Origins of the Unemployment Rate: The Lasting Legacy of Measurement without Theory

By David Card

Between 1980 and 2005 over one thousand articles with “unemployment” in the title were published in the economics journals indexed in JSTOR. Twenty percent of these appeared in the top five journals of the field. Especially in recessionary times the unemployment rate also attracts broad interest from policymakers and the general public. Most professional economists (and many noneconomists) know that the unemployment rate represents the fraction of people in the labor force who are currently searching for work. Surprisingly, it was not until 1940 that our current conception of the labor force—and the idea of equating unemployment with active job search—finally emerged. The birth of the modern definition of unemployment represents a remarkable triumph of practical measurement needs over persistent concerns about the absence of theoretical underpinnings. Economists continue to remain skeptical of any single theoretical definition of “unemployment.” In the end, however, the profession has largely accepted the measurement techniques developed by statisticians at the Works Progress Administration and the Census Bureau in the late 1930s.

I. Unemployment Measures up to 1931

The earliest attempt to measure unemployment at the national level was the 1880 census, which asked all those age 10 or older who reported a “profession, occupation, or trade” the number of weeks they had been unemployed during the census year (from June 1, 1879 to May 31, 1880). Implicitly, the questionnaire defined what we would now call the labor force as those with a “gainful occupation” (see Philip M. Hauser 1949; Roger L. Ransom and Richard Sutch 1986). The census instructed its enumerators to identify gainful workers as those who usually worked at an occupation paying wages or business income, or otherwise assisted in the production of marketable goods, and to disregard the experiences of any others. Whether the disabled and retired were coded as having a gainful occupation is a matter of some debate (e.g., Jon Moen 1987), though enumerators were instructed to distinguish between those still pursuing a profession and those who had retired (see US Department of Commerce 1989, 27).

A similar question on retrospective unemployment for gainful workers was included in the 1890 and 1900 censuses. In the 1910 census, the query on gainful work was expanded to include information on industry and “class” (i.e., paid worker or self employed). A question was also added on employment status on the day of the census. (The exact questions are reproduced

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1 In 1878 the Commonwealth of Massachusetts conducted a survey of unemployment, using policemen and town assessors as interviewers. Carlos C. Closson (1895) presents an informative overview of the early history of measuring unemployment.

2 The instructions stated: “If a person having a gainful occupation was unemployed during any part of the census year, it should be so stated in months and parts of months… For all persons not engaged in gainful occupation the symbol X should be used” (US Department of Commerce, Bureau of the Census 1989, 38). On the critical question of how to classify gainful workers, the 1880 enumerator instructions refer to the definitions and instructions for the 1870 census, which Hauser (1949, 339) credits with “setting the pattern for measuring workers” up to 1940.

3 The instructions for the 1910 census noted that “out of work” meant “…enforced unemployment…. for those who want work and can not find it.” Thus, people who were on strike, voluntarily idle, incapacitated for work, on sick

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in Table 1 of a longer version of this paper, Card 2011.) Tabulations of the 1910 micro data show that the average unemployment rate among non-farm gainful workers was 5.3 percent in April 1910 and averaged 5 percent over all of 1909 (John A. James and Mark Thomas 2003).

Ironically, the questions on unemployment were dropped from the 1920 census, which was fielded just as a major recession took hold of the US economy. The severity of the downturn led Secretary of Commerce Herbert Hoover to establish a special commission on unemployment, whose findings were reported in an NBER book (Committee of the President’s Conference on Unemployment 1923). As an outgrowth of the commission, the American Statistical Association established a Committee on Governmental Labor Statistics (CGLS), which sponsored a series of studies on the collection of labor market statistics (e.g., Ralph G. Hurlin and William A. Berridge 1926) and played an important role in the design of the questions for the 1930 census.

The 1930 census query on employment and unemployment began with the same three questions on occupation, industry, and class as the 1910 census. Gainful workers were then asked about employment status on the day prior to the enumeration. Those who were not working filled out additional questions on ability to work, job search, duration of unemployment, and reason for unemployment. Although the latter questions appear quite modern, they were asked only of gainful workers, implicitly defining the relevant labor force in the same way as the earlier censuses. Census Bureau tabulations showed that in April/May of 1930, some 5.0 percent of gainful workers were out of work, able to work, and searching for a job (these were labeled as “Class A”), and another 1.6 percent were laid off, though not yet searching for a new job (these were labeled as “Class B”).

Initial findings from the 1930 census were published in June 1930 and were immediately controversial. Mary van Kleek (1931), who had participated in Hoover’s conference on unemployment and later chaired the CGLS, underscored the lack of information on the “under-employed” (those who were working part time but desired more work), despite the recommendations of her committee. She and others (e.g., George B. L. Arner 1933) also expressed concerns over the responses to the question on reasons for being out of a job which were used to identify the Class B unemployed.

Perhaps most importantly, however, by the time the results were made public the extent of unemployment measured in the census seemed too low to many observers and politicians, and Congress passed a law authorizing a special follow-up “Census of Unemployment” in January 1931. This was conducted in 21 cities using the Schedule of Unemployment from the 1930 census. In these cities 8.2 percent of gainful workers were classified as Class A unemployed at the time of the 1930 census, and 1.5 percent as Class B. By January 1931, the fraction in Class A had risen to 20.4 percent and the fraction in Class B to 1.8 percent, confirming the seriousness of the downturn.

II. The Evolution of Unemployment Measures and the 1937 Unemployment Census

One of the lasting benefits of the Great Depression was the recruitment of young and able statisticians to assist in the modernization of the national statistical infrastructure and the administration of emergency relief programs (see, e.g., Frederick F. Stephan 1948; Joseph Waksberg and Edwin D. Goldfield 1997). Two closely related tasks were the development of sampling techniques to replace the need for a complete enumeration, and the refinement of (what we would now call) labor force measurement techniques. The Civil Works Administration and subsequent Works Progress

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4 An earlier joint advisory committee of the American Economic Association and the American Statistical Association appeared to be relatively unconcerned about unemployment. Their postcensal report (Joint Committee of the American Statistical and American Economic Associations 1923) included 28 recommendations but no mention of unemployment. The actual questions proposed by the Committee on Governmental Labor Statistics for the 1930 census are described in a committee report in the Journal of the American Statistical Association (Committee on Government Labor Statistics, 1929). In particular the committee aimed to collect information on people who were working less than full time.

5 See US Department of Commerce Bureau of the Census (1932, 2). Other classes of nonworkers included those who were unable to work (Class C), and those who were sick or disabled (Class D).
Administration (WPA) sponsored a series of surveys of the unemployed (e.g., Florence M. Clark 1935). While the earliest of these surveys relied on the gainful workers labor force concept, the limitations of this approach led to interest in more objective ways of measuring the unemployed (John N. Webb 1939). These ideas were put into place in the path breaking Enumerative Check Census that was included in the 1937 Census of Unemployment.

In August 1937, Congress authorized a national “voluntary registration” of the unemployed. Statisticians at the Census Bureau recognized that there were likely to be serious problems in interpreting the results of such a registration and managed to secure approval (and funding) for a follow-up sample survey based on direct interviews. Since the registration forms were to be delivered by postal carriers, it was decided to use the carriers on a stratified random sample of routes as interviewers for this Enumerative Check Census (ECC)—essentially reinterviewing a sample of families who had received the earlier voluntary registration form. The ECC was the first scientifically constructed national sample conducted by the Census Bureau, and the first to utilize the modern definition of the labor force, based on activities in the previous week. The published tabulations of the ECC were also the first Census Bureau reports to include confidence intervals.

The first question in the ECC asked if an individual was working in the census week. Those who were not working were asked if they usually worked for pay or profit, and if they wanted to work. Those who wanted work were then asked if they were able to work, and if they were actively seeking work. The unemployed were identified as those who responded “yes” to the latter two questions. The population of those who were “employed or available for employment”—i.e., the labor force—was defined to include everyone who worked, as well as those who were able to work and actively searching. The measured unemployment rate for people age 15–74 in the ECC (which was reported in January 1938, just a month after the enumeration) was 20.2 percent (±0.9 percent). Another 10.2 percent of the labor force reported themselves as underemployed.


Following the ECC, researchers at the WPA began planning for a national multistage sample of the labor force, to be conducted monthly (Stephan 1948; Hansen 1987). This survey, called the Monthly Report on the Labor Force (MRLF), was fielded in 64 counties starting in December 1939 and used a six-month rotating panel (Lester R. Frankel and J. Stevens Stock 1942). Following the format of the ECC, the survey began with a question on whether the individual was employed in the survey week. Those who were not were asked if they were actively seeking work. In a departure from the ECC, nonsearchers were then asked the reasons why they were not searching, allowing the identification of two groups of nonsearchers who were also considered as unemployed: those who were temporarily ill, and those who believed no work was available (a group we now call “discouraged workers”).

The first reported unemployment rate from the MRLF, for April 1940, was 8.8 percent (Monthly Labor Review 1941, Table 1, 893). The 1940 census questions on labor force activity were designed to closely match those of the MRLF (see Hauser 1949), and in fact the MRLF and the 1940 census yielded relatively very similar estimates of the number of employed workers (45 million in each case), though the MRLF recorded a higher number of unemployed workers, implying a higher unemployment rate (Monthly Labor Review 1941). An interagency panel ultimately concluded that the

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6 Earlier efforts to have a national census of unemployed (e.g., in 1935) had failed, but the WPA and Census Bureau staff apparently had anticipated that a census would be authorized—see Howard B. Myers and Webb (1937).

7 The discussion here is based on several sources, including Stephan (1948), A. Ross Eckler (1948), Morris H. Hansen (1987), and Waksberg and Goldfield (1997).

8 The ECC universe consisted of households served by a mail carrier (approximately 82 percent of the US population). The 92,000 postal routes were grouped into 9,596 (more or less homogeneous) blocks of 50, based on data from the 1930 census, and one of these blocks (#42) was selected for inclusion in the sample (Calvert L. Dedrick and Hansen 1938, 1–2).

9 Excluding workers employed on relief projects (which the ECC counted as unemployed) the rate was 16.4 percent. The ECC estimate of the number of relief workers was very close to the number actually employed on these projects according to WPA records.
MRLF sample statistics were probably closer to the truth than the results from the (much larger) census enumeration (Gertrude Bancroft 1957, 74–75).

As in the past, many observers were critical of the new scheme for directly estimating the size of the unemployment pool based on search activity. Among the most negative critics was economist Clarence D. Long, who wrote: “The single, all-use measure of the WPA is not unemployment at all, but some magnitude of illegitimate conception with the courtesy title. The father of the magnitude is more likely to be statistical expediency than economic theory, social philosophy, or even government policy” (Long 1942, 5). Nevertheless, the new concept of the labor force gained rapid acceptance, especially as the policy focus in Washington switched from a shortage of available jobs to a shortage of available workers over the course of the war.

In 1942 responsibility for the MRLF was moved to the Census Bureau. Experimentation with additional questions and detailed analyses of responses led to concerns that the enumerators were often “jumping to conclusions” about the activities of the interviewees, leading to an undercount of both employment and unemployment (see Bancroft and Emmett H. Welch 1946 and Bancroft 1957). The MRLF questionnaire was revised to a form that is quite similar to the one still used today. The revised questionnaire—introduced in July 1945—begins with a question about the respondent’s main activity last week. Those whose main activity was not working are asked if they did any work for pay or profit and, if not, whether they were looking for work. Finally, nonsearchers were asked if they had a job at which they were not working and, if so, the reason for their absence. Importantly, the revised survey dropped the question about reasons for not searching. As a direct consequence, discouraged workers were no longer counted as unemployed—a situation that persists today.

IV. Why Did the Modern Concept of Unemployment Emerge So Late?

The idea of directly asking nonworkers whether they were looking for work—and defining those who were as “unemployed”—seems relatively natural today. As one of the group at the WPA responsible for the idea noted at the time: “It is difficult to see why the ‘seeking work’ concept has not been more extensively used in unemployment surveys; not as secondary sorter, but jointly with ‘working’ as the best means of identifying the total labor supply. Like ‘working,’ ‘seeking work’ is an activity that can be reported in terms of what the individual is doing at the time of inquiry” (Webb 1939, 54). The idea evidently appealed to people outside the United States as well. In 1947 the International Conference of Labor Statisticians replaced its previous “gainful workers” standard for labor force measurement with one based on the WPA method (Walter Galenson and Arnold Zellner 1957, 441–442).

There are several explanations for the continued reliance on the gainful workers concept until the late 1930s. One is institutional rigidity: the gainful worker definition made sense in a world where all adult men worked (or desired to work) and women were engaged in home production. By the 1920s, this model of the labor market was increasingly obsolete (Claudia Goldin 1990), but in the absence of a clear alternative it was the default. A second is that an active search definition ignores two important groups: the underemployed, and discouraged workers. The issue of the underemployed was raised repeatedly throughout the depression, and the 1937 ECC included a question on reasons for part-time work that enabled their enumeration, though this group was not incorporated in the main estimate of unemployment. Today, we continue with the convention that a person is either working, searching, or out of the labor force, enabling a simple “person count” of the labor force. Discouraged nonsearchers were also a concern of analysts throughout the 1920s and 1930s and were counted in the original MRLF survey, though issues of reliability in the answers to the reasons for nonsearch led to the dropping...
of this group from the “main” definition of the unemployed. Ultimately, the issue of discouraged search was addressed by expanding the time window for active search to the previous four weeks (in the 1967 revision to the Current Population Survey), and by adding questions that identify discouraged workers.

V. Measurement ahead of Theory?

Another reason for the late adoption of the search-based definition of unemployment is that social scientists (and economists in particular) had not yet developed a theory of job search. In the prevailing supply-demand framework of the time, a person was either working or not: there was no distinct role for search. In fact, judging by the content of the leading academic journals, unemployment was not an important topic of research interest among economists until well after World War II. In the 30-year period from 1920 to 1949, the American Economic Review published only 16 articles with “unemployment,” “unemployed,” or “labor force” in the title in the regular pages of the journal (21 more appeared in the Papers and Proceedings). Over the same period the Journal of Political Economy published 14 articles and the Quarterly Journal of Economics 19 articles. By comparison, 40 articles appeared in the Journal of the American Statistical Association, including many papers written by WPA and Census Bureau staff.

This conclusion is strengthened by an examination of the content of these articles (see Card 2011, Table 2). The main interest of the economics articles with “unemployment” in the title was unemployment insurance (40 percent of articles). Theoretical studies of unemployment—nearly all simple macro models—were also relatively common. The vast majority of the measurement-related papers (16 of 19) appeared in JASA. Economists left the question of how to define and measure unemployment to the statisticians and bureaucrats.

Despite its atheoretical origins, the idea of equating unemployment with active search has thrived. A major step was the development of job search theory, starting with George J. Stigler’s (1962) recognition of the importance of wage dispersion, and culminating most recently with the award of a Nobel prize to Peter Diamond, Dale Mortensen, and Christopher Pissarides for their work in the area. This paradigm has provided belated justification for a construct that has lasted longer than many of the theories created in the same era.

REFERENCES


