Comments on

*Why has the US Economy Recovered So Consistently from Every Recession in the Past 70 Years?*

Bob Hall and Marianna Kudlyak

Ayşegül Şahin*

UT Austin, NBER

May 2021

Hall and Kudlyak start with the observation that in the typical US business-cycle recovery, unemployment declines slowly but reliably from a high point at the end of a business-cycle contraction. They show that the direct effect of job loss at the onset of the recession cannot account for the persistently high unemployment rate during the recovery. The recession's effects on the labor market goes beyond the job losses that mark the beginning of recessions. Hall and Kudlyak then explore models where there is feedback from high unemployment to the forces driving job creation. These mechanisms include higher recruiting costs early in the recovery, congestion in recruitment, externalities from recruitment selection, lower matching efficiency, impaired profitability of new matches and persistently higher separation rates. These models imply that the recovery of aggregate unemployment is slower than the rate at which individual unemployed workers find new jobs.

The paper tackles an interesting and eternal topic. Understanding how the labor market recovers from recessionary shocks and how firms recruit and search for workers help us in shaping policy response to recessionary shocks. This comment reviews and interprets Hall and Kudlyak’s findings and suggests new directions of research.

1 Revisiting Unemployment Recovery Patterns

Hall and Kudlyak observe that unemployment declines smoothly but slowly throughout recoveries at close to the same proportional rate. The recoveries appear as close to straight lines in the log

---

*The author thanks Sadhika Bagga for excellent research assistance. Email: aysegul.sahin@austin.utexas.edu.*
Figure 1: The paths of log unemployment during recoveries replicated from Hall and Kudlyak.

plot, which I replicate in Figure 1. The figure shows the log of the unemployment rate during the ten recoveries since 1948, with the recession spells of sharply rising unemployment left blank. It is clear that absent a new recession—which is characterized by a sharp increase in the unemployment rate—the unemployment rate goes down most of the time during recoveries. However, the uniformity in slope is hard to assess from this figure.

To facilitate the comparison of the slopes of the decline in unemployment across recoveries, I plot the log of the unemployment rate normalized at the beginning of each recovery in Figure 2. This so-called spider chart is useful since it provides a direct comparison of the log of the unemployment rate starting from peak unemployment rate which makes it easier to detect the differences in slopes. As the figure reveals, the speed of decline varies across recoveries especially in the earlier parts of expansions. To zoom in on the earlier periods of recoveries, Figure 3 shows the evolution of unemployment in the first four years of each recovery. The differences are stark with the Great Recession being particularly slow and Covid-19 recession following a steep decline in unemployment. It is also noteworthy that, the difference between the 1980s recovery and the Covid-19 recovery is similar to the difference between the Great Recession recovery and the 1980s recovery. Moreover, while earlier recoveries start with steeper declines followed by a brief pause in the decline with unemployment, recent recoveries start with slower declines in the unemployment rate but do not exhibit this mid-cycle pauses.

Examining the evidence in Figures 2 and 3, I conclude that there is more heterogeneity than uniformity at the rate that the unemployment rate declines during recoveries. This finding is also consistent with the earlier studies which analyzed the causes of the slow decline in the unemployment rate following the Great Recession. See for example Daly et al. (2012) and references therein.
Figure 2: The paths of log unemployment during recoveries normalized to peak unemployment rate.

2 The Slow Recovery Puzzle

While the speed of recovery varies across recoveries, uniformity of the pace of recoveries is not essential for the rest of the paper where Hall and Kudlyak move on to analyzing the reasons behind the persistence of high unemployment rate. They convincingly make two related points about unemployment dynamics. First, the number of workers laid off at the onset of recessions is not enough to explain the persistence of unemployment during the recoveries. Second, unemployment declines much more slowly than implied by the measured individual exit rates from unemployment. Therefore, a stylized Diamond-Mortensen-Pissarides (DMP) framework which is calibrated to match the unemployment exit rates fails to capture the recovery dynamics as first argued by Cole and Rogerson (1999). Hall and Kudlyak refer to this observation as the slow recovery puzzle.

It is useful to consider the flow dynamics of unemployment to illustrate the slow recovery puzzle put forth by Cole and Rogerson (1999). My point of departure is the following description of the unemployment rate, \( u_t \),

\[
\frac{du}{dt} = s_t(1 - u_t) - f_t u_t
\]

(1)

where \( s_t \) is the inflow rate to unemployment and \( f_t \) is the outflow rate from unemployment. Shimer (2005) describes a method that uses monthly series on the number employed, the number unemployed, and the number unemployed for fewer than five weeks to infer the inflow and outflow rates. Figure 4 replicates the flow calculations in Crump et al. (2019) using data from the Current Population Survey (CPS) and shows the evolution of unemployment inflow and outflow rates in the last 70 years. Visual examination of inflow and outflow rates shows that the inflow rate is characterized
Figure 3: The paths of log unemployment during recoveries normalized to peak unemployment rate for the first 48 months of the recoveries.

by sharp, short-lived spikes during recessions while the outflow rate from unemployment is strongly procyclical with persistent downswings during recessions.

Given the fast transitional dynamics of the unemployment rate in the U.S, the unemployment rate is closely approximated by its flow steady-state value, \( u^* \), given by

\[
\begin{align*}
  u_t^* &= \frac{s_t}{s_t + f_t} \tag{2}
\end{align*}
\]

Solving Equation 1 forward implies

\[
\begin{align*}
  u_{t+1} &= \lambda_t u_t^* + (1 - \lambda_t) u_t \tag{3}
\end{align*}
\]

Figure 4: Unemployment inflow (left) and outflow (right) rates.
where \( \lambda_t = 1 - e^{-(s_t + f_t)} \) is the speed of convergence to steady-state, \( u^* \). This reduced form—which is implied by the DMP framework—highlights the link between the steady-state level of unemployment rate and its persistence. This link has been also emphasized by Cole and Rogerson (1999) who wrote that *A key qualification, however, is that the extent to which the model matches the business-cycle facts is very dependent on the steady state about which the model fluctuates.*

To demonstrate this link, Table 1 sets the inflow rate \( s \) to 0.018 and computes the steady-state unemployment rate and the rate of convergence to the steady-state for different values of \( f \). It shows that there is a tight link between the persistence of the unemployment rate and its steady-state value. At lower values of \( f \), rate of convergence is slower but for a fixed inflow rate, a lower outflow rate implies a high steady-state unemployment rate. Figure 5 shows the path of the unemployment rate starting from 10% for different values of \( f \) setting \( s = 0.018 \) and shows that while the unemployment rate is more persistent for low values of \( f \), the steady-state unemployment rate is also higher.

Given the range of inflow and outflow rates in the US in Figure 4, convergence to steady-state is very fast. Hall and Kudlyak set the inflow rate \( s \) to 0.018 and the outflow rate to 0.50—approximately to their 2019 levels and compute the path of unemployment following a recession similar to Figure 2. The unemployment rate starts from 10% and declines to its flow steady-state value of 3.5% within a few months. This fast convergence stands in sharp contrast to the data where it takes several months for the unemployment rate to go back to its pre-recession level.

### Table 1: The steady-state unemployment rate and rate of convergence to the steady-state for different values of \( f \).

<table>
<thead>
<tr>
<th>( f )</th>
<th>( u^* )</th>
<th>( \lambda )</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.10</td>
<td>15.25%</td>
<td>0.11</td>
</tr>
<tr>
<td>0.20</td>
<td>8.26%</td>
<td>0.20</td>
</tr>
<tr>
<td>0.30</td>
<td>5.66%</td>
<td>0.27</td>
</tr>
<tr>
<td>0.40</td>
<td>4.31%</td>
<td>0.34</td>
</tr>
<tr>
<td>0.50</td>
<td>3.47%</td>
<td>0.40</td>
</tr>
</tbody>
</table>

3 Two Key Missing Margins in the Basic DMP Framework

Consistent with this tight link between the *level* and the *persistence* of unemployment that I demonstrated in Table 1 and Figure 5, Cole and Rogerson (1999) argued for incorporating heterogeneity in worker search intensity and allowing for quits and temporary separations—margins that are absent in the basic DMP framework. Their first point is about using data from the world in which there
are three labor market states (i.e., employed, unemployed, and not in the labor force) to calibrate a model in which there are only two states. The second point is about lack of quits and temporary layoffs in the basic DMP framework. I will build on their intuition and argue that there are two key missing margins in the stylized DMP framework: the participation margin and job-to-job transitions which are key ingredients needed to address the slow recovery puzzle.

3.1 The Role of the Participation Margin for Unemployment Fluctuations

The basic model considered in Hall and Kudlyak abstracts from the participation margin and considers a two-state model with only job-loss and job-finding margins. However, recent research emphasized the importance of the participation margin for unemployment rate fluctuations and showed that workers’ movements between participation and unemployment account for one third of unemployment fluctuations in the data.¹ Moreover, entry into unemployment from non-participation remains persistently high even after job losses subside contributing to persistently high unemployment rate during recoveries.

To illustrate this point, Figure 6 replicates the analysis in Elsby et. al. (2015). Specifically, it shows the decomposition of the change in the unemployment rate starting from March 2007 accounted for by each of the worker flow transition rates. This episode was associated with a rise in the unemployment rate in excess of 5 percentage points and the unemployment rate only declined by

¹See for example, Elsby et. al. (2015) and Krusell et al. (2018).
2 percentage points three years after its peak in late 2009. While the most important margin is the unemployment-to-employment transition rate, flows between nonparticipation and unemployment played an important role for the rise and the subsequent decline in the unemployment rate. The role of flows between unemployment and nonparticipation was quantitatively significant and important. Notably, the inflow into unemployment from participation remained consistently high even after employment to unemployment flow rate declined. This is an important observation since it shows that not all inflows into unemployment are about job loss. Workers who enter the labor market when the unemployment rate is high are more likely to enter through unemployment (such as recent college graduates) which puts upward pressure on the unemployment rate. Incorporating this margin increases the persistence of inflows into unemployment in excess of what is implied by the job loss margin.

Hall and Kudlyak propose the gradual decline of the separation rate as a function of the unemployment rate as a potential mechanism to address the slow recovery puzzle. The participation margin provides rationale for a more gradual decline of the separation rate than implied by job losses consistent with their discussion.

Figure 6: Decomposition of the change in the unemployment rate starting from March 2007 accounted for by each of the worker flow transition rates following Elsby et al. (2015).

### 3.2 The Role of Quits and Job-to-Job Transitions

Another key missing margin in the stylized model considered by Hall and Kudlyak is job-to-job transitions which is an important feature of the U.S. labor market. For example, Sedláček (2016) has documented that 30 to 40 percent of all hires originate from employment. Faberman et al.
(2020) has found that $\approx 60\%$ of applications sent in 2013-2017 were sent by employed workers and employed workers accounted for around 70% of offers made during the same period in the Survey of Consumer Expectations. These findings suggest that firms’ vacancy posting decisions are not only tied to unemployed searchers as suggested by the basic framework. Relatedly, once on-the-job search is taken into account market tightness will not be captured by the vacancy to unemployed ratio but rather by the ratio of vacancies to effective searchers—which include employed workers as in Abraham et al. (2020). Recent papers in the literature pursued this idea and showed that models that take into account employed searchers capture labor market dynamics better. See for example, Moscarini and Postel-Vinay (2017), Eeckhout and Lindenlaub (2018) and Faberman et al. (2020).

To examine why job-to-job transitions are essential to address the slow recovery puzzle, Figure 7 shows the quits rate along with the U-2 unemployment rate which is a narrower unemployment rate that only includes workers who are unemployed due to job loss. Quits are strongly procyclical and they pick up slowly even after the U-2 rate goes down. As a result even after workers who get displaced during the recessions find jobs, employed people keep searching for better opportunities. These employed workers include the ones who delay quitting their jobs during recessions for the hope of a stronger labor market and those who were displaced during the recession and found jobs at the lower rungs of the job ladder. This reallocation over the job ladder takes longer as workers reallocate from the lower to the upper rungs of the job ladder. This idea is formalized

![Figure 7: U-2 and quits rate over the business cycle.](source)

in Eeckhout and Lindenlaub (2018) and Faberman et al. (2020) who show that traditional labor market tightness ($\text{vacancy/unemployed}$) and effective labor market tightness ($\text{vacancy/searchers}$) evolve differently over the business cycle. Employed workers’ search effort declines during recessions
and increases during recoveries shifting the composition of job seekers. Firms’ vacancy posting behavior responds to these shifts in the composition of searchers. As a result, even after labor demand picks up, movement of employed workers over the job ladder creates persistence in labor market conditions. Abstracting from on-the-job search ignores the compositional changes in the searcher pool, the gradual movement over the job ladder, and firms’ reaction to these changes. Given the importance of employed searchers in overall search activity in the economy, on-the-job search margin should be incorporated to the DMP framework to capture labor market dynamics.

4 Concluding Remarks

Hall and Kudlyak revisit an important feature of the unemployment rate in the US. Regardless of the reasons behind the rise in the unemployment rate in the preceding recession, the unemployment rate goes down at a slower pace than it rises. Put differently, unemployment fluctuations are asymmetric: it takes a long time for the unemployment to recover after a typical recession. Hall and Kudlyak offer many interesting mechanisms that would generate slow unemployment recovery dynamics that we need to better understand.

While the mechanisms they review are interesting and likely to be important they abstract from two key features of the labor market. Recent research that followed up Cole and Rogerson (1999) emphasize that labor force entrants, re-entrants, and people who move from employer to employer are important in understanding firms’ hiring decisions. Since their importance has been established in the last twenty years, starting from a model with these features would make the analysis more fruitful. In my view, relying on a highly stylized framework which abstracts from these two keys margins and adding additional mechanisms is less conclusive than starting from a more general framework with three labor market states and on-the-job search.

To conclude, the analysis of Hall and Kudlyak is a valuable addition to the macro-labor literature which focused on better understanding unemployment dynamics. The authors convincingly demonstrated that the stylized model fails short of generating realistic fluctuations in the unemployment rate. Developing models that match this feature of unemployment is key for policy analysis and design.

References


