

NBER WORKING PAPER SERIES

UNEMPLOYED WITH JOBS AND WITHOUT JOBS

Robert E. Hall
Marianna Kudlyak

Working Paper 27886
<http://www.nber.org/papers/w27886>

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
October 2020, Revised December 2020

Hall's research was supported by the Hoover Institution. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research, the Federal Reserve Bank of San Francisco or the Federal Reserve System. We thank Benjamin Schoefer for helpful discussions. Data and calculations and an online appendix providing additional results are available at Kudlyak's website.

At least one co-author has disclosed additional relationships of potential relevance for this research. Further information is available online at <http://www.nber.org/papers/w27886.ack>

NBER working papers are circulated for discussion and comment purposes. They have not been peer-reviewed or been subject to the review by the NBER Board of Directors that accompanies official NBER publications.

© 2020 by Robert E. Hall and Marianna Kudlyak. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Unemployed With Jobs and Without Jobs
Robert E. Hall and Marianna Kudlyak
NBER Working Paper No. 27886 October
2020, Revised December 2020
JEL No. E32,J63,J64

ABSTRACT

Potential workers are classified as unemployed if they seek work but are not working. The unemployed population contains two groups -- those with jobs and those without jobs. Those with jobs are on furlough or temporary layoff. This group expanded tremendously in April 2020. They wait out periods of non-work with the understanding that their jobs still exist and that they will be recalled. We show that the resulting recall-unemployment dissipates quickly following a spike. Potential workers without jobs constitute what we call jobless-unemployment. Shocks that elevate jobless-unemployment have much more persistent effects. Historical major adverse shocks, such as the financial crisis in 2008, created mostly jobless-unemployment and consequently caused extended periods of elevated unemployment. The pandemic of 2020 created a large volume of recall-unemployment, mostly starting in April. It largely dissipated by November. It also created a bulge in jobless-unemployment.

Robert E. Hall
Hoover Institution
Stanford University
Stanford, CA 94305-6010
and NBER
rehall@gmail.com

Marianna Kudlyak
101 Market St
Federal Reserve Bank of San Francisco
San Francisco, CA 94105
marianna.kudlyak@sf.frb.org

1 Introduction

In the labor-force statistics of the United States, an individual is unemployed if not working, but available for work, and either actively looking for work or waiting to return to an existing job. Until the pandemic hit the labor market in March 2020, the great majority of the unemployed fell into the first category—those actively looking for work—only a fraction of one percent of the labor force was waiting for recall. Unemployment was effectively synonymous with joblessness. The pandemic prevented many millions of individuals from working, but they retained their jobs. The jobless population rose moderately, while the population of the unemployed awaiting recall exploded.

We study the distinction between *jobless*-unemployment and *recall*-unemployment, focusing on the experience of the 2020 pandemic. We note that, in the regime created by a pandemic, total unemployment retains its social significance when there is an unusually high fraction of the unemployed who have retained their jobs. Higher recall-unemployment implies a burden on the economy from the decline in the utilization of available labor and a corresponding decline in the earnings of the labor force. However, there is a partially offsetting social benefit from the preservation of job-specific human capital among workers who do return to their previous jobs.

A major difference between recall- and jobless-unemployment is that recall-unemployment returns to normal much faster than does jobless-unemployment. A decline in recall-unemployment takes place as economic conditions improve and firms recall workers. No search or matching is involved—firm-worker match capital is preserved. In contrast, a decline in jobless-unemployment takes time. Creation of new, stable firm-worker relationships is a long and costly process. Terminated workers often circle through a number of short-term jobs before finding a stable job. For reasons we explore in another paper, jobless-unemployment declines quite slowly but reliably during the type of economic recovery that typified the US economy from 1948 through 2019 (Hall and Kudlyak (2020)).

We note that the distinction between jobless-unemployment and recall-unemployment is based on the expectation *ex ante* of recall at the time of layoff. Not all recall-unemployed individuals return to their previous jobs. Some may become jobless-unemployed, find new jobs, or leave the labor force. Workers remaining on recall may take interim jobs, in which case they show up in the data as employed, not as recall-unemployed. Conversely, some jobless-unemployed are recalled.

We find that the decline of total unemployment since its peak in April 2020 was much faster than the decline of unemployment in previous recoveries. This is because, unlike in past recessions, most unemployment in April 2020 was recall-unemployment. And, as in

past recessions, recall-unemployment returned to normal faster than jobless-unemployment. Specifically, between February and April 2020, the total unemployment rate rose from 3.5 to 14.7 percent. In the subsequent seven months, through November, it declined by 8.1 percentage points. By comparison, during the recovery from the 2007-09 recession, it took ten years for total unemployment to decline by 6.5 percentage points. During the first seven months of the 2020 recovery, recall-unemployment fell by 9.8 percentage points. As the share of recall-unemployment in total unemployment declined, total unemployment declined more slowly.

The huge wave of layoffs into recall-unemployment in April 2020 accounted for most of the incidence of recall-unemployment through November. That is, in subsequent months, not many additional workers were laid off with indications of recall. Rather, there was a gradual departure of the April cohort as workers were recalled, changed to jobless-unemployed, took interim or long-term jobs, or left the labor force.

The condition of the labor market can be characterized by how tight or slack the market is for the jobless-unemployed. Prior to the pandemic, the overall unemployment rate was a reasonable guide to job-finding rates throughout the labor market. By that standard, the labor market in November 2020, with overall unemployment at 6.7 percent, was slack. In historical times when unemployment was that high, jobs were hard to find. We show that the job-finding rate for the jobless-unemployed fell in April but bounced back later. In November 2020, the job-finding rate among the jobless-unemployed was the same as in the months of strong labor-market conditions a year earlier, in November 2019.

Because a substantial fraction of recall-unemployed workers are actually recalled and do return to their existing jobs, we generalize the concept of job-finding to encompass recall. We call the general process *work-finding*. For the jobless-unemployed, the work-finding rate is synonymous with the job-finding rate, but for the recall-unemployed, the work-finding rate is considerably higher than the job-finding rate because it includes recalls.

In contrast to the pre-pandemic period, the movements of the work-finding rates for the jobless-unemployed and recall-unemployed diverged during the pandemic. The work-finding rate for the recall-unemployed fell in April and remained below for an extended period. We show that this decline is due to the shift of the composition of the recall-unemployment towards recall-unemployed with longer durations that typically have lower work-finding rates. At the same time, the work-finding rate of the recall-unemployed with duration less than a month quickly bounced back after a dip in April.

As in the pre-pandemic period, during the pandemic, the work-finding rate among the recall-unemployed was twice as high as the rate among the jobless-unemployed. This also holds true for the unemployed at durations of six months or longer. That is, even after

waiting more than six months for recall to an existing job, some of the recall-unemployed returned to those jobs, avoiding the time-consuming search and matching process that the jobless-unemployed typically experience.

This paper is about unemployment, but we should note that the pandemic resulted in a substantial decline in the labor force as well. Expansion of unemployment and of the population outside the labor market was accompanied by contraction in employment. In February of 2020, 36.6 percent of the working-age population was out of the labor force, neither working nor unemployed. The fraction out of the labor force rose by 1.9 percentage points to 38.5 percent in November. The rise in the population out of the labor force in recessions is rarely this big. For example, in the recession that began in December 2007 and ended in June 2009, the fraction out of the labor force rate only rose by 0.3 percentage points. Analysis of the social consequences of the rise in the fraction of the population not in the labor force arising from the pandemic would proceed in parallel to the analysis of the rise in the unemployment rate.

We also do not undertake the challenging task of reconciling data on unemployment from the CPS with data from the unemployment-insurance system. The challenge arises because data from the system does not include the date of the original layoff, or, equivalently, does not break down current beneficiaries by duration since layoff.

2 Related Research

Feldstein (1976) launched an extensive literature on the role of recalls in labor dynamics. He found that an imperfect experience rating system in which firms did not pay the full cost of benefits accounted for a large portion of temporary layoffs and the resulting bulge in unemployment in a recession. Other work on this issue includes Topel (1983), Card and Levine (1994), Brown and Ferrall (2003), and Ratner (2014).

Fujita and Moscarini (2017) demonstrated the importance of recall in pre-pandemic data. They found that post-unemployment outcomes for recalled workers were substantially better than for those not recalled, a finding consistent with ours, using pandemic data. Their paper contains many references to other recent pre-pandemic work on recalls.

Alvarez and Shimer (2011) distinguish between *search* and *rest* unemployment. Search unemployment is a costly reallocation activity whereby a worker attempts to move to a better industry. Rest unemployment is a less costly activity whereby a worker waits for conditions to improve.

Gregory, Menzio and Wiczer (2020) is a mainly theoretical paper that is highly complementary to this paper. It emphasizes heterogeneity in the job-search process, including

especially the difference between searchers with a prospect for recall and those without that prospect. The paper calibrates the model to the differing experiences of those groups and from other dimensions of heterogeneity in pre-pandemic data. It characterizes the central issue as the difference between a favorable V-shaped recovery, where the high re-employment rate of recalled workers dominates the recovery, and an unfavorable L-shaped recovery, where job losers undergo a time-consuming process finding new, stable jobs. With the pandemic-period data we assemble in this paper, the model can be calibrated more directly to the pandemic, and, based on results to date, would probably portray a more favorable recovery than Gregory and co-authors develop.

Gallant, Kroft, Lange and Notowidigdo (2020) build a detailed model of labor-market transitions based on distinguishing individuals by layoff status. The model’s calibration is confirmed by studying pandemic-period data through July. A main thrust of the paper is the finding that the demand assumptions fed into the model forecast much less unemployment than do professional forecasters.

Forsythe, Kahn, Lange and Wiczer (2020) investigate labor-market tightness in the first six months of the pandemic, distinguishing job-seekers who are expecting recall from those not expecting recall and using vacancy data from Burning Glass Technologies.

Buera, Fattal-Jaez, Hopenhayn, Neumeyer and Shin (2020) calculate how long it would take the economy to recover after social distancing restrictions were lifted. A key assumption underlying the quick post-shutdown recovery is that workers who have been temporarily laid off in the shutdown can return to work without going through the normal hiring market. Our paper provides support for their assumption.

3 Measuring Recall- and Jobless-Unemployment in the Current Population Survey

The Current Population Survey (CPS), designed and published by the Bureau of Labor Statistics (BLS), is the basis for the official estimates of the unemployment rate and related measures of labor-market status. We use the CPS to examine recall- and jobless-unemployment, and related issues.

In the CPS, an individual is unemployed if they did not work during the week containing the 12th of the month, were available for work, and either actively searched for work or expected to be recalled to their previous job. Unemployed people are asked further questions to determine if their unemployment is a result of temporary layoff, permanent layoff, completing a temporary job, recently entering the labor force, reentering the labor force, or

quitting a job. Unemployment on temporary layoff corresponds to recall-unemployment and the other reasons comprise jobless-unemployment.

Specifically, the CPS questionnaire proceeds as follows. First, an individual is asked whether they did any work for pay during the reference week. Then they are asked whether they are on layoff from a job. If they are on layoff, the survey asks whether the employer has given a date to return to work or any indication that they will be recalled to work within the next 6 months. Finally, they are asked whether they could return to work if recalled. All individuals on layoff are also asked whether they did anything to find work during the last 4 weeks and, if so, to describe what they did. To be classified as unemployed on temporary layoff, an individual answers negatively to the question about work in the survey week, positively to the question about currently being on layoff, positively to the question about availability to return to work, and positively to either the question about employer having given a return date or to the question about recall indicated within 6 months.

In describing the logic of the CPS questionnaire, we treat the process for simplicity as if it gathered information directly from an individual about that individual’s labor-market status, but the CPS typically gathers information about a household from one person, the respondent, on behalf of other members of the household.

The CPS designates a category of “employed, absent without pay” whose members are not counted as unemployed. The BLS has indicated that they should be counted, but has not acted on that conclusion, to preserve continuity. Only in the pandemic has this category had a meaningful number of members. It is likely that a significant fraction of the individuals assigned to this category were effectively recall-unemployed (BLS (2020)). None of the conclusions of this paper would be much affected by adding all of the members of this category to our measure of recall-unemployment, though the rate would be higher by several percentage points in the early months of the pandemic.

4 Recall- and Jobless-Unemployment before and during the Pandemic

Figure 1, panel (a), shows the recall- and jobless-unemployment rates, from January 1965 through the November 2020. Until February 2020, the last month before the pandemic influenced the labor market materially, at all times recall-unemployment was small in relation to jobless-unemployment. When the labor market was strong and unemployment low, the recall portion was under one percent of the labor force, while jobless-unemployment only dropped below four percent in the strongest years. In recessions, jobless-unemployment rose to close to 9 percent of the labor force. In the recessions starting in 1974 and 1981, recall-

unemployment touched 2 percent, but hardly rose at all in the later recessions of 1990 and 2001. Even the severe recession starting in 2007 saw an increase in the recall-unemployment rate of less than one percentage point.

Figure 1, panel (b), displays the data from January 2019 through November 2020. It portrays the totally different behavior of the two kinds of unemployment during the pandemic, starting in March 2020. At the peak in April, the recall-unemployment rate had skyrocketed to 11.5 percent, constituting 78 percent of total unemployment. The jobless-unemployment rate rose only slightly, to 3.2 percent from its February value of 3.0 percent.

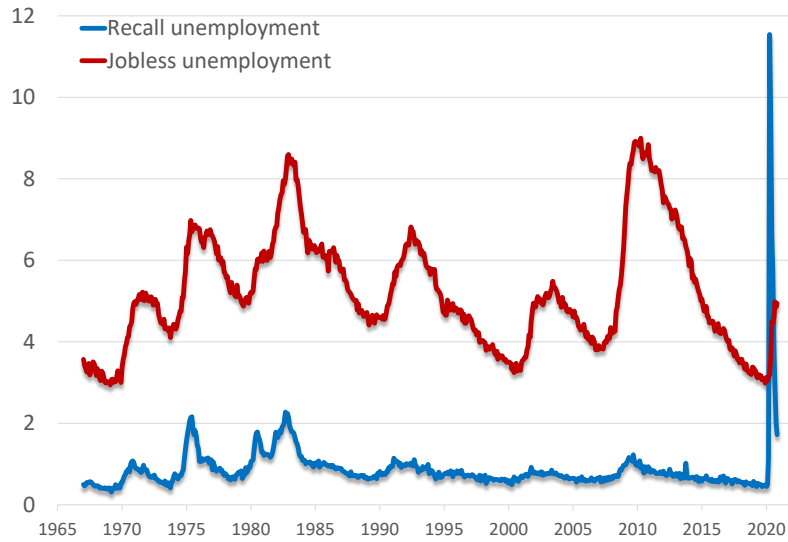
Recall-unemployment accounted for more than the entire increase in unemployment at the beginning of the 2020 pandemic. From March to April 2020, the aggregate unemployment rate increased by 9.9 percentage points. The recall-unemployment rate increased by 10.1 percentage points. The jobless-unemployment rate declined slightly.

Figure 2 shows the recall unemployment rate by duration. The fraction of the recall-unemployed with longer-duration increased during the year. In November 2020, the recall-unemployed with duration of 6 months or longer constituted 42 percent of all recall-unemployed individuals.

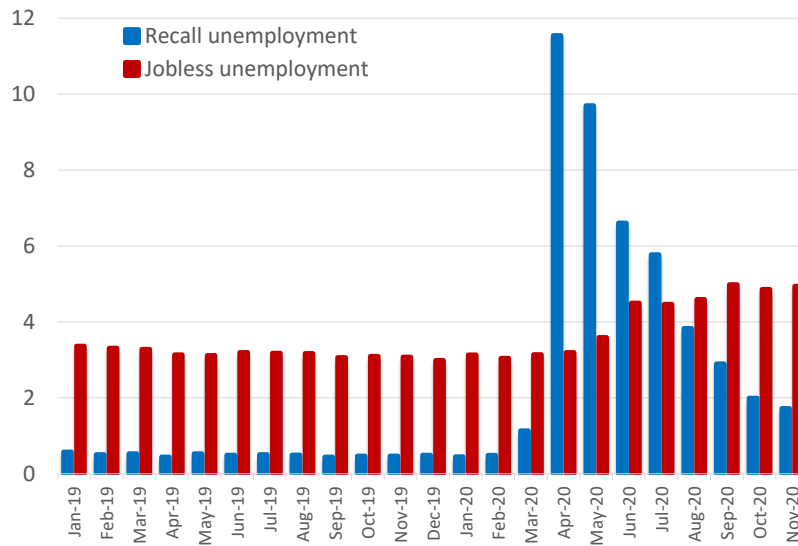
In Figure 2, the lowest duration category, less than 5 weeks, serves as a measure of new layoffs into recall-unemployment. The figure makes it clear that there was a huge pulse of layoffs in April, amounting to almost 8 percent of the labor force. Layoffs in later months were nowhere near as high. In May, most of the workers on layoff had been laid off in April; new layoffs were small. That category also includes workers laid off in March and a few in February. The big lump from April also showed up in June and July in the 5 to 14 week category. By August the lump had moved into the 15 to 26 week category. It was still visible in November in the 27+ weeks category, but by then, most of the lump had been recalled, had found jobs, or moved to jobless-unemployment.

It is, perhaps, surprising that workers unemployed for longer than 6 months were still considered on temporary layoff. But this finding is consistent with the CPS definition of temporary layoffs. Workers on layoff who have been given an indication that they will be recalled to work within the next 6 months from the time of the interview are counted as being on temporary layoff.

It is useful to supplement the CPS data on the nature of pandemic unemployment with data from employers to see whether they paint a similar picture. First, employers may have more accurate information about the nature of layoffs than the workers in the survey. Second, the BLS slightly changed the interviewing process during the pandemic, which might have led to a larger fraction of layoffs counted as temporary as compared to the previous periods BLS (2020). A number of investigators have studied data from employers relating to the recent



(a) Full Sample



(b) 2019-2020

Figure 1: Recall-Unemployment Rate and Jobless-Unemployment Rate

Note: Recall-unemployment is unemployment on layoff with expectation of recall. Jobless unemployment is unemployment for other reasons. The two kinds of unemployment add up to the total unemployment rate. The series are expressed as percentages of the labor force and are seasonally adjusted. Data source: CPS.

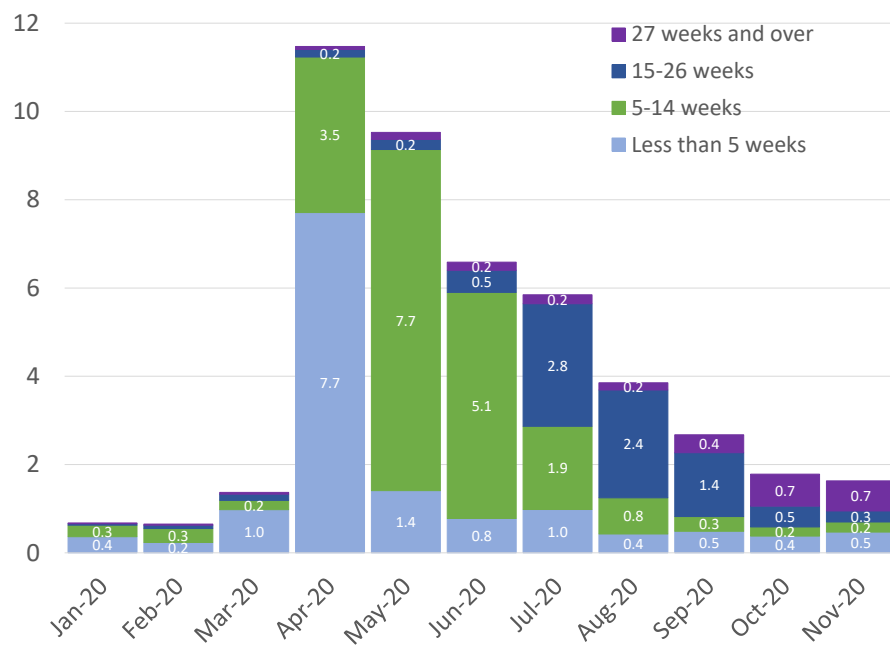


Figure 2: Recall-Unemployment by Duration, as Percent of Labor Force

Note: The CPS data, monthly, non-seasonally adjusted.

behavior of unemployment. The data from firms confirms the conclusions from the CPS that the majority of layoffs at the beginning of the pandemic were classified as temporary. Using the Survey of Business Uncertainty, Barrero, Bloom and Davis (2020) document that the pandemic caused gross staffing reductions of 15 percent of March 1 employment between that date and mid-May and that 77 percent of these reductions were attributed to temporary layoffs and furloughs. Though the BLS does not use the term furlough, it is generally understood to be paid or unpaid leave from a job with an understanding that the worker will be recalled. Using data from the payroll processing company ADP, Cajner, Crane, Decker, Hamins-Puertolas and Kurz (2020) find that temporary layoffs constituted about two-thirds of the decline in paid employment in the ADP firms. Kudlyak and Wolcott (2020) find similar results using filings on mass layoffs under the Federal Worker Adjustment and Retraining Notification Act.

From its peak in April 2020, the aggregate unemployment rate declined by 8.1 percentage points in seven months. During that period, recall-unemployment declined by 9.8 percentage points, accounting for more than the entire decline in total unemployment. In November, recall unemployment was 1.7 percent and jobless unemployment was 4.9 percent, adding up to total unemployment of 6.7 percent (with rounding) (See Figure 1). In November 2020, recall-unemployment constituted 26 percent of total unemployment.

The decline of total unemployment since its peak in April 2020 was much faster than the decline of unemployment in previous recoveries. The share of recall-unemployment in total unemployment has been unprecedentedly high. Recall-unemployment returns to normal far faster than does jobless-unemployment.

5 Labor-Market Tightness

One of the important contributions of the models of the labor market associated with Diamond, Mortensen, and Pissarides (DMP) is the formalization of the concept of tightness. The market is tight when people find work easily and quickly, and employers locate new workers with difficulty and slowly. The job-finding rate is one of the key metrics of tightness in the DMP framework. It is the probability that a non-working individual in a given month will be working in the following month. Given our emphasis on the distinction between recall- and jobless-unemployment, we refer to the *work*-finding rate rather than the job-finding rate. Recall-unemployed workers do not necessarily look for jobs, as they have one from which they believe they are temporarily separated. The recall-unemployed seek to find work, often at their previous jobs. The work-finding rate can be measured directly from

the CPS microdata. Note that it includes the probability that the worker will take a new job rather than wait for recall to an existing job.

The vacancy-unemployment ratio is the other key metric of labor-market tightness, usually called θ in the DMP framework. We use data on vacancies at businesses from the Job Openings and Labor Turnover Survey (JOLTS).

The work-finding rate from the CPS and the vacancy-unemployment ratio are highly correlated. The high correlation is evidence of the validity of the DMP modeling approach. See Hall and Schulhofer-Wohl (2018) for discussion of these concepts and measures of rates for a variety of originating activities, ranging from, on the one hand, active search without a job to, on the other, out of the labor market and unavailable for work.

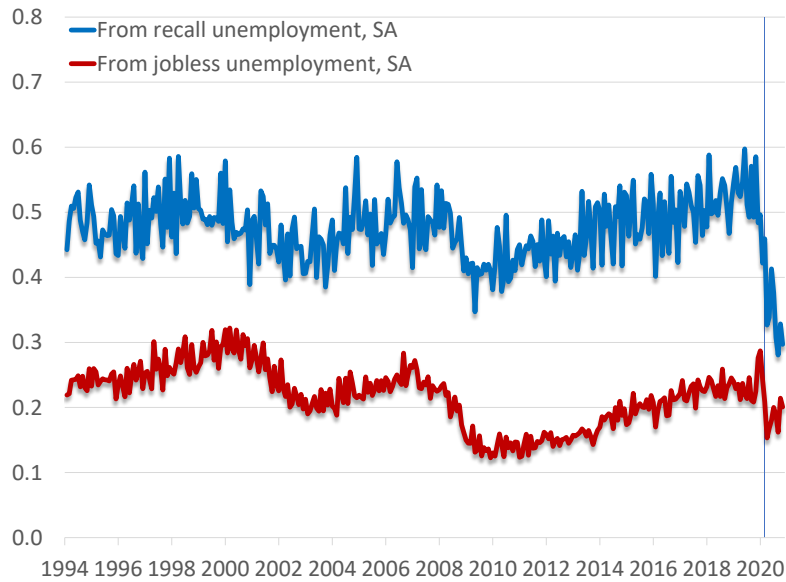
5.1 The work-finding rate

The work-finding rate is the probability that a person, observed in a given labor-market status in one month, is working in the following month. In tight labor markets with overall unemployment rates below 4 percent, the typical work-finding rate is roughly double its value in the worst slumps. Put another way, it takes twice as long to find work than it does when the labor market is strong.

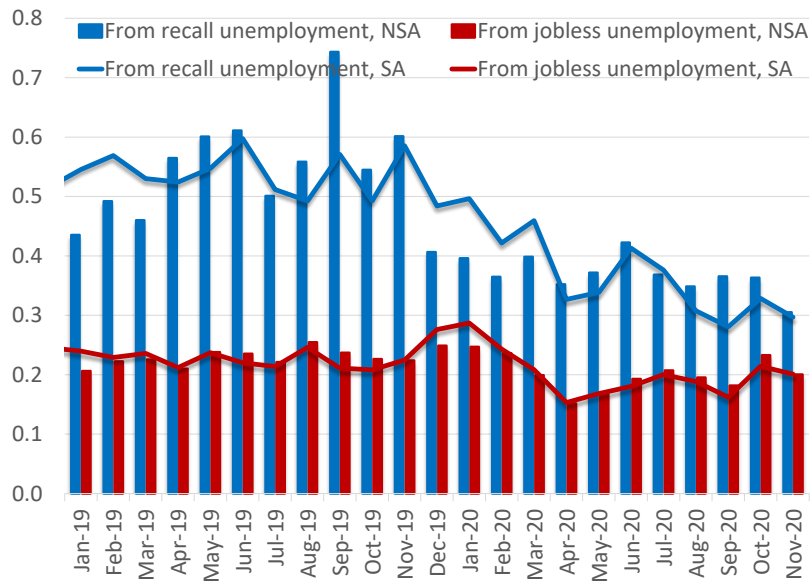
One important question about the pandemic labor market is how tight or slack the market was for the jobless-unemployed. For the jobless, the work-finding rate is the job-finding rate. Prior to the pandemic, the overall unemployment rate was a reasonable guide to job-finding rates throughout the labor market. By that standard, the labor market in November 2020, with overall unemployment at 6.7 percent, would be considered slack. In earlier times when unemployment was that high, jobs were hard to find.

Figure 3 shows work-finding rates for people in the two categories of unemployment considered in this paper. Panel (a) shows rates in the full sample. The upper line is the frequency that a person in recall-unemployment in one month is working in any job in the following month. In most cases such a person was probably recalled rather than finding a new job, but, as we noted earlier, some people take a new job even though they were on recall for an existing job. The lower line shows the job-finding rate, the frequency with which a person in jobless-unemployment in one month is working in the following month. The work-finding rate out of recall-unemployment is about double the job-finding rate for those in jobless-unemployment. Both rates track the business cycle and reached high levels by the beginning of 2020.

Panel (b) of Figure 3 zooms in on what happened in the pandemic. While prior to the pandemic the work-finding rates of recall- and jobless-unemployed tracked the business cycle, the movements of the work-finding rates for the jobless-unemployed and recall-unemployed



(a) Full Sample



(b) 2019-2020

Figure 3: Work-Finding Rates for Recall- and Jobless-Unemployed

Note: The figure shows the rate at which the unemployed transition into employment from one month to the next, with the later month labeled on the horizontal-axis. The lines in panels (a) and (b) show the series using Shimer's (2012) seasonal adjustment procedure. The bars in panel (b) show the series without seasonal adjustment. The vertical line in panel (a) indicates March 2020. Data source: CPS micro data.

diverged during the pandemic. The work-finding rate for recall-unemployed individuals fell in the months through November, relative to the average of the same months averaged over 2017, 2018, and 2019. The decline is larger compared to 2019 alone.

The work-finding rate for jobless-unemployed people fell noticeably in April but, in contrast to the rate for the recall-unemployed, it bounced back in May. In November 2020, the work-finding rate from jobless-unemployment was the same as a year earlier. During the seven months after the unemployment peak in April 2020, the work-finding rate of the jobless-unemployed was higher than would have been expected historically given the high level of the overall unemployment rate in those months.

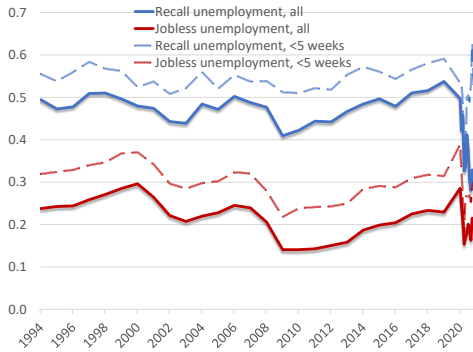
Figure 4 shows the work-finding rates of the recall- and jobless-unemployed with durations less than one month (panels (a) and (c)) and durations longer than 6 months (panels (b) and (d)). The figure shows that the decline in the work-finding rate from recall-unemployment was the result of the shift of the composition of the recall-unemployment towards recall-unemployed with longer durations that typically have lower work-finding rates. Specifically, the work-finding rate of short-term recall-unemployed dipped in April 2020 recovered later. The work-finding rate of long-term recall-unemployed remained steady through the year. This category was scarcely populated prior to the pandemic because rarely did the recall-unemployed remain in that state for longer than 6 months. The category exploded during the pandemic. In the CPS sample, the monthly counts of the unemployed on temporary layoff with durations of 6 months and over in 2020 were 25 and below until April, between 50 and 66 in May-August, and reached 310 in September and 286 in October.

As in the pre-pandemic period, during the pandemic, the work-finding rate among the recall-unemployed was twice as high among the jobless-unemployed. This also holds true for the unemployed at durations of six months or longer.

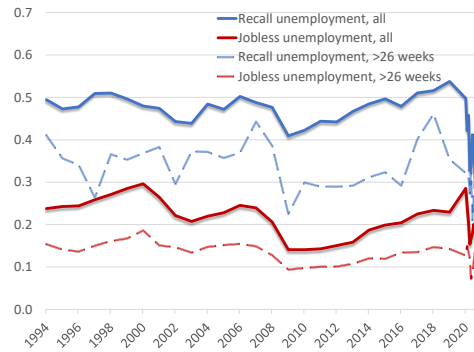
5.2 The vacancy-unemployment ratio

When the vacancy-unemployment ratio is low—vacancies are scarce while job-seekers are plentiful—jobs are hard to find and the labor market is slack. Alternatively, when the vacancy-unemployment ratio is high—vacancies are plentiful and jobseekers are scarce—vacancies are hard to fill and the labor market is tight. That is, the vacancy-unemployment ratio is low in slumps and high in booms.

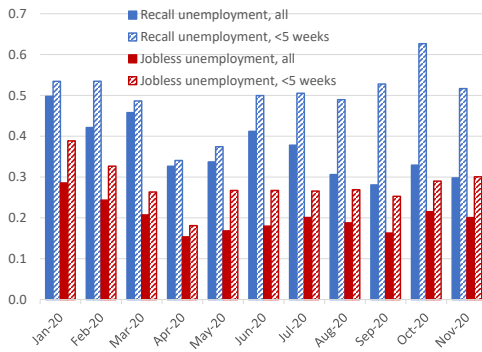
The appropriate measure of vacancies should include those vacancies that are available for any jobseeker and not those positions that are being held for the workers to be recalled. This is what the vacancy measure measures in JOLTS. The appropriate measure in the denominator of the vacancy-unemployment ratio should include only those job seekers who actively search for jobs, not those who are waiting for recall. We therefore construct the



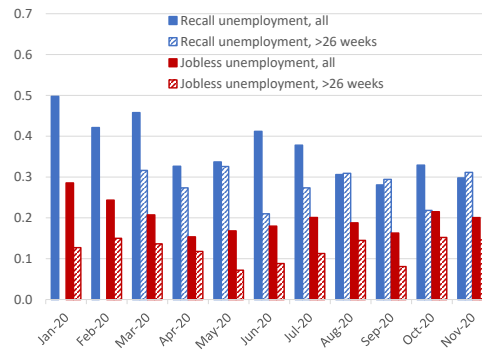
(a) All and short-term, full sample



(b) All and long-term, full sample



(c) All and short-term, 2020



(d) All and long-term, 2020

Figure 4: Work-Finding Rates for Recall- and Jobless-Unemployed, by Duration

Note: The figures show the rate at which the unemployed transition into employment from one month to another, with the latter month labeled on the horizontal axis. The series are annual averages of the seasonally adjusted series up to 2019, and monthly series thereafter. The series are calculated only for the months with 10 or more unemployed individuals in the CPS sample.

vacancy-unemployment ratio as a ratio of vacancies from JOLTS to the number of jobless-unemployed in the CPS. We note that the pool of jobless-unemployed is a lower bound on the number of jobseekers among the unemployed because some recall-unemployed also engage in active search.

Figure 5 shows the ratio of vacancies to the jobless-unemployed. Panel (a) shows the series for the full sample period and panel (b) zooms in on the pandemic. During the pandemic, the vacancy-to-jobless-unemployment ratio dropped from 1.4 to 0.8 and remained at that level. For comparison, the ratio dropped to 0.2 during the 2007-09 recession.

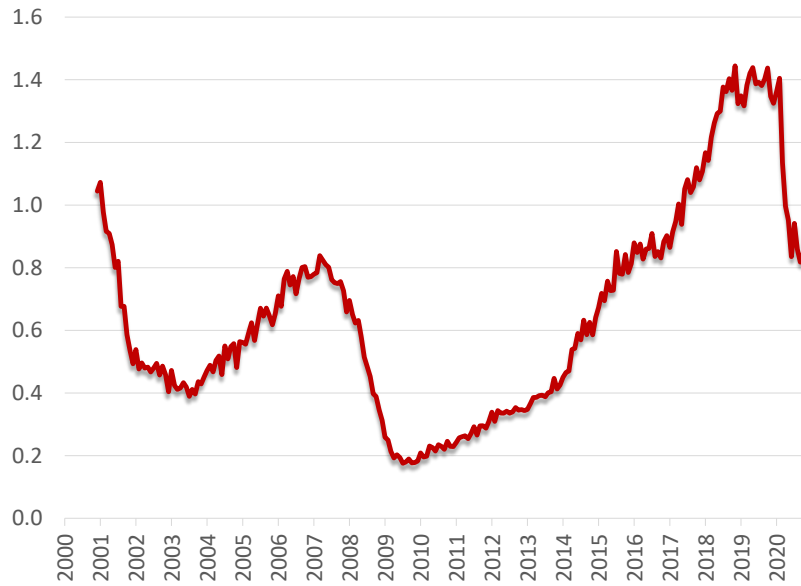
Both measures of labor market tightness—the work-finding rate of the jobless-unemployed and vacancy-to-jobless-unemployment ratio—show that the pandemic labor market was tighter than would be inferred from the overall unemployment rate. They agree that the labor market was less favorable for job-seekers than it was in the exceptionally strong market of 2019, but not as weak as the standard unemployment rate would suggest. The moderate increase in the jobless-unemployment rate over its 2019 level confirms that conclusion.

5.3 The Beveridge curve

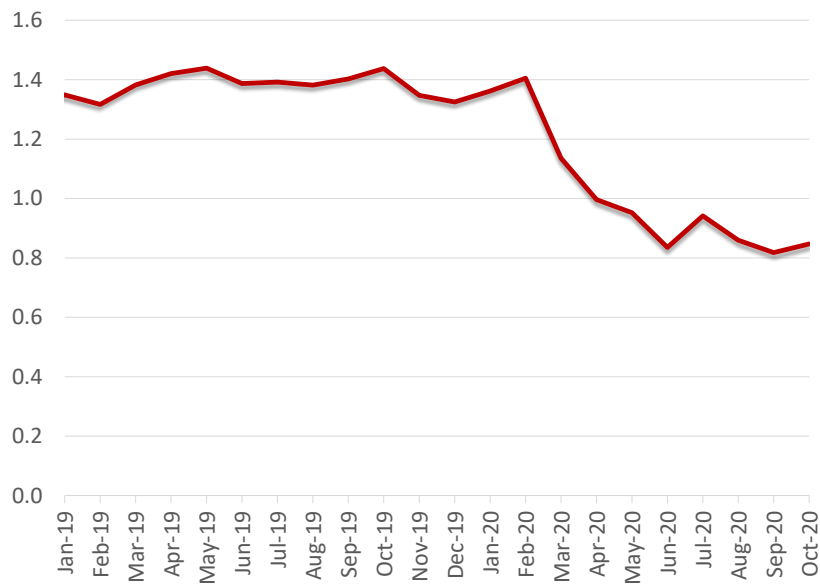
The Beveridge curve is a graph with unemployment on the horizontal axis and vacancies on the vertical axis. When the labor market is tight, vacancies are numerous and unemployment is low; the labor market is at a point up and to the left on the Beveridge curve. When the market is slack, vacancies are scarce and unemployment is high, down and to the right on the curve.

Overall unemployment rose much more than would be consistent with the pre-pandemic Beveridge curve, given the behavior of vacancies. Jobless-unemployment, when placed on the horizontal axis instead of overall unemployment, results in a reasonably stable new version of the Beveridge curve (see, for example, Gallant et al. (2020)).

Because the Beveridge curve uses the same data on jobseeking and recruitment as in the vacancy-unemployment ratio above, it would be redundant to present the data here in the Beveridge-curve format—it would not add to the strong case that jobless-unemployment plays a similar role in the pandemic labor market to the role that overall unemployment did in earlier recessions. We also note that the Beveridge curve is inherently unstable, because, as embodied in the DMP model, the vacancy rate is a jump variable, whereas unemployment is a state variable that lags behind jumps in vacancies.



(a) Full sample



(b) 2019-2020

Figure 5: Vacancy-Unemployment Ratio

Note: Vacancy data from JOLTS. Unemployment data from the CPS. Both series are seasonally adjusted.

6 Social Costs of Recall- and Jobless-Unemployment

Both a recall-unemployed person and a jobless-unemployed person are not working despite a likely inclination to work. There is a gross social loss of the output the worker would have produced while at work, netted against the value the worker can find by productive or enjoyable use of the time freed up by not working. Thus, the social cost of a month of recall-unemployment is at least approximately the same as the cost of a month of jobless-unemployment.

On the other hand, because monthly work-finding rates are substantially higher for those in recall-unemployment than those in jobless-unemployment, the social cost of a layoff with recall prospect is typically well below the social cost of a layoff without that prospect. This is because the expected spell of lost productivity is so much shorter. And the job-finding rate of a worker in jobless-unemployment understates the expected duration back to a job with productivity equal to the earlier job, because the first job or two may be interim jobs, less productive than the job that the worker eventually settles into. Put differently, the worker in recall-unemployment has a good chance of returning to a position up the job ladder, while the worker in jobless-unemployment drops to the bottom of the ladder.

7 Concluding Remarks

A pandemic can trigger a severe recession, with a higher percentage of workers inactive than in the worst past recessions and a corresponding huge drop in output. Fortunately, the subsequent decline in unemployment in the pandemic was much more rapid than in past recessions.

The evidence is reasonably clear that there are two basic kinds of unemployment behind these developments. The shutdown of major sectors of employment led many employers to idle their workers, but to indicate to them that they should plan to be recalled to their jobs. Recall-unemployment, previously a sideshow in labor dynamics, became the bigger component of total unemployment almost overnight. Soon, recall-unemployment began to decline, replaced in small part by a rise in jobless-unemployment. Total unemployment receded much faster than in earlier recessions.

Tightness in the labor market, revealed by the job-finding rate for active, jobless-unemployed individuals, declined early in the pandemic, but not to typical recession levels, and then rose to pre-pandemic levels. Tightness, revealed by the vacancy/jobless-unemployment ratio, declined but not to the recession levels suggested by the level of the total unemployment rate.

References

- Alvarez, Fernando and Robert Shimer, “Search and Rest Unemployment,” *Econometrica*, 2011, 79 (1), 75–122.
- Barrero, Jose Maria, Nick Bloom, and Steven J. Davis, “COVID-19 Is Also a Reallocation Shock,” 2020. Becker Friedman Institute, Working Paper No. 2020-59.
- BLS, “Frequently asked questions: The impact of the coronavirus (COVID-19) pandemic on The Employment Situation for April 2020,” 2020. Available at <https://www.bls.gov/cps/employment-situation-covid19-faq-april-2020.pdf>.
- Brown, Laura and Christopher Ferrall, “Unemployment Insurance and the Business Cycle,” *International Economic Review*, 2003, 44 (3), 863–894.
- Buera, Francisco J., Roberto N. Fattal-Jaez, Hugo Hopenhayn, P. Andres Neumeyer, and Yongseok Shin, “The Economic Ripple Effects of COVID-19,” 2020. Working Paper, UCLA.
- Cajner, Tomaz, Leland D Crane, Ryan A Decker, Adrian Hamins-Puertolas, and Christopher Kurz, “Tracking Labor Market Developments during the COVID-19 Pandemic: A Preliminary Assessment,” 2020. Federal Reserve Board Finance and Economics Discussion Series.
- Card, David and Phillip B. Levine, “Unemployment Insurance Taxes and the Cyclical and Seasonal Properties of Unemployment,” *Journal of Public Economics*, 1994, 53 (1), 1–29.
- Feldstein, Martin, “Temporary Layoffs in the Theory of Unemployment,” *Journal of Political Economy*, 1976, 84 (5), 937–958.
- Forsythe, Eliza, Lisa B. Kahn, Fabian Lange, and David G. Wiczer, “Searching, Recalls, and Tightness: An Interim Report on the COVID Labor Market,” Working Paper 28083, National Bureau of Economic Research 2020.
- Fujita, Shigeru and Giuseppe Moscarini, “Recall and Unemployment,” *American Economic Review*, 2017, 107 (12), 3875–3916.
- Gallant, Jessica, Kory Kroft, Fabian Lange, and Matthew Notowidigdo, “Temporary Unemployment and Labor Market Dynamics During the COVID-19 Recession,” *Brookings Papers on Economic Activity, Forthcoming*, 2020.

- Gregory, Victoria, Guido Menzio, and David Wiczer, “Pandemic Recession: L or V-Shaped?,” Working Paper 27105, National Bureau of Economic Research 2020.
- Hall, Robert E. and Marianna Kudlyak, “Why Has the US Economy Recovered So Consistently from Every Recession in the Past 70 Years?,” Working Paper 27234, National Bureau of Economic Research 2020.
- and Sam Schulhofer-Wohl, “Measuring Job-Finding Rates and Matching Efficiency with Heterogeneous Jobseekers,” *American Economic Journal: Macroeconomics*, January 2018, *10* (1), 1–32.
- Kudlyak, Marianna and Erin Wolcott, “Pandemic Layoffs,” 2020. Middlebury College, Working Paper.
- Ratner, David, “Unemployment Insurance Experience Rating and Labor Market Dynamics,” 2014. Federal Reserve Board, Working Paper No. 2013-86.
- Shimer, Robert, “Reassessing the Ins and Outs of Unemployment,” *Review of Economic Dynamics*, 2012, *15* (2), 127–148.
- Topel, Robert H., “On Layoffs and Unemployment Insurance,” *American Economic Review*, 1983, *73* (4), 541–559.