Comments by Steven J. Davis* on “A Unified Approach to Measuring u*” by Richard K. Crump, Stefana Eusepi, Marc Giannoni and Aysegul Sahin

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The authors make an excellent contribution, in two main parts, to our understanding of unemployment and inflation dynamics: First, they estimate a trend decline in the U.S. unemployment rate of about 3 percentage points since the early 1980s. This development reflects a secular fall in the unemployment inflow rate, which the authors link to several deeper forces. This part of the paper brings together and extends a wide range of previous studies. Second, they develop an empirical model around a Phillips Curve with forward- and backward-looking elements, their measured unemployment trend, and survey data on inflation expectations. They use their empirical model to estimate the natural rate of unemployment, u*, and to interpret the joint evolution of labor market slack and inflation. In their characterization, u* moves over time due to the evolution of the unemployment trend and due to temporary forces.

In my remarks below, I first elaborate on the deeper forces behind the downward drift in unemployment and explain why this drift is important, quite apart from its implications for inflation. Then I express doubts about the practical usefulness of the authors’ Phillips Curve model, and the Phillips Curve concept more broadly, for the conduct of monetary policy. Related, I conclude that continued efforts to precisely pin down the natural rate of unemployment and to estimate its impact on current and near-term inflationary pressures are unlikely to be fruitful. In closing, I suggest we can more readily advance our ability to assess current and near-term inflationary pressures by developing better measures of expected inflation, and a deeper understanding of how expected inflation behaves and feeds into current inflationary pressures.

A Downward Drift in the Trend Unemployment Rate

Movements in the U.S. unemployment rate are well approximated by the steady-state relation, \( u \approx u^{SS} = s/(s + f) \), where s is the monthly unemployment inflow rate and f is the monthly outflow rate. In light of this observation, the authors measure the trend unemployment rate, \( \bar{u} \), by extracting trends in s and f. While they use more disaggregated data in measuring the trend, Figure 1 tells the story: The inflow rate, s, drifts down from the early 1980s, falling by roughly half over nearly four decades. The outflow rate, f, is highly procyclical and shows some indication of a downward drift after 2000. On this basis, the authors conclude that the trend unemployment rate, \( \bar{u} = \bar{s}/(\bar{s} + \bar{f}) \).
\( \bar{f} \), reflects a large downward drift in the unemployment inflow rate. The proportionally modest fall in \( \bar{f} \) works in the opposite direction.

**What’s Behind the Downward Drift in \( \bar{s} \)?**

The authors identify four factors behind the downward drift in \( \bar{s} \) in recent decades: an increased labor force attachment of women, the aging of the U.S. population (“worker aging”), a rightward shift in the employment-weighted age distribution of firms (“firm aging”), and secular declines in job destruction and reallocation rates. As the authors rightly note, these factors overlap and we cannot simply add them up to get their combined contribution.

I agree that these four factors are important drivers of the downward drift in \( \bar{s} \), but there is more to the story. Another important factor is the disappearance of short-duration employment relationships. Using data derived from administrative records, Hyatt and Spletzer (2017) show that more than half the drop in hiring and separation rates from 1996 to 2012 reflects a declining incidence of jobs that start and end in the same calendar quarter. They also find that the shifting composition of workers and employers accounts for only 22 percent of the declining incidence of short-duration employment relationships, mostly due to the aging of workers and firms.\(^1\) This finding tells us that the disappearance of short-duration employment relationships is largely distinct from the first three factors that the authors stress. I suspect it is also largely distinct from the secular fall in job destruction and reallocation rates, given how job flows are measured.\(^2\)

Another factor is falling labor participation rates among young adults. My Figure 1 shows large declines since the late 1980s in the participation rates of persons who are 16-19, more modest declines for those who are 20-24, and little change for those who are 25-54. My Table 1 documents the well-known fact that young adults have relatively high unemployment rates. Unemployment inflow rates are also much higher among the young, as the authors show in their Figure 3. Taken together, these facts tell us that labor force participation rates by age shifted in a manner that contributes to the secular fall in \( \bar{s} \) and \( \bar{u} \). This factor is distinct from the role of population aging that the authors stress.

See Davis and Haltiwanger (2015) for a discussion of developments that contributed to falling labor force participation rates among the young – and among the less-educated, who also have a relatively high propensity for unemployment. See Davis et al. (2007), Decker et al. (2014) and Davis and Haltiwanger (2015) on various factors behind the secular decline in job reallocation intensity.

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\(^1\) Shifts by worker education and gender and by firm size and industry play a much smaller role or work in the opposite direction, according to Hyatt and Spletzer.

\(^2\) See Davis and Haltiwanger (1998) for an extended discussion of how worker flow measures (e.g., hiring and separation rates) relate to job flow measures.
Table 1. U.S. Civilian Unemployment Rates by Age Group and Time Period

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Source: U.S. Bureau of Labor Statistics, Unemployment Rates from the Current Population Survey, retrieved from FRED on 14 April 2019: 16 to 19 years [LNU04000012], 20 to 24 years [LNU04000036], and 25 to 54 years [LNS14000060]. Table entries are averages of monthly values during the indicated period.

Figure 1. U.S. Labor Force Participation Rates by Age Group, Annual, 1975 to 2018

Source: U.S. Bureau of Labor Statistics, Civilian Labor Force Participation Rates from the Current Population Survey, retrieved from FRED on 14 April 2019: 16 to 19 years [LNU01300012], 20 to 24 years [LNU01300036], and 25 to 54 years [LNU01300060]. Plotted data are annual averages of monthly values.

The Smaller Downward Drift in $f$

The downward drift in the unemployment outflow rate is modest but has material implications for $\bar{u}$, as the authors show. So, it’s worth asking what deeper forces lie behind the downward drift in $f$. In this respect, one noteworthy development is that
geographic mobility fell in recent decades, even conditional on age (e.g., Molloy et al., 2014). As job losers and labor market entrants become less willing or able to migrate away from declining cities and regions, one likely effect is a fall in the unemployment outflow rate.

There are good reasons to think that falling geographic mobility is at least partly due to policy developments. As one example, the spread of occupational licensing (Kleiner and Krueger, 2013) inhibits mobility across occupations and states. See Carpenter et al. (2012), White House (2015) and Johnson and Kleiner (2017) for evidence. As a second example, Hsieh and Moretti (2019) document a secular rise in the dispersion of nominal wages across U.S. cities from 1964 to 2009. They link this development to the adoption of land use restrictions in high-productivity coastal cities that reduced the elasticity of housing supply and inhibited the in-migration of new workers from less productive cities and regions.

That raises some interesting empirical questions that I have not seen addressed: To what extent is the downward drift in $\bar{f}$ concentrated in cities and regions with relatively low nominal wages? Is the downward drift present in cities with high nominal wages? Has the geographic dispersion of unemployment outflow rates risen in recent decades? If so, does the spatial pattern of rising dispersion in unemployment outflow rates align with the spatial pattern of rising nominal wage dispersion in Hsieh and Moretti?

Five Takeaways

The authors make a compelling case that the trend component of the U.S. unemployment rate fell by roughly 3 percentage points since the early 1980s. They also identify several proximate drivers of this trend decline, and I have added to their list in my remarks above. These empirical results are quite helpful in assessing past U.S. economic performance and the future outlook for the U.S. economy, quite apart from any implications for inflation. In these respects, I see five important takeaways:

1. Much of the downward drift in U.S. unemployment rates over the past 35 years reflects good fortune rather than good macroeconomic policy. The “good fortune” includes the effects of population aging, increases in female labor force attachment, and declining business dynamism.
2. Some part of the downward drift in $\bar{u}$ probably reflects bad policy – i.e., policies that drove younger, less educated and other marginal workers out of the labor force.
3. Some past drivers of falling $\bar{s}$ have largely played out, and some may reverse. The increased labor force attachment of women, for example, seems to have largely played out. In all likelihood, we will be less fortunate with respect to the behavior of $\bar{s}$ and $\bar{u}$ in the coming decades.
4. The downward drift in $\bar{f}$, though modest and more recent, warrants concern. As the authors show (Figure 7, top panel), the fall in $\bar{f}$ raised $\bar{u}$ by 50 basis points. Lower values of $\bar{f}$ also slow recovery from the upward spikes in job destruction rates and $s$ that typify the onset of recessions. That is, recessionary increases in unemployment take longer to unwind when $\bar{f}$ is...
lower, other things equal. Insofar as greater land use restrictions drove the downward drift in $\bar{f}$ by inhibiting migration to cities with better job opportunities, it will be politically challenging to reverse the decline in $\bar{f}$.

5. The trend component of the natural rate of unemployment has fallen substantially since the early 1980s, with 3 percentage points as a reasonable rough guess for the size of the fall.

The Challenge of the Phillips Curve

The authors integrate two very different approaches to estimating the natural rate of unemployment. This is a worthy ambition, and it’s hard to take issue with the broad goal. Nevertheless, I see huge challenges in using the Phillips Curve to (a) sharpen our estimate of the natural rate of unemployment and (b) serve as a practical aid to monetary policy makers in assessing near-term inflationary pressures.

Justin Wolfers forcefully expresses one set of concerns about Phillips Curve modelling in his remarks on a paper by Ball and Mazumder (2011) at a previous conference for the Brookings Papers on Economic Activity:

That the Phillips curve has not been proved false may be because it is not falsifiable…. there are so many degrees of freedom to consider…. Inflation can be measured as headline, core, or median, using either the PCE deflator, CPI, or GDP deflator. Inflation expectations can be modeled as rational, adaptive, or anchored. Data from different surveys can be utilized, such as the Livingston, SPF, Blue Chip, and the Michigan survey. Different measures of slack can be used, from the unemployment rate to the output gap to capacity utilization. The long-term unemployed can be included or not. Coefficients can be fixed or allowed to change over time. The lag structure can be adjusted, and nonlinearities can be assumed or ignored. Regime shifts can be invoked. Supply shocks can be included, including shocks to food, energy, and import prices, and price controls can be a factor in certain periods. Some economists want to control for productivity or the labor share. In the end, there are more degrees of freedom than observations, which means that whatever path inflation might take, some researcher could plausibly claim to have found a Phillips curve that accounts for that path.

To this expansive list of Phillips Curve variants, the paper at hand adds new degrees of freedom in the form of a richer, more flexible characterization of the natural rate of unemployment. Moreover, their account of puzzling U.S. inflation behavior during and after the Global Financial Crisis leans very heavily on the paths of expected future inflation and expected future slack. We at least have multiple sources of data on expected future inflation, but expected future slack is essentially a free path variable, constrained only by the model and its functional form. Economists are very good at devising models with free path variables to fit nettlesome time series. From my vantage point, the authors’ Phillips Curve looks like the latest iteration in the long line of iterations that Wolfers summarizes. I do not think it will be the last iteration. More important, I do not see any
reason to think it will prove a more useful practical guide to near-term inflationary pressures than many of its predecessors.

There is another view. At the same Brookings conference, James Stock responded to Wolfers as follows:

The basic fact remains that inflation in the United States and in other developed economies falls during periods of slack. This happened during the 1960s recession and again during the 1969 recession. The 1973 recession was different because of the oil price shock, but the pattern reappeared in the early-1980s and 1990 recessions, and again in 2000 for a while, except for a very interesting episode in 2004 and 2005. And much the same thing happened in 2007 and after, although the scale of it was in question. The issue then is not whether the pattern exists, but how to model it.

Stock’s point about the “basic fact” is important and hard to deny. But it does not necessarily follow that the relationship between inflation and the unemployment gap (or other measure of slack) is sufficiently simple, stable and predictable in its response to policy itself as to admit an empirical model that delivers confident predictions about near-term inflationary pressures.

In this respect, I am reminded of the view expressed by Olivier Blanchard (2016): “Macroeconomists have learned, often painfully, that while low unemployment creates inflation pressure, the form of the relation can change and has changed over time.” Blanchard reviews some of these changes in U.S. unemployment-inflation dynamics since the 1960s.

In using the Phillips Curve as a practical tool of monetary policy, perhaps the best we can do is to keep in mind Stock’s “basic fact” and combine loose theorizing, simple statistical models, and informed judgment to obtain a very rough barometer of near-term inflationary pressures.

Uncertainty About the Natural Rate of Unemployment

The 68% confidence interval for \( u^* \) in the authors’ preferred empirical model is about 1 percentage point. The 95% confidence interval is about 2 percentage points. Their Figure 8 shows two estimated time series for \( u^* \), one based on a price inflation Phillips Curve, and one that relies on a Phillips Curve specification that uses price and wage inflation data. As the authors discuss, their (median) estimated \( u^* \) differs a good deal between these two specifications during much of the 1970s and in the 2009-10 period. Eyeballing Figure 8, it appears that the peak difference is about 80 basis points. In addition to these sources of uncertainty about \( u^* \), the estimated natural rate presumably depends on the choice of inflation expectations data to feed into the model, functional form choices, and more. Pulling these points together, I conclude that the authors’ empirical undertaking does not yield much confidence about the value of the natural rate of unemployment at any point in time. Accounting for estimation uncertainty,
specification uncertainty, and uncertainty about the appropriate data inputs, the range of reasonable values for $u^*$ seems to be at least 250 basis points.

Here, I do not mean to suggest that the authors have done a poor job. Rather, I conclude that bringing the Phillips Curve to the table helps little in sharpening our estimates for the natural rate of unemployment.

**Taking the Authors’ Model at Face Value: Does Slack Matter?**

The authors estimate a flat Phillips Curve: the 90% confidence interval for the coefficient on the unemployment gap, $u_t - u_t^*$, is 0.011 to 0.031 in the model that uses price inflation data only and 0.018 to 0.041 in the model that uses both price and wage inflation data. Suppose these estimates are in the right ballpark. It follows that high uncertainty about the unemployment gap matters little for assessing current inflation pressures, so long as we have good data on expected inflation rates. To be concrete, suppose we misjudge the current value of $u^*$ (and the unemployment gap) by two percentage points. Multiplying this misjudgment by a slope coefficient of 0.03 means that we misjudge current inflation pressures by only 6 basis points (annualized), conditional on expected future inflation. This is a tiny error. Indeed, it’s probably smaller than the uncertainty about the current inflation rate.

The obvious corollary is that getting a sharp estimate for $u^*$ matters very little for assessing current and near-term inflation pressures, provided that we have timely, high-quality measures of inflation expectations. In light of this corollary and 50 years of frustration in macroeconomists’ efforts to develop a stable, reliable Phillips Curve model, perhaps we should shift our focus to better measures of expected inflation, a deeper understanding of what causes expected inflation to move, and a better grasp on how expected future inflation feeds into current inflationary pressures.
References


