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## Measures of Labor Underutilization from the Current Population Survey

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It is estimated that in 1933, at the depth of the Great Depression, about 13 million persons in the U.S. were unemployed, which translates into an unemployment rate of about 25 percent.<sup>1</sup> However, those estimates were not available at the time. Throughout the Great Depression, there was little information on the extent of unemployment in the country. More important, there was no good way to assess whether the situation was getting better or worse. The wealth of timely statistical information on the labor market that we now take for granted simply didn't exist.

Throughout the 1930s, researchers grappled with the issue of how to measure unemployment. To begin with, there wasn't agreement on how to conceptualize or define the condition. Simply asking those out of work if they "wanted" work or if they were "able" or "willing" to work proved to be too subjective to serve as unemployment criteria. At the same time, attempts to gauge the number of jobless by looking at declines in employment or counting the registrations at public employment offices were found to be incomplete.<sup>2</sup>

Gathering data on the unemployed proved equally challenging. Efforts to enumerate all unemployed persons (i.e., a complete census) were cumbersome and costly.

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Moreover, the information would be out of date by the time it was collected and processed, and therefore not very useful for conducting current labor market analysis or developing national policies to combat the unemployment problem.

By the end of the 1930s, research had led to two major breakthroughs. First, the activity concept was developed as a means of determining a person's employment status. This concept paved the way for a more objective, and hence more widely accepted, definition of unemployment. Rather than base unemployment estimates on highly subjective criteria such as whether or not a person out of work merely wanted a job, the activity concept used information on a person's *actions* to determine his or her labor force status. Survey questions were designed to determine one's labor market activity during a prescribed time period, and these questions were administered by a trained interviewer.<sup>3</sup> If a person was working, he or she was classified as employed. If not working but actively searching for work, one would be classified as unemployed. All others were classified as not in the labor force.

The second major development was the introduction of statistical sampling as a tool for estimating labor force characteristics. Prior to the 1940s, using a random sample of a group to estimate the size and characteristics of the entire group was not widely adopted or accepted in the social sciences. Advances in the field of statistics during the 1930s allowed researchers to devise increasingly reliable and representative sample designs and estimation methods.<sup>4</sup>

The combination of the activity concept and probability sampling ultimately led to the birth of a regular sample survey of the population in March 1940, called the Monthly Report of Unemployment (and shortly thereafter the Monthly Report on the Labor Force). Known by its current name, the Current Population Survey (CPS), since 1948, the survey has been the source of official unemployment statistics for the U.S. since its inception, and it became a model for labor force surveys across the world.

In the nearly seven decades since the introduction of the CPS, there have been numerous reviews of the official concept and definition of unemployment, both within and outside the Federal government. Yet these exhaustive studies resulted in only minor refinements and revisions to the official measure. In fact, the unemployment rate<sup>5</sup>--the conventional way of expressing the measure--has proven to be a reliable indicator of overall labor market conditions and has performed quite well as a business cycle indicator.

That does not mean, however, that everyone has been completely satisfied with the official figures. Indeed, there always have been (and likely always will be) some analysts who argue that the official measure of unemployment is too broadly or, as is more often the case, too narrowly defined. Those in the latter camp often contend that the job search requirement is too stringent; some believe that the desire for work alone should suffice in defining unemployment. Similarly, some believe that certain persons who are working should be included among the unemployed, especially if they are working fewer hours than desired--the rationale being that these persons are, in a sense, partially unemployed.

Other criticisms of the unemployment numbers arise because the figures are used to gauge more than just joblessness at a given point in time or changes in unemployment over the course of the business cycle. For many, the unemployment numbers serve as a yardstick for assessing the number of persons who experience some level of “financial hardship”—that is, the number of persons who, to varying degrees, have a lifestyle that affords them no more than life’s basic necessities. Measures of hardship (a highly subjective concept) generally are based on earnings or income. However, because most workers derive the bulk of their income from work activity (rather than from investment income, for example), joblessness or underemployment often is seen as sufficiently indicative of some level of economic hardship.

In the 1970s, Julius Shiskin, Commissioner of Labor Statistics, noted that “no single way of measuring unemployment can satisfy all analytical or ideological interests.”<sup>6</sup> In response, he developed a range of unemployment indicators known as U-1 through U-7. (See table 1.) The range was first published in his *Monthly Labor Review* (*MLR*) article entitled “Employment and unemployment: the doughnut or the hole?” and subsequently issued on a regular monthly basis in the Bureau of Labor Statistics Employment Situation news release. All of the measures were expressed as rates, and were oriented from lowest to highest. The official unemployment rate was included in the range of estimates.

Table 1. Range of unemployment measures based on varying definitions of unemployment and the labor force<sup>1</sup>

(1993 annual averages)

Measure	Percent
U-1 Persons unemployed 15 weeks or longer as a percent of the civilian labor force	2.4
U-2 Job losers as a percent of the civilian labor force	3.7
U-3 Unemployed persons 25 years and over as a percent of the civilian labor force for persons 25 years and over	5.6
U-4 Unemployed full-time jobseekers as a percent of the full-time civilian labor force	6.5
U-5 Total unemployed as a percent of the civilian labor force (official unemployment rate)	6.8
U-6 Total full-time jobseekers plus 1/2 part-time jobseekers plus 1/2 total on part-time for economic reasons as a percent of the civilian labor force less 1/2 of the part-time labor force	9.3
U-7 Total full-time jobseekers plus 1/2 part-time jobseekers plus 1/2 total on part-time for economic reasons plus discouraged workers as a percent of the civilian labor force plus discouraged workers less 1/2 of the part-time labor force	10.2

The first four measures in the range, which was introduced as “Range of unemployment indicators reflecting value judgments about significance of unemployment,” embodied value judgments on the degree of financial hardship experienced by selected groups among the unemployed (as officially defined). The first, U-1, included only unemployed persons who were jobless for 15 weeks or more. The underlying argument for U-1 was that only persons unemployed for an extended period, when unemployment insurance or savings might be exhausted, would actually be likely to suffer serious financial hardship as a direct consequence of unemployment.

<sup>1</sup> The Shiskin range as published in the December 1993 Employment Situation news release; original title and measures were somewhat different (see text).

U-2 was made up of persons who had become unemployed because they lost their jobs (rather than those who recently entered the job market or those who quit jobs to look for work). The thinking in this case was that those who lost their jobs (many perhaps without advance notice) likely experienced more financial difficulty than those who entered into unemployment largely of their own volition and on their own schedule.

U-3 (as originally formulated) was restricted to household heads only.<sup>7</sup> This measure assumed that unemployment and associated hardship was a more serious matter when those presumed to be the primary breadwinners were affected since the income loss would affect the entire family as well.

U-4 applied to persons looking for full-time jobs. The reasoning was similar to that used for U-3; persons in need of full-time jobs likely had a greater responsibility for ensuring financial security than those looking for part-time employment.

The official measure of unemployment was included in the range as U-5. Essentially free of any value judgments as to the degree of hardship experienced by one unemployed person over another, U-5 was based on the number of persons in the labor force who are not working but actively searching and available for work.<sup>8</sup>

Shiskin's U-6 excluded some of those who were included as unemployed in the official measure but added in a larger group of persons who some might consider *underemployed*. U-6 encompassed all persons looking for full-time work, plus half of

those seeking part-time jobs, plus half of those persons *employed* part time involuntarily (in essence counting some of the underemployed as unemployed.)

Finally, U-7 added discouraged workers to the U-6 total--persons neither working nor currently looking for work who nevertheless indicate that they want work, but have given up searching because they feel no jobs are available for them.

In the two decades following the introduction of the U-1 to U-7 set of indicators, interest in the measures was largely confined to the most inclusive (and therefore the one that produced the highest “unemployment rate”), U-7. Even then, coverage of this alternative indicator was limited, getting the most attention when unemployment was on the rise, as in the back-to-back recessions of the early 1980s and, to a lesser extent, the milder 1990-91 recession and extended labor market downturn.

There was also interest in how the U-1 to U-7 indicators compared internationally. BLS produced two articles using these indicators to compare the United States with foreign countries. The principal finding of these studies (conducted during the 1990s) was that Japan and Sweden, the countries with the lowest unemployment rates as conventionally measured, had by far the largest increases when the definition was expanded to include persons working part time for economic reasons and discouraged workers.<sup>9</sup>



### An updated set of alternative indicators

In 1994, a redesigned CPS was fielded. The impetus for a modernized survey came from several sources. First, enough survey research had accumulated over the years since the last major survey revisions (in 1967) to support some improvements in the content and design of the questionnaire; this included the collection of additional information on various types of labor market activity. Changes also were made in the definitions for certain labor force measures.<sup>10</sup> At the same time, the instrument was modified to take advantage of computerized data collection methods. Up until 1994, interviewers for the most part had used paper and pencil questionnaires. Some of these changes affected series used as inputs in several of the U-1 to U-7 measures. Consequently, publication of the U-1 to U-7 range was halted at the end of 1993.

Research on and development of a modified set of alternative indicators began in 1994, and BLS introduced a new set of “U’s” in an October 1995 *MLR* article entitled “BLS introduces new range of alternative unemployment measures,” by John Bregger and Steven Haugen.<sup>11</sup> The U-1 to U-6 range offered an updated set of indicators, blending some of Shiskin’s original thinking and measures with revamped metrics that took advantage of newly collected information in the redesigned survey. (See table 2.) Regular publication of the new set of indicators began in the February 1996 Employment Situation news release.

Table 2. Alternative measures of labor underutilization<sup>2</sup>

(2008 annual averages)

Measure	Percent
U-1 Persons unemployed 15 weeks or longer, as a percent of the civilian labor force	2.1
U-2 Job losers and persons who completed temporary jobs, as a percent of the civilian labor force	3.1
U-3 Total unemployed, as a percent of the civilian labor force (official unemployment rate)	5.8
U-4 Total unemployed plus discouraged workers, as a percent of the civilian labor force plus discouraged workers	6.1
U-5 Total unemployed, plus discouraged workers, plus all other marginally attached workers, as a percent of the civilian labor force plus all marginally attached workers	6.8
U-6 Total unemployed, plus discouraged workers, plus all marginally attached workers, plus total employed part time for economic reasons, as a percent of the civilian labor force plus all marginally attached workers	10.5

The first two measures in the new range, reintroduced as the “Range of alternative measures of labor resource underutilization,” are conceptually and definitionally equivalent to Shiskin’s two most narrowly defined measures.<sup>12</sup> Similarly, the official unemployment rate is included once again, now as U-3.

Beyond U-3, the underutilization rates are conceptually similar to those at the upper end of Shiskin’s range, though the composition of these broader alternatives is markedly different. U-4 adds in discouraged workers. The number of discouraged workers was much smaller after the 1994 redesign because the definition for the group was tightened. Prior to 1994, discouraged workers merely had to indicate a desire to work and a job market-related reason for not currently looking to be so classified. This definition had long been considered too subjective; the Levitan Commission had recommended that additional criteria be added, such as previous job search and current

<sup>2</sup> Title as published in the March 2009 Employment Situation news release.

job availability, to help establish an attachment to the job market.<sup>13</sup> In the 1994 redesign, new questions were added to the survey to gather this information and, as a result, the number of persons classified as discouraged fell by about half.

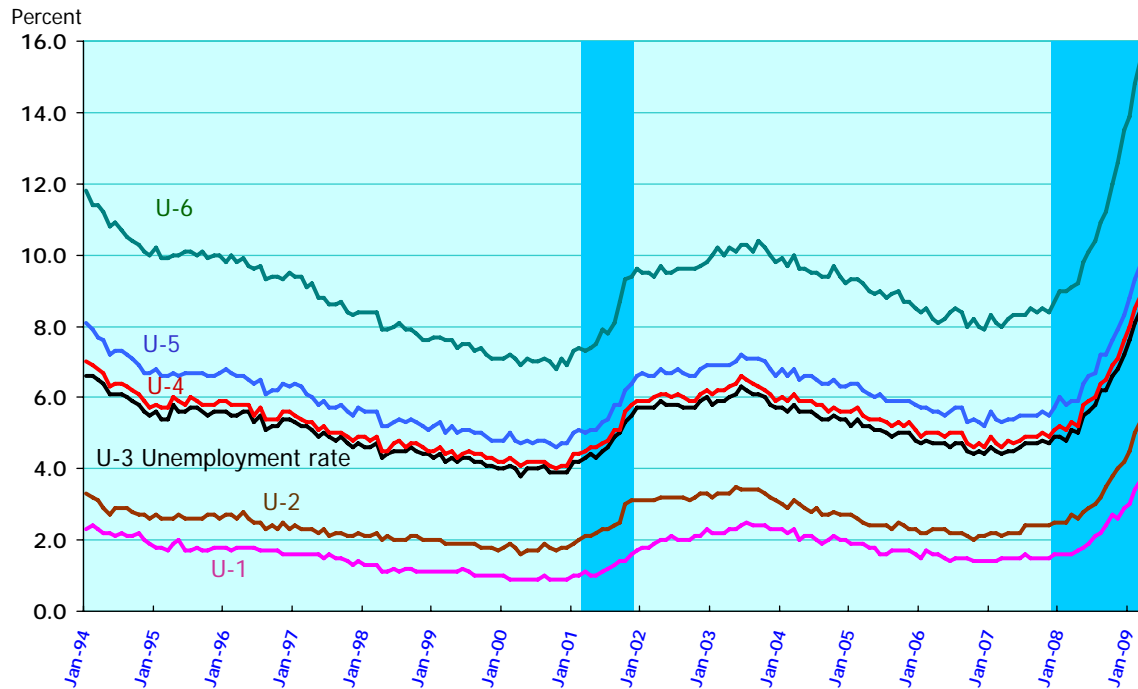
These new questions on prior job search and current availability for those who wanted a job but were not currently looking also were used to identify a larger group of persons attached to the job market. Some persons indicate that other impediments, such as transportation problems or child care requirements, keep them from current job search. This larger group of persons (of which discouraged workers are a subset) is referred to as marginally attached workers, and are included in alternative indicator U-5.

The uppermost indicator in the range, U-6, adds in all persons employed part time for economic reasons. Including a group of employed persons is a large conceptual break from the other measures, but since many would agree that these persons are visibly underemployed, those who want to treat the underemployed on an equal basis with the unemployed may find this alternative measure useful.

As noted earlier, alternative measures of labor underutilization--particularly the broadest measures--tend to become more popular during times of recession, when unemployment and other types of labor market difficulty are on the rise. To the extent that a data user wants one indicator that captures a narrower or broader picture of labor underutilization than is portrayed by the unemployment rate, then the alternative indicators in the U-1 to U-6 range are useful. But in terms of cyclical analysis, there appears to be little advantage to any one of the alternative measures. All six measures in

the current U-1 to U-6 set of indicators have followed a nearly identical track since 1994.<sup>14</sup> (See chart.)

## Alternative measures of labor underutilization, U-1 to U-6, 1994-2009



Note: Data are monthly, seasonally adjusted, and cover January 1994-March 2009. Shaded areas represent recessions as determined by the National Bureau of Economic Research (NBER). NBER has not yet determined an endpoint for the recession that began in December 2007.  
Source: Bureau of Labor Statistics, Current Population Survey.

International comparisons on the U-1 to U-6 basis have not been prepared, mainly because discouraged workers are not defined in other countries according to the U.S. definition that was introduced in the 1994 CPS redesign. One exception to this statement is Japan, where a Japanese researcher was able to prepare comparable estimates of U-4 to U-6.<sup>15</sup>

It is conceivable that other measures could be developed in the spirit of Shiskin's work and added to the range. However, while there will always be room for a set of complementary measures, the official unemployment rate still is viewed by many to be the most objective, best overall cyclical indicator of labor underutilization.

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<sup>1</sup> See Stanley Lebergott, "Labor Force, Employment, and Unemployment, 1929-39: Estimating Methods," *Monthly Labor Review*, July 1948. Both the level and rate of unemployment peaked in 1933.

<sup>2</sup> Persons who are searching for their first job, those who do not apply or are ineligible for unemployment insurance, or those who have exhausted their benefits, are missed under these approaches.

<sup>3</sup> Data gathered by trained field interviewers generally are considered superior to self-reported data because there is an opportunity to clarify survey questions and probe for more accurate and detailed responses.

<sup>4</sup> Joseph W. Duncan and William C. Shelton, "U.S. Government Contributions to Probability Sampling and Statistical Analysis," *Statistical Science*, 1992, Vol. 7, No. 3, 320-338.

<sup>5</sup> Early work on measuring unemployment focused on estimating the *number* of unemployed persons.

<sup>6</sup> Julius Shiskin, "Employment and unemployment: the doughnut or the hole?" *Monthly Labor Review*, February 1976, pp. 3-10.

<sup>7</sup> Shiskin's U-3 was redefined as the unemployment rate for persons age 25 and over in 1978, after publication of data for "household heads" was discontinued.

<sup>8</sup> Persons on temporary layoff need not be searching for work to be classified as unemployed.

<sup>9</sup> Constance Sorrentino of BLS has written several articles on international comparisons of alternative unemployment indicators. See, for example, "International comparisons of unemployment indicators," *Monthly Labor Review*, March 1993, pp. 3-24, and "International unemployment indicators, 1983-93," *Monthly Labor Review*, August 1995, pp. 31-50.

<sup>10</sup> For more information on the 1994 CPS redesign, see the September 1993 issue of the *Monthly Labor Review*.

<sup>11</sup> John E. Bregger and Steven E. Haugen, "BLS introduces new range of alternate unemployment indicators," *Monthly Labor Review*, October 1995, pp. 19-26.

<sup>12</sup> While Shiskin referred to the measures in his range as unemployment indicators, the alternative indicators were reintroduced in 1994 as measures of labor underutilization. For Bregger and Haugen, the distinction was subtle but important—some of the measures included persons who were not unemployed per se, and it was felt that underutilized labor resources more accurately characterized the labor market status of these persons.

<sup>13</sup> National Commission on Employment and Unemployment Statistics, *Counting the Labor Force* (Washington, U.S. Government Printing Office, 1979). Often referred to as the Levitan Commission after its Chairman, Sar A. Levitan.

<sup>14</sup> This also was the case for the U-1 to U-7 range.

<sup>15</sup> Toshihiko Yamagami, "Utilization of labor resources in Japan and the United States," *Monthly Labor Review*, April 2002, pp. 25-43. Mexico produces 10 alternative measures of unemployment. For a description of these measures, see Gary Martin, "Employment and Unemployment in Mexico in the 1990s," *Monthly Labor Review*, November 2000, pp. 3-18.