



# How the Nation's Employment and Unemployment Estimates Are Made

Carol Boyd Leon\*

Philip L. Rones *Bureau of Labor Statistics, Office of Employment and Unemployment Statistics*

Every month, like clockwork, newspapers around the country publish a headline such as "Employment Continues to Climb," "Unemployment Falls Sharply," or "Unemployment Rate Reaches Record High." Even "U.S. Employment and Unemployment Picture Unchanged" makes the news.

These stories are based on the Bureau of Labor Statistics' monthly report on the nation's employment situation. The report attracts wide attention among policymakers, researchers, business analysts, the news media, and the public at large because the condition of the nation's job market affects everyone.

The news goes out at 8:30 A.M. (Eastern Time) on the first Friday of each month when the BLS issues "The Employment Situation" news release. For the rest of that day, a staff of about 20 Bureau economists is kept busy pro-

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viding data and insights into the newly released numbers. Calls come from the press, financial institutions, foreign embassies, and a host of other sources. Later that morning, the Commissioner of Labor Statistics appears before the Joint Economic Committee of Congress to tell them more about what happened and to answer their questions as TV cameras roll and reporters take notes.

All this happens only after an involved process of gathering data, reviewing survey responses, transferring the information to computer tapes, creating tables, adjusting the data for seasonal fluctuations, and analyzing the figures to discern important movements and trends. This process, from the collection of the data to their appearance on the morning news, takes less than three weeks.

To obtain the data, the Bureau conducts two separate surveys each month. The survey of employment and unemployment dates from 1940, and estimates of payroll jobs go back to 1915 for some industries. The public may be familiar with the results, but how these estimates are made remains a mystery to most Americans.

## THE CURRENT POPULATION SURVEY

Your home may not have been visited by an interviewer gathering data for the monthly survey of employment and unemployment, as the Census Bureau, which collects the data for the Bureau of Labor Statistics, interviews fewer than 60,000 households each month. It is hardly surprising that most Americans are unaware of the major effort made—through the Current Population Survey (CPS)—to assure that reliable and timely statistics are collected on a round-the-year basis.

Every month (during the week that includes the 19th), interviewers talk with a scientifically selected sample of households to find out how many people live there and how many were in the labor force—that is, were either working or looking for work—during the previous week, the so-called reference week, the week that includes the 12th. The first question the interviewer asks (after preparing or verifying a roster of household members) is "What were you doing most of last week, working or something else?" If "something else" is the response, the interviewer continues: "Did you do any work at all last week, not counting work around the house?" Any work for pay or profit qualifies one as employed.

If no work is reported, the questioning takes a different course: "Have you been looking for work during the past 4 weeks?" "What have you been doing to find work?" If the respondent has made some effort to find a job, he or she is counted as unemployed.

If there is no job search, the CPS classifies the respondent as not being in the labor force. Interviewers never ask directly, "Are you employed or unemployed?" Instead, the responses to the above questions classify the person on the basis of what they are doing rather than how the person categorizes himself or herself. Thus labor force classification is based more on objective measures of activity than on subjective responses.

\*Carol Boyd Leon, formerly an economist with the Bureau of Labor Statistics, is now a free-lance writer in the Washington, D.C., area.

Once the interviewer obtains the basic status, she (most interviewers are women) asks additional questions to learn more about each person. For example, employed persons are asked about the hours they worked, the types of jobs they held and the business or industry they worked in. Job seekers are asked how long they have been looking for work and if they started job hunting because they had lost or quit a job, or for some other reason. Persons not in the labor force are queried about their current desire for a job and their intent to look for one in the future.

In addition to counts of persons employed, unemployed, and not in the labor force, the survey also provides BLS with a host of unemployment rates for specific age/race/sex groups, ratios of employment to population, rates of labor force participation, and literally thousands of other bits of information that tell how many people are working, what they are doing, and how many are looking for a job.

### HOW RELIABLE ARE THE EMPLOYMENT AND UNEMPLOYMENT ESTIMATES?

Although only a very small proportion of the nation's households are interviewed each month, the sample provides reasonably accurate estimates for the nation's entire population aged 16 and over. The accuracy of the data could be improved by greatly expanding the sample—at the limit by undertaking a monthly census of the entire population like that done every 10 years. The costs of doing so, however—in dollars and in respondent burdens—would be prohibitive. The 1990 Census will probably cost over \$1 billion for field operations alone.

Even though the household survey is large enough to ensure adequate reliability, its statistics may differ from those that would be obtained from a complete census. Fortunately we do have some estimates of the accuracy of the CPS.

For example, the overall unemployment rate is generally accurate to within about two-tenths of a percentage point. That means that if the "real" rate for the population were 7.0%, then there is a 90% chance that the results from the survey would fall within the 6.8% to 7.2% range. By comparison, the rate for teenagers, a much smaller group, is accurate to about plus or minus one full percentage point. Because any month's unemployment rate is a statistic subject to error, the difference between two months is also. For a month-to-month change in the unemployment rate to be considered statistically significant, it must be greater than or equal to 0.2 percentage points.

### WHAT ARE THE SAMPLING AND ESTIMATION PROCEDURES?

Households are chosen from 729 sample areas spanning 1,973 counties and independent cities. These sample areas—located in every state plus the District of Columbia—include addresses in large and small cities, suburbs, and rural areas.

In translating survey findings into national estimates, each person interviewed gets a weight equal to the number of people he or she represents; each person represents roughly 1,800 people nationwide. Also, because the characteristics of the people selected for the survey may differ from those of the whole population, the survey estimates are inflated to match updated census totals that reflect the characteristics of the population by age, sex, race, and other factors.

The household at each address in the sample is interviewed for 4 consecutive months, omitted for 8 months, and then interviewed again for the same 4 months of the next year before being dropped from the sample. This means that three-fourths of the sample addresses are the same from month to month and half from year to year. Hence, two goals are accomplished: The 4-8-4 pattern ensures considerable consistency in the sample and no household is too burdened by participation in the survey. (The typical CPS interview takes only 15 or 20 minutes.)

After the Census Bureau collects and tabulates the CPS data, it transfers them to the Bureau of Labor Statistics, which is responsible for analysis and publication of labor market data.

What does the CPS tell us? Among many things, we can learn the unemployment rate for black teenagers, the labor force participation rate for married women ages 25 to 34, the employment-population ratio for men ages 65 to 69, the unemployment rate for workers in the automobile industry, and the number of persons on layoff from construction jobs.

We can also learn such things as how many persons not in the labor force want a job but aren't looking for one because they think they can't find one (so-called discouraged workers), the median number of weeks persons of Hispanic origin have been unemployed, the earnings of women who work in service occupations, and how many families with children have no employed member. Indeed, the CPS generates a wealth of information about the labor force. In addition, special questions supplement the regular questionnaire in some months. Every March, for example, the CPS asks about work during the prior calendar year. Other CPS supplements are one-time attempts to obtain data on current topics, such as worker displacement or job training.

Policy needs change over time, creating a need for special statistics, such as data on Vietnam-Era veterans, discouraged workers, or the comparative earnings of men and women. Nevertheless, the basic concepts and definitions used in the CPS have stayed essentially the same. There is also a fierce insistence that the statistics be presented in an objective, factual way that doesn't impart a political view. Everyone at the Bureau of Labor Statistics, from the most junior analyst to the Commissioner, believes that he or she can be of most service when making a straightforward presentation of data that allows policymakers to make an informed decision. Although informed people often disagree about what the numbers mean, most parties appreciate the Bureau's role as an impartial reporter, free from outside political pressures.

It surprises some that the release of rather dry statistics can be the source of so much controversy. We are all sure that unemployment is bad and employment is good. Doesn't publication itself serve to show what is right and wrong with the labor market?

Not really. For instance, economists agree that some level of unemployment is the normal, even healthy, result of people entering or reentering the labor force or voluntarily leaving one job to look for another one. But experts do not agree on how high that healthy level is.

Certainly, unemployment stood at a shockingly high level during the Great Depression, and many suffered severe hardships on account of it. Even in relatively good times, some families lose their homes because a lost job means the mortgage can't be paid. But not every unemployed worker suffers to the same degree. For instance, a student from a comfortable family who casually looks for a job to provide some spending money counts as unemployed just as does a single parent who loses the job that paid the rent. The statistics alone cannot settle policy questions, but they do provide basic facts needed before useful debate can take place.

### WHAT ARE THE OFFICIAL DEFINITIONS OF EMPLOYMENT AND UNEMPLOYMENT?

Labor force definitions have been modified, but not substantially altered, since the inception of the CPS. Since 1967, the following basic definitions have been used:

*Employed* persons are those who did any work for pay or profit during the survey week or who worked at least 15 hours as unpaid workers in a family-owned business. Persons temporarily absent from work because of illness, vacation, or other such reasons are also considered employed.

*Unemployed* persons are those who had no job at all during the survey week, were available for work, and had made specific efforts to find a job during the prior four weeks. These efforts may have been formal, such as registering with an employment agency or interviewing for a job opening, or rather informal, such as checking with friends or relatives about available work. The Bureau also counts as unemployed persons those waiting to be recalled to a job after being laid off or waiting to start a new job within 30 days.

The CPS unemployment data are not counts of persons receiving unemployment compensation. Although the Department of Labor keeps track of unemployment insurance claims, the so-called insured unemployed comprise less than one-third of the total unemployed. The main reason this share is so low is that many of the unemployed have never held a job or are reentering the labor force after a period of absence. Others are not receiving unemployment compensation because they lost a job that was not covered by unemployment insurance, they had not worked long enough at a covered job, or they had been jobless so long that they exhausted their benefits.

The *labor force* is the sum of the employed and the unemployed. Of the 180 million people age 16 and over in 1986, about 118 million, or 65%, were in the labor force.

The *unemployment rate* is the number of unemployed persons as a percent of the labor force. For example, 7 million unemployed out of a labor force of 100 million yields an unemployment rate of 7.0%. What we hear most about is the unemployment rate, not the actual numbers of employed or unemployed. Indeed, this is one of the most publicized statistics in the country.

In calculating the civilian unemployment rate, only civilians are taken into account, while members of the stateside Armed Forces are included as employed in the rate for the total labor force. The civilian unemployment rate is typically one-tenth of a percentage point higher. The civilian unemployment rate has been as high as 25% and as low as 1.2%.

The Bureau of Labor Statistics recognizes that some believe that the official definition of unemployment is too broad while others think it is too restrictive. To take into account such views, the Bureau publishes rates based on varying definitions of unemployment and the labor force. One includes only those unemployed 15 weeks or longer. At the other extreme, one includes not only the total civilian unemployed but also discouraged workers and persons working part-time for economic reasons.

The *labor force participation rates* tell us what proportion of the working-age population is in the labor force. That rate has grown slowly but steadily since the mid-1960s, primarily because the rapid increase in paid employment among women has more than offset a growing trend among men to retire earlier. On average, about 76% of men and 55% of women were labor force participants in 1986.

The *employment-population ratio* indicates the proportion of the working-age population that is employed. Except during the sharpest business downturns, employment increases. Looking at employment growth in relation to population growth puts changes in the number of workers into a more meaningful perspective.

Economists use these ratios and other analytical tools to examine the current U.S. labor market and labor force trends. The Bureau of Labor Statistics alone has issued some 700 articles and special studies analyzing CPS data over the past 25 years. These cover many diverse subjects and have titles such as "Most Women Who Maintain Families Receive Poor Job Market Returns," "One-Fourth of the Adult Labor Force Are College Graduates," and "Have Employment Patterns in Recessions Changed?"

### THE CURRENT EMPLOYMENT STATISTICS PROGRAM

Given the amount of information available from the CPS, what is left for the Current Employment Statistics (CES) program to measure? The CES provides a vast array of information on employment, hours, and earnings by detailed industry and geographic location and is an important building block in national income estimates, the industrial production index, and the leading economic indicators. (See the essay by Moore on economic indicators.)

In contrast to the CPS, which is a survey of households, the CES is a survey of establishments. Data for the CES are collected from business payrolls by the Bureau of Labor Statistics in cooperation with state agencies. Much larger than the household survey, the CES sample includes almost 300,000 establishments employing more than 38 million people. Indeed, the CES sample is the largest monthly sampling operation in the field of social and economic statistics.

To collect CES data, state agencies mail forms to the sample establishments and review the returns. The states use the data to prepare state and area employment estimates and also transmit the reported data to BLS in Washington, D.C., for use in preparing national statistics. Each month, the same form is shuttled back to the establishments so that the next month's data can be entered below those from previous months. Firms report the total number of workers and the number of women in their establishments along with employment, payroll, and work hours of production or nonsupervisory employees.

The CES asks about employees on the payroll during the *pay period* that includes the 12th of the month, much like the household survey's reference to the *week* that includes the 12th. But the CES and the CPS do differ somewhat in their concepts. The establishment data exclude workers in agriculture, as well as those who are self-employed. Therefore the CES job count is smaller than "total employment" from the CPS.

The payroll data are tabulated by industry. Goods-producing industries are comprised of manufacturing, mining, and construction. The service-producing industries include transportation and public utilities; wholesale trade; retail trade; finance, insurance, and real estate; services; and government.

The scope of the establishment survey allows the Bureau of Labor Statistics to estimate employment for very detailed industries. For example, under the durable-goods manufacturing heading we find primary-metal industries, which are subdivided into five more detailed industries. Even these components are further divided to the point of differentiating between gray-iron foundries and malleable-iron foundries. We also learn how many workers in these foundries are production workers, their average weekly hours, overtime, and hourly and weekly earnings.

Why are two such complex surveys used to study the labor market? Simple. The strengths of one survey are generally the other's weaknesses. For example, the CES provides data on job trends in hundreds of detailed industries, but says little about the characteristics of the workers and nothing about people who are not working. The CPS, in contrast, is less detailed regarding industries, but is full of details about people, whether employed, unemployed, or not in the labor force.

### WHAT SEASONAL ADJUSTMENT IS ALL ABOUT

Let's say you heard that employment—as measured by both surveys—declined last June. How could this be? Even if the economy were weak, you know that more people usually work in June than in May. After all, students out of school

for the summer and new graduates flood the labor force and a good proportion of them find jobs. The unexpected news is the result of a procedure called *seasonal adjustment*. Seasonal variation in employment can be very large. For many data series, seasonality accounts for the bulk of the month-to-month changes. For example, construction employment always drops during the cold winter months, while retail trade jobs pick up during the Christmas season. The labor force expands each June, and agricultural employment grows at harvest times. Seasonal adjustment, essentially an averaging technique based on past experience, removes these seasonal changes from the data. Employment levels declining between May and June, "after seasonal adjustment," often indicate that the sharp increase that typically occurs during that period was smaller than usual. Data changes after seasonal adjustment are true economic changes, not simply those that occur each year at about the same time.

Without seasonal adjustment, it is difficult to determine the underlying trends in a series. Downturns or upswings in the business cycle are more readily spotted after seasonal adjustment, and long-term secular trends—such as the growth in employment over time—are more apparent.

Information from the government's two major employment surveys makes headlines, spurs debates, and excites scholars, politicians, and the business community. How they use the data is entirely up to them, but making sure that the data are timely and accurate is the job of the government. For without these surveys, our nation would know much less about how well or how poorly its economy is functioning.

### PROBLEMS

1. Explain why the Census interviewer asks a series of questions about an individual's labor force activity rather than just asking "Are you unemployed?"
2. Why aren't the same households interviewed each month? Why aren't all new households interviewed each month?
3. Is unemployment bad? How can the "official" definition of unemployment be made broader or narrower to result in either a higher or lower jobless rate?
4. Why are many labor force indicators expressed as ratios, such as the unemployment rate or the employment-to-population ratio?
5. Why can't the government get a complete count of the unemployed from administrative records of the unemployment compensation system or by asking employers?
6. Why does the establishment survey yield more accurate estimates than does the household survey for specific industries?

7. In what ways do the employment estimates from the establishment and household surveys differ?
8. Why are employment and unemployment data seasonally adjusted? Why aren't the unadjusted data used to analyze over-the-month changes?
9. Is the figure reported for unemployment among black teenagers just as accurate, more accurate, or less accurate than that for total unemployment? Why?
10. Why does the Bureau of Labor Statistics call the overall unemployment rate "about unchanged" when it drops from 7.0% to 6.9%?

## REFERENCES

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