# Employment and unemployment: the doughnut or the hole?

*A discussion of the relative merits of various types of employment and unemployment rates as measures of the economy's performance and as cyclical indicators*

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The Employment Act of 1946, one of the landmark pieces of legislation in the history of our country, specifically provides that ". . . it is the continuing policy and responsibility of the Federal Government to use all practicable means . . . for creating and maintaining . . . conditions under which there will be afforded useful employment opportunities . . . for those able, willing, and seeking to work, and to promote maximum employment, production, and purchasing power." Among these goals, the one which has probably received the greatest attention over the three decades since the passage of this legislation is that of maintaining maximum employment. This attention has been magnified in the past year as unemployment rose to record levels last spring before showing some improvement in recent months.

The recent recession has also heightened public awareness of the fact that, while there has been widespread agreement on the need for full employment, there has been little agreement on just what full employment is, how unemployment should be defined, or on what specific data should be used in judging the performance of the economy. There is even disagreement on whether the focus should be on the employment or unemployment statistics. The media —as well as the professional literature—have focused mostly on unemployment. This has led analysts who believe the emphasis should be placed on employment to entitle the debate as "the doughnut or the hole?" [1]

More specifically, it is the problem of measuring employment (the doughnut) and unemployment (the hole)—and the use of these measures in assessing economic performance—with which this article is concerned. Unemployment and the problems associated with its measurement are discussed first, because this area has received the most attention over the years; a discussion of measures of employment, which has recently received more intensive study and analysis, follows.

### Measures of unemployment

While both the developers and users of labor force statistics agree that no single unemployment measure can serve all the purposes for which such data are needed, there is much diversity of opinion about the most appropriate overall measure. The reason is that the unemployment figures are used by many persons for different purposes. Many use them to assess cur-

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rent conditions and short-term prospects, that is, as a cyclical indicator. Others use the data as a measure of how well the economy relieves the economic and psychological hardships experienced by jobseekers. But judgments as to what constitutes hardship arising from unemployment vary greatly among different political, social, and economic groups. Some view economic hardship in terms of the three basic elements of food, clothing, and shelter; others consider it in terms of relative standing in the income distribution, with all persons who fall in, say, the lowest one-fifth of the range classified as experiencing economic hardship. Still others consider those unemployed with adequate income from sources other than employment to be experiencing psychological hardship if they cannot find a job and, therefore, are denied an opportunity for a fuller life in some sense. Further, many believe long spells of unemployment for teenagers to be especially damaging to their development as responsible members of society.

This problem should also be approached from the viewpoint of economists, who are concerned with the overall performance of our economy in achieving vigorous economic growth. Looked at in this way, a measure which is geared strictly to economic hardship will necessarily be too narrowly based to give a good picture of the total, immediately available labor supply. Conversely, a measure which attempts to reflect the sum total of the underutilization of all potential manpower resources will undoubtedly include many persons with fairly comfortable levels of living.

Thus, no single way of measuring unemployment can satisfy all analytical or ideological interests. To meet the multiple needs of data users, the Bureau of Labor Statistics regularly publishes a wide variety of unemployment rates and indicators in its Employment Situation press release and the monthly publication, *Employment and Earnings*. It also publishes separate data on persons involuntarily working less than full time and on discouraged workers, which can be added to the figures on the unemployed by those who wish to do so. In general, it can be said that these published statistics are not specifically designed to measure economic hardship, but rather derive from an activity concept in which persons working are considered to be employed, persons looking for work are unemployed, and persons doing neither are not in the labor force at all. Finally, a distinction must be made between the use of the various unemployment series as cyclical indicators and as measures of the economy's performance.

Table 1 presents a grouping of unemployment indicators, or categories of the unemployed, identified by the symbols U–1 through U–7, which carries the process of presenting the unemployment statistics one step further. This relatively small array of unemployment measures illustrates a range of value judgments on the hardship that is experienced by the unemployed, going from a very narrow to a very broad view.[2] Others could, of course, make their own selection of such indicators. The data compiled by the BLS make it possible to construct a very large number of different measures of unemployment. The ones presented here were chosen because they are representative of differing bodies of

**Table 1. Range of unemployment indicators reflecting value judgments about significance of unemployment, 1974–75**

[Percent]

| U–1 through U–7 | Annual averages | | Seasonally adjusted data | |
|---|---|---|---|---|
| | 1974 | 1975 | October 1973 (cyclical low month) | May 1975 (cyclical high month) |
| U–1—Persons unemployed 15 weeks or longer as a percent of total civilian labor force | 1.0 | 2.7 | 0.9 | 2.7 |
| U–2—Job losers as a percent of civilian labor force | 2.4 | 4.7 | 1.7 | 5.1 |
| U–3—Unemployed household heads as a percent of the household head labor force | 3.3 | 5.8 | 2.7 | 6.1 |
| U–4—Unemployed full-time job seekers as a percent of the full-time labor force (including those employed part time for economic reasons) | 5.1 | 8.1 | 4.1 | 8.5 |
| U–5—Total unemployed as a percent of civilian labor force (official measure) | 5.6 | 8.5 | 4.7 | 8.9 |
| U–6—Total full-time job seekers plus half part-time job seekers plus half total on part time for economic reasons as a percent of civilian labor force less half part-time labor force | 6.9 | 10.3 | 5.9 | 10.9 |
| U–7—Total full-time job seekers plus half part-time job seekers plus half total on part time for economic reasons plus discouraged workers as a percent of civilian labor force plus discouraged workers less half of part-time labor force | 7.7 | 11.5 | 6.6 | 12.0 |

NOTE: Reflects recent revisions of basic data, including seasonal experience through December 1975.

opinion about the meaning and measurement of unemployment; because they are meaningful and useful measures in their own right; and because they can generally be ranked along a scale from low to high.

No approval or disapproval of the value judgments implicit in the selection of these series is intended here. All series are regularly published by the BLS with the exception of U–6 and U–7, and in these cases the components are published, so they can easily be calculated by anyone who wishes to do so.

The first series, U–1, is the number of persons unemployed 15 weeks or longer as a percent of the civilian labor force. The rationale behind the selection of this series is the belief that unemployment is a more severe problem when it has lasted long enough to cause substantial financial hardship. The assumption is that shorter periods can be handled by unemployment compensation plus the use of savings and, in some cases, assistance from other family members.

The second series, U–2, is the number of persons who lost their last jobs, taken as a percent of the civilian labor force. The implication of this series is that unemployment is more serious for experienced workers, for whom the loss of a job leads to significantly lower income. Here unemployment which accompanies entry or reentry into the labor force and voluntary job-leaving would appear to be considered an inevitable but less serious matter.

U–3 is the number of household heads unemployed as a percent of all household heads in the civilian labor force. In this case, it is assumed that unemployment is more serious when it affects breadwinners. Other jobseekers, secondary workers, would presumably be supported by the heads of households while seeking employment.

U–4 is the number of unemployed persons seeking full-time jobs, as a percent of all those in the full-time labor force (including those employed part time for economic reasons). The assumption here is that a measure which is limited to those unemployed who are strongly attached to the labor force is more meaningful than one which also includes more casual and marginally attached workers. Unemployment is likely to be more serious for full-time than for part-time workers because the former are more likely to be breadwinners, will lose more income through inability to find work, and are more committed to the labor force.

U–5 is the official, regularly published unemployment rate for all workers age 16 years and over. This series represents the total number of persons not working but available for and seeking work, as a percent of the civilian labor force. It can be viewed as the base series from which each of the other six series discussed in this article is constructed through the addition or subtraction of various labor force and unemployment components. In a sense, this series reflects a consensus among the many different user groups; it involves no value judgments regarding a person's family or marital status, relative need for work, or personal characteristics. It only requires that jobseeking take place. It has had widespread support from various study groups and was recommended by the Committee to Appraise Employment and Unemployment Statistics (Gordon Committee) established by President Kennedy in 1961.

U–6 includes, as a percent of the labor force, the number of unemployed persons seeking full-time work, plus one-half of the number of unemployed persons seeking part-time work and one-half of the number of those involuntarily on part-time work schedules but desiring full-time employment (with the part-time labor force given only half weight). The rationale behind this series is that involuntary part-time workers should be counted as at least partially unemployed, and their loss of working time should be reflected in the overall measure. Similarly, it is felt that unemployed persons seeking only part-time work should be given only half weight because their employed counterparts—those employed part time voluntarily—work about half a full-time workweek; the voluntary part-time employed are also given half weight. (This indicator is comparable to the "percent of labor force time lost" series, which *is* regularly published.

The final series, U–7, is the same as U–6 except that the number of discouraged workers is added to both the unemployed and labor force components. This series is based on the idea that the situation of discouraged workers is essentially the same as that of the unemployed—they are jobless, want work, and presumably are available for work. The only difference is that they are not looking for jobs because they believe no work is available for them. It should be noted, however, that specific information regarding their work history and prior job-search activity is not now collected, and many of them could be reflecting only a casual interest in entering the labor market or maintaining an unrealistic desire for a prestigious job paying a high salary.

As can be seen from the foregoing discussion, the data available from the BLS allow interested persons to construct unemployment series that range from those using very narrow definitions of unemployment to those based on extremely broad criteria. The series selected depends largely on the particular use to which one wishes to put the data, and on the attitudes held concerning the nature and severity of unemployment.

In table 1, the 1974 and 1975 annual average values for each of the series U–1 through U–7 are shown along with the values for the cyclical high and low months of the recent recession. In 1975, as the table indicates, the series ranged from a low value of 2.7 for series U–1 to a high of 11.5 for series U–7.

Each of the series is also plotted on chart 1 on a quarterly basis from 1953, or the first year the data for a particular series are available, through the fourth quarter of 1975. The chart clearly illustrates the successively higher percentages of unemployment reflected by each of the series.

**Measures of employment**

We now turn to the employment statistics, to consider two alternative employment measures and the information that they provide for economic analysis and interpretation.

First, it should be pointed out that the employment figures have numerous statistical advantages over the unemployment figures.

Under the survey procedures, every person 16 years or over in the civilian noninstitutional population is classified as employed, unemployed, or not in the labor force. With few exceptions, a person who during the survey week did any work at all for which he or she was paid is considered to be employed. Persons are unemployed if they did not work at all during the survey week, were available for work, and actively tried to find work during the past 4 weeks. All others are classified as not in the labor force.

Employment, therefore, is a firmer and more objective concept than unemployment; consequently, it is easier to define and measure. In measuring unemployment, uncertainties can arise, such as in the determination of whether jobless persons are actively seeking work or whether they are currently available for work. The identification of employment, on the other hand, is relatively straightforward.

Next, employment, a much larger figure than unemployment, is subject to a relatively smaller measurement error. To illustrate, in the fourth quarter of 1975 there were 85.4 million employed and 7.8 million unemployed.

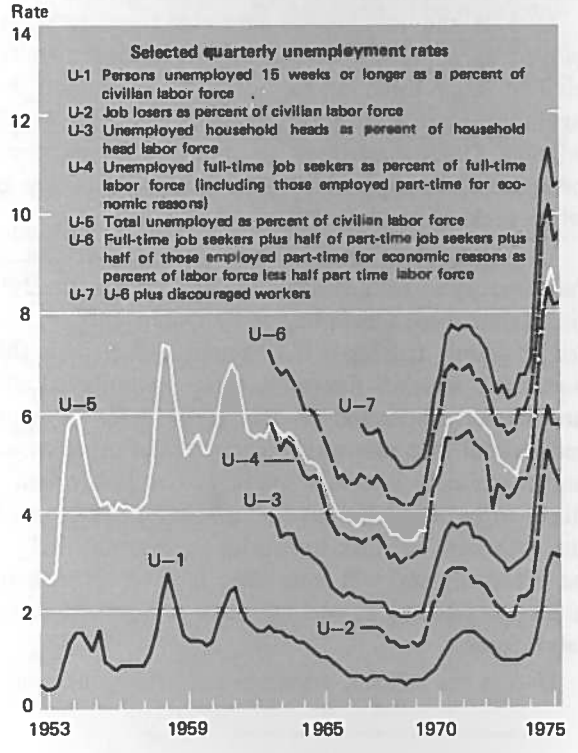
Additionally, the seasonal adjustment of employment is more accurate than that of unemployment. The reason is that seasonal changes in total employment are relatively small, as are changes in the level from one period to another. In contrast, unemployment is subject to large seasonal swings as well as dramatic changes in level over short periods of time. As a result, the multiplicative seasonal adjustment method, which BLS uses and which has almost always worked well for economic series, introduces distortions into the seasonally adjusted unemployment series when the level changes dramatically. There are no similar problems in adjusting the employment series.

The employment series is not without statistical and definitional problems, however. Some analysts believe allowances should be made for part-time workers, underutilized workers, and workers with earnings below the poverty threshold.

*Employment-labor force ratio.* The first employment measure to be considered is the employment-labor

Chart 1.

**Unemployment indicators, 1953 through 1975**




NOTE: Trend lines do not reflect recent revisions in basic data.

force ratio, or the percentage of the civilian labor force that is employed. Thus, it is simply the complement of the familiar total unemployment rate. It provides a measure of actual employment as a percentage of that part of the population which has met the market test of working or actively seeking work.

Despite the use of a more solid figure in the numerator, the advantages of the employment-labor force ratio over the unemployment rate are dubious. The major public concern lies with trends in unemployment. The reason that a series such as the jobless rate is constructed in the first place is to focus on a problem. This is similarly true for statistics on illness, crime, poverty, and other areas. Thus, public attention has not been directed to the percent of people in good health, of those who have escaped crime, or of those who are above the poverty threshold. Rather, attention is centered on the percent of persons who are ill, who have been victims of crime, or who have incomes below the poverty level. And such statistical series are compiled to provide data for those concerned with social or economic problems.

Although BLS receives occasional requests that the employment-labor force ratio be featured in press releases and public discussions, this measure has not received widespread acceptance for use as an economic or social indicator. The ratio itself is not regularly published by the Bureau of Labor Statistics, but it can easily be calculated by subtracting the unemployment rate from 100.

*Employment-population ratio.* Another employment measure, and one which seems to be more useful than the employment-labor force ratio, is the employment-population ratio. It is derived by dividing the total civilian employment by the civilian noninstitutional population age 16 years and over.[3] It is a measure of employment as a percentage of the population, which is the group that is available for work in the broadest sense. This kind of measure was suggested to BLS in March 1970 by Professor Milton Friedman of the University of Chicago and had been used by some labor market analysts during the previous decade.[4] It has been published by the BLS in *Employment and Earnings* on a quarterly basis since April 1973. Monthly data are published in that periodical for the total employment-population ratio only, but the data needed to calculate the major age–sex ratios are also published there. All of these data are also published quarterly in the BLS press release, Labor Force Developments. (See chart 2.)

For certain purposes of economic analysis, the employment-population ratio may provide a better measure of labor market conditions than either the unemployment or employment rate, which use the civilian labor force as the base. The reason is that the labor force itself may expand or contract in response to changes in the pace of economic activity, in contrast to the greater stability of the population.

To the extent that persons leave the labor force during an economic decline—that is, lose their jobs and do not seek others—the reduction in employment will exceed the increase in unemployment. Similarly, if there is a rapid growth in the labor force during the expansionary phase of the business cycle, employment will increase more than unemployment will decline—that is, persons enter and reenter the job market at the same time that many job losers return to work. The potential expansion and contraction of the labor force is illustrated by the data which show that more than 10 million out of a total of about 59 million persons not in the labor force during the fourth quarter of 1975 worked at some time during the preceding 12 months. Most of those leaving the labor force were housewives and students, who wanted only seasonal or other temporary work, and older persons who retired or left because of disability. About 700,000 workers were squeezed out because of slack in the economy; about two-thirds of them were women.

Further perspective on the potential expansion of the labor supply is provided by the data on discouraged workers. In the fourth quarter of 1975, about 1 million persons reported that they wanted jobs but did not seek them because of discouragement over job prospects. Two-thirds of this group were women. A larger group, 4.3 million persons, reported that they wanted jobs but did not look for them for a variety of reasons, such as school attendance, family responsibilities, or illness. Some of these nonparticipants might be drawn into the labor force if jobs suddenly became readily available, even at a relatively low wage. These groups not in the labor force represent a reserve which could substantially shift the size of the labor force under changing economic conditions—for example, in the event of a Federal job guarantee program or the elimination or reduction of the Federal minimum wage for teenagers.

The behavior of the labor force in the current

recovery appears to be somewhat different from that of earlier recoveries. In the past, the labor force has grown very little during the first 9 months or so of cyclical recoveries. During the first 9 months of the current recovery (dating from March 1975), labor force growth has been substantial—1.2 million, compared with the median path of virtually no growth in prior recessions. There are several plausible explanations for the larger than usual cyclical growth in the labor force during 1975. According to one theory, it reflects the changing role of women in society; in fact, adult women have accounted for about half the above-normal cyclical growth this year. Another hypothesis is that the combination of inflation and unemployment has put severe financial pressure on many families and induced an unusually large number of family members to seek jobs. Still a third possible reason advanced is that some people who otherwise might have left the labor force may be staying in because of the extension of unemployment insurance benefits. Eligibility for these payments requires the beneficiary to be seeking work. In any case, and for various reasons, we have seen an unusual cyclical growth in the labor force during the recovery in 1975.

Thus, while the unemployment rate is potentially subject to wide variations as a result of special developments leading to growth or contraction in the labor force, the employment-population ratio includes a more stable base for a measure of labor market activity, one that is undisturbed by the shifts of workers into or out of this labor force.

There are measurement problems in estimating monthly population totals, but these are relatively minor, especially for age groups 16 years and over. A more serious problem is that there are no comparable population figures upon which to base trends in full- or part-time jobs, as well as in employment by occupation or industry.

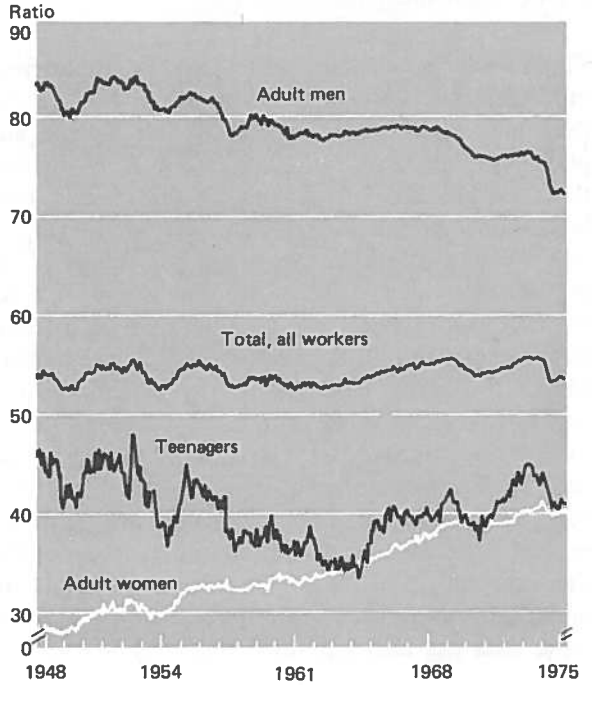
Since about 1948, the employment-population ratio appears to have held about steady, except for a slight upward tilt from 1970 to 1974. (See chart 2.) However, this overall trend masks important changes in the age-sex composition of the ratio over this period. The ratio for adult men has trended gradually downward, primarily in line with increasingly early retirement. On the other hand, there has been a pronounced secular increase in the ratio for adult women over this period. Teenagers showed a dual pattern over the period, as their ratio declined between 1948 and 1964 and rose in the subsequent decade. Trends in an aggregate, made up of components which are moving in different directions, are difficult to interpret. Furthermore, aggregate employment is a simplistic measure which does not take into account variations in skills, earnings, and hours of work. Hours of work may be especially important in this context in view of the increasing proportion of part-time workers in the labor force over the last two decades. A more sophisticated measure, taking such factors into account, might reveal a different trend.

Like other economic indicators, the employment-population ratio should be used in conjunction with the broad range of indicators of labor market activity currently available in order to develop a balanced and accurate picture of actual labor market conditions. It should be noted, for example, that an expansion in the labor force could result in an increase in both the employment-population ratio and the unemployment rate. The two measures, examined together, can be more revealing of underlying labor market developments than can either measure by itself.

It is important, as it is in assessing any economic

Chart 2.

**Employment-population ratio by age and sex, seasonally adjusted, 1948-75**



indicator, to be wary of using *one* number without any breakdowns, as has been done by some advocates of the employment-population ratio. The BLS has repeatedly stressed in the analysis of its unemployment statistics the importance of using the wide range of detail available in order to make a sound judgment of what the underlying economic conditions are. It is equally important that this be done with the employment-population ratio. Finally, it is important to continue research into the historical and current behavior of this ratio and its many components. The Bureau of Labor Statistics will try to do further research on this subject, within the limits of our research resources, and we encourage others outside the Bureau to do further work in this area as well.

**Ratio and unemployment rate compared**

It is useful to distinguish between a "cyclical indicator" and a "measure of performance," as already noted in the opening section on unemployment. A cyclical indicator shows what stage of the business cycle the economy is in or what stage it is likely to be in soon: Thus, "coincident" indicators describe the current cyclical stage, and "leading" indicators, the stage that is likely to be reached in the period immediately ahead. The classification of economic indicators according to the sequence in which they move over the business cycle can be carried out in a reasonably objective way. On the other hand, measures of performance of the American economy reflect value judgments on the goals of economic policy—for example, high employment (or low unemployment) and stable prices. The distinction between cyclical indicators and measures of performance is emphasized by the fact that neither the unemployment rate nor the Consumer Price Index, two principal measures of economic performance, are included in the new National Bureau of Economic Research (NBER) short list of cyclical indicators. (It is also to be noted that the new NBER short list omits real gross national product (GNP), the most comprehensive measure of economic output and one of the most important measures of economic performance, because it is not available monthly.)

In its assessment of cyclical indicators, the NBER has devised a method of assigning to them numerical scores, or weights, ranging from 0 to 100. The scoring plan covers six major elements: economic significance, statistical adequacy, historical conformity to business cycles, cyclical timing record, smoothness, and promptness of publication. The ratings throw into clearer perspective the characteristic behavior and limitations of each indicator as a tool in short-term economic forecasting.

When the employment-population ratio is tested by these standards, it comes out with a score of 76, compared with 87 scored by the top cyclical indicator, nonagricultural payroll employment. The principal reason for its lower score is that the employment-population ratio has a poor cyclical timing record at business cycle peaks. Consequently, the employment-population ratio could not be classified as leading, coincident, or lagging at business cycle peaks, and it lagged at business cycle troughs. In addition, this series is fairly erratic over the short-run and, therefore, receives a relatively low score for smoothness. For these reasons, the employment-population ratio did not qualify for inclusion on the NBER short list of cyclical indicators. The total unemployment rate received a slightly higher score—78—but did not qualify for the new short list because of differential timing at peaks (led) and at troughs (lagged). While neither the unemployment rate nor the employment-population ratio was selected for the new NBER short list, they both scored fairly high. The unemployment rate, in particular, must be rated as a good cyclical indicator. If the fact that

**Table 2. Cyclical trends in the unemployment rate and the employment-population ratio since 1945**

| Business cycle dates (trough to trough) | Duration (months) | Unemployment rate | | | Employment-population ratio | | |
|---|---|---|---|---|---|---|---|
| | | Cyclical average | Cyclical high (3-month average) | Cyclical low (3-month average) | Cyclical average | Cyclical high (3-month average) | Cyclical low (3-month average) |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| October 1945–October 1949[1] | 48 | 4.7 | 7.0 | ([2]) | 56.1 | 56.9 | 55.3 |
| October 1949–August 1954 | 54 | 4.0 | 5.9 | 2.5 | 56.7 | 57.9 | 55.1 |
| August 1954–April 1958 | 44 | 4.6 | 7.4 | 3.8 | 56.8 | 57.7 | 55.3 |
| April 1958–February 1961 | 34 | 5.9 | 7.0 | 5.1 | 55.9 | 56.4 | 55.2 |
| February 1961–November 1970 | 117 | 4.7 | 6.0 | 3.4 | 56.5 | 58.0 | 56.5 |
| November 1970–March 1975 | 52 | 5.6 | 8.9 | 4.7 | 57.2 | 58.1 | 55.9 |

[1] Data are not available prior to January 1948; therefore, averages are computed for the period January 1948 to October 1949.

[2] Not available.

NOTE: The high and low dates used to compute the values shown in cols. (4), (5), (7), and (8) are those for the specific series rather than the general business cycle turning dates designated by National Bureau of Economic Research. The 3-month average is the mean of the high or low month, the month preceding the high or low month, and the month following the high or low month.

it leads at peaks and lags at troughs is borne in mind, it can be put to good use in cyclical analysis.

The unemployment rate and the employment-population ratio must both receive high ratings as measures of performance (along with real GNP and the Consumer Price Index). With this standard in mind, it should be noted that the unemployment rate reached a very high level over the course of the most recent business cycle and attained a postwar record during the 1974–75 recession. While the employment-population ratio showed a sharp drop during the recent recession, it had also indicated prior to the downturn that a slightly larger percentage of the U.S. population has been working during the past 5 years or so—the most current complete cycle—than in previous postwar cycles. (See table 2 and chart 2.) Further, the average for the full 1970–75 business cycle is higher than for any previous business cycle. Thus, in terms of the goal of promoting maximum employment, the employment-population ratio would appear to give a higher rating with respect to the performance of the American economy during the 1970's than the unemployment rate.

How can these apparently contradictory trends be explained? The answer appears to be that there are changes in the labor force participation rate—a greater percentage of the population wants to work than in the past. Thus, a greater percentage of the population is in the labor force, both as employed and also as unemployed.

For the present, we can say that the employment-population ratio and the unemployment rate are both useful cyclical indicators, though neither ranks among the very best. However, both measures rank close to the top as measures of performance. Both illuminate different aspects of labor market conditions, and both are necessary for a balanced view of the overall employment situation. Thus, I would say the answer to the question, "the doughnut or the hole?" is the doughnut *and* the hole. □

———*FOOTNOTES*———

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[1] See, for example, the remarks by former Commissioner of Labor Statistics Geoffrey H. Moore in "A Measuring Stick of Employment," *The Wall Street Journal,* May 9, 1975; in "On the Reliability of Employment Figures," a letter to the editor of *The Washington Post,* July 25, 1975; and in "The Numbers Aren't Everything," *The New York Times,* Oct. 2, 1975. See also the analysis by Irwin L. Kellner, vice president and economist of the Manufacturers Hanover Trust Co., "Counting the Employed, not the Unemployed," *The New York Times,* Oct. 26, 1975.

[2] An array of unemployment indicators similar to the M–1 through M–7 series used by the Federal Reserve to describe successively more comprehensive definitions of the money supply was suggested to the author by Dr. Otto Orenstein of the Hawaiian Telephone Co. in Honolulu. The selection of series U–1 through U–7 included in the list was made by the BLS. While this list uses symbols for the unemployment series analogous to those used by the Federal Reserve, with each higher numbered series representing a slightly higher level of unemployment, it does not have the elegant property of representing successively broader definitions of unemployment compiled by adding groups at each higher level.

[3] The Bureau of Labor Statistics excludes the Armed Forces figures from both the employment and population series. However, the data regularly published in *Employment and Earnings* enable analysts to compute an employment-population ratio in which the Armed Forces are included in the employment total as well as in the population figure if they so desire.

[4] A letter to Commissioner of Labor Statistics Geoffrey H. Moore from Professor Milton Friedman of the University of Chicago, dated Mar. 9, 1970. There were numerous earlier uses of the employment-population ratio. For example, see T. Dernburg and K. Strand, "Hidden Unemployment, 1953–62," *American Economic Review,* March 1966, pp. 71–95; Jacob Mincer, "Labor-Force Participation and Unemployment: A Review of Recent Evidence," in Robert A. Gordon and Margaret S. Gordon, eds., *Prosperity and Unemployment* (New York, John Wiley & Sons, 1966), ch. 3; K. Strand and T. Dernburg, "Cyclical Variation in Civilian Labor Force Participation," *Review of Economics and Statistics,* November 1964, pp. 378–91; Alfred Tella, "The Relation of Labor Force to Employment," *Industrial and Labor Relations Review,* April 1964, pp. 454–69; and Alfred Tella, "Labor Force Sensitivity to Employment by Age, Sex," *Industrial Relations,* February 1965, pp. 69–83.