement from the labor force and are unable to find employment. They are defined as unemployed reentrants.

The volume of unemployed entrants and reentrants is significant in relation to total unemployment. For this reason, unemployed entrants and reentrants are estimated as a separate component of unemployment by means of a special estimation procedure.

Method for Estimating Unemployed Entrants and Reentrants

The new entrant and reentrant estimate is obtained by relating monthly national seasonal factors, adjusted to reflect the relative concentration of youth in the estimating area, to the experienced unemployed and the experienced labor force in the estimating area.

Each year at benchmark time, the Youth Population Ratio (YPR) is calculated for each area using the cohort method of survival and survival rates derived from the Department of Health and Human Services U.S. Life Tables. These survival rates are applied to individual age categories to estimate the number of survivors in a given year. After the number of survivors is computed, estimates of the 16-19 age group population and the 20+ population for the given year are made and the YPR is derived. The YPR is the ratio between the 16- to 19-year-old population and the population 20 years of age and over. It is used throughout the year.

Survived 16-19 years old	**97,205**
÷ Survived 20 years and over	**1,458,565**
Youth population ratio (YPR)	**6.7%**

Regression Formulas for Annual A and B Factors. The relationship of the Youth Population Ratio both to the ratio of new worker unemployed to the experienced labor force and to the ratio of new worker unemployed to the experienced unemployed has been extensively researched. To reduce the effect of irregular changes in the data, the two new-worker ratios were smoothed by the application of a five-year moving average. Two functional relationships were then set up, with logarithmic equations selected as the most suitable for explaining the functional relationships. The analysis indicated a continued reasonable correlation between the YPR and the ratio of new-worker unemployed to the experienced unemployed (0.85 correlation coefficient) and the ratio of new-worker unemployed to the experienced labor force, excluding new-worker unemployed (0.70). The following equations were developed:

$$Y_1 = -.019885 + .011151 \ln X$$

$$Y_2 = -.3987 + .2271 \ln X$$

where:

X = Youth population ratio

Y1 = Ratio of new entrant unemployed to the civilian labor force less new entrant unemployed (A factor)

Y2 = Ratio of new entrant unemployed to experienced unemployed (B factor)

Tables 7-4 and 7-5 list the annual A and B factors for YPRs of 6.5 through 17.5 as computed from the above equations. For YPRs below 6.5, the annual A and B factors for a YPR of 6.5 should be used. For any YPR above 17.5, the annual A and B factors should be computed using the above equations.

High Unemployment "B" Factor. To reflect the lower labor force participation rates and the discouraged worker effect in high unemployment areas, a separate formula has been developed for the estimation of a high unemployment B factor. The formula using the natural log of the YPR as in the above section with the coefficients at an appropriately lower level. Using the same notation as above, the equation is as follows:

$Y2 = -.2868 + .1634 \ln X$

When the average unemployment rate in the previous 12 months reaches 6.5 percent or more in an area, the "high" unemployment B factor is used in the following month. When the twelve month moving average reaches 6 percent, use of the "high" B factor is terminated.

$$Y_2 = -.2868 + .1634 \ln X$$

Estimation of Entrants. The Annual A and B factors for an area are selected by using the area's YPR. "A" factor unemployment is the estimate of that portion of new and reentrant unemployment which is related to the level of the experienced labor force. The month's A factor is the product of the area's Annual A factor and the monthly seasonal A′ factor developed from national CPS data.

-0.019885+(0.011151 × lnYPR)	**0.001325**
× Seasonal A′	**1.033000**
A factor	***0.001369***

"B" factor unemployed is the estimate of that portion of new and reentrant unemployment which is related to the level of experienced unemployed. The month's B factor is the product of the area's Annual B factor and the monthly seasonal B′ factor.

-0.3987+(0.2271 × lnYPR)	**0.033269**
× Seasonal B′	**1.101100**
B factor	***0.036632***

Seasonal monthly A' and B' factors are developed annually from CPS data and provided to the States. (See tables 7-4 and 7-5 for factors from 1990 onward.) These seasonal monthly factors are multiplied by the respective Annual A and B factors to yield the monthly A and B factors.

The month's A factor is multiplied by the number of employed plus unemployed excluding entrants. The resulting estimate is the number of entrants related to the experienced labor force.

Employed	**951,965**
+ Unemployed, excluding entrant	**35,630**
Experienced labor force	**987,595**
× A factor	**0.001369**
A factor unemployed	***1,352***

The month's B factor is multiplied by the number of unemployed excluding entrants to produce the estimate of entrants related to the experienced unemployed.

Unemployed, excluding entrants	**35,630**
× B factor	**0.036632**
B factor unemployed	***1,305***

States must determine, on a monthly basis, whether areas should use the high or low unemployment B factor. When the average unemployment rate for the preceding 12 months is 6.5 percent or greater, the high B factor must be used. Otherwise, the Annual A and B factors appropriate for the YPR are used for the entire year.

Table 7-1 STRATA STEP 3 RATIOS, BY MONTH

STRATUM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	1990											
1	1.03243	0.96902	0.98032	1.01964	1.01098	1.03678	1.05290	1.05038	1.05951	1.08174	1.01929	1.01201
2	0.99663	0.99813	1.00937	0.99068	0.99968	1.00725	0.99964	0.99590	0.99133	1.01251	1.00550	1.01533
3	0.99095	0.96557	0.99596	1.00402	0.98982	0.98795	1.03005	1.02865	0.98239	1.01556	0.99169	1.01199
	1991											
1	1.02376	1.00152	1.02225	1.07187	1.01362	1.06922	1.10538	1.13793	1.08895	1.14263	1.10022	1.07805
2	1.00602	0.99897	1.01705	1.03655	1.00949	1.05968	1.06765	1.03557	1.01866	1.03430	1.01405	0.98472
3	0.97780	0.99974	1.01593	1.08472	0.98483	0.98871	0.97965	0.99690	0.98801	0.99935	0.98286	0.97105
	1992											
1	1.04350	1.06728	1.05761	1.09677	1.08101	1.13366	1.15729	1.10997	1.10200	1.07218	1.08245	1.06903
2	0.97031	1.00297	1.00587	0.96574	0.98827	1.00940	1.01131	1.01227	0.99513	0.99699	1.00930	1.00506
3	0.94585	0.90717	0.94418	0.94501	0.92798	0.94208	1.04440	1.01393	0.98947	0.98178	0.96194	0.91902
	1993											
1	1.12069	1.09586	1.07738	1.12774	1.16527	1.15812	1.21064	1.19589	1.19726	1.22469	1.16273	1.18538
2	0.98321	1.01558	1.00789	1.02530	1.02025	1.03469	1.04254	1.05684	0.98949	1.00757	1.00795	0.99129
3	0.92885	0.94054	0.96657	0.94147	1.00648	0.99355	1.00028	0.99626	0.99669	0.97670	0.95740	0.92547
	1994											
1	1.12000	1.13700	1.13800	1.13400	1.10500	1.06800	1.09000	1.11900	1.07000	1.10300	1.10200	1.11500
2	0.97300	1.01000	0.99800	0.98400	0.98700	1.00800	0.99900	0.99500	0.95700	0.94800	0.94400	0.95000
3	0.81600	0.89000	0.86600	0.84100	0.92900	0.89900	0.93000	0.90100	0.90500	0.85000	0.88600	0.84200
	1995											
1	1.10500	1.08000	1.06800	1.07400	1.05100	1.02500	1.10600	1.06200	1.06600	1.09100	1.08600	1.10000
2	0.94800	0.95000	0.94000	0.91500	0.91800	0.92900	0.96300	0.95000	0.93100	0.92800	0.90400	0.91300
3	0.83000	0.84100	0.84400	0.84900	0.85900	0.85000	0.85900	0.85000	0.86600	0.83200	0.81800	0.78900

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Table 7-1 STRATA STEP 3 RATIOS, BY MONTH

STRATUM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	1996											
1	1.07500	1.08300	1.08800	1.08500	1.03200	1.02300	1.01400	1.00000	0.99400	1.01400	1.03600	1.04500
2	0.90900	0.91800	0.91700	0.89700	0.89400	0.91100	0.94600	0.92100	0.89800	0.92800	0.91900	0.93100
3	0.77100	0.79200	0.82500	0.82400	0.85300	0.85900	0.87500	0.90800	0.85700	0.85300	0.80600	0.79700
	1997											
1	1.09100	1.03600	1.05900	1.04600	1.02600	1.00500	0.99500	1.03100	0.98700	0.99000	0.98300	0.97200
2	0.96000	0.92200	0.92500	0.90900	0.90400	0.92600	0.92700	0.90900	0.88600	0.88100	0.89700	0.88700
3	0.81300	0.80600	0.82800	0.82400	0.82800	0.80700	0.80800	0.80000	0.78700	0.79200	0.77100	0.77200
	1998											
1	0.99300	0.96600	1.00500	1.02000	1.02200	1.01400	1.06000	1.06000	1.01200	0.99500	0.96800	0.97800
2	0.89900	0.88200	0.88400	0.89300	0.88800	0.87300	0.89400	0.89400	0.87600	0.87900	0.86600	0.83300
3	0.77900	0.76700	0.74900	0.77900	0.76400	0.78200	0.77800	0.77800	0.75800	0.76800	0.76100	0.74500
	1999											
1	0.94600	0.91800	0.93900	0.92600	0.95300	0.97100	0.95300	0.95900	0.97600	0.92300	0.90200	0.90100
2	0.85500	0.82600	0.84500	0.85300	0.84800	0.84400	0.86800	0.86500	0.82400	0.85000	0.82400	0.81100
3	0.74000	0.72700	0.72600	0.74300	0.71500	0.77500	0.76100	0.76600	0.77900	0.76400	0.74400	0.72400
	2000											
1	0.91800	0.93600	0.88100	0.90000	0.90700	0.91400	0.90200	0.91500	0.09170	0.90600	0.91400	0.89500
2	0.82400	0.83300	0.84600	0.84700	0.82200	0.82700	0.81700	0.79700	0.81300	0.82200	0.76200	0.78800
3	0.69800	0.69900	0.72500	0.74100	0.72800	0.71600	0.71800	0.69100	0.71500	0.71300	0.68500	0.68400
	2001											
1	0.88400	0.85700	0.86900	0.84400	0.86400	0.89100	0.91100	0.90700	0.91000	0.89700	0.88900	0.85800
2	0.82200	0.79300	0.82000	0.80200	0.77300	0.80500	0.77800	0.77100	0.77500	0.77800	0.75500	0.76500
3	0.67200	0.68000	0.70800	0.71700	0.68600	0.69200	0.71100	0.67100	0.67900	0.68200	0.65700	0.65000
	2002											
1	0.84000	0.83600	0.81700	0.85900	0.87500	0.85200	0.91000	0.89200	0.92100	0.89700	0.94600	0.86100
2	0.76000	0.76200	0.77000	0.76200	0.74800	0.78200	0.77100	0.79300	0.79000	0.80200	0.81600	0.82100
3	0.64500	0.63500	0.66300	0.71700	0.70200	0.68300	0.70200	0.66300	0.69600	0.73500	0.72300	0.69100

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TABLE 7-2 CPS AGRICULTURAL EMPLOYMENT MONTHLY ESTIMATION FACTOR BY AGRICULTURAL ESTIMATING REGIONS

REGION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NORTHEAST I	1990	0.65195	0.78521	0.77559	1.00000	1.27118	1.24191	1.19274	1.10560	1.00163	0.91260	0.88214	0.92114
	1991	0.85911	0.85180	0.89473	0.98821	1.16658	1.43340	1.31302	1.36424	1.06980	0.99201	1.16689	1.01118
	1992	0.87058	0.93949	0.96322	0.91227	0.98312	1.13356	1.24286	1.23220	1.09153	1.05646	1.05963	0.85042
	1993	0.80085	0.78093	0.69944	0.84582	1.02685	1.19425	1.35311	1.25498	1.19107	1.11919	1.21713	1.01007
	1994	0.71514	0.79601	0.76796	1.08756	1.27144	1.43437	1.31302	1.34698	1.11432	1.08678	1.14562	0.96627
	1995	0.77051	0.82250	1.00574	1.10251	1.54339	1.51532	1.33307	1.24503	1.15936	1.16310	1.02976	1.13445
	1996	0.94126	0.76903	0.92081	1.04809	1.40590	1.38475	1.36314	1.17574	1.15460	1.07267	0.88180	0.86156
	1997	0.82954	0.78209	0.91548	1.09422	1.21866	1.45373	1.37316	1.27234	1.26707	0.99743	0.93016	0.68778
	1998	0.58676	0.61523	0.68859	0.99842	1.04645	1.03967	1.26291	1.02851	1.03975	0.92965	0.73003	0.69274
	1999	0.60750	0.75846	0.86902	1.17538	1.19663	1.28162	1.32304	1.24221	1.20071	1.20433	1.04992	1.01066
	2000	1.07437	1.04611	1.21242	1.46105	1.31458	1.56544	1.51348	1.53493	1.45777	1.34638	1.19625	1.24136
	2001	1.11434	1.00424	0.81579	0.94436	0.90640	1.11030	1.39321	1.50700	1.53485	1.41790	1.38838	1.26304
	2002	1.12476	0.96187	0.61377	0.79901	0.82415	1.10530	1.18272	1.23128	1.20522	1.19420	1.15947	1.03306
	2003	0.65353	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
NORTHEAST II	1990	0.88347	0.95733	0.98073	1.00000	1.18535	1.12983	1.18676	1.12996	1.10962	1.07067	0.87590	0.83132
	1991	0.70319	0.69023	0.78055	0.93779	0.87245	0.91123	1.06808	1.03942	1.01539	0.99611	0.93055	0.72343
	1992	0.67578	0.64413	0.74393	0.88384	1.06049	1.12422	1.10517	0.97358	0.89868	0.81744	0.65408	0.57437
	1993	0.62168	0.69514	0.80331	1.02846	0.97784	1.11150	1.07550	0.90283	0.80243	0.74417	0.75400	0.78110
	1994	0.58836	0.61363	0.81765	0.92626	0.90995	1.08236	1.02358	0.97929	1.06829	1.02797	1.02300	1.04650
	1995	0.88857	0.89233	0.98506	0.97723	0.88361	1.07657	1.19418	1.33808	1.12184	1.16202	1.24099	0.98076
	1996	0.95246	0.75812	0.68596	0.65267	0.82358	0.95514	1.15709	1.36726	1.46421	1.36308	1.27570	1.19196
	1997	0.96734	0.65256	0.87213	0.91434	1.16143	0.98795	1.30544	1.36722	1.43448	1.30986	1.05733	0.83544
	1998	0.63544	0.77041	0.84838	1.08848	1.22747	1.19393	1.24610	1.18685	1.18527	1.03658	1.01531	0.87836
	1999	0.78597	0.83847	0.73445	0.95809	0.94583	1.04837	1.13484	1.20835	1.03191	0.96473	0.98607	0.89332
	2000	0.91971	0.92128	1.09331	1.23126	1.33278	1.29440	1.28318	1.41830	1.33533	1.27734	1.17751	1.17066
	2001	0.75871	0.96424	0.96331	1.11893	1.22147	1.33481	1.27577	1.20633	1.08387	1.07706	1.00870	1.14270
	2002	0.97048	0.94661	0.89518	0.95171	0.99307	1.11556	1.17193	1.13442	1.17650	1.28353	1.14030	1.13747
	2003	0.56344	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

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TABLE 7-2 CPS AGRICULTURAL EMPLOYMENT MONTHLY ESTIMATION FACTOR BY AGRICULTURAL ESTIMATING REGIONS

REGION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
APPALACHIAN I	1990	0.75455	0.75550	0.89166	1.00000	1.10703	1.13145	0.93969	0.82687	0.91721	0.82443	0.90019	0.70004
	1991	0.58234	0.77820	0.91980	1.01556	1.26132	1.09567	1.15401	1.09275	1.02108	0.80057	0.81499	0.71070
	1992	0.67595	0.81142	0.80741	0.97661	0.92497	1.00850	1.01113	0.94938	0.95420	0.88242	0.73263	0.63551
	1993	0.78453	0.79915	0.72585	0.85773	0.93644	0.86202	0.85177	1.02312	0.89324	0.74438	0.64825	0.58541
	1994	0.45392	0.64462	0.80838	0.58055	0.85218	0.71534	0.87925	0.92818	0.94625	0.86047	0.72084	0.67019
	1995	0.68046	0.70800	0.97482	0.93071	0.95925	1.02195	1.03311	1.03138	0.91107	0.83173	0.86845	0.67276
	1996	0.57844	0.48750	0.54360	0.53158	0.81954	0.70587	0.91222	1.04051	0.88221	0.85072	0.79279	0.70387
	1997	0.53548	0.62597	0.67410	0.69711	0.89541	0.96234	0.93420	0.93458	0.83282	0.86615	0.72773	0.63884
	1998	0.48345	0.34818	0.45252	0.65688	0.68912	0.87923	0.87375	0.82838	0.86400	0.90120	0.81900	0.80341
	1999	0.79510	0.70613	0.92171	1.00293	0.82402	1.01778	1.01663	1.05023	1.21952	1.11078	0.76858	0.50796
	2000	0.50499	0.49046	0.72451	0.64593	0.73964	0.86920	0.90672	1.00656	0.91849	0.89188	0.82731	0.80282
	2001	0.75647	0.90270	1.01981	0.95710	0.94539	0.99997	0.97816	1.31424	1.29804	1.18370	1.01775	0.81455
	2002	0.68628	0.70483	0.62512	0.67093	0.85155	1.01014	0.94519	0.83270	0.89286	0.89821	0.92792	0.95502
	2003	0.52616	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
APPALACHIAN II	1990	0.90779	1.12613	1.14312	1.00000	1.07084	1.37003	1.08829	1.35496	1.25482	1.33240	1.29697	1.15244
	1991	0.84489	0.87377	0.76452	0.69850	1.08663	1.19307	1.07797	1.24579	1.20270	1.09290	1.30374	1.09983
	1992	0.86714	0.88100	0.85946	0.78270	0.97507	1.25238	1.23787	1.49185	1.21897	1.04492	1.17811	1.09375
	1993	0.84975	0.82422	0.84557	0.75339	1.08466	1.15195	1.12955	1.00095	1.18106	0.93378	0.90892	0.73352
	1994	0.72469	0.76947	0.78754	0.89399	0.98712	0.91765	0.94903	1.03654	1.14497	1.01695	0.96365	1.21959
	1995	1.02396	1.03371	1.05942	1.04209	1.06919	1.12886	1.16050	0.91648	1.00504	1.06869	1.30043	1.16717
	1996	1.13026	1.09542	1.18333	1.07274	1.22582	1.15602	1.20692	1.08501	1.08832	1.21862	1.32256	1.11303
	1997	1.30702	0.76825	1.11920	1.41693	1.16398	1.23044	1.27913	1.02698	0.79583	0.84294	0.86927	0.76321
	1998	0.71450	0.92119	1.01714	1.18372	1.30111	1.34011	1.15018	1.38406	1.23331	0.82917	0.95871	0.83647
	1999	0.68054	0.82687	1.17288	1.19412	1.62500	1.51825	1.22755	1.18280	0.98454	0.82060	0.57806	0.81267
	2000	0.72693	0.78538	1.01476	0.91377	1.06530	1.17080	1.19660	1.17653	1.20353	1.12008	1.01502	0.88878
	2001	0.83142	0.90519	1.19286	1.21250	1.26404	1.21232	1.18113	1.02455	1.12437	1.20750	1.24713	1.46775
	2002	1.26180	1.45404	1.54174	1.62624	1.23096	0.95807	0.96966	0.96535	0.83919	1.17300	0.97970	1.05113
	2003	1.02919	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

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TABLE 7-2 CPS AGRICULTURAL EMPLOYMENT MONTHLY ESTIMATION FACTOR
BY AGRICULTURAL ESTIMATING REGIONS

REGION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SOUTHEAST	1990	0.99523	0.94439	1.07607	1.00000	1.14080	1.23112	1.17455	1.00170	1.06771	1.01115	0.82344	0.84271
	1991	0.84476	0.79521	1.05011	1.10164	1.07848	1.13367	1.21916	0.84565	0.91432	0.91541	0.76175	0.72434
	1992	0.75529	0.78448	0.95501	1.05296	1.02190	1.16398	1.15225	1.18676	0.91108	0.88133	0.93463	0.82309
	1993	0.86738	0.76054	0.86318	0.75150	0.78510	1.12185	1.14482	0.99324	1.14088	0.87442	0.78523	0.91388
	1994	0.81877	0.51754	0.69143	0.70147	0.94300	0.98063	0.98871	0.95682	0.70008	0.66270	0.76302	0.77296
	1995	0.68584	0.73625	0.76832	0.91528	0.89282	1.00512	1.03331	0.82055	0.60273	0.66991	0.57749	0.74541
	1996	0.71469	0.90349	0.96726	0.95671	1.05238	1.09115	0.98871	0.79849	0.72953	0.76899	0.69495	0.93912
	1997	0.94686	1.00804	1.13673	1.12717	1.03487	1.06339	1.12995	1.00536	0.88652	0.71620	0.68301	0.78586
	1998	0.64707	0.75948	0.60828	0.44902	0.50771	0.72648	0.95897	0.75883	0.82524	0.76871	0.66527	0.79478
	1999	0.76902	0.75093	0.72269	0.72953	0.74161	0.96599	1.01101	0.83682	0.88015	0.92150	1.07116	1.20808
	2000	1.28249	1.23034	1.10881	1.10314	1.06890	1.12355	1.12995	1.10271	1.25381	1.34426	1.20356	1.03647
	2001	1.06085	0.75819	0.99355	1.01053	1.24806	0.90506	1.01844	0.95920	0.92562	1.04990	0.65218	0.72449
	2002	0.52365	0.44110	0.44689	0.57654	0.63291	1.00040	1.08535	0.83250	0.75372	0.76660	0.66302	0.65218
	2003	0.47277	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
FLORIDA	1990	1.24595	0.89573	1.16354	1.00000	1.15502	1.10062	1.10520	0.97257	1.07617	0.98289	1.22607	1.37093
	1991	1.42849	1.31441	1.27557	1.18548	1.47866	1.39747	1.23917	1.30040	1.43864	1.36171	1.53531	1.38247
	1992	1.13372	1.04311	1.15935	1.47371	1.03823	1.16327	1.12195	1.09922	1.32436	1.22040	1.15072	1.51527
	1993	1.35880	1.18200	1.19023	1.04769	1.17496	1.08166	1.28940	1.09969	1.15896	1.12089	1.34663	1.44356
	1994	1.52417	1.54776	1.40701	1.29851	1.15637	1.21426	1.17218	1.21129	1.20135	1.37498	1.65232	1.52604
	1995	1.49139	1.62219	1.80181	1.73763	1.63677	1.54544	1.32289	1.30375	1.61154	1.85474	1.68850	1.73881
	1996	1.96518	2.13012	2.08248	2.15551	1.64702	1.40196	1.37313	1.14398	1.39597	1.24417	1.60035	1.70416
	1997	1.72701	1.61884	1.62087	1.84173	1.66144	1.25286	1.30615	1.23089	1.22291	1.06111	1.00491	1.25839
	1998	1.39399	1.31867	1.14081	1.33383	1.29538	1.26530	1.33964	1.46650	1.71673	1.92325	1.48218	1.22815
	1999	1.55024	1.43725	1.61765	1.27559	1.18425	1.30992	1.37313	1.45752	1.50764	1.47553	1.60875	1.74692
	2000	1.83768	1.56881	1.59567	1.60430	1.39825	1.57479	1.35639	1.37414	1.32475	1.48689	1.57443	1.62370
	2001	1.97551	1.75748	1.73236	1.74425	1.78906	1.61058	1.45686	1.82352	1.84518	1.60864	1.58566	1.16280
	2002	1.46832	1.44618	1.39729	1.37041	1.40484	1.18026	1.30615	1.31960	1.62448	1.51018	1.38347	1.24048
	2003	0.47537	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

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TABLE 7-2 CPS AGRICULTURAL EMPLOYMENT MONTHLY ESTIMATION FACTOR BY AGRICULTURAL ESTIMATING REGIONS

REGION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
LAKE	1990	1.19156	1.09421	1.12142	1.00000	1.10103	1.08062	1.16534	1.25954	1.19026	1.19635	1.06413	1.04160
	1991	0.97526	0.87076	0.83387	0.87898	1.00741	1.09576	1.14288	1.05855	0.94713	1.03234	0.86683	0.78851
	1992	0.74215	0.70925	0.62788	0.81501	0.97285	1.06486	0.98282	0.97659	0.86295	0.92479	0.88823	0.79450
	1993	0.88231	0.83695	0.87401	0.95182	1.01506	1.10344	1.08391	1.00377	1.00631	1.00704	0.96561	0.90508
	1994	0.94178	0.93716	0.89680	0.84217	1.00976	1.09227	1.05021	1.22234	1.20554	1.13857	1.11286	0.78782
	1995	0.74756	0.74910	0.84610	0.99139	0.96289	1.04655	1.02775	0.98699	0.91333	0.87775	0.86200	0.76953
	1996	0.76390	0.84259	0.86057	0.88521	0.98450	0.91270	0.96597	0.97768	0.94581	0.90132	0.85400	0.73662
	1997	0.69132	0.71506	0.62803	0.73356	0.81604	0.80197	0.88734	0.98907	0.96649	0.97645	0.93587	0.90811
	1998	0.70532	0.78630	0.70520	0.78276	0.92516	0.86724	0.97720	0.83088	0.74773	0.81258	0.70526	0.70606
	1999	0.64242	0.64658	0.54269	0.62570	0.73887	0.72965	0.94070	0.90528	0.75246	0.77731	0.66448	0.56858
	2000	0.59324	0.71026	0.77552	0.83757	0.90430	0.86387	0.90981	0.79402	0.79480	0.80507	0.67048	0.52514
	2001	0.45744	0.38267	0.45780	0.72037	0.76147	0.81886	0.83680	0.88663	0.79099	0.72931	0.58323	0.56760
	2002	0.53673	0.57763	0.60581	0.59508	0.62494	0.62260	0.68236	0.64495	0.75575	0.83107	0.69849	0.61192
	2003	0.43641	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
CORN BELT I	1990	0.69185	0.60722	0.74982	1.00000	1.11327	1.23332	1.18499	1.09280	0.84060	0.80733	0.75437	0.64815
	1991	0.64476	0.63436	0.73071	0.84283	0.98744	1.06787	1.04895	0.89931	0.88702	0.81658	0.67117	0.58504
	1992	0.58084	0.58581	0.57201	0.63763	0.86140	0.97525	0.99525	0.83121	0.74169	0.77796	0.73946	0.69623
	1993	0.65220	0.70547	0.80146	0.89603	1.01215	1.06091	1.10981	0.98967	0.89139	0.98027	0.96154	0.76394
	1994	0.80575	0.81272	0.81208	0.96435	0.98537	1.11929	1.10623	0.90212	0.92852	1.00025	1.04951	1.04411
	1995	0.90080	0.92445	0.91155	1.03270	1.03411	1.21129	1.09549	1.09901	1.09188	1.07545	1.07562	0.96162
	1996	0.69513	0.64487	0.71167	0.82170	0.88247	1.05827	1.06685	0.99174	0.99905	0.92962	0.82307	0.76589
	1997	0.67544	0.60511	0.72974	0.77096	0.81534	1.11972	1.05611	0.85883	0.83682	0.78870	0.79868	0.74604
	1998	0.63119	0.54915	0.56087	0.78293	0.80581	1.01308	0.92365	0.91047	0.85586	0.94929	0.93796	0.90335
	1999	0.85625	0.85242	0.92971	0.95878	1.12361	1.19912	1.09549	1.14739	0.97731	0.81598	0.71040	0.55013
	2000	0.78161	0.72631	0.71447	0.79760	0.88880	0.88438	0.99883	1.06735	0.86934	0.69472	0.64966	0.60336
	2001	0.58651	0.68716	0.81694	0.78089	0.83052	1.02158	1.06685	1.00121	0.92611	0.82403	0.68684	0.61335
	2002	0.48397	0.40452	0.52278	0.63979	0.66178	0.76094	0.83415	0.70517	0.67371	0.69698	0.59610	0.62132
	2003	0.37446	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

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TABLE 7-2 CPS AGRICULTURAL EMPLOYMENT MONTHLY ESTIMATION FACTOR BY AGRICULTURAL ESTIMATING REGIONS

REGION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
CORN BELT II	1990	0.72869	0.83639	0.93717	1.00000	1.11076	1.16373	1.05444	0.99813	0.82384	1.01003	1.01591	0.91785
	1991	0.87549	0.90518	0.76884	0.83809	0.90804	0.92605	1.06679	0.93708	0.94064	0.94401	0.95511	0.89722
	1992	0.87616	0.92505	0.88199	0.85781	0.87033	0.95669	1.04208	1.03796	0.94335	0.95689	0.79153	0.72036
	1993	0.63823	0.59592	0.68386	0.65600	0.70465	0.81626	0.98442	0.90302	0.85511	0.94721	0.77216	0.68816
	1994	0.77629	0.80987	0.87926	0.93585	1.01015	1.01162	0.96794	0.95512	0.92399	0.97720	1.00994	1.04935
	1995	1.00820	0.92602	1.05392	0.93004	1.01490	1.05420	1.03796	0.98905	0.83417	0.88070	0.77043	0.76238
	1996	0.82354	0.83446	1.06496	1.04955	1.14290	1.11931	1.07503	1.08159	1.02667	1.10014	0.95901	0.85739
	1997	0.91360	0.85499	0.88084	0.97149	1.10962	1.09326	1.05032	1.05289	1.06238	1.16426	1.09872	1.08669
	1998	0.98853	0.71972	0.70163	0.78098	0.85748	0.92832	0.93499	0.88120	0.93659	1.04166	0.91575	0.98788
	1999	0.96092	0.92021	1.05115	1.09457	1.08796	1.18047	1.09563	1.04606	1.06160	1.05436	1.03870	0.95149
	2000	0.79758	0.79197	0.74095	0.85392	1.07561	1.00169	1.02149	0.96606	0.89190	0.81910	0.89601	0.70222
	2001	0.91778	1.16303	1.05184	1.20633	1.22838	0.96690	1.08739	1.07933	0.96550	1.15225	1.08027	0.93476
	2002	1.06515	1.02532	0.89004	0.96902	0.81359	0.84550	1.12446	1.11578	1.11385	1.06867	0.88768	0.77424
	2003	0.66360	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
DELTA	1990	0.97475	0.86557	0.91638	1.00000	1.26455	1.26078	1.23479	1.29382	1.25838	1.22291	1.10766	0.88165
	1991	0.85715	1.00396	1.04760	1.09360	1.25691	1.38048	1.36006	1.31078	1.10844	1.32897	1.32001	1.12287
	1992	1.14763	1.28151	1.35229	1.38792	1.39280	1.32343	1.35111	1.21916	1.26060	1.37252	1.34952	1.39880
	1993	1.33862	1.32859	1.52028	1.51806	1.61604	1.65993	1.50322	1.50134	1.26990	1.29013	1.20355	1.36719
	1994	1.30624	1.43233	1.81058	1.84461	1.69172	1.45073	1.29742	1.20632	1.20587	1.42895	1.44396	1.36034
	1995	1.36860	1.32559	1.28279	1.26274	1.26151	1.56202	1.37795	1.34643	1.38237	1.39245	1.02100	0.95049
	1996	1.01522	0.96310	1.04927	1.43527	1.14181	1.21802	1.43164	1.03758	1.27000	1.11384	0.87579	0.78414
	1997	0.86046	1.05385	1.06482	1.13875	1.15658	1.31919	1.35111	1.16318	1.17356	0.98400	0.84541	0.86509
	1998	1.00397	1.00299	0.97000	0.89486	0.95808	1.07296	1.26163	1.12610	1.05517	1.05867	1.08193	1.09067
	1999	1.04456	0.80327	0.91481	1.05550	1.11561	1.26968	1.39585	1.41034	1.24882	1.33021	1.27642	1.05925
	2000	1.14248	0.93216	0.98272	1.24008	1.31380	1.23047	1.51217	1.47300	1.52408	1.53797	1.35067	1.20952
	2001	0.76297	0.86667	1.10633	1.08011	1.22358	1.30795	1.41374	1.06909	1.26302	1.43749	1.51388	1.15104
	2002	1.10624	0.96027	1.11409	1.12353	1.35796	1.39977	1.41374	1.49851	1.47847	1.80030	1.60206	1.49579
	2003	1.40554	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

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TABLE 7-2 CPS AGRICULTURAL EMPLOYMENT MONTHLY ESTIMATION FACTOR BY AGRICULTURAL ESTIMATING REGIONS

REGION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NORTHERN PLAINS	1990	0.88914	0.91152	0.96767	1.00000	1.05198	1.19957	1.22183	1.17310	1.08912	1.04092	0.94517	0.90536
	1991	0.91825	0.89154	0.93882	1.01178	1.07098	1.13342	1.14066	1.16364	1.06954	1.00779	0.89044	0.85346
	1992	0.80666	0.85092	0.89097	0.92116	1.00529	1.00512	1.07658	1.08448	1.05110	1.04835	0.96841	0.87366
	1993	0.84307	0.91625	0.92492	1.01202	1.06073	1.06024	1.01677	0.97447	0.89464	0.87569	0.84944	0.80069
	1994	0.92697	0.99577	1.02225	1.05631	1.06210	1.10280	1.06804	1.08375	1.00683	1.05362	1.02140	1.01191
	1995	0.97864	1.03189	1.04439	1.07275	1.10369	1.25427	1.16202	1.18675	1.09413	1.13325	1.05829	1.04967
	1996	0.96047	0.95336	0.96655	0.98218	1.05726	1.07292	1.06376	1.06043	1.06343	1.08262	0.99304	0.91637
	1997	0.84267	0.77767	0.73535	0.86586	0.98745	0.99621	1.08085	0.99003	0.98151	0.94482	0.83283	0.83765
	1998	0.76442	0.74372	0.76541	0.92465	0.97964	1.04914	1.09367	1.10252	0.96188	0.94501	0.96067	0.94194
	1999	0.93676	0.92896	0.90382	0.92100	1.08892	1.13925	1.23465	1.22038	1.09720	1.03376	0.96320	0.93375
	2000	0.88843	0.94662	0.93002	0.92343	1.09806	1.20576	1.09367	1.09158	0.95740	0.96401	0.92605	0.88032
	2001	0.85958	0.85285	0.90197	0.95118	1.00039	1.06165	1.06804	0.97762	0.95103	1.00008	0.94866	0.85492
	2002	0.92812	0.86825	0.84776	0.92407	1.08756	1.09924	1.09794	1.01303	0.91024	0.99753	0.95447	0.84218
	2003	0.83560	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
SOUTHERN PLAINS	1990	0.75824	0.90452	0.96091	1.00000	1.06516	1.20400	1.11346	1.05965	0.96903	1.09873	1.08105	1.20559
	1991	1.07000	1.06522	0.97034	0.96237	0.99196	1.13443	1.05888	1.07668	0.96777	0.96059	1.10632	1.03744
	1992	0.94674	0.92278	1.07374	1.11510	1.20617	1.24460	1.20079	0.95854	0.91340	0.86674	0.91781	0.84457
	1993	0.79426	0.91901	0.94424	1.03737	1.16207	1.30583	1.22990	1.19960	1.09638	0.98227	1.06466	0.70632
	1994	0.87222	0.93114	0.92417	1.26261	1.26873	1.19635	1.24809	1.27185	1.25051	1.24810	1.25053	1.16208
	1995	1.10725	1.02694	1.09408	1.14590	1.09649	1.12997	1.25537	1.12343	1.08654	1.16486	1.12252	1.06373
	1996	1.08565	1.04303	1.11337	1.21460	1.22596	1.33924	1.31359	1.17744	1.10626	1.10534	1.04307	1.12743
	1997	1.10099	1.10692	1.24017	1.22176	1.16580	1.19067	1.29540	1.21466	1.15071	1.15702	1.24209	1.27467
	1998	1.26749	1.21361	1.18524	1.19769	1.41529	1.50663	1.32815	1.37223	1.17357	1.16889	1.03095	1.03739
	1999	1.10626	1.17550	1.14042	1.31435	1.41089	1.47752	1.47006	1.16181	1.05077	1.18492	1.17555	1.12062
	2000	1.05557	1.07182	1.14578	1.08283	1.18819	1.30797	1.49553	1.36974	1.35507	1.26622	1.19577	1.29682
	2001	1.14536	1.07336	1.19741	1.21221	1.30019	1.35872	1.58286	1.45005	1.57295	1.44155	1.24235	1.25498
	2002	1.10654	1.01971	1.20342	1.20533	1.23726	1.23168	1.37909	1.26253	1.32932	1.22105	1.11910	1.00858
	2003	0.84353	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

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TABLE 7-2 CPS AGRICULTURAL EMPLOYMENT MONTHLY ESTIMATION FACTOR
BY AGRICULTURAL ESTIMATING REGIONS

REGION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MOUNTAIN I	1990	0.88207	0.78510	0.91381	1.00000	1.15849	1.17862	1.27427	1.20441	0.99058	1.05434	0.91437	0.85826
	1991	0.80573	0.77827	0.93792	1.07061	1.08900	1.27484	1.32850	1.22170	1.10555	1.16030	0.88375	0.87633
	1992	0.90140	0.96708	1.13456	1.19507	1.14548	1.22467	1.30139	1.22380	1.20992	1.06078	1.00451	0.99513
	1993	0.87524	0.81876	0.89123	0.97941	1.06584	1.16883	1.20649	1.11042	1.11357	1.00584	0.87218	0.88223
	1994	1.01383	0.97097	1.10133	1.20359	1.25764	1.27070	1.26072	1.16776	0.98778	1.05203	0.81349	0.80981
	1995	0.88572	0.98405	1.01164	1.12872	1.10422	1.14823	1.22005	1.27806	1.15703	1.15945	0.99636	1.01729
	1996	1.07261	1.03831	1.19664	1.25221	1.30504	1.31645	1.38272	1.32892	1.28800	1.27406	1.10429	1.00809
	1997	0.86996	0.80601	0.95072	0.98674	1.14081	1.26520	1.34205	1.41169	1.46175	1.31612	1.19177	0.99228
	1998	0.94199	0.96289	0.98004	1.11725	1.38237	1.40899	1.34205	1.43393	1.40164	1.38432	1.58696	1.36619
	1999	1.41743	1.46073	1.39148	1.47443	1.49983	1.54571	1.53184	1.52438	1.51744	1.74054	1.79876	1.50384
	2000	1.53369	1.36433	1.44324	1.60450	1.61953	1.60560	1.57251	1.56869	1.69522	1.70292	1.22419	1.17138
	2001	1.03501	0.93326	0.96947	1.16163	1.16822	1.29733	1.50473	1.46396	1.44007	1.39579	1.19957	1.07208
	2002	0.97184	0.88381	0.78731	0.97675	1.20455	1.43023	1.32850	1.41440	1.29312	1.21146	1.15313	0.99923
	2003	0.94661	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
MOUNTAIN II	1990	0.60665	0.71510	0.82408	1.00000	1.03365	1.08898	0.91817	0.81904	0.73221	0.57639	0.46147	0.53875
	1991	0.44622	0.58948	0.61607	0.85338	0.88434	0.86105	0.89302	0.73257	0.71075	0.60970	0.59817	0.41661
	1992	0.54234	0.50574	0.54854	0.65407	0.71921	0.85746	0.84271	0.91875	0.74587	0.51395	0.52007	0.59428
	1993	0.47495	0.46795	0.50601	0.50384	0.63445	0.76511	0.79240	0.84106	0.87081	0.72112	0.59777	0.54282
	1994	0.33040	0.31741	0.24048	0.34564	0.52902	0.57059	0.83013	0.85507	0.87222	0.76628	0.74056	0.62799
	1995	0.58583	0.65466	0.74398	0.70127	0.81619	0.84037	0.91817	0.77447	0.70757	0.69280	0.69976	0.71383
	1996	0.86802	0.82445	0.80486	0.87600	0.81596	0.87831	0.83013	0.83291	0.84016	0.92328	0.78012	0.68917
	1997	0.79033	0.82038	0.87133	0.92020	0.93375	0.96544	0.89302	0.90341	1.01068	1.03865	0.83666	0.92506
	1998	1.03021	0.94750	1.06373	1.00993	1.02606	1.04257	0.99364	1.24513	0.85201	0.91339	0.89172	0.75112
	1999	0.88341	0.82743	0.96778	1.27156	1.24258	1.11185	1.08168	0.80457	0.67809	0.73096	0.87059	0.61567
	2000	0.65523	0.64125	0.85459	1.21097	1.03125	0.84148	0.96848	0.76118	0.88879	0.98770	0.77819	0.70237
	2001	0.68953	0.74567	0.78202	0.88963	0.97105	0.82111	1.04395	0.81893	0.90363	0.88392	0.94537	0.76983
	2002	0.87890	0.71044	0.71859	0.87730	0.98945	0.88290	0.83013	0.92593	0.80005	0.86528	0.73484	0.76346
	2003	0.59312	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

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TABLE 7-2 CPS AGRICULTURAL EMPLOYMENT MONTHLY ESTIMATION FACTOR BY AGRICULTURAL ESTIMATING REGIONS

REGION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MOUNTAIN III	1990	0.90759	0.94864	0.87337	1.00000	0.71487	0.87763	0.95338	0.93004	0.80673	0.71913	0.76116	0.84191
	1991	0.81138	0.81088	0.75192	0.75046	0.72828	1.01118	1.04165	0.98412	1.07453	1.11858	1.13394	1.15639
	1992	0.97165	0.67895	0.68989	0.54218	0.62642	0.95670	1.02400	0.92393	0.81794	0.93341	0.83121	0.72961
	1993	0.66502	0.65504	0.59288	0.67627	1.13086	0.93954	0.95338	0.76413	0.62175	0.75981	0.59589	0.70089
	1994	0.81514	1.04143	1.33470	1.28691	1.52215	1.37091	1.05931	0.98951	0.79405	0.86046	0.93439	1.07798
	1995	0.93958	1.52109	1.40467	0.84564	1.07661	1.13597	1.07696	1.34741	0.96078	0.89539	1.08257	1.16412
	1996	1.08284	1.71681	1.08284	0.95413	0.98988	1.22892	1.09462	1.32613	1.40064	1.36811	1.40514	1.17698
	1997	1.24528	1.21798	1.06801	0.98593	1.44353	1.22156	1.18289	1.14423	1.09948	1.34561	1.47178	1.33414
	1998	1.11135	0.95561	0.91957	0.77509	0.89926	1.18793	1.04165	1.24227	1.23193	1.12192	1.11457	0.79201
	1999	1.00369	0.93634	1.22890	1.37109	1.11278	1.08607	1.02400	1.12164	1.12649	1.37708	1.65172	1.37383
	2000	1.58759	1.38808	1.31296	1.29324	1.33826	1.44442	1.09462	0.96852	0.74457	1.04823	1.66431	1.71833
	2001	1.71386	1.06564	0.97567	1.16969	1.35977	1.30062	1.07696	0.76174	0.81051	0.83443	0.74281	0.85608
	2002	0.82090	0.99625	1.00276	0.98382	1.11394	1.02110	0.95338	1.27420	1.27751	1.75728	1.57768	1.36388
	2003	0.70517	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
PACIFIC	1990	1.01758	0.83483	0.92917	1.00000	1.41523	1.61416	1.60299	1.60987	1.52341	1.16853	0.88221	0.79825
	1991	0.74269	0.81040	0.77418	1.14344	1.32680	1.29856	1.47475	1.31774	1.38685	1.05103	0.87094	0.80937
	1992	0.86284	0.74235	0.63880	0.83247	0.97372	1.10534	1.22628	1.14041	1.20574	1.28336	1.49486	1.24778
	1993	1.17935	1.27283	1.26580	1.36159	1.17835	1.28634	1.33849	1.27074	1.25917	1.00385	1.28502	1.03334
	1994	1.01644	0.99275	0.80434	0.95471	0.84188	1.01057	1.44269	1.48007	1.28346	1.06638	0.96258	0.94434
	1995	0.87605	0.77669	0.90937	1.10894	1.01973	1.42598	1.50681	1.41005	1.20605	1.38769	1.12746	1.07071
	1996	1.23041	1.15131	1.35094	1.16065	1.39891	1.55451	1.65108	1.34235	1.40958	1.35767	0.99388	0.99018
	1997	1.26137	1.28226	1.63091	1.73864	1.47250	1.31700	1.60299	1.55166	1.49050	1.59515	1.58483	1.35086
	1998	1.53313	1.28942	1.62417	1.49927	1.15107	1.21748	1.35452	1.12406	1.76200	1.89202	1.46319	1.33488
	1999	1.33840	1.34819	1.42421	1.40444	1.51302	1.83701	1.56291	1.26385	1.67223	1.23337	1.65954	1.70358
	2000	1.36819	1.57468	1.83280	1.69201	1.57732	1.63093	1.41063	1.84754	1.82419	1.27745	1.62233	1.49556
	2001	1.07314	1.57106	1.41090	1.31910	1.56634	1.51664	1.57093	1.49673	1.31262	1.22822	1.07557	1.17442
	2002	1.14511	1.19279	1.35280	1.37209	1.59050	1.37822	1.58696	1.49579	1.26019	1.49079	1.10949	1.14416
	2003	0.85470	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

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TABLE 7-2 CPS AGRICULTURAL EMPLOYMENT MONTHLY ESTIMATION FACTOR
BY AGRICULTURAL ESTIMATING REGIONS

REGION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
CALIFORNIA	1990	0.89084	0.84343	0.93347	1.00000	1.05525	1.24096	1.17554	1.14243	1.22717	1.27319	1.08053	0.97181
	1991	0.86183	0.88272	0.89549	1.02973	1.06890	1.32194	1.16720	1.27712	1.20308	1.12977	1.03515	0.90660
	1992	0.88892	0.99411	1.06747	1.03421	1.04025	1.17036	1.04214	1.21358	1.35425	1.26023	1.20606	1.31255
	1993	1.14238	1.00655	1.08634	1.17606	1.15804	1.22417	1.14636	1.19810	1.29945	1.10479	1.18407	1.10233
	1994	1.16107	0.98826	0.99685	1.09442	1.16531	1.04933	1.15886	1.26454	1.13181	1.07179	0.98807	0.90740
	1995	0.95979	1.05386	0.99294	1.10509	1.11843	1.19472	1.17137	1.18345	1.12428	1.07782	0.86584	0.79778
	1996	0.93620	1.04030	1.01944	1.02008	1.27202	1.27464	1.25474	1.27543	1.11088	1.04321	1.01185	1.00230
	1997	0.96620	0.98637	0.99465	1.10316	1.26572	1.29616	1.19221	1.11649	1.11198	0.91347	0.99336	0.93301
	1998	1.03673	1.18680	1.13936	1.34403	1.39732	1.30794	1.50068	1.76653	1.62120	1.59645	1.35236	1.06763
	1999	1.12112	1.19949	1.18124	1.37939	1.51266	1.48334	1.60073	1.49981	1.42244	1.37161	1.25468	1.15280
	2000	1.01563	1.09894	0.86876	1.12342	1.17926	1.32668	1.35062	1.29400	1.30100	1.11197	0.94397	1.06865
	2001	1.18342	1.11085	1.08658	1.24643	1.39705	1.26513	1.19221	1.19335	1.14592	0.98238	0.90564	1.08441
	2002	1.24208	1.32184	1.14956	1.37476	1.28302	1.22270	1.37980	1.28030	1.31618	1.20652	0.98229	1.02225
	2003	0.62183	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
HAWAII	1990	1.85068	1.45962	0.96957	1.00000	1.34378	1.44719	1.30420	1.73669	1.27328	1.24447	1.12613	1.57395
	1991	1.49146	1.45747	0.93930	0.82615	0.38973	1.34719	1.30420	1.29460	1.31928	1.29896	0.99033	1.01400
	1992	0.84566	0.82988	1.01324	0.96750	1.00672	1.40622	1.30420	1.08151	1.02552	1.07227	0.65358	0.76932
	1993	0.75321	0.70916	0.74242	0.68352	1.40860	1.11209	1.13031	1.13896	0.68622	0.93079	0.72116	0.66973
	1994	0.87707	0.63358	0.82243	1.01121	1.20233	1.28796	1.13031	1.15384	0.88447	0.97473	1.02276	1.11910
	1995	1.23922	1.13715	0.83216	0.82681	1.04397	1.03875	0.95641	0.84950	0.97578	0.61880	0.60985	0.86687
	1996	1.07589	1.09110	1.21538	1.32032	0.80000	1.16286	0.95641	0.79333	0.92254	1.15899	1.13340	1.11538
	1997	1.01368	1.06033	1.35436	0.92119	1.17621	1.01138	0.95641	1.52877	1.44682	1.19698	1.18237	1.58164
	1998	1.94181	1.67458	1.88946	1.23347	0.96714	0.89344	1.04336	1.51738	1.67618	1.72664	1.37530	1.16206
	1999	0.71217	0.75929	1.07004	1.27745	1.54123	1.01898	1.13031	1.17621	1.24560	1.24730	1.15058	1.04110
	2000	0.64151	0.38345	0.53083	0.72236	0.98032	1.24628	1.04336	0.91154	0.67997	0.67077	0.63568	0.75390
	2001	0.84177	0.75643	0.92263	1.02679	0.87099	0.88309	0.95641	1.10322	0.82516	0.97360	0.84522	1.18135
	2002	1.49766	1.31674	1.37951	1.13351	0.83302	0.97254	0.95641	1.06775	1.12769	1.21667	1.02827	1.23755
	2003	0.65360	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

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TABLE 7-2 CPS AGRICULTURAL EMPLOYMENT MONTHLY ESTIMATION FACTOR BY AGRICULTURAL ESTIMATING REGIONS

REGION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MICHIGAN	1990	1.19156	1.09421	1.12142	1.00000	1.10103	1.08062	1.16534	1.25954	1.19026	1.19635	1.06413	1.04160
	1991	0.97526	0.87075	0.83386	0.87897	1.00741	1.09576	1.14287	1.05855	0.94712	1.03234	0.86683	0.78851
	1992	0.74215	0.70925	0.62788	0.81500	0.97284	1.06486	0.98281	0.99328	0.89634	0.97486	0.95500	0.87796
	1993	0.98246	0.95379	1.00755	1.10204	1.18198	1.28706	1.28421	1.19805	1.20985	1.21950	1.17920	1.11627
	1994	1.16854	1.17186	1.13283	1.07688	1.28423	1.39078	1.34973	1.56243	1.53233	1.43775	1.39619	0.96993
	1995	0.90967	0.90314	1.01930	1.19750	1.15236	1.25137	1.21869	1.16555	1.07338	1.02637	1.00288	0.88842
	1996	0.87692	0.96542	0.98193	1.00633	1.11925	1.02929	1.08764	1.10056	1.06441	1.01405	0.96051	0.82807
	1997	0.77680	0.80327	0.70500	0.82355	0.91615	0.90005	0.99591	1.11478	1.09414	1.11002	1.06917	1.04272
	1998	0.81982	0.91540	0.82907	0.92083	1.08535	1.02504	1.15315	0.98954	0.90046	0.98604	0.86844	0.87845
	1999	0.81239	0.82636	0.71280	0.81981	0.96241	0.96058	1.21868	1.17067	0.97056	1.00063	0.85234	0.72598
	2000	0.75579	0.90527	0.98770	1.06595	1.15027	1.09577	1.15316	1.00866	1.01189	1.02716	0.85882	0.67686
	2001	0.59330	0.50078	0.59826	0.93331	0.98765	1.06265	1.08764	1.15595	1.03519	0.95857	0.77224	0.75548
	2002	0.71890	0.77559	0.81576	0.80537	0.84773	0.84823	0.92944	0.87848	1.02941	1.13201	0.95141	0.83350
	2003	0.59444	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA
MINNESOTA	1990	1.19156	1.09421	1.12142	1.00000	1.10103	1.08062	1.16534	1.25954	1.19026	1.19635	1.06413	1.04160
	1991	0.97526	0.87075	0.83386	0.87897	1.00741	1.09576	1.14287	1.05855	0.94712	1.03234	0.86683	0.78851
	1992	0.74215	0.70925	0.62788	0.81500	0.97284	1.06486	0.98281	0.97291	0.85560	0.91376	0.87352	0.77612
	1993	0.86025	0.81121	0.84460	0.91873	0.97829	1.06300	1.03979	0.95433	0.94818	0.94030	0.89197	0.82533
	1994	0.85195	0.83894	0.79164	0.73064	0.88283	0.95340	0.90447	1.05492	1.04266	0.98719	0.96725	0.68952
	1995	0.65705	0.66058	0.74633	0.87366	0.85132	0.92558	0.91159	0.88238	0.82399	0.79936	0.79234	0.71726
	1996	0.71920	0.79594	0.81883	0.84762	0.94264	0.88589	0.94008	0.95013	0.91779	0.87314	0.82576	0.71018
	1997	0.66476	0.68653	0.60049	0.70185	0.78078	0.76575	0.84750	0.93929	0.91235	0.91649	0.87236	0.84048
	1998	0.64142	0.71339	0.63056	0.69927	0.82990	0.76921	0.86886	0.74681	0.68092	0.74663	0.65925	0.66802
	1999	0.61947	0.63122	0.54689	0.62874	0.73741	0.73727	0.93296	0.90276	0.75612	0.78570	0.67872	0.58854
	2000	0.61792	0.73890	0.80856	0.87502	0.94612	0.91096	0.96144	0.83305	0.82784	0.83265	0.68439	0.52477
	2001	0.44719	0.36215	0.43551	0.70695	0.74434	0.79896	0.81188	0.86770	0.78240	0.73004	0.59579	0.58810
	2002	0.56563	0.61278	0.64761	0.64468	0.68113	0.68634	0.75179	0.71058	0.83265	0.91564	0.76957	0.67419
	2003	0.48082	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

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TABLE 7-2 CPS AGRICULTURAL EMPLOYMENT MONTHLY ESTIMATION FACTOR BY AGRICULTURAL ESTIMATING REGIONS

REGION	YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
WISCONSIN	1990	1.19156	1.09421	1.12142	1.00000	1.10103	1.08062	1.16534	1.25954	1.19026	1.19635	1.06413	1.04160
	1991	0.97526	0.87075	0.83386	0.87897	1.00741	1.09576	1.14287	1.05855	0.94712	1.03234	0.86683	0.78851
	1992	0.74215	0.70925	0.62788	0.81500	0.97284	1.06486	0.98281	0.97115	0.85208	0.90848	0.86649	0.76733
	1993	0.84970	0.79890	0.83053	0.90290	0.96071	1.04366	1.01869	0.94721	0.95342	0.95795	0.92284	0.86979
	1994	0.90812	0.90761	0.87352	0.82600	0.98734	1.06873	1.03303	1.20478	1.19070	1.12727	1.10441	0.78713
	1995	0.74996	0.75392	0.85178	0.99712	0.97153	1.05626	1.04020	0.99460	0.91569	0.87532	0.85503	0.75709
	1996	0.74703	0.82232	0.83617	0.85675	0.95290	0.87587	0.92543	0.93814	0.90911	0.86797	0.82414	0.71317
	1997	0.67127	0.69551	0.61362	0.71622	0.79673	0.78475	0.86803	0.97098	0.95233	0.96551	0.92924	0.90553
	1998	0.71059	0.79324	0.71733	0.79665	0.93938	0.88616	0.99716	0.83422	0.73573	0.78827	0.66512	0.65231
	1999	0.57373	0.56435	0.44469	0.51576	0.61761	0.59457	0.79629	0.76251	0.62935	0.64659	0.54728	0.46231
	2000	0.47937	0.57463	0.62608	0.67480	0.72749	0.68947	0.72455	0.63779	0.64385	0.65747	0.55573	0.44543
	2001	0.39695	0.34285	0.40813	0.62268	0.66085	0.71200	0.73173	0.76682	0.67473	0.61232	0.47611	0.45397
	2002	0.41850	0.44578	0.46195	0.44410	0.46174	0.45122	0.49499	0.46785	0.54823	0.60287	0.50669	0.44390
	2003	0.31658	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA	INA

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Table 7-3 United States Survival Rates by Age, 1990 through 1996

1990 Age Group	1-Year Survival Age Group	1991 Rate	2-Year Survival Age Group	1992 Rate	3-Year Survival Age Group	1993 Rate	4-Year Survival Age Group	1994 Rate	5-Year Survival Age Group	1995 Rate	6-Year Survival Age Group	1996 Rate	7-Year Survival Age Group
0	1	100	2	99.9	3	99.9	4	99.9	5	99.9	6	99.9	7
1	2	100	3	99.9	4	99.9	5	99.9	6	99.9	7	99.9	8
2	3	100	4	99.9	5	99.9	6	99.9	7	99.9	8	99.9	9
3	4	100	5	99.9	6	99.9	7	99.9	8	99.9	9	99.9	10
4	5	100	6	99.9	7	99.9	8	99.9	9	99.9	10	99.9	11
5	6	100	7	99.9	8	99.9	9	99.9	10	99.9	11	99.9	12
6	7	100	8	99.9	9	99.9	10	99.9	11	99.9	12	99.9	13
7	8	100	9	99.9	10	99.9	11	99.9	12	99.9	13	99.9	14
8	9	100	10	99.9	11	99.9	12	99.9	13	99.9	14	99.9	15
9	10	100	11	99.9	12	99.9	13	99.9	14	99.9	15	99.9	16
10	11	100	12	99.9	13	99.9	14	99.9	15	99.9	16	99.8	17
11	12	100	13	99.9	14	99.9	15	99.9	16	99.8	17	99.8	18
12	13	100	14	99.9	15	99.9	16	99.8	17	99.8	18	99.7	19
13	14	100	15	99.9	16	99.9	17	99.8	18	99.7	19	99.6	20
14	15	100	16	99.9	17	99.8	18	99.7	19	99.6	20	99.5	21
15	16	99.9	17	99.9	18	99.8	19	99.7	20	99.6	21	99.5	22
16	17	99.9	18	99.8	19	99.7	20	99.6	21	99.5	22	99.4	23
17	18	99.9	19	99.8	20	99.7	21	99.6	22	99.5	23	99.4	24
18	19	99.9	20	99.8	21	99.7	22	99.6	23	99.5	24	99.4	25
19	20	99.9	21	99.8	22	99.7	23	99.6	24	99.5	25	99.4	26
20-24	21-25	99.9	22-26	99.8	23-27	99.7	24-28	99.6	25-29	99.4	26-30	99.3	27-31
25-29	26-30	99.9	27-31	99.7	28-32	99.6	29-33	99.5	30-34	99.3	31-35	99.2	32-36
30-34	31-35	99.8	32-36	99.7	33-37	99.5	34-38	99.3	35-39	99.1	36-40	98.9	37-41
35-39	36-40	99.8	37-41	99.6	38-42	99.3	39-43	99.1	40-44	98.8	41-45	98.6	42-46
40-44	41-45	99.7	42-46	99.5	43-47	99.1	44-48	98.8	45-49	98.5	46-50	98.1	47-51
45-49	46-50	99.6	47-51	99.2	48-52	98.7	49-53	98.3	50-54	97.9	51-55	97.3	52-56
50-54	51-55	99.4	52-56	98.8	53-57	98.1	54-58	97.4	55-59	96.7	56-60	95.8	57-61
55-59	56-60	99.1	57-61	98.1	58-62	97.1	59-63	95.9	60-64	94.7	61-65	93.5	62-66
60-64	61-65	98.6	62-66	97.0	63-67	95.6	64-68	93.7	65-69	92.0	66-70	90.3	67-71
65-69	66-70	97.9	67-71	95.6	68-72	93.5	69-73	90.7	70-74	88.3	71-75	85.7	72-76
70-74	71-75	96.8	72-76	93.4	73-77	90.1	74-78	86.4	75-79	82.9	76-80	79.2	77-81
75-79	76-80	95.2	77-81	90.2	78-82	85.2	79-83	80.0	80-84	74.9	81-85	69.7	82-86
80-84	81-85	92.6	82-86	84.8	83-87	76.4	84-88	68.7	85-89	60.2	86-90	52.3	87-91
85+	86+	83.6	87+	69.2	88+	56.6	89+	45.7	90+	36.4	91+	28.6	92+

Source: Bureau of Labor Statistics, Office of Employment and Unemployment Statistics. Derived from 1994 (revised) and 1995 (provisional) United States Life Tables (for age groups up to and including 85), and from 1979-1981 Decennial United States Life Tables (for age groups over 85), all provided by the Department of Health and Human Services.

Table 7-3 United States Survival Rates by Age, 1997 through 2003

1997 Rate	8-Year Survival Age Group	1998 Rate	9-Year Survival Age Group	1999 Rate	10-Year Survival Age Group	2000 Rate	11-Year Survival Age Group	2001 Rate	12-Year Survival Age Group	2002 Rate	2003 Rate	13-Year Survival Age Group
99.9	8	99.9	9	99.9	10	99.9	11	99.9	12	99.9	13	99.9
99.9	9	99.9	10	99.9	11	99.9	12	99.9	13	99.9	14	99.9
99.9	10	99.9	11	99.9	12	99.9	13	99.9	14	99.9	15	99.9
99.9	11	99.9	12	99.9	13	99.9	14	99.9	15	99.9	16	99.7
99.9	12	99.9	13	99.9	14	99.9	15	99.8	16	99.7	17	99.7
99.9	13	99.9	14	99.9	15	99.9	16	99.8	17	99.7	18	99.6
99.9	14	99.9	15	99.8	16	99.8	17	99.7	18	99.7	19	99.6
99.9	15	99.8	16	99.8	17	99.7	18	99.7	19	99.6	20	99.5
99.8	16	99.8	17	99.7	18	99.7	19	99.6	20	99.5	21	99.4
99.8	17	99.7	18	99.7	19	99.6	20	99.5	21	99.5	22	99.4
99.8	18	99.7	19	99.6	20	99.5	21	99.4	22	99.4	23	99.3
99.7	19	99.6	20	99.6	21	99.5	22	99.4	23	99.3	24	99.2
99.6	20	99.6	21	99.5	22	99.4	23	99.3	24	99.2	25	99.1
99.5	21	99.5	22	99.4	23	99.3	24	99.2	25	99.1	26	99.0
99.4	22	99.4	23	99.3	24	99.2	25	99.1	26	99.0	27	99.0
99.4	23	99.4	24	99.3	25	99.2	26	99.1	27	99.0	28	98.9
99.3	24	99.3	25	99.2	26	99.1	27	99.0	28	98.9	29	98.8
99.3	25	99.3	26	99.2	27	99.1	28	99.0	29	98.9	30	98.8
99.3	26	99.3	27	99.2	28	99.1	29	99.0	30	98.9	31	98.8
99.3	27	99.2	28	99.2	29	99.1	30	99.0	31	98.8	32	98.7
99.3	28-32	99.2	29-33	99.1	30-34	99.0	31-35	98.9	32-36	98.8	33-37	98.6
99.1	33-37	99.1	34-38	99.0	35-39	98.8	36-40	98.6	37-41	98.5	38-42	98.3
98.8	38-42	98.8	39-43	98.6	40-44	98.4	41-45	98.2	42-46	97.9	43-47	97.6
98.3	43-47	98.3	44-48	98.0	45-49	99.7	46-50	97.3	47-51	97.0	48-52	96.5
97.8	48-52	97.5	49-53	97.1	50-54	96.7	51-55	96.1	52-56	95.5	53-57	94.9
96.7	53-57	96.3	54-58	95.7	55-59	95.0	56-60	94.2	57-61	93.3	58-62	92.4
95.0	58-62	94.3	59-63	93.3	60-64	92.2	61-65	91.0	62-66	89.9	63-67	88.6
92.2	63-67	91.0	64-68	89.7	65-69	88.1	66-70	86.4	67-71	84.8	68-72	82.9
88.4	68-72	86.6	69-73	84.6	70-74	82.2	71-75	79.7	72-76	77.7	73-77	75.0
82.9	73-77	80.2	74-78	77.4	75-79	74.2	76-80	70.9	77-81	67.8	78-82	64.2
75.3	78-82	71.6	79-83	67.6	80-84	63.2	81-85	58.7	82-86	54.1	83-87	49.2
64.0	83-87	58.7	84-88	52.7	85-89	46.9	86-90	41.0	87-91	35.5	88-92	30.3
44.8	88-92	40.1	89-93	33.6	90-94	27.8	91-95	22.6	91-96	18.0	93-97	14.1
22.1	93+	17.7	94+	13.2	95+	9.7	96+	7.0	97+	5.0	98+	3.5

Source: Bureau of Labor Statistics, Office of Employment and Unemployment Statistics. Derived from 1994 (revised) and 1995 (provisional) United States Life Tables (for age groups up to and including 85), and from 1979-1981 Decennial United States Life Tables (for age groups over 85), all provided by the Department of Health and Human Services.

Table 7-4 Seasonal Monthly A ' Factors by Year[1]

MONTH	1990	1991	1992	1993	1994	1995	1996
January	0.9686	0.9685	0.9892	1.0036	1.0284	1.0307	1.0052
February	0.9967	0.9891	0.9827	0.9746	0.9960	0.9953	0.9789
March	0.9505	0.9523	0.9591	0.9532	0.9791	0.9825	0.9873
April	0.9011	0.9121	0.9112	0.8933	0.9226	0.9351	0.9236
May	1.0161	1.0227	1.0117	1.0468	1.0409	1.0330	1.0354
June	1.2405	1.1910	1.1711	1.1984	1.1993	1.2230	1.2071
July	1.0940	1.0981	1.1005	1.1152	1.1022	1.1161	1.1443
August	1.0160	1.0178	1.0147	1.0117	1.0098	1.0128	1.0305
September	1.0069	1.0077	1.0159	1.0127	0.9925	0.9945	0.9890
October	0.9796	0.9940	0.9952	0.9907	0.9706	0.9542	0.9595
November	0.9474	0.9488	0.9418	0.9282	0.9006	0.8915	0.9036
December	0.8825	0.8979	0.9060	0.8716	0.8581	0.8313	0.8356

MONTH	1997	1998	1999	2000	2001	2002
January	0.9947	0.9904	0.9830	0.9839	0.9888	0.9883
February	0.9906	1.0047	1.0255	1.0279	1.0046	1.0022
March	0.9948	1.0087	1.0066	1.0012	0.9830	0.9915
April	0.9266	0.9131	0.9116	0.9031	0.9168	0.9332
May	1.0226	1.0110	0.9951	0.9945	0.9836	1.0021
June	1.2056	1.2109	1.2155	1.2176	1.2211	1.1834
July	1.1628	1.1791	1.1574	1.1259	1.1130	1.0923
August	1.0228	1.0041	0.9922	0.9991	1.0002	1.0060
September	0.9961	0.9903	0.9988	1.0059	1.0086	0.9930
October	0.9608	0.9667	0.9786	0.9764	0.9649	0.9540
November	0.9067	0.9145	0.9172	0.9358	0.9461	0.9652
December	0.8158	0.8064	0.8188	0.8286	0.8694	0.8888

Revised 02/24/03

Note: [1]Year refers to the last year of CPS data used to develop the factors. These factors are used in the benchmark revision of that year's Handbook estimates when possible and in the following year's preliminary and revised estimates.

Table 7-5 Seasonal Monthly B ' Factors by Year [1]

MONTH	1990	1991	1992	1993	1994	1995	1996
January	0.8064	0.8014	0.8257	0.8578	0.8812	0.8854	0.8632
February	0.8623	0.8499	0.8235	0.8214	0.8471	0.8608	0.8577
March	0.8781	0.8445	0.8660	0.8442	0.8804	0.8910	0.9033
April	0.8829	0.8984	0.8906	0.8745	0.9186	0.9329	0.9187
May	1.0856	1.0863	1.0601	1.1013	1.1086	1.1011	1.1196
June	1.3685	1.3155	1.2648	1.2611	1.2695	1.3067	1.2954
July	1.1345	1.1485	1.1523	1.1629	1.1445	1.1362	1.1359
August	1.0439	1.0581	1.0632	1.0635	1.0490	1.0401	1.0460
September	1.0577	1.0697	1.0941	1.0924	1.0600	1.0568	1.0534
October	1.0609	1.0904	1.1027	1.0953	1.0609	1.0378	1.0456
November	0.9496	0.9549	0.9595	0.9567	0.9307	0.9198	0.9266
December	0.8695	0.8823	0.8974	0.8690	0.8498	0.8313	0.8345

MONTH	1997	1998	1999	2000	2001	2002
January	0.8203	0.8109	0.8116	0.8187	0.8231	0.8221
February	0.8682	0.8839	0.9055	0.8998	0.8713	0.8694
March	0.9080	0.9235	0.9285	0.9176	0.8891	0.8953
April	0.9259	0.9145	0.9242	0.9318	0.9456	0.9626
May	1.1226	1.1200	1.1135	1.1117	1.0929	1.1087
June	1.2933	1.2952	1.2833	1.2843	1.2766	1.2440
July	1.1607	1.1610	1.1284	1.0840	1.0732	1.0764
August	1.0377	1.0191	0.9947	0.9917	0.9904	1.0115
September	1.0640	1.0501	1.0501	1.0477	1.0522	1.0539
October	1.0642	1.0710	1.0876	1.0853	1.0781	1.0461
November	0.9256	0.9575	0.9592	0.9924	1.0061	1.0092
December	0.8095	0.7932	0.8135	0.8350	0.9014	0.9009

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Note: [1] Year refers to the last year of CPS data used to develop the factors. These factors are used in the benchmark revision of that year's Handbook estimates when possible and in the following year's preliminary and revised estimates.

Table 7-6 Quarterly Average Exhaustee Survival Rates Based on Unemployment Rates

Survival Rate Use Period	Months for Selecting Survival Rates	Unemployment Rate Range	Weekly Survival Rates
January-March 1987	April-June 1986	0.0 - 6.4	0.950
		6.5 - 7.8	0.956
		7.9 - 9.4	0.960
		9.5 and up	0.960
April-June 1987	July-September 1986	0.0 - 6.3	0.946
		6.4 - 7.7	0.946
		7.8 - 9.0	0.955
		9.1 and up	0.955
July-September 1987	October-December 1986	0.0 - 5.6	0.941
		5.7 - 7.1	0.949
		7.2 - 8.7	0.953
		8.8 and up	0.956
October-December 1987	January-March 1987	0.0 - 6.3	0.954
		6.4 - 7.9	0.960
		8.0 - 9.0	0.961
		9.1 and up	0.964
January-March 1988	April-June 1987	0.0 - 5.5	0.960
		5.6 - 7.5	0.961
		7.6 - 8.7	0.961
		8.8 and up	0.964
April-June 1988	July-September 1987	0.0 - 5.4	0.954
		5.5 - 6.5	0.960
		6.6 - 8.0	0.961
		8.1 and up	0.964
July-September 1988	October-December 1987	0.0 - 5.1	0.946
		5.2 - 5.9	0.946
		6.0 - 7.3	0.955
		7.4 and up	0.960
October-December 1988	January-March 1988	0.0 - 5.6	0.939
		5.7 - 7.6	0.944
		7.7 - 8.5	0.954
		8.6 and up	0.954
January- March 1989	April-June 1988	0.0 - 5.1	0.939
		5.2 - 6.1	0.944
		6.2 - 7.4	0.954
		7.5 and up	0.954
April-June 1989	July-September 1988	0.0 - 4.8	0.948
		4.9 - 5.5	0.955
		5.6 - 7.0	0.956
		7.1 and up	0.966

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Quarterly Survival Rates

Table 7-6 Quarterly Average Exhaustee Survival Rates Based on Unemployment Rates

Survival Rate Use Period	Months for Selecting Survival Rates	Unemployment Rate Range	Weekly Survival Rates
July-September 1989	October-December 1988	0.0 - 4.3	0.944
		4.4 - 5.2	0.944
		5.3 - 6.4	0.955
		6.5 and up	0.957
October-December 1989	January-March 1989	0.0 - 5.1	0.942
		5.2 - 5.7	0.942
		5.8 - 7.0	0.946
		7.1 and up	0.950
January-March 1990	April-June 1989	0.0 - 4.3	0.939
		4.4 - 5.3	0.946
		5.4 - 6.6	0.947
		6.7 and up	0.950
April-June 1990	July-September 1989	0.0 - 4.8	0.939
		4.9 - 5.2	0.946
		5.3 - 6.8	0.947
		6.9 and up	0.950
July-September 1990	October-December 1989	0.0 - 4.8	0.937
		4.9 - 5.5	0.944
		5.6 - 6.2	0.944
		6.3 and up	0.947
October-December 1990	January-March 1990	0.0 - 5.3	0.943
		5.4 - 5.8	0.947
		5.9 - 6.6	0.954
		6.7 and up	0.959
January-March 1991	April-June 1990	0.0 - 5.0	0.943
		5.1 - 5.3	0.944
		5.4 - 6.1	0.944
		6.2 and up	0.947
April-June 1991	July-September 1990	0.0 - 5.0	0.931
		5.1 - 5.7	0.942
		5.8 - 6.4	0.944
		6.5 and up	0.944
July-September 1991	October-December 1990	0.0 - 5.3	0.935
		5.4 - 5.8	0.939
		5.9 - 6.1	0.944
		6.2 and up	0.944
October-December 1991	January-March 1991	0.0 - 6.8	0.947
		6.9 - 7.3	0.951
		7.4 - 7.6	0.953
		7.7 and up	0.960

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Table 7-6 Quarterly Average Exhaustee Survival Rates Based on Unemployment Rates

Survival Rate Use Period	Months for Selecting Survival Rates	Unemployment Rate Range	Weekly Survival Rates
January-March 1992	April-June 1991	0.0 - 6.2	0.946
		6.3 - 6.9	0.950
		7.0 - 7.6	0.950
		7.7 and up	0.951
April-June 1992	July-September 1991	0.0 - 6.4	0.946
		6.5 - 7.0	0.952
		7.1 - 7.6	0.952
		7.7 and up	0.957
July-September 1992	October-December 1991	0.0 - 6.3	0.952
		6.4 - 7.0	0.959
		7.1 - 7.4	0.959
		7.5 and up	0.962
October-December 1992	January-March 1992	0.0 - 7.7	0.965
		7.8 - 8.4	0.966
		8.5 - 8.8	0.966
		8.9 and up	0.970
January-March 1993	April-June 1992	0.0 - 6.5	0.955
		6.6 - 7.9	0.963
		8.0 - 8.8	0.963
		8.9 and up	0.967
April-June 1993	July-September 1992	0.0 - 6.8	0.951
		6.9 - 8.4	0.959
		8.5 - 9.0	0.960
		9.1 and up	0.961
July-September 1993	October-December 1992	0.0 - 6.3	9.490
		6.4 - 7.1	0.961
		7.2 - 8.0	0.961
		8.1 and up	0.961
October-December 1993	January-March 1993	0.0 - 7.2	0.960
		7.3 - 7.8	0.964
		7.9 - 8.6	0.967
		8.7 and up	0.967
January-March 1994	April-June 1993	0.0 - 6.8	0.959
		6.9 - 7.2	0.961
		7.3 - 8.1	0.963
		8.2 and up	0.969
April-June 1994	July-September 1993	0.0 - 6.6	0.950
		6.7 - 7.2	0.952
		7.3 - 7.8	0.960
		7.9 and up	0.961

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Quarterly Survival Rates

Table 7-6 Quarterly Average Exhaustee Survival Rates Based on Unemployment Rates

Survival Rate Use Period	Months for Selecting Survival Rates	Unemployment Rate Range	Weekly Survival Rates
July-September 1994	October-December 1993	0.0 - 6.0	0.954
		6.1 - 6.6	0.961
		6.7 - 7.4	0.961
		7.5 and up	0.964
October-December 1994	January-March 1994	0.0 - 6.1	0.959
		6.2 - 7.1	0.959
		7.2 - 8.2	0.960
		8.3 and up	0.967
January-March 1995	April-June 1994	0.0 - 5.7	0.955
		5.8 - 6.6	0.956
		6.7 - 7.8	0.956
		7.9 and up	0.960
April-June 1995	July-September 1994	0.0 - 5.4	0.950
		5.5 - 6.3	0.951
		6.4 - 8.1	0.957
		8.2 and up	0.960
July-September 1995	October-December 1994	0.0 - 4.8	0.950
		4.9 - 5.7	0.955
		5.8 - 7.0	0.955
		7.1 and up	0.955
October-December 1995	January-March 1995	0.0-5.4	0.951
		5.5-6.3	0.958
		6.4-7.3	0.964
		7.4 and up	0.964
January-March 1996	April-June 1995	0.0-5.2	0.953
		5.3-6.0	0.953
		6.1-6.8	0.958
		6.9 and up	0.959
April-June 1996	July-September 1995	0.0-5.2	0.944
		5.3-6.0	0.948
		6.1-6.7	0.955
		6.8 and up	0.955
July-September 1996	October-December 1995	0.0-4.7	0.946
		4.8-5.8	0.956
		5.9-6.3	0.957
		6.4 and up	0.964
October-December 1996	January-March 1996	0.0-5.0	0.956
		5.1-5.6	0.956
		5.7-6.7	0.957
		6.8 and up	0.971

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Table 7-6 Quarterly Average Exhaustee Survival Rates Based on Unemployment Rates

Survival Rate Use Period	Months for Selecting Survival Rates	Unemployment Rate Range	Weekly Survival Rates
January-March 1997	April-June 1996	0.0-4.6	0.946
		4.7-5.1	0.953
		5.2-6.0	0.959
		6.1 and up	0.959
April-June 1997	July-September 1996	0.0-4.6	0.944
		4.7-5.6	0.947
		5.7-6.8	0.956
		6.9 and up	0.956
July-September 1997	October-December 1996	0.0-4.5	0.941
		4.6-5.1	0.947
		5.2-6.2	0.952
		6.3 and up	0.952
October-December 1997	January-March 1997	0.0-5.1	0.951
		5.2-5.7	0.955
		5.8-6.8	0.958
		6.9 and up	0.962
January-March 1998	April-June 1997	0.0-4.6	0.950
		4.7-5.1	0.950
		5.2-6.1	0.952
		6.2 and up	0.962
April-June 1998	July-September 1997	0.0-4.2	0.943
		4.3-5.1	0.950
		5.2-6.2	0.957
		6.3 andup	0.957
July-September 1998	October-December 1997	0.0-4.3	0.945
		4.4-4.6	0.953
		4.7-5.7	0.953
		5.8 and up	0.958
October-December 1998	January-March 1998	0.0-4.0	0.947
		4.1-4.8	0.947
		4.9-5.9	0.959
		6.0 and up	0.966
January-March 1999	April-June 1998	0.0-4.1	0.947
		4.2-4.8	0.957
		4.9-5.3	0.961
		5.4 and up	0.961
April-June 1999	July-September 1998	0.0-4.2	0.935
		4.3-4.6	0.946
		4.7-6.0	0.948
		6.1 and up	0.948

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Quarterly Survival Rates

Table 7-6 Quarterly Average Exhaustee Survival Rates Based on Unemployment Rates

Survival Rate Use Period	Months for Selecting Survival Rates	Unemployment Rate Range	Weekly Survival Rates
July-September 1999	October-December 1998	0.0-3.6	0.940
		3.7-4.4	0.945
		4.5-5.5	0.946
		5.6 and up	0.946
October-December 1999	January-March 1999	0.0-4.2	0.951
		4.3-4.8	0.953
		4.9-6.1	0.953
		6.2 and up	0.953
January-March 2000	April-June 1999	0.0-4.0	0.946
		4.1-4.5	0.952
		4.6-4.8	0.952
		4.9 and up	0.955
April-June 2000	July-September 1999	0.0-4.2	0.945
		4.3-4.7	0.947
		4.8-5.0	0.947
		5.1 and up	0.947
July-September 2000	October-December 1999	0.0-3.8	0.940
		3.9-4.0	0.946
		4.1-4.6	0.946
		4.7 and up	0.950
October-December 2000	January-March 2000	0.0-4.3	0.951
		4.4-4.6	0.951
		4.7-4.9	0.951
		5.0 and up	0.961
January-March 2001	April-June 2000	0.0-3.8	0.943
		3.9-4.1	0.943
		4.2-4.8	0.943
		4.9 and up	0.951
April-June 2001	July-September 2000	0.0-3.8	0.939
		3.9-4.3	0.942
		4.4-4.9	0.947
		5.0 and up	0.947
July-September 2001	October-December 2000	0.0-3.5	0.938
		3.6-4.0	0.938
		4.1-4.5	0.938
		4.6 and up	0.943
October-December 2001	January-March 2001	0.0-3.5	0.941
		3.6-4.0	0.945
		4.1-4.5	0.945
		4.6 and up	0.947

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Table 7-6 Quarterly Average Exhaustee Survival Rates Based on Unemployment Rates

Survival Rate Use Period	Months for Selecting Survival Rates	Unemployment Rate Range	Weekly Survival Rates
January-March 2002	April-June 2001	00.-3.2	0.945
		3.3-3.9	0.945
		4.0-4.4	0.945
		4.5 and up	0.946
April-June 2002	July-September 2001	0.0-4.2	0.942
		4.3-5.0	0.943
		5.1-5.7	0.943
		5.8 and up	0.943
July-September 2002	October-December 2001	0.0-5.2	0.951
		5.3-5.5	0.953
		5.6-5.8	0.953
		5.9 and up	0.955
October-December 2002	January-March 2002	0.0-5.5	0.957
		5.6-6.3	0.959
		6.4-6.8	0.960
		6.9 and up	0.960
January-March 2003	April-June 2002	0.0-5.3	0.956
		5.4-5.9	0.961
		6.0-6.3	0.962
		4.4 and up	0.965

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8 *LAUS Estimation: Additivity*

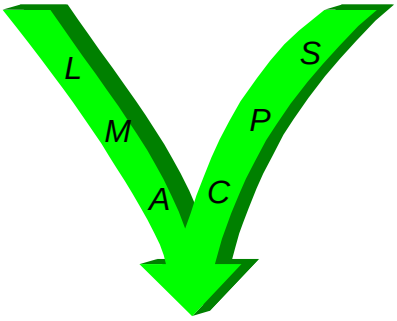
Linking substate labor force estimates to the CPS begins with a set of independent Handbook employment and unemployment estimates. These are prepared for all LMAs—that is, officially-designated Metropolitan Areas (MAs), single-county labor market areas, multi-county areas, and aggregations of cities and town in New England—such that they exhaust all geographic subdivisions of a State. Because of nonlinearity in the Handbook, the LMA employment and unemployment estimates will not necessarily equal the statewide totals. Hence, an additivity adjustment must be performed. This process introduces conformity between the Handbook and the statewide estimates by making the sum of the exhaustive LMA estimates additive to State levels.

Usual statistical practice is to distribute aggregation differences proportionally among the individual parts. In this manner, all components receive a proportionate share of the difference between the sum of the parts and an independent total. The LAUS program uses this simple linear additivity adjustment method, referred to as the Handbook-Share technique, to adjust LMA estimates to the State control totals. This method consists of distributing the statewide estimates, based on the percentage share of each Handbook area estimate, over the total of the Handbook estimates. This assumes a proportional distribution throughout the State of the difference between the sum of the independent Handbook estimates and the State control totals. This method is applied to all areas for which an independent Handbook estimate is prepared and to the intrastate portions of interstate areas. The adjustments for additivity are performed on a current basis, and whenever the State estimates are revised.

After the Handbook estimates have been adjusted for additivity to the statewide estimates, LMA estimates are referred to as “LAUS” estimates rather than Handbook estimates. These LAUS estimates are then disaggregated further into smaller areas, such as single counties within multi-county LMAs, or sub-county areas, such as cities and towns, for which estimates may be required by legislation. Two methods for disaggregation exist based on the availability of UI

claims and decennial census data for apportioning LMA estimates to smaller areas. As with the requirement for additivity of LMA estimates to statewide totals, sub-LMA estimates produced by disaggregation are additive to the LMA estimates. See Chapter 9 for a complete description of the disaggregation process.

Adjustment to Independent Statewide Estimates—The Handbook Share Method



The process of reconciling, or linking, LMA labor force estimates to Statewide (model-based) estimates begins with a set of geographically exhaustive LMA Handbook employment and unemployment estimates. A simultaneous adjustment for additivity of all LMA estimates to the statewide estimates is performed using the percentage distribution of the substate Handbook estimates, also known as the Handbook-Share method. The Handbook-Share method of apportioning the State estimates of unemployment and employment to areas assumes a proportional distribution throughout the State of the difference between the sum of substate Handbook estimates and the independent State estimates. This adjustment is performed for both preliminary and revised estimates.

The Handbook-Share method should be followed by all States unless the State can demonstrate and document why the linear additivity adjustment procedure is inappropriate. The State must also be able to suggest a reasonable and equitable alternative distribution. Reasons for alternative procedures may include inconsistent quality of employment estimates or deficiencies in the Handbook estimates for minor LMAs. Documentation should show how the alternative procedure differs from linear adjustment in terms of the distribution of employment and unemployment in the State. Linear additivity adjustments should be reviewed annually and exception requests should be submitted to the Regional Office before annual benchmarking.

The following worksheet illustrates simultaneous additivity and adjustments to LMAs using the Handbook-Share method.

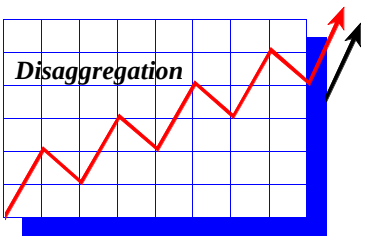
Simultaneous Additivity of LMA Estimates Using the Handbook-share Method

	Unemployment			Employment		
Area	***Handbook***	***Percent of Summed Handbook***	***Statewide****	***Handbook***	***Percent of Summed Handbook***	***Statewide****
State			*49,300*			*562,800*
MSA 1	18,500	0.394456	19,447	190,600	0.3481279	195,926
Major LMA 1	9,300	0.198294	9,776	107,100	0.1956164	110,093
Major LMA 2	8,700	0.185501	9,145	103,400	0.1888585	106,290
Minor LMA 1	2,300	0.049041	2,418	36,800	0.0672146	37,828
Minor LMA 2	1,900	0.045120	1,997	25,900	0.0493059	26,624
Intrastate Portion of Interstate MSA 2	6,200	0.132196	6,517	83,700	0.1528767	86,039
Sum of substate Areas	46,900	1.000000	49,300	547,500	1.000000	562,800

*For the State, enter the model-based estimate. The substate data are the product of the area's Percent of Summed Handbook and the statewide estimate for unemployment or employment.

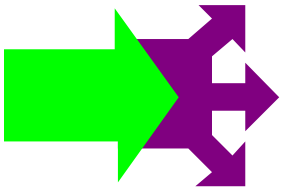
Interstate Areas

For interstate areas, after the independent Handbook estimate is prepared by the "controlling" State, the intrastate portions are calculated through the disaggregation process. These intrastate portions are then adjusted for additivity to the respective statewide levels by each State. The intrastate portions are then summed to the total interstate area to obtain the employment and unemployment estimates for the labor market area.



9 *LAUS Estimation: Disaggregation*

Introduction



Disaggregation techniques are used to obtain current estimates of employment and unemployment for subareas within labor market areas. Disaggregation involves prorating employment and unemployment for the labor market area to subarea jurisdictions. Since these jurisdictions are within LMAs, independent employment and unemployment estimates cannot be developed, as basic data are not always available and current LAUS estimating procedures are not applicable.

Disaggregation methods are used to develop estimates for counties within multi-county labor markets areas, cities within counties (either single-county LMAs or disaggregated counties), and cities and towns within LMAs in New England.

Two methods of disaggregation are appropriate for LAUS use.

1.) **The population-claims method uses current UI claims data by county or place (city or town) of residence, 1990 census population data by age group, 1990 census employment data, and the most recent Census Bureau population estimates. This method uses a separate methodology for employment (employment/population indexed share) and unemployment (claims-based unemployment disaggregation).**

2.) **The census-share method uses 1990 census employment and unemployment data.**

A hierarchy of disaggregation techniques exists. For counties and county equivalents and cities and towns in New England, the population-claims method of disaggregation is required since the necessary residency-based claims data are

available. Outside of New England, for places within counties, such as cities, the population-claims method of disaggregation is optional, although preferred. If census data employment and unemployment for the jurisdiction are not available, contact the BLS Regional Office for assistance before proceeding.

Note: Throughout this chapter, the term 'county' will be used synonymously with 'cities or towns' in New England.

The following tables presents the appropriate method of disaggregation used for each type of area, based on the availability of claims or published census data. If a State Employment Security Agency has access to special tabulations of 1990 census employment and unemployment or age-group population data for smaller geographical areas that are indicated below, the preferred disaggregation method, population-claims, may be used over census-share.

Area	Method
County within multi-county LMA	*Population-claims*
Incorporated place of 2,500 population ***or more***	*Population-claims*
Incorporated place of ***less than*** 2,500	*Census-share*
All unincorporated places	*Census-share*
Within MA, place coterminus ***with census tracts*** (not a full county or city)	*Census-share*
Within MA, place coterminus with blocks, ***not with census tracts***	*Census-share*
Outside MA, place ***coterminus*** with Minor Civil Division (MCD) or Census Division (CD)	*Census-share*
Outside MA, place ***not coterminus*** with MCD or CD, with population of 1,000 or more	*Census-share*

The starting point for disaggregation is the estimate of employment and unemployment prepared for the LMA in accordance with Handbook instructions outlined in Chapter 7 and the directions on adjustment for additivity to statewide totals in Chapter 8.

The Population-Claims Method of Disaggregation

Since current employment and unemployment estimates at the sub-LMA level are required to implement numerous Federal economic assistance and employment and training programs, methods of disaggregation which reflect current economic conditions in these small areas are necessary. Other than the decennial census, there are very few data series for small areas. Two exceptions are the monthly UI claims series and the annual population estimates prepared by the Census Bureau. Specifically, the current data used in LAUS disaggregation are UI continued claims by place of residence for the week including the 12th of the month and total population estimates prepared annually for counties and biennially for places pertaining to July 1 of the given year. The procedure which incorporates the use of these data is known as the population and claims-based disaggregation procedure.

Population-Based Employment Disaggregation for Counties

Early research showed that, for disaggregating labor market area employment, annually prepared population estimates alone at the county and city/town level were superior to the use of fixed decennial census ratios of total employment. The use of fixed census ratios assumed no change in the ratios over the intercensal decade. The annual population method allowed the ratios to change over time, but assumed that the employment/population ratio in each subarea was equal to the employment/population ratio of the labor market area as a whole. In many instances, this assumption proved unrealistic.

Subsequent research devised a disaggregation procedure which allows for differences in employment/population ratios within a LMA. This procedure utilizes the relationship of the subarea's employment/population ratio to that of the larger area, using decennial census data. The assumption is that the relationship of the employment/population ratios (the ratio of the a subarea's share of LMA employment to the subarea's share of LMA population) will hold relatively constant in the intercensal period.

This employment disaggregation method can only be used in conjunction with the claims-based unemployment disaggregation.

Employment Disaggregation Procedure and Sequence

A disaggregation procedure fitting the description above can be expressed as follows:

(Equation 1)

$$\frac{(E_{ic} \div P_{ic})}{(E_c \div P_c)} \times \frac{P_{it}}{P_t} \times E_c = E_{it}$$

Where:

1.) **E = total employment**

2.) **P = total population**

3.) **c = 1990 census**

4.) **i = designation of i^{th} county in LMA (variables with no subscript pertain to the LMA as a whole)**

5.) **t = reference period of the estimates (For employment, the reference period is the month. For population, the reference period is the appropriate year).**

When this procedure is used to disaggregate employment, additivity of the counties to the LMA is not assured, because each county has its own employment/population index share. Forcing additivity into the disaggregation yields the following modified formula, known as the employment/population (E/P) Index share procedure:

(Equation 2)

$$\frac{E_{ic}}{\sum_{i-1}^{h} \frac{E_{ic} \times P_{ic}}{P_{ic}}} \times \frac{P_{it}}{P_{ic}} \times E_t = E_{it}$$

Where **E**, **P**, **c**, **i**, and **t** are as defined above and **h** = *the total number of counties in the LMA*. The additivity property can be verified by summing both the left-hand and right-hand terms.

The Census Bureau prepares total population estimates pertaining to July 1 each year for States and substate areas. Using decennial census data and the annually-prepared total population estimates, an employment/ population index share is calculated annually for each county in a LMA.

Given the time lag in issuance of the population data from the Census Bureau, estimates for the most recent year may not always be available at benchmark revision time. A LAUS Technical Memorandum, typically issued in late fall each year, will advise the States of the availability of population estimates.

Applying the Employment Disaggregation Procedure

Each year, data are developed to produce the county employment/population index-shares, as follows:

Worksheet A.

Developing County Employment/Population Index-Shares

	1990 Census		1998	1st Stage Employment	E/P Index-Share
County	Employment	Population	Population	I × (III ÷ II)	IV ÷ LMA Total
	I	II	III	IV	V
A	16,500	32,000	35,500	18,305	0.417464
B	12,900	25,300	28,700	14,634	0.333739
C	10,000	22,000	24,000	10,909	0.248797
LMA Total				43,847	1.000000

Step 1. *Data from the 1990 census on total employment and population are entered in Columns I and II for all counties (cities and towns in New England) in the LMA.*

Step 2. *The most recent July 1 population estimates (1998 in this example) are entered in Column III, and the year of reference indicated.*

Step 3. *For each county, a first-stage employment level is calculated by moving 1990 census employment by the change in the county's population since the census. Thus, Column IV equals Column I times Column III divided by Column II.*

Step 4. *The county first-stage employment estimates in column IV are summed to a LMA total (Column IV, LMA Total),* **Thus, the LMA total in column IV is a sum and should not be calculated by applying the formula in the column heading to the LMA total employment and population.**

Step 5. *The employment/population index-share is calculated for each county by dividing the first-stage employment level in the county by the labor market area sum obtained in Step 4. Thus, Column V equals Column IV divided by the Column IV LMA Total.*

The sum of the employment/population index-shares should equal one, except for rounding. If it does not precisely equal one, the largest share is rounded so that the sum of the shares is exactly equal to 1. This will ensure that employment from the counties sums to the LMA total employment. The shares are then used in the following Worksheet B, Employment/Population Index-Share Approach to Disaggregating Total Employment, as follows:

Worksheet B.

Employment/Population Index-Share Approach to Disaggregating Total Employment

County	E/P Index-Share	January Employment	February Employment	. . .	November Employment	December Employment
I	II	III				
A	0.417464	12,647	12,891	. . .	14,814	15,087
B	0.333739	10,111	10,306	. . .	11,843	12,061
C	0.248797	7,537	7,683	. . .	8,829	8,992
LMA Total	1.000000	30,295	30,879	. . .	35,485	36,140

Step 1. *From Worksheet A, Column V, enter the employment/population index-shares in Column II for each county listed in Column I.*

Step 2. *Enter the independent estimate of total employment for the LMA under the appropriate month in Column III. The independent estimate for the labor market is the estimate that results from the application of the Handbook estimating procedure and adjustment for additivity to the statewide controls.*

Step 3. *The county employment/population index-shares are applied to the independent LMA employment estimate to arrive at the disaggregated county employment estimates for the month. The sum of the disaggregated county employment estimates*

may not add to the LMA total because of rounding. If this is the case, the estimate for the largest county should be adjusted so that the summed estimates equal the LMA total.

The same procedures are used to produce employment/population index-shares for cities:

Worksheet C.

Developing City Employment/Population Index-Shares

	1990 Census		1998	1st Stage Employment	E/P Index-Share
City	Employment	Population	Population	I × (III ÷ II)	IV ÷ County Total
	I	II	III	IV	V
A	18,300	38,000	42,000	20,226	0.322077
B	14,000	29,500	33,000	15,661	0.249381
Balance of County	23,600	57,000	65,000	26,912	0.428542
County Total				62,800	1.000000

Step 1. *Data from the 1990 census on total employment and population are entered in Columns I and II for all LAUS cities in the county. State-specific cities should not be included. Balance of county employment and population are derived by subtracting the respective data for LAUS cities from the county totals.*

Step 2. *The most recent July 1 population estimates (1998 in this example) are entered in Column III, and the year of reference indicated.*

Step 3. *For each city and for balance of county, a first-stage employment level is calculated by moving 1990 census employment by the change in the city's or balance of county's population since the census. Thus, Column IV equals Column I times Column III divided by Column II.*

Step 4. *The city and balance of county first-stage employment estimates are summed to a county total (Column IV, County Total).* **Thus, the county total for column IV is a sum and should not be calculated by applying the formula in the column heading to the county total employment and population.**

Step 5. *The employment/population index-share is calculated for each city by dividing the first-stage employment level in the city by the county sum obtained in Step 4. Thus, Column V equals Column IV divided by the Column IV LMA Total.*

The sum of the employment/population index-shares should equal one, except for rounding. If it does not precisely equal one, the largest share is rounded so that the sum of the shares is exactly equal to 1. This will ensure that employment from the cities sums to the county total employment. The shares are then used in the following Worksheet D, Employment/Population Index-Share Approach to Disaggregating Total Employment, as follows:

Worksheet D.

Employment/Population Index-Share Approach to Disaggregating Total Employment

City	E/P Index-Share	January Employment	February Employment	. . .	November Employment	December Employment
I	II	III				
A	0.322077	19,582	20,049	. . .	21,013	21,674
B	0.249381	15,162	15,524	. . .	16,270	16,782
County Total	1.000000	60,800	62,250	. . .	65,243	67,295

Step 1. *From Worksheet C, Column V, enter the employment/ population index-shares in Column II for each city listed in Column I.*

Step 2. *Enter the independent estimate of total employment for the county under the appropriate month in Column III. The independent estimate for the county is the estimate that results from the application of the Handbook estimating procedure and adjustment for additivity to the statewide controls.*

Step 3. *The city employment/population index-shares are applied to the independent county employment estimate to arrive at the disaggregated city employment estimates for the month. The sum of the disaggregated city employment estimates may not add to the county total because of rounding. If this is the case, the estimate for the largest city should be adjusted so that the summed estimates equal the county total.*

Claims-Based Unemployment Disaggregation

Research has shown that the use of current claimant information in disaggregating labor market area unemployment to subareas is superior to decennial census based disaggregation because it allows for seasonality during the course of the year and change during the intercensal period. However, these studies have also shown that a strict claimant allocation method is not appropriate for total unemployment because claimants are not representative of the total group of unemployed. This is particularly true of the entrant-reentrant segment, as these unemployed have a different seasonal pattern to their joblessness. Disaggregation based solely on claims data generally underestimates urban areas and inaccurately allocates blacks, youth, and older women.

In an attempt to correct for this, claims data by county of residence are used to distribute the experienced unemployed component, i.e., those with recent job attachment. Decennial census age-group population data aremay not add to the LMA total because of rounding. If this is the case, the estimate for the largest county should be adjusted so that the summed estimates equal the LMA total.

Census population data are used in disaggregating unemployed entrants and reentrants, under the assumption that the population distribution and age structure of the population within the LMA do not shift drastically over time. Population aged in 16 to 19 is one element the disaggregation; the other is population aged 20 and over. Note that these age groups are those used to calculate the youth population ratio for estimating LMAentrant and reentrant unemployment using the Handbook procedure.

Entrant and reentrant disaggregation ratios are calculated only once every 10 years. In addition, differential migration will have an impact on the LMA's distribution of population. However, the lack of current data on migration by age group at the county level precludes any attempt to correct for this.

Required Claims Data for Claims-Based Unemployment Disaggregation

For all multi-county LMAs, the residency requirement for claims data is the coding and tabulating of claimants by county (city or town in New England) of residence, within the State paying the benefits or in border States if the claimant is filing under commuter arrangements.

For interstate LMAs, the claims data used in disaggregation must be coded for residence in counties (cities or towns in New England) in contiguous States where commuter claimant arrangements exist, as well as within the State paying the benefits, in order to use the claims-based method to disaggregate the intrastate portions of the interstate LMA. If commuter claimant data are not available by

county of residence, the census-share method must be used to estimate unemployment and employment in each State's portion of the interstate LMA. However, in a given State's intrastate portion, if the State has claims data by county of residence, the claims-based unemployment disaggregation (and the employment/population index share method) must be used to disaggregate to the county level.

The geographic distribution of claimants filing continued claims under State UI and UCFE certifying to unemployment in the week including the 12th of the month by county of residence is used to disaggregate the LMA estimate of experienced unemployed to the county level (city or town in New England). Claimants with any earnings due to employment in the week including the 12th should be excluded from counts used in disaggregation.

Unemployment Disaggregation Procedure and Sequence

The procedure and sequence for unemployment disaggregation is presented below, along with an example. The example assumes the following Handbook data:

- *unemployment, excluding entrants = 10,000*
- *B factor unemployment = 900*
- *A factor unemployment = 1,100*
- *total unemployment = 12,000*
- *total LMA claimants without earnings = 6,500*
- *independent estimate of LMA unemployment = 7,000*

LMA Distribution of Population

County	Claimants	> 20 yrs.	16-19 yrs.
1	2,500	25%	20%
2	2,250	30%	35%
3	1,750	45%	45%
Total	6,500	100%	100%

Step 1. *For a LMA, determine the percent of Handbook unemployment that is accounted for by the experienced unemployed, those jobless with recent job attachment, i.e., unemployment excluding entrants divided by total unemployment.*

Example: 10,000 ÷ 12,000 = .8333

If any approved atypical adjustment was made to the UI data so that a claims count was removed from the Handbook claims line leading up to Unemployment Excluding Entrants, but is added to Total Unemployment, then that figure should be added to Unemployment Excluding Entrants for purposes of arriving at the experienced unemployed proportion.

Step 2. *Determine the proportion of LMA Handbook unemployment represented by new and reentrants to the level of the experienced unemployed, i.e., B factor unemployment divided by total unemployment.*

Example: 900 ÷ 12,000 = .0750

Step 3. *Determine the proportion of LMA Handbook unemployment represented by new and reentrants related to the level of the labor force, i.e., A factor unemployment divided by total unemployment.*

Example: 1,100 ÷12,000 = .0917

Note: The proportions obtained in steps 1, 2, and 3 should sum to one (100%).

Example: .8333 + .0750 + .0917 = 1

Step 4. *Apply each of the proportions in steps 1, 2, and 3 to the independent LMA estimate of total unemployed after additivity and adjustment to statewide controls. This results in a disaggregation of total LMA unemployment into three parts:*

a. **experienced unemployed**
b. **new and reentrant unemployed related to the experienced unemployed**
c. **new and reentrant unemployment related to the labor force.**

Example:

A = .8333 × 7,000 = 5,833.1

B = .0750 × 7,000 = 525

C = .0917 × 7,000 = 641.9

Step 5. *Allocate the LMA estimate of experienced unemployed (estimate A in Step 4) to all counties (cities and towns in New England) based on the percent distribution of place-of-residence claims data.*

Example:

County 1 = 2,500 ÷ 6,500 = .3846

County 2 = 2,250 ÷ 6,500 = .3462

County 3 = 1,750 ÷ 6,500 = .2692

County 1 = .3846 × 5,833.1 = 2,243.4

County 2 = .3462 × 5,833.1 = 2,019.4

County 3 = .2692 × 5,833.1 = 1,570.3

Step 6. *Allocate the LMA estimate of new and reentrant employment (estimate B in Step 4) to all counties based on the percent distribution of the LMA's population 20 years of age and older from the 1990 census.*

Example:

County 1 = 525 × .25 = 131.25

County 2 = 525 × .30 = 157.50

County 3 = 525 × .45 = 236.25

Step 7. *Allocate the LMA estimate of new and reentrant unemployment related to the labor force (estimate C in Step 4) to all counties based on the percent distribution of the LMA's population 16-19 years old from the 1990 census.*

Example:

County 1 = 641.9 × .20 = 128.38

County 2 = 641.9 × .35 = 224.67

County 3 = 641.9 × .45 = 288.86

Step 8. *Derive the total unemployment estimate for each county by summing the county estimates derived in Steps 5, 6, and 7. The sum of the county unemployment estimates should automatically equal the LMA total unemployed. If they are not equal due to rounding, the data for the largest county is adjusted accordingly.*

Example:

County 1 = 2,243.4 + 131.25 + 128.38 = 2,503.03

County 2 = 2,019.4 + 157.50 + 224.67 = 2,401.57

County 3 = 1,570.3 + 236.25 + 288.86 = 2,095.41

Total LMA unemployed = 7,001.01

Population-Claims Disaggregation of Interstate Areas

In interstate LMAs where all States have the necessary claims data by county of residence, a "Handbook equivalent" for each intrastate portion is disaggregated from the total LMA Handbook estimate using the population-claims method. The data for each intrastate portion are adjusted for additivity to the respective statewide controls. Then the adjusted intrastate portion is disaggregated to the county level by the population-claims method. The entire LMA distribution of unemployment, excluding entrants, B factor unemployment, A factor unemployment relative to total Handbook unemployment should be applied to the intrastate portion of total unemployment to obtain the three groups of unemployed which are then disaggregated to county (city and town in New England) following Steps 5 through 8.

In interstate areas where commuter claimant data are not available for all parts, the census-share method must be used to estimate both employment and unemployment for the intrastate portions of the interstate LMA. However, in a given intrastate portion, if the portion is a multi-county area and the State has claims by county of residence (city and town in New England), the population-claims method must be used to disaggregate to the county level. In this case, the census-share total unemployment ratio of the intrastate portion to the whole LMA should be applied to unemployment, excluding entrants, B factor unemployment, A factor unemployment, and total unemployment to obtain a Handbook "equivalent" estimate for the intrastate portion. After this intrastate portion is adjusted for additivity to the statewide controls, the population-claims method must be used to disaggregate to the county level.

Disaggregating Employment and Unemployment to Incorporated Places Using the Population-Claims Method

Simple modifications of the employment/population index share employment disaggregation and the claims-based unemployment disaggregation enable the development of labor force estimates for units of local government as small as 2,500 population (according to the 1990 census data), provided claims data are available by residence of the claimant in all such places in the State. The State may specify the population level of the places to which this disaggregation method will apply.

In addition, the balance-of-county estimates (derived after subtracting the disaggregated place estimates) must relate to a specifically defined geographic area. Census data for this geographic area must be available for disaggregation to other places in the balance-of-county area. If such census data are not available, current claims and population data cannot be used to disaggregate any place within the county. In places where commuter claimant arrangements exist, further specification of the claims data is required.

Place estimates disaggregated by the population-claims method should be introduced the first month for which residency claims data are available. Once this method is initiated, it must be used for the rest of the calendar year. At benchmarking time, the State may opt to return to census-sharing, in which case the full time series is revised using the census-share method.

Specification of Population Size for Place Disaggregation

The place level to which the population-claims method is used is established based on the last decennial population size of cities and towns and is adjusted over the intercensal period by the annually prepared county and city population estimates.

In the intercensal period, the State should review the total population estimates for all units of local government issued annually by the Census Bureau to determine whether population changes have occurred which affect the composition of the size class for place disaggregation. If, because of a reduction in population, a city falls below the size specification for place disaggregation using the population-claims method, the State does not have to revert to the census-share for that

place, and may continue to use the population-claims. In addition, the collection of residency-based claims data does not have to be extended to other cities in the smaller size class.

A city can move into the size class specified for claims-population disaggregation of places due to an increase in population. If a State is already using the population-claims method at the place level, it has one year to develop the residency claims data needed for disaggregation by coding claims by place of residence for the newly-added city. During that year, the city would continue to be census-shared. If the residency data are not developed for the newly-added city after one year, the State cannot use the population-claims method and must revert to the census-share method for all cities in the size class. Alternately, the State may avoid reverting to the census-share method by redefining upward the size class for place disaggregation at the benchmarking time. Then, the population-claims method can be used in a size class covering larger cities.

If a city, due to a change in population, moves either in or out of the size specified for population-claims disaggregation of places, the State should notify BLS of this change and the subsequent methodology changes.

Population-Based Employment Disaggregation

The Census Bureau issues total population estimates for all units of local government annually. The latest population estimates and the employment/ population index-shares calculated from the census can be used to disaggregate LMA employment estimates below the county level, using the procedure described in Worksheet A. Balance-of-county estimates must also be calculated to allow for the proper application of the additivity adjustment.

The case of disaggregating to a place from a single-county LMA is straightforward. The employment/population index share procedure, which involves the use of decennial census employment and population data and annually prepared population estimates, is applied to the LMA total employment estimate for the month in question to obtain the place estimate.

In the case of disaggregating to a place from a county in a multi-county LMA, the county total employment estimate must first be prepared. Population data for counties and places may not be available on the same time frame. For example, 1995 data may be available at the county level, but for cities the most recent data may be from 1994. In this case, 1995 data would be used to disaggregate to the county level, and 1994 data for both the county and cities would be used for disaggregating from the county level to cities within the county. Thus, the disaggregated county employment is further broken down to the place (city) by using the place's most recent population, the county's population for that same year, and the place's employment/population index-shares from the decennial

census. The employment/population ratio is then applied to the county employment estimate for the month in question to obtain the place employment estimate.

In developing place data using the employment/population index-share approach, States are reminded that they are to calculate index shares for all places which meet the chosen population specifications and not just for those which are reported to BLS. States are then to calculate a rest-of-county estimate by subtracting all disaggregated estimates from the county total. The rest-of-county estimates must relate to a specific geographic area for which census data exist, so that the census-share procedure can be used for disaggregation. If this is not possible, the index share approach cannot be used.

Claims-Based Unemployment Disaggregation

Unemployment in a place of 2,500 population or more may be disaggregated directly from the intrastate LMA (either single-county or multi-county) depending on the existence of commuter claims arrangements and the availability of commuter claims coded by city of residence and on the same reference period. Disaggregating directly from the LMA cannot be done for interstate areas because interstate areas must first be broken down into intrastate portions. Then, unemployment may be disaggregated directly from those portions, based on the conditions described above.

Geographic Basis of Claims Data Used to Distribute Experienced Unemployed

In the claims-based disaggregation, LMA unemployment is disaggregated into three basic components: the experienced unemployed, unemployed entrants related to experienced unemployed, and unemployed entrants related to the labor force. The experienced unemployed component is distributed to areas based on the distribution of claims. In the case of place disaggregation, if commuter claims arrangements exist and these claims are coded and tabulated for city of residence, then the experienced unemployed distributor is as follows:

> Claimants residing in the city who file either in their own State or the border State, as a percent of all residents of the county (in the case of single-county areas) or intrastate portion (in the case of multi-county interstate areas and New England interstate LMAs) who file in the State or in the border State.

If commuter claimant arrangements exist, but commuter claims are coded for county of residence only and not city, then the experienced unemployed distributor is the following:

Claimants residing in the city who file in the State as a percent of all residents in the county filing in the State.

That is, commuter claims are not used at all. Use of this modified ratio avoids distorting the city's share of the experienced unemployed, while allowing the county-coded commuter claims to be used.

Unemployment Disaggregation Procedure for Cities or Towns

The following disaggregation is used in almost all cases. It is the same procedure for claims-based county disaggregation described earlier, with the following modifications:

Step 5. *Allocations are based on current claims data by city or town of residence.*

Step 6. *Allocations are based on population 20 years of age and older.*

Step 7. *Allocations are based on population 16-19 years of age for places with a 1990 population between 2,500 and 10,000.*

Use of these ratios parallels the use of county to multi-county LMA ratios. The total unemployment estimate for the place (Step 8) is then the sum of the disaggregated experienced unemployment (Step 5) and the new and reentrants (Steps 6 and 7).

The procedure above can be used for places in:

1.) **Single or multi-county LMAs not contiguous to a border State;**

2.) **Single or multi-county LMAs contiguous to a border State without commuter claimant arrangements; and**

3.) **Single or multi-county LMAs with commuter claimant arrangements where such claimants are also coded for city of residence.**

Modifications to this procedure are required in (1) interstate areas and (2) single or multi-county LMAs contiguous to a State with commuter claimant arrangements where such claimants are coded for county of residence only and not city.

In the case of an interstate area or single- or multi-county LMA contiguous to a State in which commuter claims are coded for county of residence only, the Step 5 proportion must be based on intrastate claims only, with claims data limited to residents of the county and the city filing in the State. The proportion becomes the ratio of city residents filing in the State to county residents filing in the State. The ratio of city residents filing in the State to county residents filing in the State and

in the border State will underestimate experienced unemployed in the city. For multi-county areas (including the intrastate portion of interstate areas), it is necessary to first disaggregate to the county level before disaggregating to the place in order to use the county-coded commuter claimant data. Steps 6 and 7 are on the same geographic reference as Step 5, that is, the city as a percent of the county. Step 8 is the sum of the disaggregated experienced unemployed (Step 5) and new entrants and reentrants (Steps 6 and 7).

Use of 1990 Census Data in Disaggregating Labor Force Estimates—Census-Share Method

The use of 1990 census data for disaggregating labor force estimates is required when more current data for disaggregation are not available. This typically will occur for administrative areas such as Areas of Substantial Unemployment, unique geopolitical areas such as Indian reservations, and very small areas such as parts of cities.

The census-share method uses employment and unemployment ratios. These ratios are applied to independent single county LMA estimates after adjustment to State controls, or to disaggregated sub-LMA levels which were based on those independent LMA estimates.

When the claims-based unemployment disaggregation and population-based employment disaggregation are used to disaggregate a place in a county, the balance-of-county area must be a geographic area for which 1990 census data are available for disaggregating to other places in the balance-of-county area.

The Census-Share Method of Disaggregation

The census-share method of disaggregation utilizes the ratios of employment and unemployment in a subarea to the respective total for the larger area according to the 1990 census. These ratios are applied to the current total employment and unemployment estimates for the larger area. This procedure is based on the assumption that the current geographic distribution of employment (or unemployment) is the same as that in the decennial census, or, equivalently, that employment (unemployment) in the subarea has changed by the same proportion since the census as that in the larger area. The 1990 census-share procedure is used to disaggregate from the county to a subcounty area when census labor force data are available and a State opts not to use the claims and population-based disaggregation procedure at the city level. If census labor force data are not available, contact the BLS regional office to make an atypical request to use the population-share procedure.

Disaggregation Procedure and Sequence

The procedure and sequence disaggregation using the census-share method, along with an example, is presented below. For the example, the following data are given:

Census data:

LMA employment = 20,000
County 1 = 10,000
County 2 = 6,000
County 3 = 4,000

LMA unemployment = 8,000
County 1 = 4,000
County 2 = 2,400
County 3 = 1,600

- *Independent estimate of LMA unemployment = 7,000*
- *Independent estimate of LMA employment = 35,000*

Step 1. *From the 1990 census data, obtain the number of employed in the county.*

Step 2. *From the 1990 census data, obtain the number of employed in the LMA containing the county.*

Step 3. *Divide Step 1 by Step 2. The result is the ratio of the county employment to that of the LMA as of April 1990.*

Example:

County 1 = 10,000 ÷ 20,000 = .5

County 2 = 6,000 ÷ 20,000 = .3

County 3 = 4,000 ÷ 20,000 = .2

Step 4. *Apply the ratio developed in Step 3 to the total employment estimate for the LMA for the relevant time period. This will yield the estimate of total employment in the county.*

Example: **Employment**

County 1 = 35,000 × .5 = 17,500

County 2 = 35,000 × .3 = 10,500

County 3 = 35,000 × .2 = 7,000

Step 5. *From the 1990 census data, obtain the number of unemployed in the county.*

Step 6. *From the 1990 census data, obtain the number of unemployed in the LMA containing the county.*

Step 7. *Divide Step 5 by Step 6. The result is the ratio of the county unemployment to that of the LMA as of April 1990.*

Example:

County 1 = 4,000 ÷ 8,000 = .5

County 2 = 2,400 ÷ 8,000 = .3

County 3 = 1,600 ÷ 8,000 = .2

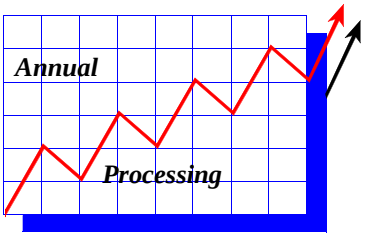
Step 8. *Apply the ratio developed in Step 7 to the total unemployment estimate for the LMA for the relevant time period. This will yield the estimate of total unemployment in the county.*

Example:

County 1 = 7,000 × .5 = 3,500

County 2 = 7,000 × .3 = 2,100

County 3 = 7,000 × .2 = 1,400



10 *Annual Processing*

In the current LAUS methodology, Handbook-based and model-based labor force estimates are revised annually to take advantage of the latest available information. New CPS population controls, revised Handbook components, and revised State-supplied data are incorporated into the State and substate estimates. In addition, State model performance is formally reviewed by both State and national office staff, and adjustments are made to model specifications when necessary. In summary, annual processing consists of model evaluation and performance review, incorporation of CPS population controls, collection and incorporation of revised input data, re-estimation of State and substate estimates, and benchmarking. The sections which follow discuss these processes in detail.

Annual Model Review

A benefit of using a model-based estimation framework is the ability to adapt a State's model to the changing nature of the State economy and data. The variables in a model are based on the inter-relationships in the State's economy, including seasonal patterns and long-term trends, and the individual nature of the data sources available. The variable coefficients of the signal-plus-noise models allow the models to adjust gradually to structural changes in the economy and to discount unusual changes of input data, such as those resulting from CPS sampling variability. However, for some types of events, such as severe weather or spurious movement in the CPS, it is important to be able to review a model's performance and take direct corrective action. In some cases, intervention variables are added to the model to restore model performance; in other cases, model specifications are revised. (See Chapter 6 for a detailed discussion of intervention variables and model specifications.)

The LAUS model evaluation and performance review is conducted in the fall of each year. First, a technical memorandum is issued which requests State staff to review their model performance and provide comments and evaluations to the national office. The memorandum usually includes a list of suggested topics on model behavior for the States to consider while reviewing their model performance. In addition, States are asked to provide information about their economy which might help to explain model behavior.

At the same time, SMD staff review the model performance using statistical tests for diagnostic evaluation and outlier detection. This review focuses on statistical measures of model performance, and is in addition to the battery of statistical tests which are run on the models each month. The tests help to determine whether any changes to current model specifications or outlier interventions are necessary. SMD staff share the results of this research and their proposed actions with States, either via technical memorandum or in presentations during the annual State/ regional meetings.

LAUS staff monitor model performance as part of their monthly duties. In addition, they summarize State issues and concerns regarding model performance and present resolutions and answers during the annual State meetings. Questions and issues raised by the States are also responded to in a formal LAUS technical memorandum, generally issued just after the conclusion of annual processing activities.

Population Controls

CPS population controls are estimates of the working age civilian noninstitutional population. These population estimates are derived by annual updates to the resident U.S. population enumerated in the last decennial census through components of population change based on a variety of administrative data. Population controlling occurs when the sample-based monthly and annual average CPS labor force estimates are adjusted so that they are consistent with these independently derived population estimates. Adjusting (controlling) the CPS sample-based labor force estimates to be consistent with independently derived population estimates reduces the variability of the CPS estimates, thus improving their quality.

There are several ways CPS population controls affect LAUS estimates. For model-based estimates, the monthly impact is via the CPS inputs to the model estimates. Monthly CPS population controls are incorporated into the CPS estimates through the second-stage ratio adjustment step of the CPS estimation process. (See Chapter 2 for a description of the second-stage estimation process.) For substate estimates, the monthly impact of CPS population controls is less direct, and is accomplished through the additivity adjustment of substate estimates to their respective statewide totals. Annual CPS population controls are incorporated into CPS estimates through the revision of monthly and annual average CPS labor force estimates at the end of the year. During annual processing the revised CPS data are incorporated into the LAUS estimates in two steps. First, the revised monthly CPS data are incorporated into the LAUS monthly estimates when the models are re-estimated and smoothed. Second, the revised State CPS annual average employment and unemployment levels are used as control values to which the monthly model-based estimates are benchmarked.

How Population Estimates are Calculated

Current estimates of the national population for 16 categories of sex, race, and Hispanic origin are derived by quarterly updates of the resident population (enumerated in the last census) using components of population change. This process is referred to as the “inflation-deflation” procedure, and uses the following simple formula to update each category.

Revised Population	= **Enumerated Base Population**
	+ Births to U.S. resident women
	- Deaths of U.S. residents
	+ Net international migration
	+ Net movement of Armed Forces, Civilian Federal Employees, and their dependents to the U.S.

Births and deaths by sex, race, and Hispanic origin are obtained from the National Center for Health Statistics (NCHS), generally through the calendar year two years prior to the last July estimate date. Distribution by sex, race and Hispanic origin is projected to the last July estimate date; in the case of deaths, the projection is supported by data from the Current Mortality Sample (10 percent of deaths). The projected distribution is applied to a preliminary series of births and deaths, also obtained from NCHS.

Estimates of international migration are made from several sources including the Office of Refugee Resettlement, the Immigration and Naturalization Service, and data on the net exchange of population with the Commonwealth of Puerto Rico. The migration of Federally-affiliated citizens is estimated using data provided by the Department of Defense and the Office of Personnel Management.

The age distribution on the population estimate date is determined by aging the population by quarter-year, subtracting by cohort, and adding both types of net migration by cohort, for each age group, from the base date forward. This procedure is known as the "cohort-component" method for aging the population.

The population of the States must be estimated using less direct methods than those used to derive population estimates for the Nation as a whole because interstate migration, a large component of the change in State populations, cannot be accounted for in as direct a way as births, deaths, and legal immigration can. Two methods are used, and the official State population estimates are an average of the two methods. State estimates are "raked" proportionally to guarantee that they sum to the national total.

The first method is called the **administrative records** method because it relies on the use of administrative records to derive estimates of the 0-64 and 65+ populations. Estimates of interstate migration for persons under 65 are derived from changes on IRS tax returns and the number of exemptions claimed for persons under 65. Changes in the 65-and-older population are derived from the change in the number of Medicare enrollees.

The second method is called the **components-of-change** method because it measures State population change as a composite of three components. First is an estimate of migration of the school-age population based on school enrollment data. Second is an estimate of the change in the 65-and-over population based on changes in Medicare enrollments. Third is a regression on changes in various symptomatic population indicators,

using a variety of data sources, including Federal income tax returns, automobile registrations, and school enrollments, for estimating the change in the adult population under age 65.

To create population estimates to serve as controls for surveys such as the CPS, the total population estimates are adjusted to remove armed forces personnel, the institutionalized population, and persons under the age of 16.

State Annual Population Controls

Each January, the Census Bureau provides BLS with population estimates for each State. These estimates are centered on the July “target” month for the previous two years and annual averages for the previous three years. The most recent July estimates are considered “provisional”, and estimates for the July prior to that are considered “revised”. The July estimates two years before the “provisional” estimates are also used to derive the intervening months, but should not have changed since these estimates would have been finalized the year before. The population estimates for the other months are derived using straight line (linear) projections based on these three July estimates. The derivation of the monthly values between the known (final, revised, and provisional) July estimates is called “interpolation”. The derivation of the monthly estimates from the provisional July estimate to the end of the most recent calendar year is called “extrapolation”.

The following example illustrates the process. In January of 1994, BLS received provisional July 1993 and revised July 1992 population estimates for each State. The interpolation of these estimates may affect the LAUS estimates from August 1991 to July 1993. August 1991 is the starting point of the interpolation because the July 1991 estimates would not change—those estimates were finalized the year before. With interpolated estimates available for August 1991 through July 1993, estimates are still needed for August 1993 through December 1993. For these months, the July 1991 estimates are extrapolated. This entire process results in new statewide population estimates being available each January covering the preceding two and one-half years. These new population estimates are then used to adjust the State's CPS labor force data. This is done by multiplying each month’s CPS employment and unemployment estimates by the ratio of that month’s revised population value divided by the original population value. Under normal circumstances, the CPS unemployment rate is not affected by the population controlling process because both the unemployment estimate (the numerator of the rate calculation) and the labor force estimate (the denominator of the rate calculation) have been adjusted by the same proportion. The CPS annual averages are revised separately from the monthly estimates, as opposed to being derived as the average of the re-controlled monthly estimates. Because separate

controls are applied to the monthly and annual data, the average of the monthly CPS estimates will not necessarily equal the “official” CPS annual average.

Annual Population Revisions Affecting Substate Area Estimates

Substate area estimates benefit from the monthly and annual CPS population revisions through the additivity process which assures consistency with the State totals. Substate estimates utilize county and place total population data in the disaggregation of labor market area estimates into smaller geographic entities. County total population estimates are revised by the Census Bureau each year; place total population estimates are revised every other year. The timing of the availability of these data influences when these population estimates are incorporated into the LAUS substate estimates.

Annual Re-Estimation or "Smoothing"

At the end of each calendar year, the LAUS regression models are re-estimated, smoothed, and benchmarked to the CPS annual average labor force estimates. Re-estimation and smoothing is an integrated process which incorporates revised State-supplied model inputs and revised CPS labor force data and involves a re-estimation of all observations in a forward-back-forward manner. In this way, every observation benefits from all of the data, past to present.

Each year States are provided the schedule for benchmarking activities in a technical memorandum. States are instructed to provide the most up-to-date CES nonagricultural wage and salary estimates reflecting the latest ES-202 benchmark. They also provide revisions to UI continued claims and UCFE data, where appropriate. Typically States submit these data during one of two benchmarking cycles via the AP module in STARS. (See Chapters 11 and 12.)

In re-estimating and smoothing the models, the entire time series is used to re-estimate every observation. The estimation process is run forward from the beginning of the time series, then run backward so that earlier observations benefit from later data, and then run forward again to the end of the year. It is possible to perform this re-estimation and smoothing operation on the LAUS models because they use a Kalman Filter to modify each of the model's coefficients with the addition of each monthly observation.

The Kalman Filter acts as filter, or weighting mechanism, which allocates how much a model's coefficients will change (and thus the estimates) with each new period's data. Because the Kalman Filter works by evaluating each successive observation, one after another, the models can produce estimates in both a forward and backward temporal direction. This means that the models can be "smoothed", a term used to describe the forward-back-forward re-estimation of the entire time series. By producing estimates moving forward in time, each successive estimate incorporates all of the information from the earlier months in the time series. When the end of the time series is reached, the estimation process is performed backward through time, so that each past month's estimate can benefit from the more recent data. Finally, the process is performed moving forward through time again, so that information from the first two passes can be incorporated into the entire time series.

To the extent that the past and future help to describe the present, it is generally easier and more accurate to fix a line to a period of data when you know the data preceding and succeeding that period. In a similar fashion, it is easier and more accurate to make an estimate for a month when you have estimates for the months which preceded and succeeded that month. The forward-back-forward process in

smoothing essentially provides this “pre” and “post” information for each month, thus allowing a more accurate estimate to be made for every month in the time series.

Benchmarking State Estimates

Benchmarking is a process of statistical adjustment conducted each year to adjust the prior series of monthly LAUS model estimates to the CPS annual average totals. This process controls the LAUS model-based estimates to independent estimates with known levels of reliability—an 8 percent coefficient of variation on the unemployment level, assuming an unemployment rate of 6 percent—which is met for all States. The primary impetus for benchmarking the LAUS series to the CPS is to give the estimates a measure of conformity appropriate to their use in the distribution of Federal funds. Beyond this legislative impetus, benchmarking LAUS estimates to the CPS is appropriate, given the role of the CPS in providing a conceptual standard for the program.

The goal of LAUS benchmarking is twofold:

1. to insure that the annual average of the final benchmarked series equals the CPS annual average;

and

2. to preserve the seasonal pattern of the model series as much as possible.

This combination of goals places emphasis on selecting a statistical procedure that minimizes the changes to the time series pattern. The Denton Method is used in the LAUS benchmarking process because it is able to combine these two goals in a single formula.

The Denton Method is a benchmarking methodology used to adjust estimates from one series (monthly model-based LAUS) to another (CPS annual average employment and unemployment). The monthly estimates are adjusted so that they are exactly equal to the CPS annual estimates, while breaks between years and distortions to the original month-to-month movements in the series are minimized. This methodology uses a process based on constrained quadratic minimization. This minimization routine is similar to the least squares idea of fitting a line to data. Like least squares, which minimizes the sum of the squared differences between the data points and a line fit to those points, the Denton procedure minimizes the sum of squared percent differences between pairs of corresponding months for the original and benchmarked estimates. The choice of this method is particularly appropriate for the LAUS model estimates, since minimizing the standard deviation of percent month-to-month changes was one of the original selection criteria when the earliest models were developed. Maintaining the month-to-month smoothness of the original estimates in the benchmarked series was, therefore, an important consideration in choosing a benchmark methodology.

The Denton method accomplishes this minimization with a function which penalizes differences between the original and benchmarked series according to predetermined criteria. One of these criteria is to minimize the sum of squared percent differences between corresponding month-to-month changes in the original and benchmarked series. This portion of the penalty function minimizes the changes to the seasonal pattern between the original and benchmarked series. There is also a constraint which requires that the average of the monthly estimates equals the CPS annual average. To minimize breaks between years, successive groups of three years are moved through the process, with one additional year added and one dropped as the entire time series is benchmarked.

The Denton Method uses a mathematical formulation, called a Lagrangian expression, to combine the penalty (constraint) functions related to the benchmarked estimates into a set of benchmarking equations. The Lagrangian expression incorporates a set of variables called Lagrange multipliers, which, when the benchmarking equations are partially differentiated, produces a set of weights for each month. The weights times the CPS/model differences are summed and added to the original model estimate to form the benchmarked estimate. While the set of weights is based on the overall CPS/model difference for a given year, the weights vary gradually from month to month as a result of solving the equations to minimize the changes in the month-to-month differences between the model and the benchmarked series.

Modification to the Denton Procedure: January 1998

The Denton approach provides a smooth link between December and January of adjacent years with different overall benchmark adjustments. Unfortunately, the original Denton method introduces a discontinuity between the December benchmarked estimate of the last year and the January estimate of the current year. To alleviate this problem, the method was modified to provide a link to the current year model series. This was done by adding an end point constraint (ENP) which forces the December benchmark estimate to equal the model estimate, thereby preserving the December-January model estimate of change.

Since the ENP constraints leaves the original series value for December of last year unchanged, the adjustment to the annual benchmark for that year must be spread over the 11 remaining months of that year and a smooth link established for earlier years. To satisfy the annual constraint, the own year weights must sum to one over the same 11-month period. These adjustments make it somewhat more difficult to maintain the monthly growth rate pattern in the original series for the first 11 months of the last year.

While the ENP constraint could affect all the historical values of the adjusted series, in practice the effects of this constraint converge to zero within 24 months preceding the end point of the adjusted series.

Benchmarking Substate Area Estimates

As in regular monthly estimation, substate area benchmarking is limited in data sources. However, substate estimates can be improved by incorporating updated source data, revising prior inputs, adjusting for changes in UI procedures and coverage, incorporating changes in geographic definitions, and adjusting the areas to revised State estimates through additivity. In some cases, such as Handbook agricultural employment estimation, annual benchmarking of the series is most critical, given the lack of ideal source data for generating monthly changes at the labor market area level. Benchmarking of subState area estimates is conducted during the first half of the each year for the previous three year's estimates. Occasionally, more than three years are revised, typically following changes in methodology or large revisions to population data. The requirements and schedule for this activity are provided to the States via LAUS technical memoranda. In addition, specific instructions relating to the LSS software to be used in benchmarking are provided to the regions and States, typically in January.

Incorporation of Substate Data Updates

The table below lists a number of Handbook inputs, the source of the updated data, and the reason for the revision or update.

Input	*Reason for update*	*Source*
Handbook Employment:		
Agricultural factors	new ALS data from USDA	BLS
CES employment	latest ES-202 benchmark	States
Step-3 ratios	latest CES benchmark	BLS
Atypicals	new data available	States
Handbook Unemployment:		
Annual A & B factors	updated factors	BLS
UI Claims	revised UI counts	States
Survival rates	new age group populations	BLS
Entrant ratios 16-19	new age group populations	BLS
Entrant ratios 20 +	new age group populations	BLS
Additivity:		
Statewide estimates	benchmarked to CPS	BLS
Disaggregation:		
Employment/population ratios	new employment & population data	BLS

The two most important Handbook updates are the CES employment and the UI claims data, both provided by the State.

The monthly sample-based employment estimates from the CES program produces are benchmarked each year to more complete payroll counts from the ES-202 program. CES estimates are revised back to the previous year's benchmark and brought forward, using link-relative extrapolation to the end of the most recent calendar year. This means that employment estimates used in LAUS estimation are typically revised for the preceding twenty-one months.

UI claimant data for substate areas are also revised at benchmarking time. UI continued claims without earnings are reviewed by State staff for the benchmarking period (usually the last three years). Area claims counts are corrected, finalized, and checked against the statewide total. This is the opportunity to correct errors and omissions uncovered during the course of the year. It is also the time to incorporate the effect that changes in UI law or practice have had on the LAUS estimates.

Revised Agricultural Labor Survey (ALS) annual change factors are introduced at benchmarking. These factors are for the July-to-July period ending in the most recently completed calendar year with new estimates developed for the remaining months of the most recent year. Consequently, the series revision for agricultural employment is for the July two years ago to the most recent July, and extended for August to December of the most recent year.

Revised Seasonal A and B Factors used to estimate Handbook unemployed entrants, based on the previous years's CPS data, are issued at benchmark time. The revised factors should be used, if possible, to revise the previous year's estimates, as well as for monthly estimation in the ensuing year.

Updated population survival rates, developed from actuarial tables from the Department of Health and Human Services, are issued at benchmarking to update population estimates used for area Youth Population Ratios (YPRs). The updated ratios are not incorporated into the estimates for the previous year, but instead are used only in the upcoming year.

Employment-to-population ratios for employment disaggregation are updated with revised population data from the Census Bureau P-25 and P-26 series. County population data are revised each year and place population data every other year.

In addition, benchmarking substate area estimates reflects benchmarking of statewide LAUS estimates. The State series provides the control total for additivity adjustment of area estimates.

Incorporating Changes in Geographical Areas

Changes in population levels, within metropolitan and nonmetropolitan areas, and in cities and towns, can alter LAUS geographically defined areas. Population growth in areas can result in the creation of new a labor market area. Growth in areas contiguous to an LMA can result in a redefined LMA. Cities and towns newly identified as having populations

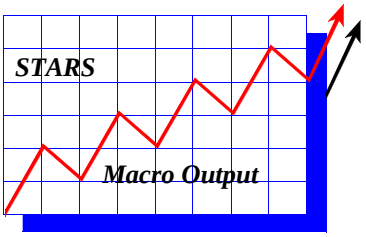
of 25,000 or more are also included as LAUS estimating areas. Population changes of this type are incorporated into the LAUS framework during the benchmarking period.

Substate Processing

The BLS provides the States with title code listings (geographical listing of all areas a state re-estimates), new ratios for disaggregation, a benchmark control file (State revised estimates from STARS), new population data, and annual agricultural factors, a and b factors, and survival rates.

States enter inputs, generate revised estimates, and transmit revised estimates to the national office for review.

Revised substate data undergo a thorough review to insure accuracy and consistency. The national office reviews and edits the State control and disaggregation files—editing data relative to previous transmissions. Range edits—increases or decreases of 20-25 percent and level shifts of 100—are utilized to check the data against previous estimates, and consideration is also given to a number of subjective factors, including the size of the area being revised and current economic conditions.



11 *STARS Macro Output*

Introduction

All states use the monthly macro called STARS (State Time Series Analysis and Review System) each month to produce their employment and unemployment rate estimates, and to transmit these to the BLS national office.

In producing estimates, States provide input data such as CES employment, strikers, and unemployment claims. These data are used not only to produce the estimates, but are also stored in a national office database and are available through an Extract Macro, along with data from the CPS, for use in various analytical studies, model interpretation, and so forth.

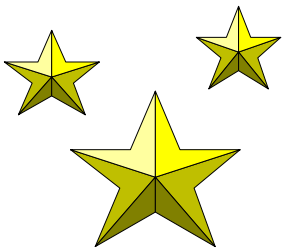
Each time STARS is run, it provides both BLS and State analysts with output containing a series of tables and graphs with information for studying employment trends, preparing releases, or understanding the nature of a month-to-month change in model estimates.

The primary functions of STARS are to:

- *integrate State/BLS data entry.*
- *calculate monthly state level estimates for the current month and revised estimates for the previous month for labor force, employment, unemployment, and the unemployment rate.*
- *provide analytical charts and tables.*
- *allow transmittal of the estimates to BLS.*

CPS data are inputted at the national office, for access by the Macro, as soon as the monthly national press release is issued. State analysts can enter their inputs when they become available, review their listings, and redo them if an error is found. States have the option to run estimates with preliminary numbers before the actual data are available without transmitting the estimates to BLS, and, when they are correct, final LAUS estimates are transmitted to BLS through the macro.

STARS Cover Sheet



The cover sheet provides basic information about the macro run. Starting at the top, it lets the State analyst know if the estimates were transmitted to BLS from the run, and if so, when they were transmitted. It gives the State, month, and year of the data for which the run was made and shows the date and time of the run. It lists the State-entered data items for the run month and the prior month, allowing the analyst to quickly check input data.

The State Comments section allows a State to document their run in the output. Here an analyst can note the status of the input data or the type of run he/she is making. For example, it can be noted whether a run is preliminary or final. States are encouraged to use this section to identify their runs. These comments are also very helpful to BLS analysts.

There is also a section for BLS notices. Included here are the current production month, due dates, and special notes about the macro or data transmittals. These messages are also displayed on the computer screen when STARS is executed

Official Estimates Transmitted to BLS on 10/17/95 at 09:37:42 LAUS STARS Monthly Estimation Tables (Version 1.0)

```
                  ----------  Mississippi  ----------

                            September 1995
Date:  10/12/95
Time:  15:09:06
-------------------------------------------------
Data entered for September 95:

CES nonag w&s employment            =    1,059,178
CES adjustment for major strikes    =            0
State continued claims w/o earnings =       15,760
UCFE without earnings               =          113

Data entered for August 95:

CES nonag w&s employment            =    1,051,708
CES adjustment for major strikes    =            0
State continued claims w/o earnings =       21,010
UCFE without earnings               =          115
-------------------------------------------------
```

BLS Notices:

Estimates for the current production month (95/09) are due on 10/17/95. If you need to transmit estimates for a non-production month, contact your regional office.

STARS Table 1: Year-to-Date Model Estimates

Table 1 provides all the year-to-date LAUS model estimates for labor force, employment, unemployment, and the unemployment rate. This is the place to look for the estimates created by a macro run. A quick comparison of current estimates to earlier estimates can be made. Developing trends and month-to-month changes can be observed. A comparison of the seasonally adjusted and not seasonally adjusted series can be made.

LAUS STARS Monthly Estimation Tables (Version 1.0)
Table 1: Year-to-Date Model Estimates
Mississippi, 1995

Seasonally Adjusted

Date	Labor Force	Employment Level	Employment E/P	Unemployment Level	Unemployment Rate
JAN95	1,266,814	1,192,718	59.9	74,096	5.8
SEP95	1,269,626	1,183,546	58.9	86,080	6.8

Not Seasonally Adjusted

Date	Labor Force	Employment Level	Employment E/P	Unemployment Level	Unemployment Rate
JAN95	1,254,822	1,177,416	59.1	77,406	6.2
SEP95	1,265,091	1,179,427	58.7	85,664	6.8

STARS Table 2: Changes from Prior Month/Year

This table shows over-the-month and over-the-year changes for the each of the four basic types of labor force estimates. Data for the month specified as "current" in the macro session and the prior month are shown for 1978 through the current year. The data for all years prior to the current year reflect the annual updating. Both the level of change and the percent change are given.

This table is particularly useful for examining the normal seasonality of the estimates. The current month-to-month change should be compared to changes for the same months in previous years to see if the change is similar in magnitude and in the same direction.

The over-the-year changes give an indication of the state's labor force trends, but this can be better observed by looking at all months of historical data, available from the extract macro or by viewing the plots of the monthly data provided in Figures 1 & 2 of this monthly output.

Since year-to-year change does not contain seasonality, this change should be about the same for both seasonally adjusted and unadjusted series.

LAUS STARS Monthly Estimation Tables (Version 1.0)

Table 2a: Changes from Prior Month/Year

Mississippi Labor Force, September 1995

(Past year estimates are benchmarked)

		Seasonally Adjusted				
			Change			
			From Prior Month		From Prior Year	
Year	September	August	Number	Percent	Number	Percent
78	1,012,531	1,016,151	-3,620	-0.4	.	.
∫	∫	∫	∫	∫	∫	∫
95	1,269,626	1,273,917	-4,291	-0.3	8,331	0.7

---------- Not Seasonally Adjusted ----------

			Change			
			From Prior Month		From Prior Year	
Year	September	August	Number	Percent	Number	Percent
78	1,011,397	1,012,881	-1,484	-0.1	.	.
∫	∫	∫	∫	∫	∫	∫
95	1,265,091	1,273,892	-8,801	-0.7	8,767	0.7

LAUS STARS Monthly Estimation Tables (Version 1.0)

Table 2b: Changes from Prior Month/Year

Mississippi Employment, September 1995

(Past year estimates are benchmarked)

---------- Seasonally Adjusted ----------

			Change			
			From Prior Month		From Prior Year	
Year	September	August	Number	Percent	Number	Percent
78	944,081	943,715	366	0.0	.	.
∫	∫	∫	∫	∫	∫	∫
95	1,183,546	1,190,882	-7,336	-0.6	2,706	0.2

Not Seasonally Adjusted						
			Change			
			From Prior Month		From Prior Year	
Year	September	August	Number	Percent	Number	Percent
78	938,325	937,392	933	0.1	.	.
∫	∫	∫	∫	∫	∫	∫
95	1,179,427	1,187,928	-8,501	-0.7	2,189	0.2

LAUS STARS Monthly Estimation Tables (Version 1.0)

Table 2c: Changes from Prior Month/Year

Mississippi Unemployment, September 1995

(Past year estimates are benchmarked)

Seasonally Adjusted

			Change			
			From Prior Month		From Prior Year	
Year	September	August	Number	Percent	Number	Percent
78	68,450	72,436	-3,986	-5.5	.	.
∫	∫	∫	∫	∫	∫	∫
95	86,080	83,035	3,045	3.7	5,625	7.0

Not Seasonally Adjusted

			Change			
			From Prior Month		From Prior Year	
Year	September	August	Number	Percent	Number	Percent
78	73,072	75,489	-2,417	-3.2	.	.
∫	∫	∫	∫	∫	∫	∫
95	85,664	85,964	-300	-0.3	6,578	8.3

LAUS STARS Monthly Estimation Tables (Version 1.0)

Table 2d: Changes from Prior Month/Year

Mississippi Unemployment Rate, September 1995

(Past year estimates are benchmarked)

Seasonally Adjusted

			Change			
			From Prior Month		From Prior Year	
Year	September	August	Number	Percent	Number	Percent
78	6.8	7.1	-0.3	-4.2	.	.
∫	∫	∫	∫	∫	∫	∫
95	6.8	6.5	0.3	4.6	0.4	6.2

Not Seasonally Adjusted

			Change			
			From Prior Month		From Prior Year	
Year	September	August	Number	Percent	Number	Percent
78	7.2	7.5	-0.3	-4.0	.	.
∫	∫	∫	∫	∫	∫	∫
95	6.8	6.7	0.1	1.5	0.5	7.9

Table 3: Components of Change

The components of change tables show the year-to-date current model estimates and the change in these estimates from the prior month. It also breaks the change down, showing the over-the-month change in each model variable component. This is done for each of the models--employment-to-population ratio in Table 3a and unemployment rate in Table 3b. The components of change are calculated using the same coefficients for both months involved in the over-the-month change. The current month's coefficient for each variable is used.

Since each model estimate is the sum of its variable components, the analyst can see the influence that each variable has on the total estimate by examining the components of change. It may be that one input variable is the primary influence in the current over-the-month change in the estimate.

The analyst can determine if the variable components are behaving in their "normal" way for this time of year by comparison with their past behavior. A complete listing of historical components of change is available through the extract macro.

LAUS STARS Monthly Estimation Tables (Version 1.0)

Table 3a: Components of Change
Employment-to-Population Ratio

Mississippi, 1995

Date	Current Month	Chg from Prior Mo	-Regression- CESEP	-----Residual---- Trend	Seasonal
JAN95	59.12	-1.07	-0.73	0.37	-0.72
∫	∫	∫	∫	∫	∫
SEP95	58.74	-0.51	0.19	-0.36	-0.34

LAUS STARS Monthly Estimation Tables (Version 1.0)

Table 3b: Components of Change
Unemployment Rate

Mississippi, 1995

Date	Current Month	Chg from Prior Mo	-Regression- Claims Rt	-----Residual---- Trend	Seasonal
JAN95	6.17	0.79	0.39	-0.06	0.42
∫	∫	∫	∫	∫	∫
SEP95	6.77	0.02	-0.37	0.06	0.33

Table 4: Components of the Signal

Table 4 provides current year values for the regression explanatory variable, its coefficients, and the time series components: residual trend and residual seasonal. This table shows what portion of the model estimate is composed of each of its component parts.

These data help analysts to interpret the components of change table by providing the data necessary to sort out what change in the explanatory variable is due to the changing coefficient and what change is due to the change in the input variable value.

LAUS STARS Monthly Estimation Tables (Version 1.0)

Table 4a: Components of the Signal
Employment-to-Population Ratio

Mississippi, 1995

	------Regression------		-----Residual-----	
	--Coeffs--	--Inputs--		
Date	CESEP	CESEP	Trend	Seasonal
JAN95	0.5512	52.6792	30.3939	-0.3138
∫	∫	∫	∫	∫
SEP95	0.5721	52.7482	29.0162	-0.4556

LAUS STARS Monthly Estimation Tables (Version 1.0)

Table 4b: Components of the Signal
Unemployment Rate

Mississippi, 1995

	------Regression------		-----Residual-----	
	--Coeffs--	--Inputs--		
Date	Claims Rt	Claims Rt	Trend	Seasonal
JAN95	1.0811	2.2109	4.1792	-0.4007
∫	∫	∫	∫	∫
SEP95	0.6908	1.4986	5.0718	0.6643

Table 5: Input Data

Table 5a provides current year CPS data relevant to the models estimates. Table 5b provides current year model input data provided by the State. These data are useful in analyzing model estimates.

LAUS STARS Monthly Estimation Tables (Version 1.0)

Table 5a: CPS Data
Mississippi, 1995

OBS	DATE	CPSRT	CPSEP	CPSUN	CPSEM	CPSPOP
1	DEC94	6.04	59.91	76600	1192300	1990000
∫	∫	∫	∫	∫	∫	∫
10	SEP95	7.15	59.46	91900	1194000	2007989

LAUS STARS Monthly Estimation Tables (Version 1.0)

Table 5b: State Data
Mississippi, 1995

OBS	DATE	CNTWOER	UCFE	UIATYP	HBEXH	CESEM	STRIKERS
1	DEC94	15934	189	0	.	1068857	0
∫	∫	∫	∫	∫	∫	∫	∫
10	SEP95	15760	113	0	.	1059178	0

Figures 1 and 2: Plots of Employment Level and Unemployment Rate

Figures 1 and 2 plot three years of historical data and current-year estimates up through the latest month of complete input data. Each figure displays two plots: the top plot shows the seasonally adjusted model estimate, and the bottom plot shows the not seasonally adjusted model estimate and the CPS.

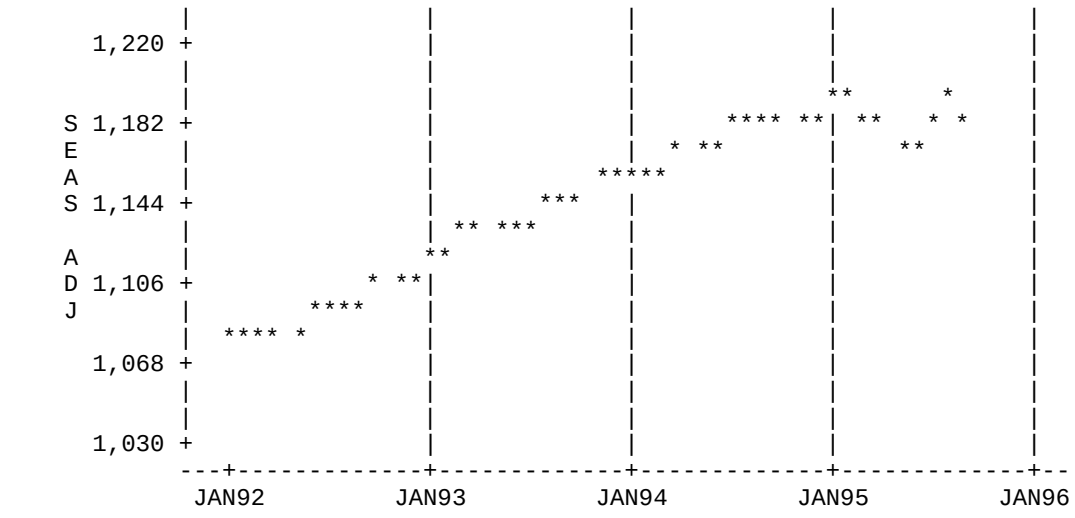
The plots allow analysts to see how closely the model is following the CPS for a particular month and over time. It also allows the analyst to see seasonal patterns in the data and observe the trend/cycle movements of estimates in recent years.

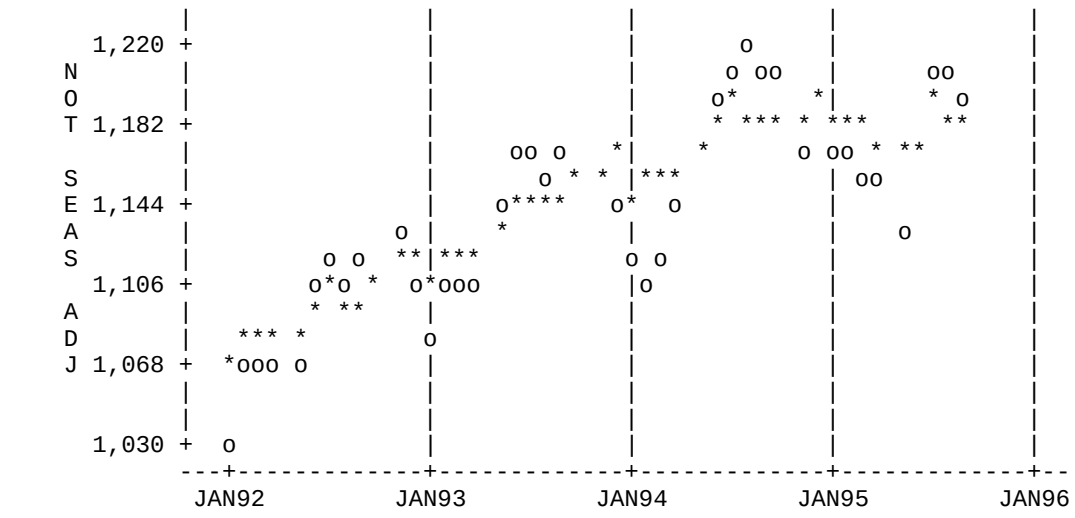
LAUS STARS Monthly Estimation Tables (Version 1.0)

Figure 1: Mississippi Employment

(Past year estimates are benchmarked)

Model Employment (in thousands): *
CPS Employment (in thousands): o





NOTE: 6 obs hidden.

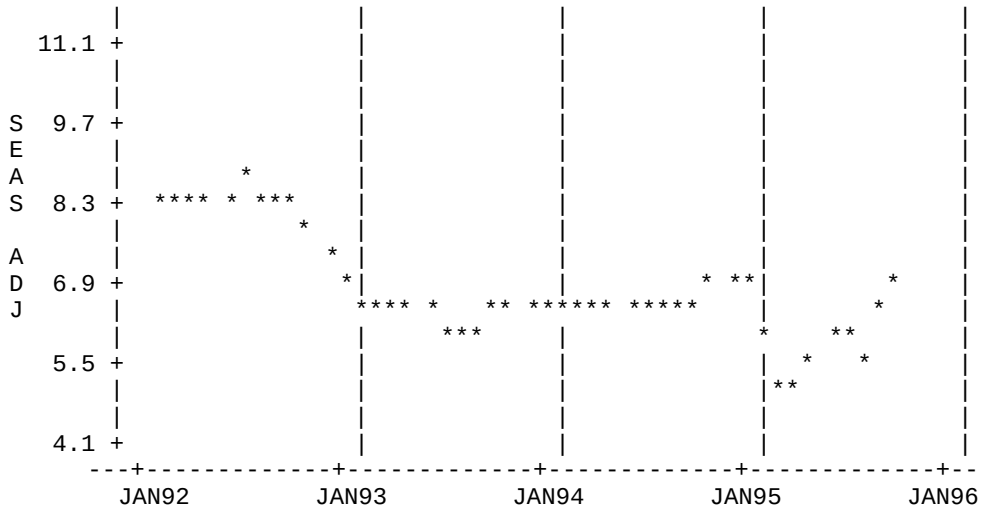
When the model and the CPS have similar values, only the model symbol (*) is shown. The CPS symbol is "hidden" behind it.

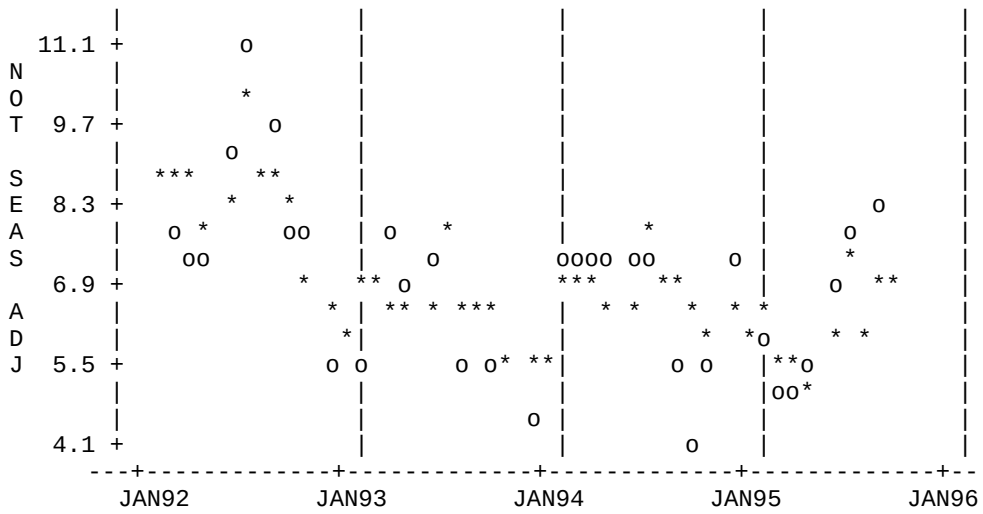
LAUS STARS Monthly Estimation Tables (Version 1.0)

Figure 2: Mississippi Unemployment Rate

(Past year estimates are benchmarked)

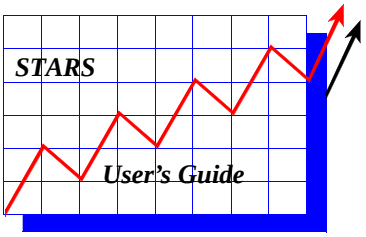
Model Unemployment Rate: *
CPS Unemployment Rate: o





NOTE: 12 obs hidden.

When the model and the CPS have similar values, only the model symbol (*) is shown. The CPS symbol is "hidden" behind it.



12 *STARS User's Guide at SunGard*

Introduction

The computer interface used by the States to make, review, and transmit their model estimates is a system of interactive programs called STARS (**S**tate **T**ime Series **A**nalysis and **R**eview **S**ystem).

To access STARS, States log on to the mainframe computer at the SunGard Computing Services in Voorhees, New Jersey. All STARS-related sessions begin with logon procedures that are described below. (Analysts should use only the account/initials specified by BLS, since only those user IDs will permit access to the STARS system).

Instructions for Logging on SunGard to Access STARS

Communication Settings:

Phone Number: (800) 811-5861 or (301) 853-9200

Terminal Emulation: VT-100

Baud Rate: 300, 1200, 2400, or 9600

Data Bits: 7

*Stop Bits:*1

Parity: Even

Duplex (Local Echo): Half (On)

Logon Steps:

1.) **After a connection is made, press the <Enter> key once. The following prompt will appear on your screen:**

WELCOME TO THE SUNGARD
COMPUTER SERVICES NETWORK

ENTER APPLICATION NAME ===>

2.) Enter in SPWYL and press the <Enter> key.

Enter your SunGard USERID, account, and password at the appropriate prompts.

To execute STARS, type:

CALL FROM &&&YBDBLS.A130.@@STARS

The first screen identifies the State associated with the user's ID and the latest period for which CPS data are available during this STARS session. It also displays information about LAUS production months and due dates. An example is shown below.

```
Laus State Time Series Analysis and Review System (STARS)

Welcome to STARS, Version 1.0

State: State Name

CPS data available through 95/06.

The current LAUS production months are:

   Preliminary: 95/06

   Revised:     95/05

Statewide estimates for these months can be transmitted
beginning 07/07/95. They are due on 07/18/95. If you need
to transmit estimates for months other than these, contact
your regional office. For a full set of official due
dates, see the monthly LAUS schedule.

Press Enter to continue...
```

Main Options

The next screen displays the main options available in STARS: 1) create new estimates, 2) review current estimates, 3) transmit current estimates, and 4) invoke the annual processing module. These options, which are described in detail below, appear as shown in the example below. Note that users are asked to verify their choice (so as to prevent, for example, accidental transmission). The default for the verification prompt can be chosen simply by pressing the Enter key. In the example below, the default response is "Y" for yes.

```
------------Options------------
1. Create new estimates
2. Review/Extract estimates
3. Transmit current estimates
4. Annual Processing
5. Exit STARS

Enter choice (#): 1

Are you sure you want to create new estimates? (Y/n):
```

NOTE: In all STARS software, whenever there is a "yes/no" type choice at a prompt (as in the verification prompt above), the default response is shown with an uppercase letter (Y in the example above). However, the actual case of the letter entered by the user in response is not important.

STARS Estimation Module

Creating New Estimates

Option 1 of the STARS main options menu allows the user to create new estimates. When choosing this option, the user must specify the month for which the estimates are to be created. The default for this prompt is the current LAUS preliminary production month. Note that estimates can be created for the current year only (revised inputs can be entered for December of the prior year to improve the estimates for the current year) . Also note that estimates are always made through the last month for which complete input data exist. When the specified month differs from the last month for which data are available, it is the selected month which is used to determine which data are displayed on certain STARS output tables. (See the *Tables* section below.)

```
Specify the year and month (numeric) for which you want
to create new estimates. The default is 95/06

YY/MM:
```

After choosing the estimation month, the user can then choose to update the model input data. The primary State input data are CES nonagricultural wage & salary employment (CESEM) and the State UI continued claims count without earnings (CNTWOER). The secondary State input data are adjustments for major strikes and the UCFE claims count without earnings. Updates can be made for zero, one, or two months. The default (which can be chosen simply by pressing the Enter key) is to update data for two months--the specified month and the month before. As shown in the example below, STARS displays specifically which month(s) the user may choose to update.

```
---------  Data Updates  --------

Enter updates for ...
1. June 95 and May 95   (default)
```

```
   2. June 95
   3. No updates, use current inputs

   Enter choice (#):
```

Entering Data

When entering data updates, the user will be prompted for the input data for that State. The default response for these prompts is that whatever data are currently in the State database will be used (i.e., “no change”). An example of the data input screen follows.

```
Notice:
States are asked to double check their CNTWOER and
UCFE claims counts to be sure that commuter and
interstate claims have been include in these data
 ------ Enter Input Data ------
 Jun 95 CES nonag w&s employment.............2426095
 May 95 CES nonag w&s employment.............2403023
 Jun 95 CES adjustment for major strikes......258
 May 95 CES adjustment for major strikes......
 Jun 95 UI continued claims w/o earnings......31525
 May 95 UI continued claims w/o earnings......33155
 Jun 95 UCFE claims w/o earnings..............
 May 95 UCFE claims w/o earnings..............
```

When all of the input data have been entered, STARS displays them for review. Note two things in the example below. First, if “no change” is selected for any observation, STARS issues a warning message that estimates will not be made for months in which any of the input data are missing. In other words, to make an estimate, there must be a complete series of input data. Second, an entry can be changed by selecting the corresponding line number; STARS issues a prompt for the user to re-enter the observation

.

You have entered the following input data or *State Name*:

#	Variable	Year	Month	Data
1.	CES nonag w&s employment	95	06	2426095
2.	CES nonag w&s employment	95	05	2403023
3.	CES adjustment for major strikes	95	06	258
4.	CES adjustment for major strikes	95	05	NO CHANGE
5.	UI continued claims w/o earnings	95	06	31525
6.	UI continued claims w/o earnings	95	05	33155
7.	UCFE claims w/o earnings	95	06	NO CHANGE
8.	UCFE claims w/o earnings	95	05	NO CHANGE

```
Note: You have entered NO CHANGE for at least one observation. If
that observation is currently missing, STARS will not make an esti-
mate for that or any succeeding month.

Enter the line number of an entry you want to change, or press the
ENter key to continue:   7

95/06 UCFE claims w/o earnings.............. 73
```

STARS displays all of the data for review after each change, until no changes are made.

In some cases, a user might want to make an estimate without saving either the input data or the estimate in the State database (such as, when making a projection for the current month based on the current CPS and the previous month's State-supplied input data). To accommodate this, STARS allows the user to choose whether or not the database should be updated. An example of the prompt appears below. However, on the assumption that most estimates will be using official input data, the default (chosen by pressing the Enter key) is “Yes.”

```
Do you want to update your database with the inputs you
have just entered and the resulting model estimates?
(Y/n):
```

Estimation

Before STARS begins estimation, the user is given the opportunity to record notes or comments. These will appear on the STARS output tables. (See the *Tables* section below.) An example appears below.

```
Enter your notes or comments below, up to a maximum of 5
lines and 50 characters per line (even though a line is
approximately 80 characters long). Press the Enter key at a
new line prompt when you are finished.
 Line 1: This is a test of the new STARS
 Line 2: estimation at SunGard
 Line 3:

 Please wait. The job is running now.
 Approximate run time is 1 to 3 minutes.
 Please do not PRESS any key OR program will be interrupted

WAIT started at 8:58:45 a.m.
WAIT ended at 8:59:14 a.m.
```

After notes/comments (if any) have been entered, STARS automatically submits a job to the central processor for estimation. While the job is being executed, the system enters a wait state as indicated by the message “WAIT started at... .” During the wait state, the user should not touch the keyboard. When the job is complete, the output tables are fetched into the user's active workspace, where they can be viewed or printed. All STARS runs are saved under the user’s account/ initials for later access. As shown in the example below, the name of the output file is displayed, and the user can choose to list the tables simply by pressing the Enter key.

```
The job is complete.

The output tables are in your active workspace and
have been saved as STARS.JUN95.D950718.T08813.

Do you want to list the tables on your screen?
(Y/n):
```

Tables

STARS monthly tables provide information about the model estimates. The tables are:

Cover Sheet

Table 1:	Year-to-Date Model Estimates
Table 2:	Changes from Prior Month/Year
	a. Labor Force
	b. Employment
	c. Unemployment
	d. Unemployment Rate
Table 3:	Components of Change
	a. Employment-to-Population Ratio
	b. Unemployment Rate
Table 4:	Components of Signal
	a. Employment-to-Population Ratio
	b. Unemployment Rate
Table 5:	Input Data
	a. CPS Data
	b. State Model Input Data
Figure 1:	Plots of Employment Level
Figure 2:	Plots of Unemployment Rate

Tables 1, 3, 4, and 5 display current-year estimates up through the latest month of complete input data. Table 2 shows the over-the-month and over-the-year change, in both the current year and all previous years, for the month specified by the user, which may differ from the latest month of available estimates. (See the *Creating New Estimates* section above.) Figures 1 and 2 plot three years of historical data and current-year estimates up through the latest month of complete input data, for the employment level and unemployment rate, respectively. Each figure contain two plots: the top plot shows the seasonally-adjusted estimates (model E/P converted to employment level and model unemployment

rate, respectively); the bottom plot shows the not seasonally-adjusted estimates, along with the CPS. Unless otherwise noted, all model-related data are forward-filter estimates, i.e., the data are not smoothed or benchmarked.

STARS Review Module

Review Current Estimates—Extract Data

Option 2 of the STARS main options menu allows the user to review current estimates and extract both current and historical data. The first data review option is to run the Data Extract module, which is an interactive program that lets users access model and CPS data in their State databases.

The module begins by showing the State for which data are going to be extracted. An example using the State of Connecticut (CT) is shown on the following pages.

```
------- Review/Extract Options -------
1.  Extract data (default)
2.  List latest STARS estimation run
3.  Exit review

Enter choice (#): 1
```

Specifying Years

The user is then prompted to enter the beginning and ending years for which data are desired. Data are available monthly from January 1978 through the month for which the most recent CPS data are available. The default beginning year is 78 and can be chosen simply by pressing the Enter key (in response to that prompt). The default ending year is the current year. If a question mark is entered in response to either prompt, the valid years are displayed, as in the example below.

```
Enter beginning (2-digit) year  ?
Valid years: 78 - 95
Enter beginning (2-digit) year [78]: 89
Enter ending (2-digit) year [95]:    92
```

Specifying Variables

The user must then enter the desired variables. The "variables" are simply the names of individual data series, e.g., "CPSEM" refers to the series of monthly CPS employment observations. The prompt is:

```
Enter variable list below (or "/" for help).
- There is a maximum of 8 variables/extract.

Variable (s): ?
```

Commas or blanks must separate variables in a list; up to eight variables can be extracted in one run. If a question mark is entered in response to this prompt, instructions and a list of valid variables are displayed as shown below.

```
Enter variable list below (or "?" for help).
Variable (s): ?
Enter the variable or variables (using blanks or commas between vari-
ables in a list). Valid variables are listed below and are described in
detail in the file &&&BDBLS.A130.STARS.VAR.DES.

BCESEP    BCLRADJ    BCLRFADJ   BCLRST     BCLSTFE    BHBEXHRT   CESADJ
CESEM     CESEP      CLRADJ     CLRFADJ    CLRST      CLRSTFE    CNTWOER
CPSEM     CPSEP      CPSLF      CPSPOP     CPSRT      CPSUN      DENTRT
EMLAUS    EMLAUSSA   EMSAF      EMSIGSMT   EMSIGUPD   EPLAUS     EPLAUSSA
EPREGST   EPREGUPD   EPSEASMT   EPSEAUPD   EPSIGSMT   EPSIGUPD   HBEXH
HBEXHRT   LFSIGUPD   NENTRT     NEWEN      REEN       RENTRT     SENTRT
STPH      STSE       STSEUF     STSEUFPH   STTA       STUF       STRIKERS
UCFE      UIATYP     UNLAUS     UNLAUSSA   UNSAF      UNSIGSMT   UNSIGUPD
URLAUS    URLAUSSA   URREGSMT   URREGUPD   URSEASMT   URSEAUPD   URSIGSMT

Group:    LAUS   =   LFLAUS     EMLAUS     EPLAUS     UNLAUS     URLAUS
          LAUSSA =   LFLAUSSA   EMLAUSSA   EPLAUSA   UNLAUSA   URLAUSSA
          SMT    =   LFSIGSMT   EMSIGSMT   EPSIGSMT   UNSIGSMT   URSIGSMT
          CPS    =   CPSLF      CPSEM      CPSUN      CPSRT
          EM     =   CPSEM      EMLAUS     CESEM
NOTES: 1. Groups cannot be selected with other variables or groups
       2. Some variables are State-specific
```

In addition to the file noted above, variable descriptions also appear on pages 12-16 through 12-18 of this Chapter.

An example of entering variables is shown below. Note that each entry is checked for validity; if it is not valid, the response must be corrected.

```
Enter variable list below (or "?" for help).
- There is a maximum of 8 variables/extract.

Variable(s): CLRST URLAUS NENRT

'NENTRT" is not valid.
Enter new variable: NENTRT
```

Reviewing Selections

After the years and variables have been entered, the choices are displayed for review and confirmation. The default response (which can be chosen just by pressing the Enter key) is to extract the specified data.

```
*  STARS Data Extract Module  *
State.....Connecticut
Beginning Year...89
Ending Year......92
Options:  1. Extract specified data (default)
          2. Return to the variable list
          3. Start over
          4. Exit extract

Enter choice (#):
```

Data Extract Output

If the "extract specified data" option is chosen, STARS automatically submits a job to the central processor to read the desired data from the State database. When the job is complete, the formatted output tables are fetched into the user's active workspace, where they can be viewed or printed. The tables are also saved on temporary storage. In addition, the data are saved in a text file for downloading. (See the *Text File* section below.)

As shown in the example below, the names of these files are displayed, and the user can choose to list the output tables simply by pressing the Enter key. (Note that the alphabetical FIPS code that appears in the file name in this example is CT.)

```
The  job is complete.

The output tables are in your active workspace and have
been saved as EXTRACT.CT.D950718.T094454 on WORK16.

A text file of the extracted data (for downloading) has
been saved as EXTRACT.CT.DATA.D950718.T094454 on WORK16.

Do you want to list the tables on tour screen?
(Y/n):
```

For the job shown in the examples above, the output is:

LAUS STARS Data Extract Tables

-------- Connecticut --------

YEAR	MONTH	CLRST	URLAUS	NENTRT
89	1	1.7	3.6	2.1
89	2	1.9	3.6	2.1
89	3	1.8	3.1	1.9
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
92	10	2.3	6.5	2.4
92	11	2.4	6.3	2.4
92	12	2.5	6.1	2.3

At the end of each run, the user is given the opportunity to run the module again. The default response, no, will cause the module to exit to WYLBUR. Note that each run saves the output tables and data with a time and date stamp, thus creating unique files.

```
   Do you want to run the Data Extract Module again?
   (y/N):
```

Text File

Each run of the Data Extract module saves the extracted data in a text file, so that it can be downloaded or read into another program. The first two columns in this file are for the 2-digit year and month. The data follow in columns 12 digits wide, with each column separated by a comma and space. Note that observations are padded on the left with zeroes, so that each column maintains a constant width. Thus, the file layout is:

Variable	*Columns*
Year	1-2
Month	5-6
Variable #1	9-20
Variable #2	23-34
Variable #3	37-48
Variable #4	51-62
Variable #5	65-76
Variable #6	79-90
Variable #7	93-104
Variable #8	107-118

For the job shown in the examples above, a line from the text file (with column numbers shown for reference) is:

```
         1         2         3         4         5         6         7
12345678901234567890123456789012345678901234567890123456789012345678901234567890
89, 01, 0000000001.7, 0000000003.6, 0000000002.1
```

After downloading, the data can be imported with the following commands:

LOTUS 1-2-3 FOR DOS	**MICROSOFT EXCEL (WINDOWS)**
1. **/File**	1. **File**
2. **Import**	2. **Open**
3. **Numbers**	3. {Enter filename}
4. {Enter filename}	4. **Text** (“Text File Options” box)
5. {Enter}	5. **Comma** (column delimiter)
	6. **OK** (twice)

Missing values in the text file are indicated by a single period (“.”). Lotus ignores missing values, shifting data columns to the left; Excel imports missing values as a character string (label).

STARS Variable Descriptions

Variable	*Description*
BCESEP	Model coefficients for CESEP
BCLRST	Model coefficients for CLRST
BCLRSTFE	Model coefficients for CLRSTFE
BHBEXHRT	Model coefficients for LAUS Handbook exhaustee rate
CESADJ	CESEM adjusted for strikers
CESEM	CES State total nonagricultural wage and salary employment
CESEP	CES employment-to-population ratio, = 100*CESADJ/CPSPOP
CLRST	Claims rate, adjusted for strikers, = 100*CNTWOER/CESADJ
CLRSTFE	Claims rate, including UCFE, adjusted for strikers, = 100*(CNTWOER + UCFE)/CESADJ
CNTWOER	Continued claims for unemployment insurance without earnings
CPSEM	CPS State employment
CPSEP	CPS employment-to-population ratio, = 100*CPSEM/CPSPOP
CPSLF	CPS State labor force
CPSPOP	CPS State population (on latest population control)
CPSRT	CPS State unemployment rate
CPSUN	CPS State unemployment level
DENTRT	CPS census division entrant rate, = 100*(CPS entrants/(CPS entrants + CPS employment))
EMLAUS	Model employment; “spliced” EMBMK plus current year-to-date EMSIGUPD
EMLAUSSA	Model employment, seasonally adjusted; = EMLAUS / EMSAF (multiplicative factor) or = EMLAUS - EMSAF (additive factor)
EMSAF	Employment seasonal adjustment factor; can be multiplicative or additive
EMSIGSMT	Historical model employment, smoothed but not benchmarked
EMSIGUPD	Forward-filter (not smoothed) model employment, = EPSIGUPD*(CPSPOP/100)
EPLAUS	Model employment-to-population ratio, = 100*EMLAUS/CPSPOP
EPLAUSSA	Model employment-to-population ratio, seasonally adjusted, = 100*EMLAUSSA/CPSPOP
EPREGSMT	Employment-to-population ratio model smoothed regression component
EPREGUPD	Employment-to-population ratio model forward-filter regression component
EPSEASMT	Employment-to-population ratio model smoothed seasonal component

STARS Variables Descriptions (Continued)

Variable	*Description*
EPSEAUPD	Employment-to-population ratio model forward-filter seasonal component
EPSIGSMT	Employment-to-population ratio model smoothed signal
EPSIGUPD	Employment-to-population ratio model forward-filter signal
EPTRDSMT	Employment-to-population ratio model smoothed trend component
EPTRDUPD	Employment-to-population ratio model forward-filter trend component
HBEXH	LAUS Handbook exhaustees
HBEXHRT	LAUS Handbook exhaustee rate, = 100*HBEXH/CESEM
JOBLEV	CPS job leavers
JOBLOS	CPS job losers
LFLAUS	Model labor force; “spliced” LFBMK plus current year-to-date LFSIGUPD
LFLAUSSA	Model labor force, seasonally adjusted
LFSIGSMT	Historical model labor force, smoothed but not benchmarked
LFSIGUPD	Forward-filter (not smoothed) model labor force
NENTRT	CPS national entrant rate (see DENTRT for equation)
NEWEN	CPS State new entrants
REEN	CPS State re-entrants
RENTRT	CPS census region entrant rate (see DENTRT for equation)
SENTRT	CPS State entrant rate (see DENTRT for equation)
STFIPS	Two-digit State FIPS code
STPH	CPS State nonagricultural private household employment
STRIKERS	State estimates of number of persons who did not work during the pay period including the 12th of the month because their union was on strike or because they were unwilling to cross a union picket line
STSE	CPS State nonagricultural self-employed employment
STSEUF	CPS State nonagricultural self-employed and unpaid family employment
STSEUFPH	CPS State nonagricultural self-employed, unpaid family, and private household employment
STTA	CPS State total agricultural employment
STUF	CPS State unpaid family employment
UCFE	Continued claims without earnings under the unemployment compensation for federal employees program
UIATYP	Atypical UI claims adjustment
UNLAUS	Model unemployment; “spliced” UNBMK plus current year-to-date UNSIGUPD

STARS Variables Descriptions (Continued)

Variable	*Description*
UNLAUSSA	Model unemployment, seasonally adjusted; = UNLAUS / UNSAF (multiplicative factor) or = UNLAUS - UNSAF (additive factor)
UNSAF	Unemployment seasonal adjustment factor; can be multiplicative or additive
UNSIGSMT	Historical model unemployment, smoothed but not benchmarked
UNSIGUPD	Forward-filter (not smoothed) model unemployment, = EMSIGUPD / [(100/ URSIGUPD) - 1]
URLAUS	Model unemployment rate; “spliced” URBMK plus current year-to-date URSIGUPD
URLAUSSA	Model unemployment rate, seasonally adjusted
URREGSMT	Unemployment rate model smoothed regression component
URREGUPD	Unemployment rate model forward-filter regression component
URSEASMT	Unemployment rate model smoothed seasonal component
URSEAUPD	Unemployment rate model forward-filter seasonal component
URSIGSMT	Unemployment rate model smoothed signal
URSIGUPD	Unemployment rate model forward-filter signal
URTRDSMT	Unemployment rate model smoothed trend component
URTRDUPD	Unemployment rate model forward-filter trend component

Review Current Estimates -- Latest STARS Estimation Run

Note: This option (Option 2 of the STARS main option menu) is not currently available at SunGard.

STARS Transmit Module

Transmit Current Estimates

Option 3 of the STARS main options menu allows the user to transmit current estimates, which officially sends the estimates to BLS files. This option should be used only after the preliminary and revised estimates for the two production months shown have been **reviewed**. States should never transmit unreviewed estimates, for the estimates transmitted are considered **official**.

The data and tables transmitted to BLS contain preliminary estimates for the current month and revised estimates for the previous month. The two months involved are determined according to the Monthly LAUS Schedule. In addition to transmitting the current and previous month's data, the macro will transmit corrections made to data for earlier months (of the current year). Corrections to data for earlier months may be made only after contacting the regional office since special arrangements must be made to allow data for non-production months to be read to a State's database.

If the transmit option is chosen, the user will be asked to verify the choice. The default (chosen simply by pressing the Enter key) is “Yes.” An example of this is shown below.

```
*** Transmitting officially sends your estimates ***
*** to BLS files. Please be sure that your last  ***
*** estimation run is for the current production ***
*** month (95/06).                               ***

ARE YOU SURE YOU WANT TO TRANSMIT? (Y/n):
```

If the user does indeed wish to transmit, the State and time period for which estimates will be transmitted are displayed. To transmit these estimates, the user must again press the Enter key. This double check on transmission was added to reduce the number of accidental or erroneous transmissions

.

```
*  STARS Transmit Module  *

State..............Oklahoma
Transmitting for.....JUN95

Press Enter to continue ...
```

If the month specified in the previous estimation run was not the current production month for preliminary estimates, or if preliminary estimates have already been transmitted for the production month, the Transmit module will not allow transmission unless special approval has been granted.

If preliminary estimates for the production month are being transmitted for the first time, or if special approval has been granted, the Transmit module submits a job to transfer the estimates to BLS files for processing. Also, the STARS output tables are annotated as having been officially transmitted, and the date and time of the transmission are added to the listing. The transmission is noted in a transmit log, and a copy is produced for BLS review.

STARS Annual Processing Module

Annual Processing

At the end of each calendar year, the BLS performs a series of activities known collectively as Annual Processing (AP). Annual processing includes re-estimation (smoothing) of the models, benchmarking to CPS annual averages, and re-seasonal adjustment. The first step in the process is to incorporate revisions to State-supplied model input data. Option 4 of the STARS main menu runs the Annual Processing (AP) module, which is an interactive program that lets users enter revisions to their State input data. This option is available only during the annual processing period.

The first screen of the AP module displays the AP options. An example is shown below.

```
*  STARS Annual Processing  *
------------- Annual Processing options -------------
1. List........Create a review listing
2. Correct.....Modify a month/year value for a series
               and create a correction file
3. Transmit....Send a correction file to BLS
4. Confirm.....Mark a correction as proper

Enter choice (#):
```

Each option is described in detail below.

List ... Create a Review Listing

AP option 1 submits a job that reads the State databases for the original input data and any corrections (from the current annual processing period) on file. The data are then displayed by year and month for each input variable. See the *AP Output* section below for an example of the output.

Correct ... Modify a Month/Year Value for a Series

AP option 2 allows users to enter corrections/revisions to their State input data. The input series for which modifications can be made will be displayed, as in the example below:

```
Which series do you want to correct?
1. CES nonag w&s employment
2. CES adjustment for major strikes
3. UI continued claims w/o earnings
4. UCFE claims w/o earnings
5. Atypical UI claims adjustment
6. EXIT -- No more corrections

Enter choice (#):
```

For States with an approval to include extended unemployment compensation (EUC) claims data, choice number 5 is Atypical UI claims adjustment. This option will be displayed only for States with an approved atypical.

Once a specific series is chosen, corrections/revisions for that series can be made by entering data in the format shown. The entry must match the format exactly, or it will not be accepted.

```
----- Corrections for CES nonag w&s employment -----

Enter data in this format: YY/MM/########

YY = 2-digit year, MM = 2-digit month, and ######## = data.
Press the Enter key at a new prompt when you are finished.

==>    92/12/423200
==>    92/13/425500
       Invalid month.

       ***  Entry not accepted  ***

==>    76/01/-4
       Invalid year
       Invalid data
```

```
       ***  Entry not accepted  ***
==>
```

After corrections/revisions for one series are entered, another series (or the same one) may be modified. Once all corrections/revisions are made, the user should choose the "Exit -- No more corrections" option. This will submit a job to enter the State input corrections and revisions into a database, where they will be stored until the modifications are transmitted. (See the *AP Transmit* section below.) The job also displays the data by year and month for each input variable. See the *AP Output* section below for an example of the output.

AP Transmit... Create a Correction File and Send to BLS

After all input data corrections/revisions have been entered and checked carefully, they must be officially transmitted to the national office. AP option 3 allows the user to transmit the data; after transmittal, the data will be incorporated into the official State databases. The transmit option appears on the annual processing options screen, as shown in the example below. The user is prompted to make sure that this is the desired option.

```
    *  STARS Annual Processing Module  *

       ------------  Annual Processing options  -----------
       1.  List .......Create a review listing
      2.  Correct ....Modify a month/year value for a series
                      and create a correction file
       3.  Transmit ...Send a correction file to BLS
       4.  Confirm ....Mark a correction as proper
       5.  Exit

       Enter choice (#):  3

       ***  Transmitting officially sends your  ***
       ***      input changes to BLS files.     ***

       Are you sure you want to transmit?
       (Y/n):
```

The transmit option should also be used after all confirmations (if any have been requested by BLS) have been entered and checked carefully.

Confirm .... Mark a Correction as Proper

Sometimes, after input data corrections/revisions are transmitted, BLS staff needs to confirm one or more of these corrections. AP option 4 allows users to enter confirmations of State input data corrections. The input series for which confirmations can be made will be displayed, as in the example below:

```
   Which series do you want to confirm?

       1.  CES nonag w&s employment
       2.  CES adjustment for major strikes
       3.  UI continued claims w/o earnings
       4.  UCFE claims w/o earnings
       5.  Atypical UI claims adjustment
       6.  EXIT -- No more confirmations

       Enter choice (#):  4
```

Once a specific series is chosen, confirmations for that series can be made by entering data in the format shown. The entry must match the format exactly, or it will not be accepted.

```
 ----  Confirmations for UCFE claims w/o earnings  ----

 Enter data in this format:  YY/MM/C

 YY = 2-digit year, MM = 2-digit month (e.g., 93/01/C).
Press the Enter key at a new prompt when you are finished.

 ==>  92/12/C
 ==>  92/11/45
      Invalid data.

      ***  Entry not accepted  ***
 ==>
```

After entering confirmations for one series, data for another series (or the same one) may be confirmed. Once all confirmations are made, the user should choose the “Exit -- No more confirmations” option. This will submit a job to enter the State input confirmations into a database, where they will be stored until transmittal. Note that after all input data confirmations have been entered and checked carefully, they must be officially transmitted to BLS; see the *AP Transmit* section above. The job also displays the data by year and month for each input variable. See the *AP Output* section below for an example of the output.

AP Output

After the completion of an AP job, the output **tables** will be saved (on permanent storage if a transmitted job, on temporary storage otherwise). These “table” files should not be confused with the correction files which are created when using the AP macro. A “correction” file is stored on permanent storage and modified each time a correction is made. A separate file is created when corrections are transmitted. As shown in the example below, the name of this file is displayed, and the user can choose to list the output tables simply by pressing the Enter key.

```
The job is complete.

The output tables are in your active workspace and have
been saved as STARS.AP.D931215.T095534 on TMP.

Do you want to list the tables on your screen?
(Y/n):
```

A partial sample listing is shown below.

```
                                Annual Processing Review Listing
                                02/10/94                09:55:34
                                   ----------  Example  ----------

                          Data Series = CES nonag w&s employment

                    Correction    Original
 Year    Month      on File       Data          Diff     % Diff     Confirm

  92       1            .          381,200           .          .          .
  92       2            .          382,700           .          .          .
  92       3            .          385,400           .          .          .
  92       4      365,700          395,200     -29,500       -7.5         Y
  92       5            .          402,600           .          .          .
  92       6            .          417,400           .          .          .
  92       7            .          420,600           .          .          .
  92       8            .          426,200           .          .          .
  92       9            .          416,100           .          .          .
  92      10            .          415,600           .          .          .
  92      11      417,500          412,000       5,500        1.3          .
  92      12      423,200          411,500      11,700        2.8          .
```

Glossary

"A" Factor The "A" factor imparts the influence of the experienced labor force on that portion of the Handbook estimate covering total entrant unemployment.

Additional Claim An additional claim is a notice of new unemployment filed at the beginning of a second or subsequent series of claims within a benefit year or within a period of eligibility when there has been intervening employment. This is one of three types of initial claims.

Additivity Adjustment The procedure which forces the exhaustive Handbook estimates to equal the State estimate is known as additivity adjustment. The process is usually linear unless an atypical procedure is in effect. The linear additivity adjustment is accomplished through the Handbook share procedure of linking LMAs to the CPS-based State estimate.

Agent State The State in which a claimant files an interstate claim for compensation against another (liable) State where wages were earned is the agent State. Usually, this is the claimant's State of residence.

All Other Nonagricultural Employment This includes self-employed, unpaid family workers, and domestics in private households.

Annual Processing (AP) A series of activities conducted annually which results in benchmarked State and substate estimates. These activities include the State submission of revisions to model inputs, revisions to substate inputs, incorporation of revised population controls, model re-estimation and smoothing, benchmarking, and seasonally adjusting the revised series.

Areas of Substantial Unemployment (ASU) This is defined under JTPA as an area of at least 10,000 population with an average of 6.5 percent or more unemployment in the previous 12 months. It is used for determining eligibility for employment and training programs.

Autocorrelation This denotes that the error terms in a regression equation are not independent over time. If this is not accounted for in the equation for the regression line, poor coefficients and predicted values may result. All State models have coefficients adjusted to reflect autocorrelation.

Autocorrelation Coefficient or p (rho) This coefficient is a mathematically determined value that measures the relationship or correlation between successive error terms of the same series. A value of "0" means that there is no correlation and a value of "1" indicates strong positive autocorrelation.

"B" Factor The "B" factor imparts the influence of the experienced unemployed on that portion of the Handbook estimate covering total entrant unemployment.

Base Period (Base Year) A base period is a specified period of twelve consecutive months (or in some States, 52 weeks preceding the beginning of benefit year) during which an individual must have the required employment and/or wages in order to establish entitlement to compensation or allowances under an applicable program.

Benchmark This is a point of reference (either an estimate or a count) from which measurement can be made or upon which adjustments are based.

Benefit Year A period, generally a 52-week period, during which individual claimants may receive their maximum potential benefit amount.

Bias Bias is the difference between the expected value of the estimate from a probability sample and the true value of the population parameter.

Bureau of Labor Statistics (BLS) Established in 1884 and now part of the U.S. Department of Labor, this Federal agency functions as the principal data-gathering agency of the Federal Government in the field of labor economics. BLS collects, processes, analyzes, and disseminates data relating to employment, unemployment, the labor force, productivity, prices, family expenditures, wages, industrial relations, and occupational safety and health.

Bureau of the Census (BOC) The BOC is a bureau of the U.S. Department of Commerce. It conducts censuses of population and housing every 10 years and of agriculture, business, governments, manufacturers, mineral industries, and transportation at five year intervals. It also conducts the Current Population Survey (CPS) for the BLS.

Census A census is a count or enumeration (as opposed to a sample or an estimate) of a specified population or some other characteristics in a given area (housing, industry, etc.)

Census Share This is a method used to disaggregate LMA employment and unemployment estimates to subareas by assigning to the areas the same proportion of the monthly, independent LMA estimate as was evidenced in the most recent census.

Census Tracts These Census-designated units are small parts of MSAs and provide statistically comparable population and housing census tabulations. Tracts are designed to be relatively similar in population characteristics, economic status, and living conditions The average tract has about 4,000 inhabitants. Census tract boundaries are recommended by local census tract committees and approved by the Bureau of the Census.

Civilian Labor Force The sum of all employed and unemployed persons excluding persons under 16 years of age, inmates of institutions, and members of the Armed Forces.

Claim A claim is a notice of unemployment filed by an individual to request a determination of unemployment insurance eligibility and the amount of benefit entitlement, or to claim benefits or waiting-period credit.

Claimant The claimant is a person who files either an initial claim or a continued claim under (1) any State or Federal unemployment compensation program or (2) any other program administered by the State agency.

Claims-Based Unemployment Disaggregation This is a method for disaggregating LMA unemployment to subareas by using (1) claims by county of residence to distribute Handbook experienced unemployment and (2) Census data to allocate Handbook new and reentrant unemployment. It is used in conjunction with the population-based indexed share employment disaggregation.

Class of Worker There are three classes of workers: (1) wage and salary workers who receive wages, salary, commission, tips, or pay in kind from an employer; (2) self-employed persons who work for profit or fees in their own business, profession, or trade, or on their own farms; and (3) unpaid family workers who work without pay for 15 or more hours a week on a farm or in a business operated by a household member to whom they are related by birth, marriage, or adoption.

Coefficients These are the values of the intercept and slope in the formula for the regression line. Coefficients are estimated by a mathematical formulation which calculates coefficients by minimizing the squares of the differences between the actual values (Y) and the predicted values (Y'). They represent (mathematically) the relationship of the independent variable to the dependent variable and how the changes in one variable can be related to another. In the case of a variable coefficient model, the coefficients are allowed to change over time to reflect changes that are occurring in the relationships of the dependent and the independent variables.

Coefficient of Variation (CV) In statistics, this is the measure of relative dispersion of data. The standard deviation divided by the arithmetic mean times 100 yields the coefficient of variation.

Commutation Regular travel of a person from the place of residence to the job location or to the place of filing for UI benefits is referred to as commutation.

Commuter Claimant Under the Intrastate Benefit Payment plan, a worker who travels regularly across a State line from home to work, and by mutual agreement between States, files in the State where the individual last worked when employed, and is treated as a resident of that State.

Compositing Compositing is an estimating technique which combines information from different sources, taking into account the relative accuracy of each source. In the LAUS regression models, the Kalman Filter technique can be thought of as a type of compositing. It combines CPS and model estimates using their variances as a measure of the accuracy of the data.

Continued Claim This is a claim filed after the initial claim, by mail, telephone, or in person, for waiting-period credit or payment for a certified week of unemployment.

Correlation A statistical term which indicates a structural, functional, or qualitative correspondence between comparable entities. Correlation can be either positive (simultaneous increase or decrease in both variables) or negative (increase in the value of one and decrease in the value of the other variable).

Correlation Coefficient This coefficient is a mathematically determined value that measures the relationship or correlation between two time series. As with the autocorrelation coefficient, a value of "0" indicates no correlation and a value of "1" indicates a strong positive relationship. A value of "-1" indicates strong negative relationship, meaning that as one series increases, the other series decreases.

Covered Employment Those jobs covered by the unemployment compensation programs are considered covered employment. At this time, those not covered include some agricultural workers, employees of religious and small nonprofit organizations, household workers, and self-employed workers.

Current Employment Statistics (CES) program The CES is a monthly sample survey of about 400,000 employers which yields estimates of nonagricultural wage and salary employment, hours, and earnings by industry. These statistics are prepared monthly by the BLS

for the nation as a whole, and by cooperating State agencies for each of the 50 States, the District of Columbia, and most MSAs. The BLS published CES data in "Employment and Earnings."

Current Population Survey (CPS) The CPS is a monthly survey conducted by the Bureau of the Census of approximately 55,000 assigned households of which 50,000 are eligible for interview. This survey of the civilian noninstitutional population of the United States provides monthly statistics on employment, unemployment, demographic characteristics, and related subjects which are analyzed by the Bureau of Labor Statistics.

Denial of Benefits A denial is an action imposed by a State agency after a nonmonetary determination or an appeals decision which cancels, reduces, or postpones a claimant's benefit rights.

Dependent Variable The dependent variable is the variable for which estimates are desired, usually termed the "Y" variable. In the LAUS models, the dependent variable used in constructing the model is the monthly CPS estimate.

Disaggregation Disaggregation divides a statistic into its component parts. For example, the LMA unemployment is divided into each component county or city.

Discouraged Workers Persons not in the labor force who want and are available for a job and who have looked for work some time in the past 12 months (or since the end of their last job if they held one within the past 12 months), but are not currently looking, because they believe there are no jobs available or there are none for which they would qualify.

Earnings Disregarded The amount prescribed by State unemployment compensation laws that a claimant may earn without any reduction in weekly benefit amount for a week of total unemployment are earnings disregarded. This is also referred to as the forgiveness level for earnings. The amounts vary by State.

Earnings Due to Employment These are any earnings, either from the regular employer or from odd jobs, which a UI claimant may receive while certifying to a week of unemployment. The existence of these earnings classified the claimant as employed, even when earnings are less than the State's forgiveness level.

Employed In the CPS, those individuals 16 years of age or older who worked at least one hour for pay or profit or worked at least 15 unpaid hours in a family business during the reference week are considered employed. Individuals are also counted as employed if they had a job but did not work because they were ill, on vacation, in a labor dispute, prevented from working because of bad weather, or taking time off for personal reasons.

Employment/Population Ratio The civilian employment/population ratio is the proportion of the civilian noninstitutional population who are classified as employed. The State E/P ratio is the dependent variable in the equation which yields monthly State employment.

Employment and Training Administration (ETA) An agency within the Department of Labor which includes the Office of Job Training, the U.S. Employment Service, and the Unemployment Insurance Service.

Enumeration Districts (EDs) Administrative units used in the Census are referred to as enumeration districts. They contain, on the average, about 750 people. The EDs provide a list of addresses for housing units which is used to help set up the sample file for the CPS.

Error See Standard Error.

Establishment An establishment is defined as an economic unit which produces goods or services, is generally found at a single physical location, and is primarily engaged in one type of economic activity.

Exhaustees Persons who have exhausted all of the unemployment insurance benefits to which they are entitled within a benefit year and cannot establish a new benefit year.

Extended Benefits (EB) This is the supplemental program, established by Public Law 91-373, that pays extended compensation during a period of specified high unemployment to individuals for weeks of unemployment after they have exhausted regular compensation. The program is financed equally from Federal and State funds and becomes operative at the State level. The State determines benefits and certain restrictions.

Extrapolate To project values of a variable in an unobserved interval from values within an already observed interval.

Federal Information Processing Standards (FIPS) Standards for information processing are issued by the national Bureau of Standards in the U.S. Department of Commerce. They include a geographically exhaustive five digit code system wherein areas such as State, counties, territories, and MSAs are uniquely identified.

Final Payment The last payment to a claimant which exhausts the individual's maximum potential benefit entitlement under a specific program is referred to as a final payment.

Forgiveness Level See Earnings Disregarded.

Gain The Gain is a weighting factor used in the Kalman Filter in determining the current month coefficients. Using this factor, a portion of the difference between the current month's CPS and the preliminary model estimate is added or subtracted from the previous month's coefficient value. This is used to produce the current month's coefficient.

Handbook Method This is a technique used to provide the basis for the monthly estimate of total unemployment and total employment at the labor market area level. This method, referred to as the Handbook Method because of its inclusion in the earlier "Handbook on Estimating Unemployment", is a building block approach using certain key statistics on the insured unemployment and on nonfarm payroll employment which are available on a monthly basis and for all areas in the State.

Household As defined by the Bureau of the Census, a household is all persons who occupy a housing unit. A housing unit is a room or group of rooms intended for occupancy as separate living quarters and consists of either a separate entrance or complete cooking facilities for the exclusive use of the occupants.

ICON ICON (Interstate Connection) is a centralized computerized system of reporting and exchanging unemployment insurance claims information between States.

Independent Variables These are variables used in the regression equation to predict the dependent variable, "Y". The independent variables are usually termed the "X" variables.

Initial Claim An initial claim is any notice of unemployment filed by an individual to initiate (1) a determination of entitlement to an d eligibility for compensation (a new claim), (2) a subsequent period of unemployment within a benefit year or period of eligibility (an additional claim), or (3) a new claim filed to request a determination of eligibility and establishment of a new benefit year within an existing spell of unemployment (transitional claim).

Institutional Population The institutional population is comprised of persons residing in the following types of institutions: penal institutions, mental institutions, sanitaria, homes for the aged or inform, and homes for the needy. Persons residing outside of these institutions constitute the non-institutional population.

Insured Unemployment Unemployment during a week for which waiting period credit or benefits are claimed under the regular unemployment insurance compensation programs, supplemental extended benefit programs, or the railroad unemployment insurance program, is considered insured.

Intercept The value of "Y" (dependent variable) where the regression line crosses the "Y" axis is the intercept. The intercept is usually denoted by β_o.

Interpolate To estimate values of a function between two known values.

Interstate claim An interstate claim is filed in one (agent) State based on monetary entitlement to compensation in another (liable) State. The agent State is usually the claimant's State of residence. The liable State is the location of the establishment in which wage credits were earned.

Intrastate Claim An intrastate claim is filed in the same State in which the individual's wage credits were earned. A nonresident of the State filing an intrastate claim is called a commuter claimant.

Job Leavers Job leavers are persons who quit or otherwise terminate their employment voluntarily and immediately begin looking for work.

Job Losers Job losers are persons on layoff and those whose employment ended involuntarily and who immediately begin looking for work.

Kalman Filter The Kalman Filter is a statistical technique used in the Signal-plus-Noise models to adjust the model coefficient. The coefficients are updated each month with new information using the Kalman Filter technique. This technique combines information from the model and CPS when making the new model estimate by taking into account the relative accuracy of each.

Labor Force The civilian labor force comprises the total of all civilians classified as employed and unemployed. The labor force, in addition, includes members of the armed forces stationed in the United States.

Labor Market Area (LMA) A LMA is an economically integrated geographical unit within which workers may readily change jobs without changing their place of residence. All States are divided into exhaustive LMAs, which include a county or a group of contiguous counties, except in New England where cities and towns are used. Independent Handbook estimates of employment and unemployment are made monthly for each LMA and form the basis for the LAUS estimates.

Labor Surplus Area This is defined under the Defense Manpower Policy No. 4A as an area with at least 120 percent of the national unemployment rate. (There is a variable floor and ceiling rate of 6% and 10%.)

LAUS Estimate These are the official BLS-published employment and unemployment estimates. For States, they are based on the signal-plus-noise models. For areas, they are developed using the Handbook procedures and are controlled to the State levels.

Least Squares Least Squares is a basic regression technique used to "fit" (calculate) a model equation to a time series of data. There are several different types of least square calculations but all are based on minimizing the sum of the squared differences between the data points and a regression line.

Liable State Any State against which a worker files a claim for compensation through the facilities of another (agent) State is the liable State. The State location of the establishment in which wage credits are earned is the liable State.

Link Relative Technique The link relative technique for employment estimation involves, for each estimating cell, comparing the ratio of all employees in one month to all employees in the preceding month. The all employee estimate for each month is obtained by multiplying this ratio by the all employee estimate for the previous month. The technique is used in the CES estimating methodology.

Local Area Unemployment Statistics (LAUS) The federal/State cooperative program under which employment and unemployment estimates for States and local areas are developed. These estimates are prepared by State Employment Security Agencies in accordance with BLS definitions and procedures. They are used for planning and budgetary purposes, as an indication of need for employment and training programs, and to allocate Federal funds under JTPA, FEMA, etc.

Mass Layoff Event This is a layoff in which 50 initial claims or more have been filed against an establishment during a five-week period, with the separations expected to last longer than 30 days.

Mean Square Error (MSE) MSE is a measure of the total error that can arise in an estimate. It is equal to the variance plus the bias squared. Mean square error is a more comprehensive measure of estimation error than is variance and is an important statistical and analytical tool.

Metropolitan Statistical Area (MSA) An MSA is a geographic area comprised of a county generally containing a central city (or twin cities) of 50,000 inhabitants or more, plus contiguous counties that are socially and economically integrated with the central city. (New England MSAs are comprised of towns and cities, rather than counties.)

Migration Migration is the permanent movement of an individual's residence from one location to another.

Model A model is a mathematical equation which relates different variables and data. In time series, this relationship is computed over time. In the LAUS signal-plus-noise models, the monthly State CPS labor force estimates are related to different independent variables and data that show strong correlations to the monthly estimates.

Monetary Determination A written notice is issued to inform an individual whether or not the individual meets the employment and wage requirements necessary to establish entitlement to compensation under a specific unemployment insurance program. If an individual is entitled, the weekly and maximum benefit amounts the individual may receive are also determined.

Months for Cyclical Dominance (MCD) The MCD is an estimate of the time span required to identify significant cyclical movements in a monthly economic time series. The MCD indicates the shortest span of months over which changes in the series are dominated by cyclical rather than irregular or erratic movements.

Moving Average This is a continuous process that uses a series of calculations made by initially taking the simple average, or arithmetic mean, of a consecutive number of items, and then dropping the first item and adding the next item in sequence and averaging, so that the number of items in the series remains constant.

New Claim A new claim is the first initial claim filed in person, by mail, or telephone to request a determination of entitlement to and eligibility for compensation. This is one of three types of initial claims.

New Entrants In the CPS, new entrants are new workers looking for a job. They include students entering the labor market after graduation from school and others who have not previously held a full-time job lasting two weeks or longer.

Nonagricultural Wage and Salary Employment In the CES program, this is a count of jobs by place of work on nonagricultural establishment payrolls (including employees on paid sick leave, paid holiday, or paid vacation) for any part of the pay period including the 12th of the month. It does not include proprietors, self-employed, unpaid volunteer or family workers, domestic workers in households, military personnel, and persons who are laid off, on leave without pay, or on strike for the entire reference period.

Noninstitutional Population See Institutional Population.

Nonmonetary Determination This process determines whether a claimant meets legal criteria other than wage credits under State UI law. It is usually concerned with: (1) reason claimant left job (separation issues); and (2) job search (able, available, and actively seeking work).

Not in the Labor Force All persons 16 years of age or older who are neither employed nor unemployed are considered “not in the labor force”. Some examples are students, housewives, retirees, etc.

Place-of-Residence Adjustment of Employment Establishment-based data, which are on a place-of-work basis, are adjusted to reflect the place of residence of the employed. The current adjustment also corrects for multiple jobholding in the place-of-work series. See Residency Adjustment Factor.

Population-Based Indexed Share Employment Disaggregation This method uses the annually prepared total population estimates and data from the Census to disaggregate labor market area total employment to the county or city level. This is used only in conjunction with the claims-based unemployment disaggregation.

Population Estimates The Bureau of the Census annually prepares total population estimates for States and selected substate areas.

Population Share The population share method is used for disaggregating an area's employment and unemployment estimates to places by assigning to the place the same proportion of employment and unemployment as its proportion of the larger area's census population. It is used in lieu of census share where census data on employment and unemployment do not exist for an area.

Predicted Value The value of Y' (Y prime) that one obtains by "plugging in" values of the independent variables into the formula for the regression line is the predicted value. The coefficients have already been determined by a mathematical formulation.

Prediction Period The prediction period is a period of time which is outside the sample period. Coefficients for the regression line derived from the sample period are used to make predictions in subsequent periods. It is also called the "outside sample" period.

Primary Metropolitan Statistical Area (PMSA) A PMSA is a subarea defined within an area that meets the requirements to qualify as an MSA and also has a population of one million or more. Upon the designation of PMSAs, the entire area of which they are parts becomes a Consolitated Metropolitan Statistical Area.

Primary Sampling Unit (PSU) The first stage of CPS sampling involves dividing the United States into primary sampling units, most of which comprise a metropolitan area, a large county, or a group of smaller counties with homogeneous demographic and economic characteristics.

Quarterly Report of Employment, Wages, and Contributions (ES-202 Report) Employment and wage data for workers covered by State unemployment insurance laws and civilian workers covered by UCFE comprise the ES-202. It is compiled from quarterly tax reports submitted to State Employment Security Agencies by employers. The Quarterly Report is referred to as the Es-202 because this is the identifying number of the Federal report form which summarizes the data from quarterly tax reports.

Railroad Retirement Board (RRB) The RRB is an independent agency in the executive branch of the U.S. government which administers a comprehensive social insurance system for the nation's railroad workers and their families, providing protection against the loss of income resulting from old age, disability, death, unemployment, and temporary sickness.

Raking This is the process which forces additivity among components to the aggregate estimate. It is performed on an interative basis in the CPS.

Reentrants In the CPS, persons who previously worked at a full-time job at least two weeks but who were out of the labor force for two weeks or more prior to beginning to look for work.

Reference Week The week for which data are collected. For the CPS, the reference week is the calendar week including the 12th of the month. For UI data, it is the certification period. In most States, the reference week for UI certifications is the calendar week including the 12th. Exceptions are States with flexible benefit weeks and New York, whose week is a Monday-through-Sunday week.

Regression A statistical tool which utilizes the relation between two or more variables so that one variable can be predicted from the other(s).

Regression Equations The basic formula for a regression equation is shown below. In this example, the equation has an intercept, B_0, two independent variables, X_1 and X_2, with coefficients B_1 and B_2, respectively. The equation's error term is E.

$$Y = B_0 + B_1 * X_1 + B_2 * X_2 + E$$

Regression Line A regression line is fitted to the points in the scatter plot to summarize the relationship between the variables being studied. When it slopes down (from top left to bottom right), this indicates a negative or inverse relationship between the variables; when it slopes up (from bottom right to top left), a positive or direct relationship is indicated.

Residency Adjustment Factor In order to convert the CES nonfarm job count to a person count by place of residence, the census estimate for an area is used as a base which is then extrapolated by the percent change in the establishment-based employment series. This is mathematically equivalent to multiplying the current establishment-based employment estimate by the ratio of the census to the establishment-based employment estimate for the census reference period. It is derived and used in the preparation of the current Handbook estimates.

Rotation Group A rotation group is one of eight systematic subsamples which comprise the total CPS sample. A rotation group is in the sample for four consecutive months 1 year, leaves the sample during the following eight months, and then returns for the same four calendar months of the next year.

Sample A sample is a subset of a statistical population selected for the purpose of making generalized statements about the whole.

Sample Period The sample period is a period of time which is used to derive coefficients for the regression line. It is also called the "inside sample" period.

Sampling Error Sampling error is the measure of sampling variability, that is, the natural variations that might occur by chance because only a sample of the population is surveyed.

Sample Regression This is a type of regression in which the dependent variable is calculated from a sample survey. Consequently there is an additional error (sampling error) to be considered.

Sampling Ratio The proportion of units needed to be sampled to provide data of a specified level of statistical reliability is the sampling ratio. Sampling ratios vary by cell, depending on the degree of variability of the measured item.

Scatter Plot This is a graph which plots the values of the dependent variable (Y) against the values of one of the independent variable (X). By convention, the "X" variable is plotted against the horizontal scale and the "Y" variable is plotted against the vertical scale.

Seasonal Adjustment Seasonal adjustment of time-series data is done to eliminate the effect of intra-year variations which tend to occur each year in approximately the same manner. Examples of such variations include school terms, holidays, weather patterns, etc.

Series Break An interruption in a time series caused either by a change in definition or in methodology which makes it improper to compare data from after the change with data from before the change.

Signal-Plus-Noise Models These are econometric models used by the LAUS program to produce State labor force statistics. The models measure the true labor force value contained in the monthly CPS estimates (the signal) by extracting the noise associated with CPS sampling error.

Slope The slope is a value that tells how much change in the dependent variable (Y) results from a change in one of the independent variables (X). It is defined as the change in "Y" divided by the change in "X".

Smoothing In the time series regression, one month's data are used in estimating another and the best estimate is made when data from all the other months are incorporated. The process of forward-back-forward model re-estimation is referred to as smoothing because of its impact on monthly estimates. In LAUS, smoothing is part of the annual benchmarking processing to update the model estimates series.

Standard Deviation Standard deviation is a measure of dispersion around the mean value of a population frequently denoted by sigma (s). It is the positive square root of the variance.

Standard Error The term "Standard Error" can be used in many contexts. In general, it refers to the variability of an estimate. In sampling, it usually refers to the confidence interval of the sample estimate—the probability of including the true value with repeated sample. One standard error is about 68 percent confidence; and 1.645 times the standard error is the more commonly used 90 percent confidence. The model estimates also have confidence intervals. These relate to the variability of the estimate relative to the regression line.

Standard Industrial Classification (SIC) This is the statistical classification standard underlying all establishment-based Federal economic statistics identified by industry. The SIC is used to promote the comparability of establishment data describing various facets of the United States economy.

State Employment Security Agency (SESA) A generic name for the State agency usually responsible for the following three activities. (1) The Unemployment Insurance Program which includes UI tax collection, administration, and determination and payment of unemployment benefits. (2) The Employment or Job Service Program

which is an exchange for workers seeking work and employers seeking workers. (3) Research and Analysis which includes collection, analysis, and publication of labor market information.

Statistical Population This is a group of entities or individuals that are of concern to a statistician for a particular investigation. This is sometimes referred to as simply a "population".

Stochastic Stochastic is a term often used to denote the randomness of a variable or process. A stochastic, or random, variable is one whose value changes. In the case of the LAUS regression models, the values of the model variables change from month to month.

Survey The process used to collect data for the analysis of some aspect of a group or area.

Time Series A time series is a consecutive set of observations over a specified period of time.

Time Series Independence A condition present when successive values of a time series are nonrelated or noncorrelated.

Transitional Claim A transitional claim is a new claim filed to request a determination of eligibility and establishment of a new benefit year within an existing spell of unemployment. This is one of three types of initial claims.

Unemployment Compensation for (E)X-Servicemen (UCX) This federal program provides unemployment benefits to ex-servicemen.

Unemployed In the CPS, those individuals considered unemployed must be 16 years of age or older who do not have a job but are available for work and are actively seeking work during the reference week (the week including the 12th of the month). The only exceptions to these criteria are individuals who are waiting to be recalled from a layoff and individuals waiting to report to a new job within 30 days. They are also considered unemployed.

Unemployed Disqualified Unemployed disqualified refers to persons who are able to work and are available for work but are disqualified from receiving benefits for separation issues or other nonmonetary reasons.

Unemployment Compensation for Federal Employees (UCFE) This federal program provides benefits to federal employees.

Unemployment Insurance (UI) Insurance premiums collected by the State and Federal governments from which unemployment compensation is paid.

Unemployment Rate The number of persons unemployed, expressed as a percentage of the civilian labor force.

Variable A variable is an entity that can take on a number of different values. It is frequently denoted by letters such as "X" or "Y". Examples of variables would be CPS unemployment rate and CES employment.

Variable Coefficient Model (VCM) The VCM is a type of sample regression model in which the model's coefficients are allowed to change over time.

Variance Variance is a mathematical measure of the dispersion of the values of a variable around its mean. The variance may arise from a sampling of the population under study, or may just measure the variability of population values around its means. The variance is frequently denoted as sigma squared (s^2).

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