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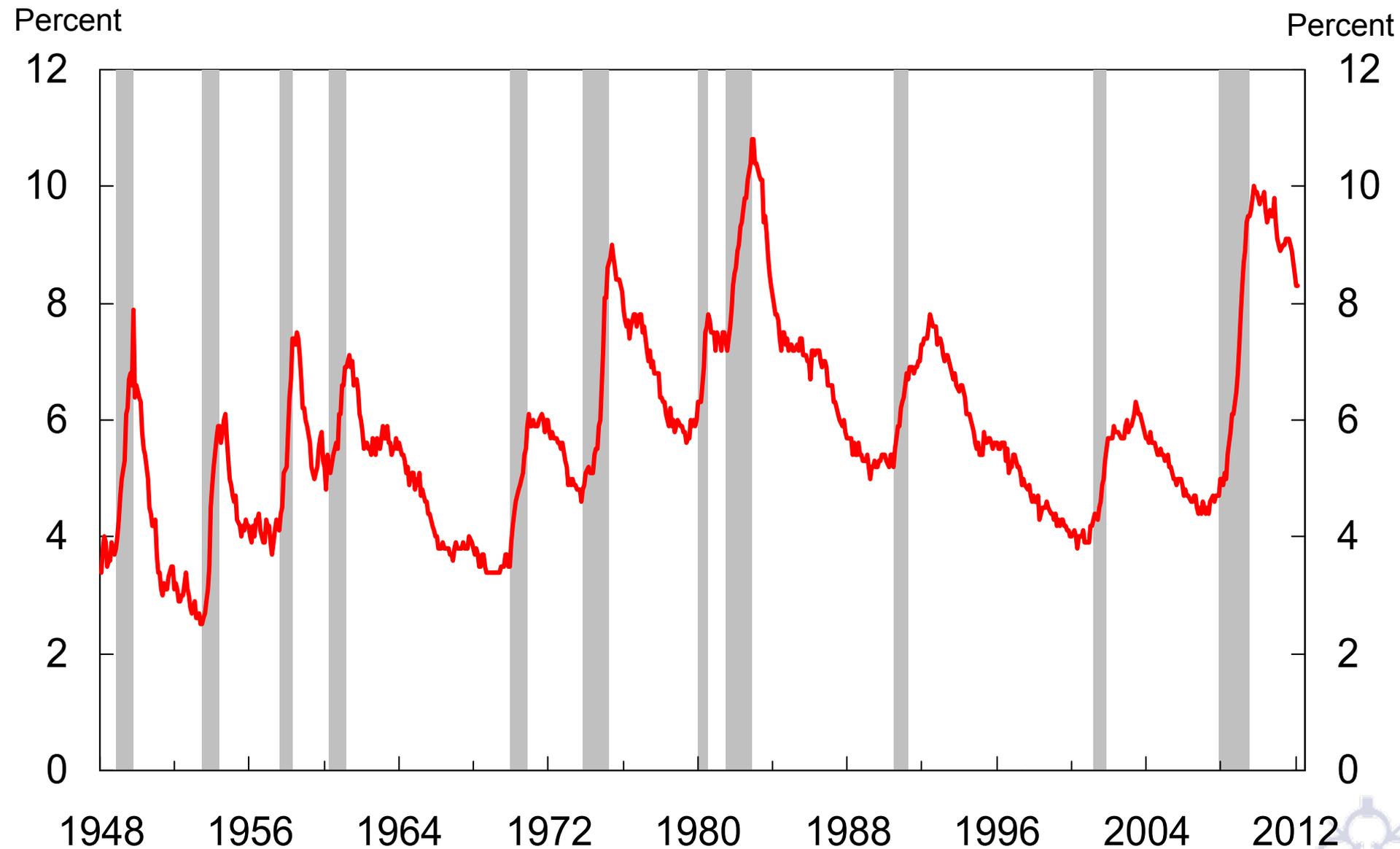
The U.S. Labor Market

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*The views expressed in this presentation are those of the
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Unemployment Rate



Source: Bureau of Labor Statistics

Note: Shading represents NBER recessions.

Unemployment Rate

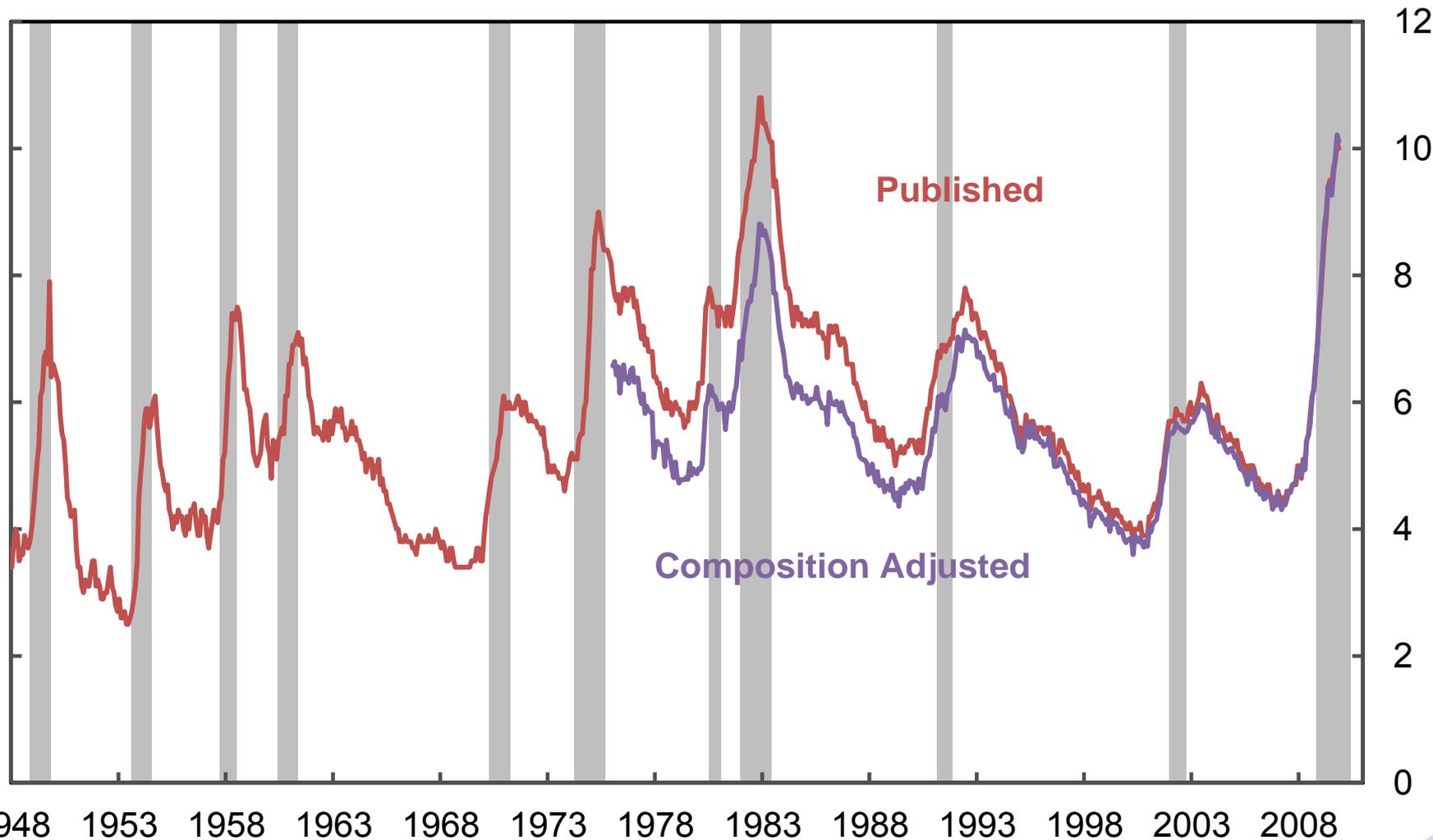
- Unprecedented ramp-up in unemployment: the unemployment rate has risen over 5.5 ppts. The next largest postwar ramp-up was in 1973/74, when unemployment rose only 4.25 ppts.
- The length of the recession is also unprecedented, with unemployment rising for 3 consecutive years.
- But the level of joblessness has not risen to the peak of 11% witnessed in the 1982 recession.
- The demographic structure of the labor force is now different: an older work force.



Composition-adjusted Unemployment Rate

Adjusted for full age, gender, race and education interactions

Percent of Labor Force



Is the Natural Rate Rising?

- In contrast to relatively rapid labor market recoveries following prior deep postwar recessions, two and a half years into this recovery, the unemployment rate is still at 8.3%
- Partly a reflection of the sluggish overall economic recovery, a common occurrence following financial crises .
- Moreover, the unemployment rate has remained high relative to its historical relationship with other business cycle indicators, such as job vacancy rates.
- The disconnect between the unemployment rate and other indicators of aggregate economic conditions has raised the concern that the *natural rate* of unemployment is now higher than it was before the recession.



A Search and Matching Approach to Labor Markets

- We rely on the model of equilibrium frictional unemployment model from Pissarides (2000, Chapter 1).
- This model specifies two curves that determine equilibrium frictional unemployment: the Beveridge Curve (BC) and the Job Creation Curve (JCC).
- We use this framework to analyze the potential increase in the natural rate of unemployment.

References: Barnichon, Elsby, Hobijn, and Şahin (2011) and Daly, Hobijn, Şahin, and Valletta (2011)



A Search and Matching Approach to Labor Markets

- The central idea is that trade in the labor market is uncoordinated, time-consuming and costly for both sides.
- Workers and firms need to spend time and resources to find suitable matches.
- The matching process is summarized by a *matching function* that gives the number of jobs formed as function of vacant jobs and unemployed workers.
- The labor market does not fully clear in each period, and some job openings remain unfilled at the same time that some unemployed persons are unable to find a job.
- Since employers and job seekers both benefit from a job match, wages are determined by the bargaining between employers and employees over the surplus generated by the match.



The Beveridge Curve (BC)

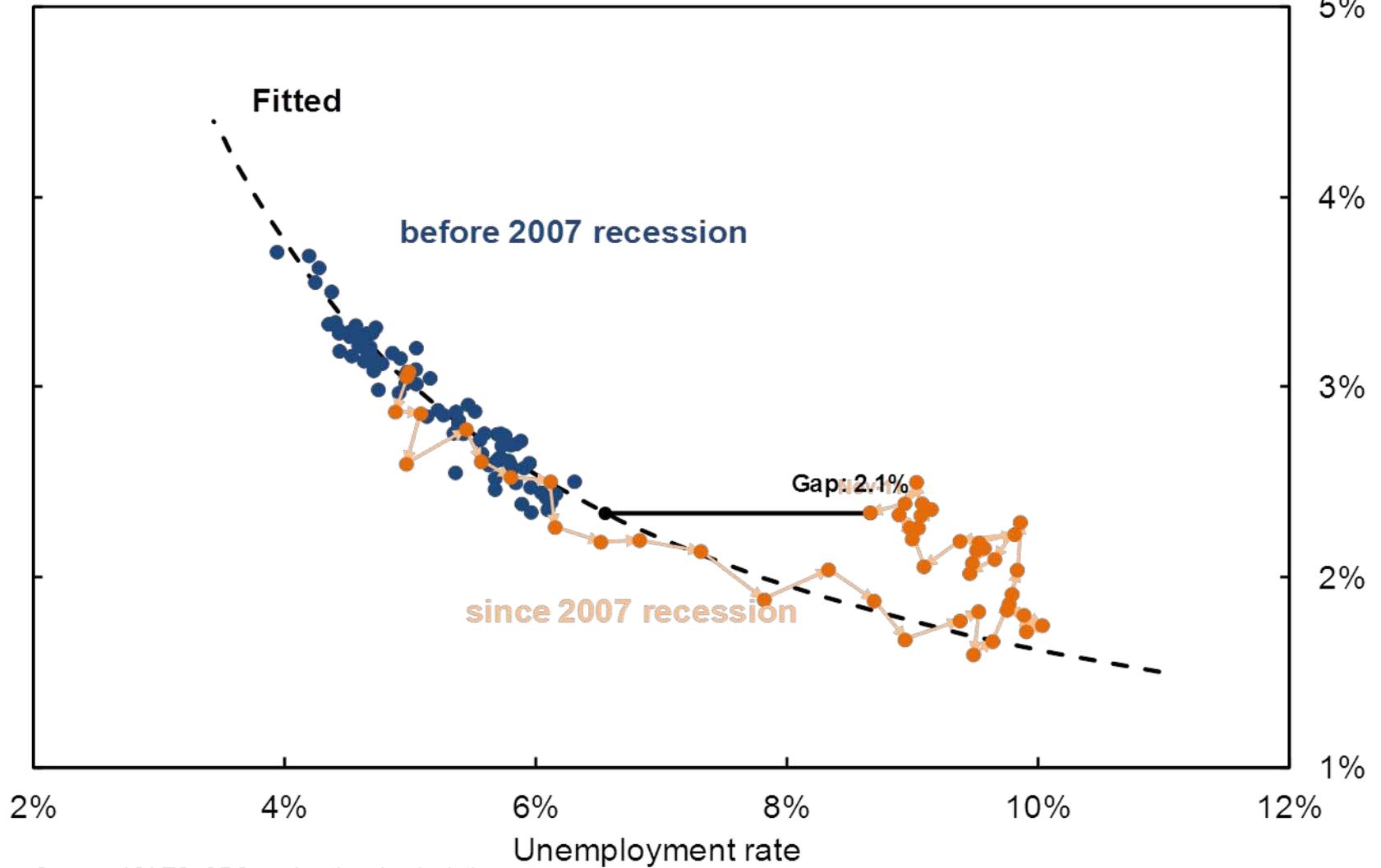
- Matching frictions imply a negative relationship between the unemployment rate and the job vacancy rate *Beveridge Curve*. When labor demand is strong, vacancy rates are high and the unemployment rate is low, and vice versa when labor demand is weak.
- We estimate the BC based on the monthly vacancy data from the JOLTS and unemployment data from the CPS.
- Note that the position of the BC can change, with outward shifts occurring when the pace of layoffs rises or the efficiency of the job matching process declines due to increased mismatch and/or decline in search efficiency.



Actual and the Fitted Beveridge Curve

Monthly observations; pre-2007-recession fit

Job openings rate



Source: JOLTS, CPS, and authors' calculations



The Job Creation Cuve (JCC)

- To understand the driving forces of the rise in the unemployment rate, we must consider not only what is shifting the Beveridge curve and by how much, but also what is affecting job creation, i.e. labor demand.
- Firms will create vacancies up to the point where the expected value of a job match equals the expected search cost to fill the vacancy; the latter combines direct recruiting costs for firms with the probability that the job is filled.
- The JCC is upward sloping, implying that firms have incentives to create more job openings when unemployment is higher since it is easier to fill the vacant jobs.



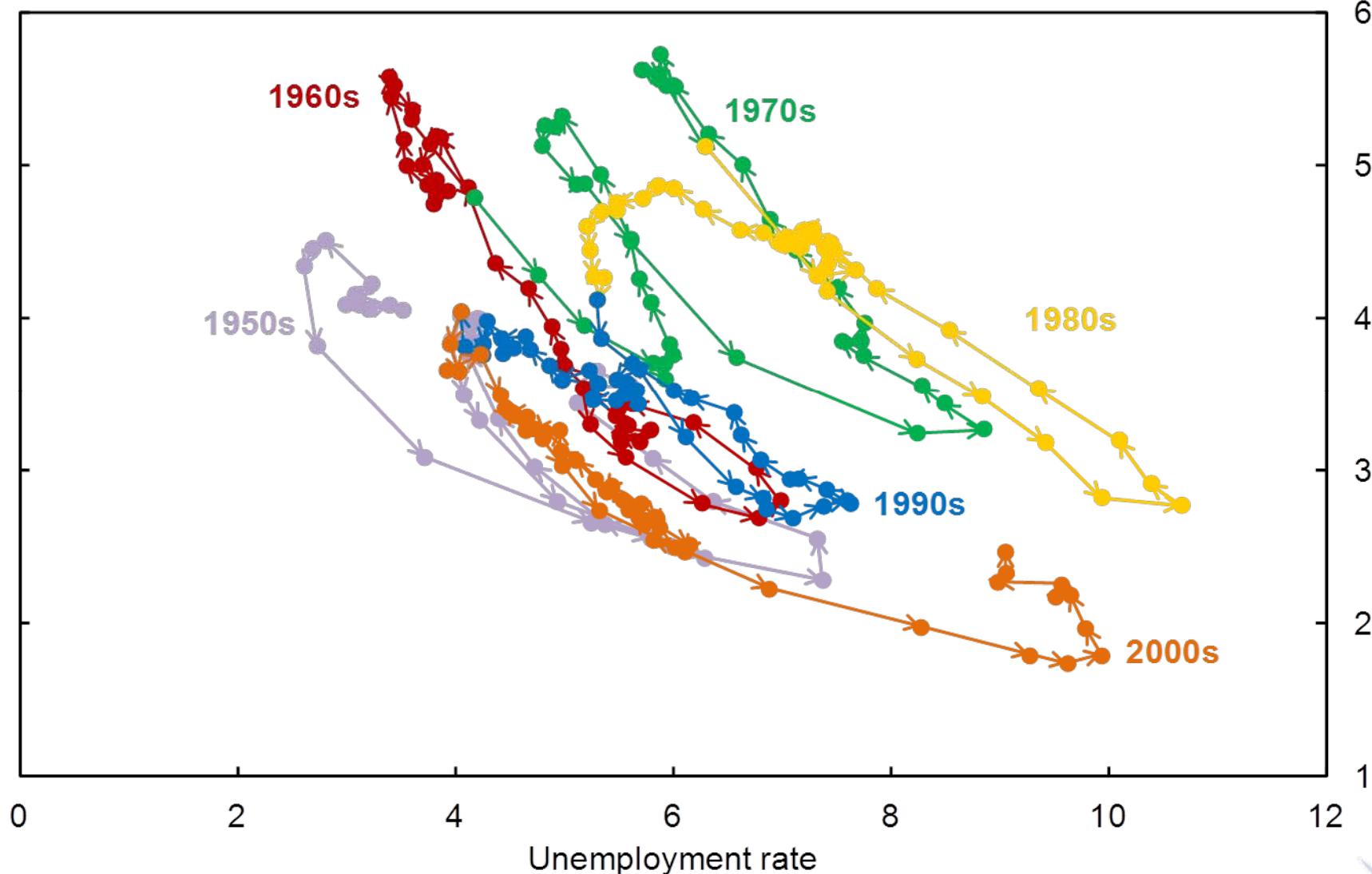
The Historical Beveridge Curve

- We estimate the JCC based on the observation that, historically, outward shifts of the BC have coincided with increases in the CBO's estimate of the natural rate of unemployment.
- Note that the BC shifted rightward by 4 pts between 1960s and early 1980s and then shifted back by 2.5 pts between 1984 and 1989. These outward shifts in previous recessions have coincided with increases in the natural rate of unemployment that are much smaller than the horizontal movement in the Beveridge curve.
- The BC exhibits counterclockwise loops. When the economy recovers, vacancies go up, but it takes a longer time for unemployment to go down.



Historical Beveridge Curve

Seasonally adjusted; quarterly observations; merged HWI and JOLTS Vacancy rate



Source: BLS, Conference Board, Barnichon (2010) and authors' calculations

The Job Creation Curve

- To our knowledge there are no existing estimates of the historical U.S. job creation curve.
- A regression of the historical vacancy rate series on the natural rate of unemployment, using data points observed prior to the recent recession, yields the statistically significant upward sloping relationship.
- The BC and the JCC estimated with pre-2008 data intersect at **5%** which coincides with the *CBO's estimate of the natural rate*.



Recent Shift in the Beveridge Curve

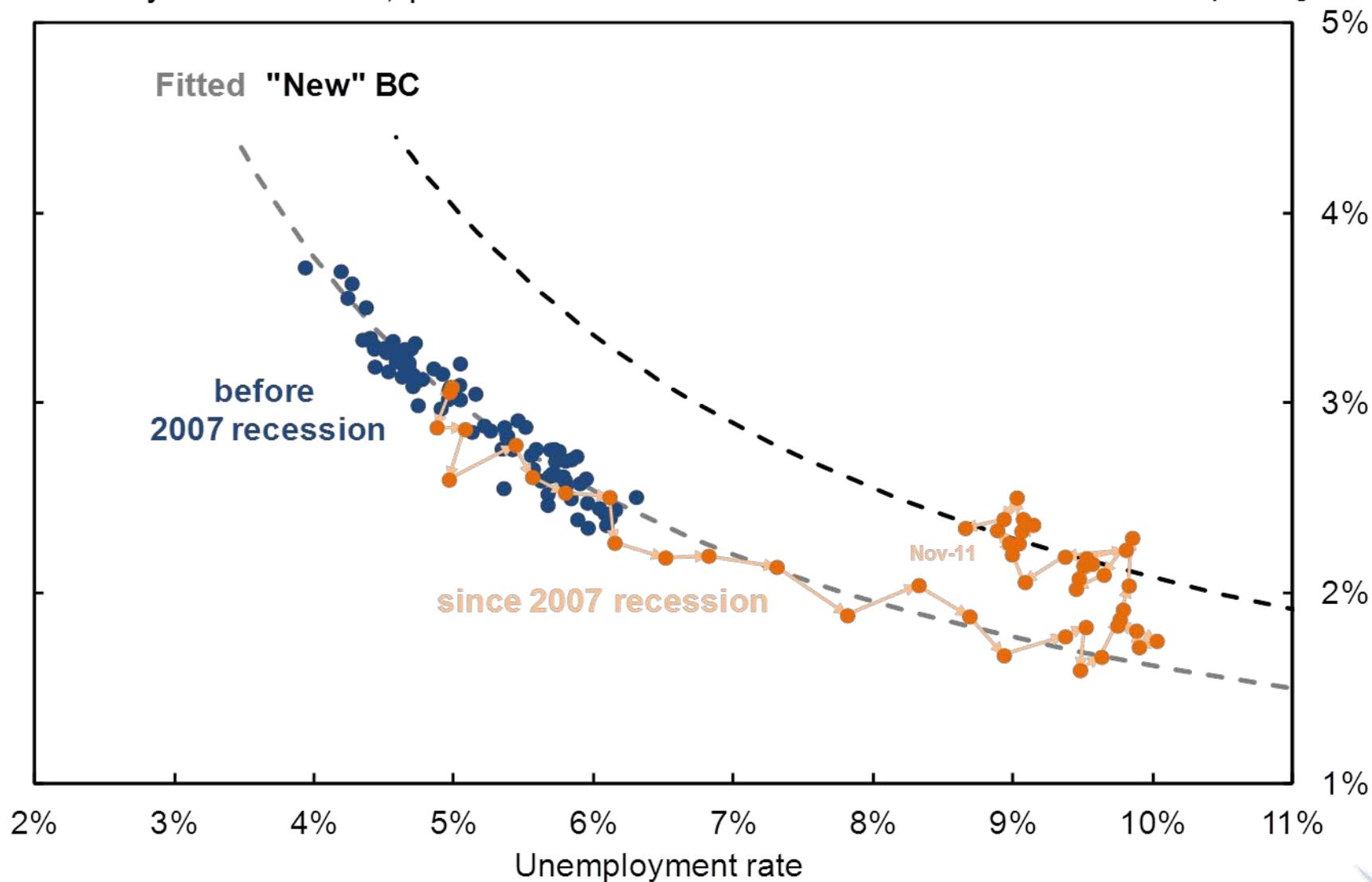
- In November 2011, the actual unemployment rate was 8.7% while the level of the unemployment rate on the fitted BC at the observed 2.3% vacancy rate is 6.6%. This implies a 2.1 ppts unemployment gap.
- We have also constructed a new BC assuming that the average deviation during the last three months is permanent. Our analyses suggest that at an average pre-recession vacancy rate of 3%, the BC has shifted outwards by 1.6 ppts.
- It is tempting to infer from this that the natural rate of unemployment has thus increased from its pre-recession level of 5% to 6.6%. However, this is only true if the JCC is flat!
- We interpret the 6.6% value as an upper bound on the current natural rate.



Fitted and the *New* Beveridge Curve

Monthly observations; pre-2007-recession fit

Job openings rate



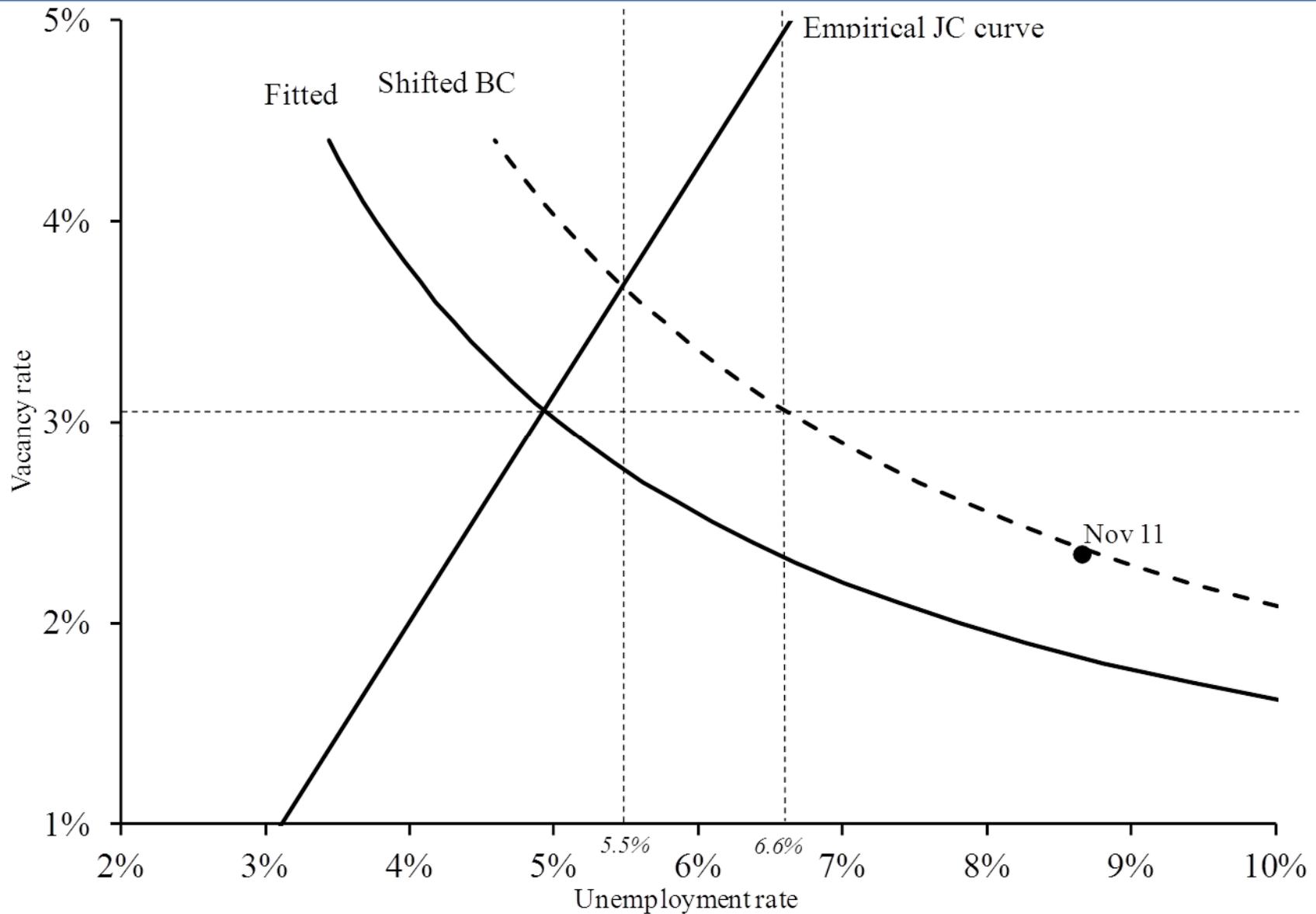
Source: JOLTS, CPS, and authors' calculations

The *New* Natural Rate

- The shifted BC and the empirical JCC intersect at an unemployment rate of 5.5%. Note that this is substantially lower than the 6.6% upper bound on the natural rate of unemployment that we obtained by simply considering the horizontal shift in the BC.
- Given the simplicity of our estimation strategy for the JCC, the estimated natural rate of 5.5% reflects considerable uncertainty. If one were to use alternative time varying estimates of the NAIRU to estimate the empirical JCC, it would flatten out and the estimate of the natural rate would increase.
- For this reason, we interpret the 5.5% estimate as a lower bound on the current natural rate of unemployment.



The New Beveridge Curve and the JCC



The *New* Natural Rate

- We find that if the currently estimated shift in the BC is permanent and the economy returns to its long-run JCC, then the long-run natural rate of unemployment has increased from its 5% level in 2007 to somewhere between 5.5% and 6.5% as of November 2011.
- Note that our estimate of the natural rate was between 5.6% and 6.9% at the end of 2010.
- We regard 6.0%, the midpoint of this range, as a plausible estimate of the current long-run natural rate of unemployment.



Factors that Move the BC and JC Curves

Factors that move the BC and JC curves.

<i>Shifter</i>	<i>JC</i>	<i>BC</i>	<i>Transitory or Permanent</i>
<u><i>Cyclical factors</i></u>			
Shortfall in aggregate demand	↓		Transitory
Elevated layoffs rate	↓	⇒	Transitory
<u><i>Structural/non-cyclical factors</i></u>			
Decrease in match efficiency (mismatch)	↓	⇒	Mostly transitory
Increased generosity of unemployment insurance	↓	⇒	Transitory
Uncertainty	↓	(⇒)	Transitory



Potential Reasons for the Shift in the Beveridge Curve

- Mismatch:

Skill Mismatch : Reallocation, structural change

Geographic Mismatch : Negative Equity, House-lock

- Emergency unemployment compensation



House-lock and Geographic Mismatch

- Geographical disparities in the location of workers and job openings may have contributed to the increase in the unemployment rate.
- Given the decline in house prices that accompanied the recession, job applicants may be more reluctant to apply for and accept jobs that are not within commuting distance from their current residence and would require them to sell their homes. This phenomenon is generally referred to as *house lock*.
- Several studies found that unemployment duration increased similarly for both owners and renters.
- Similarly, there is not much evidence that migration rates fell more in states with a larger share of underwater mortgages.



Skill Mismatch

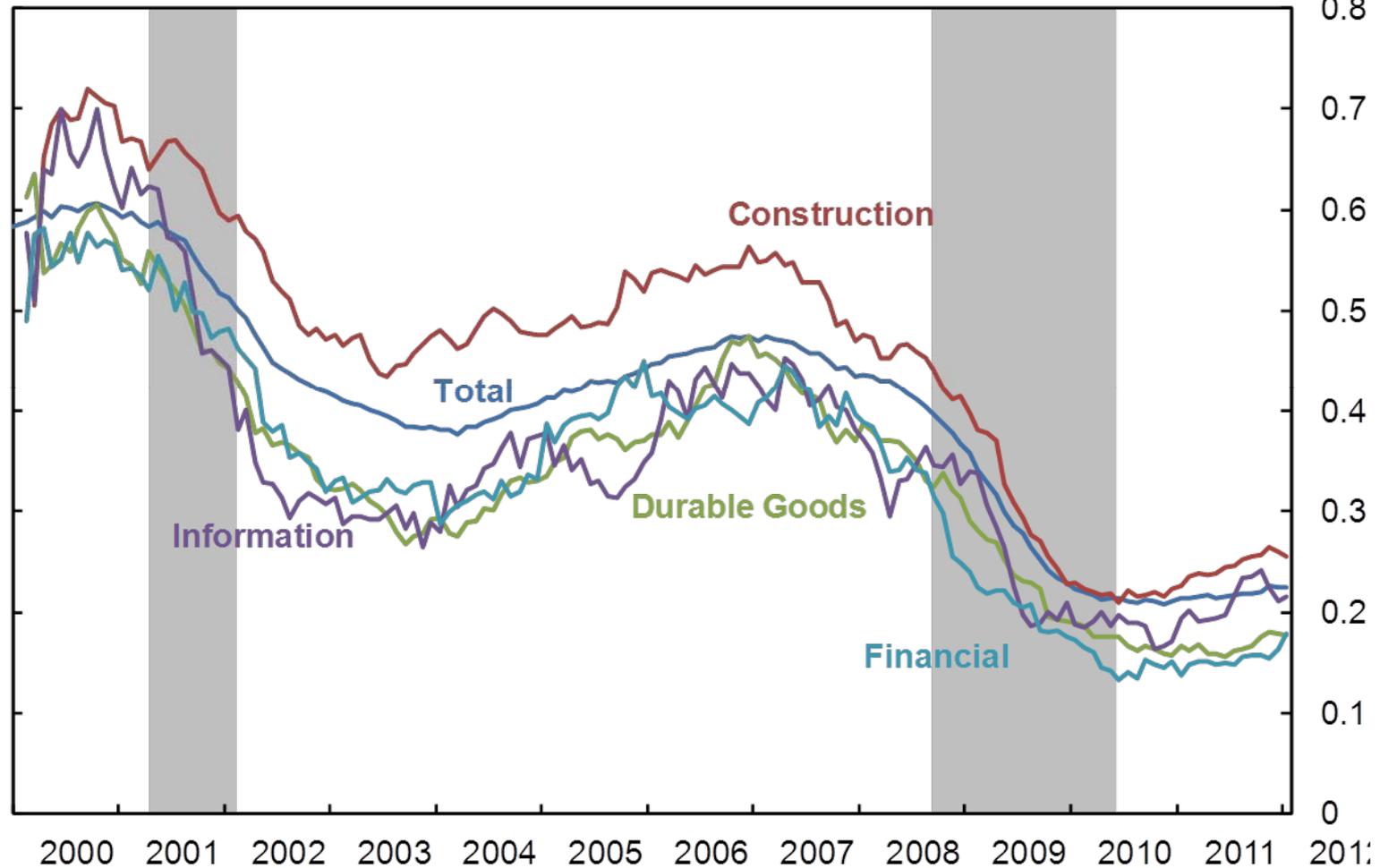
- One potential reason for a persistent reduction in match efficiency is a mismatch between the skills and the skill requirements of job openings.
- If reallocation within the economy causes a mismatch of skills, workers formerly employed in sectors undergoing structural decline will have a harder time finding new jobs, all else equal.
- Recent estimates suggest that skill mismatch has probably contributed an increase of about 0.6 to 1.7 percentage points to the current unemployment rate.
- However, the evidence suggests that mismatch has had a pronounced cyclical component, moving together with the unemployment rate.



Unemployment Exit Rates by Industry

12-m moving averages of monthly data

Monthly outflow hazard



Source: Bureau of Labor Statistics and authors' calculations

Emergency unemployment compensation

- During normal times, job losers are eligible for up to 26 weeks of benefits. These benefits usually account for just under 50 percent of their previous earnings, on average.
- Starting in June 2008 and several times since then, the federal government has enacted legislation to extend these benefits further, through the federal Emergency Unemployment Compensation program.
- Individuals in most states are now eligible for up to 99 weeks of UI (and, at a minimum, 60 weeks).



The Effects of Extended Benefits: Theory

- In theory, receiving UI benefits for a longer period reduces the incentive of the unemployed to look for work.
- Similarly, it also increases their reservation wage, so that they may reject job offers that they would otherwise have accepted in the absence of these extended benefits.
- At the same time, it provides added liquidity to households that exhaust their assets while searching for work.
- Consequently, not only do these UI extensions help support an individual's consumption, they also may induce the unemployed to continue to search when they would otherwise have dropped out of the labor force.

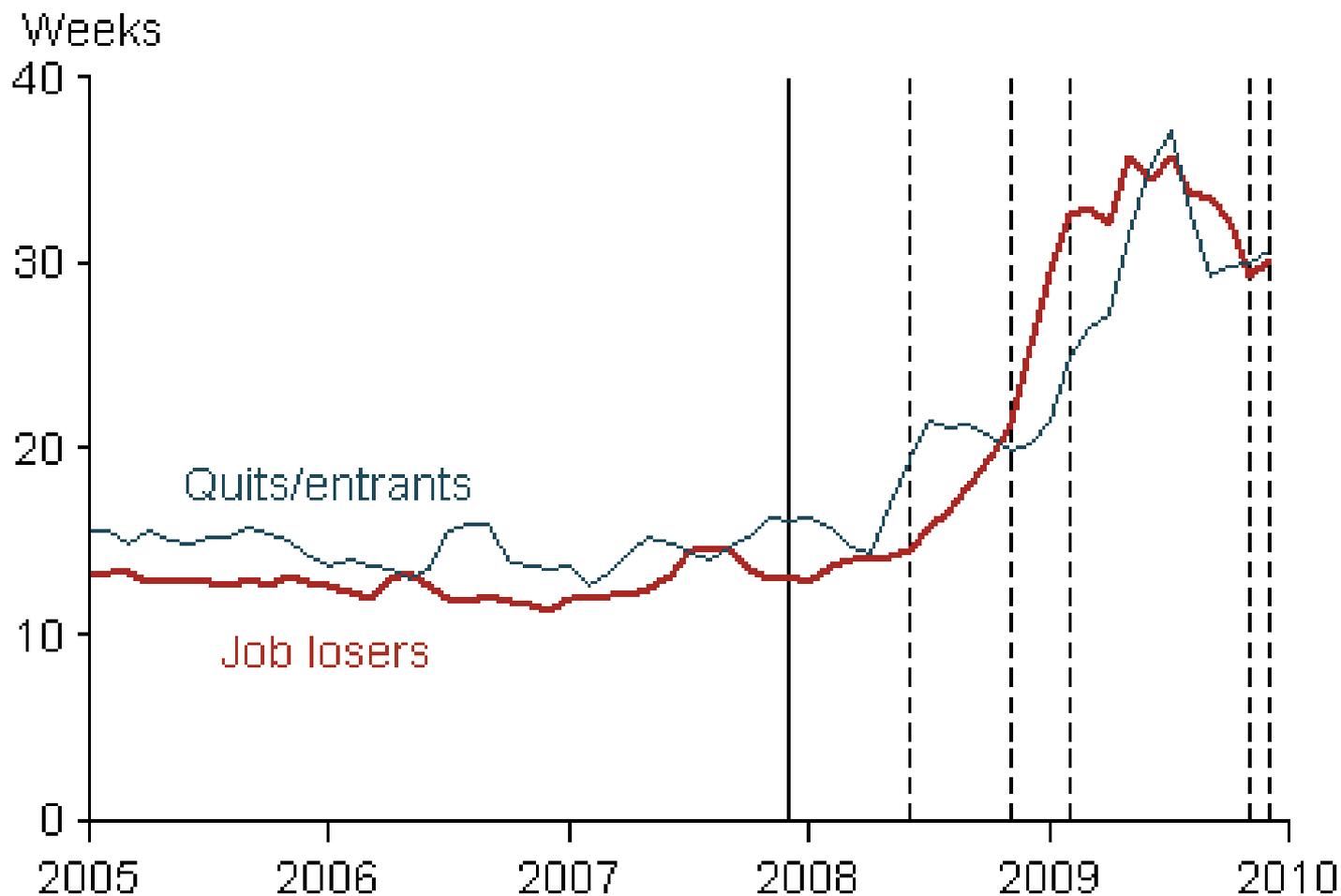


The Effects of Extended Benefits: Data

- Valletta and Kuang (2010) use the household micro data from the Current Population Survey (CPS) to identify the effect of extended UI benefits.
- They distinguish the unemployed based on whether they were job losers, job leavers, or labor force entrants.
- They compare the unemployment durations of job losers versus the other unemployed before and after the start of the recession.
- They find that the effects of extended benefits increased the unemployment rate by 0.8 percentage points, on average, during 2009 and the first half of 2010.
- The effect of extended UI benefits, likely to dissipate when the policy expires.

Unemployment Duration by Reason

Through December 2009, three-month moving average



Conclusions

- The stubbornly high rate of unemployment in the face of ongoing GDP growth and rising job openings has raised concerns that the level of the natural rate of unemployment, has risen over the past few years in the United States.
- This possibility raises important policy issues since short-run monetary and fiscal stabilization policies are not designed to alleviate structural unemployment and can be costly if misapplied.
- Our estimates suggest that the natural rate of unemployment has risen from its pre-recession level of 5.0 percent to a value between 5.5 and 6.6 percent.
- This value implies an unemployment gap of over 2.3 percentage points in late 2011, which remains quite high.

