New Ideas about the Long-Lasting Collapse of Employment after the Financial Crisis

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Woytinsky Lecture, University of Michigan

November 13, 2013

Collision of three forces

A decline in output demand—an event without serious consequences in a normal economy

The zero lower bound on the nominal interest rate

Low and stable inflation, so that the implied bound on the real interest rate is constraining
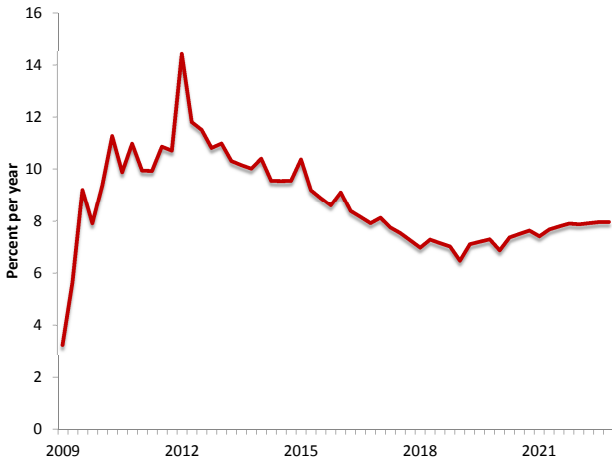
THE FINANCIAL WEDGE

The difference between the rate of return to capital and the real interest rate

$$f_t = \frac{1}{q_t}\left[\alpha\frac{y_t}{k_t} + (1-\delta)q_{t+1}\right] - 1 - r_t$$

On the same conceptual footing as the investment wedge in Chari-Kehoe-McGrattan, stated as an interest spread
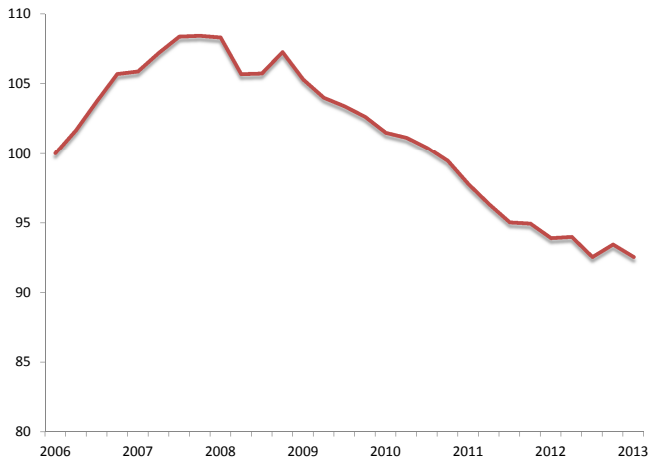
Includes taxes and risk premium
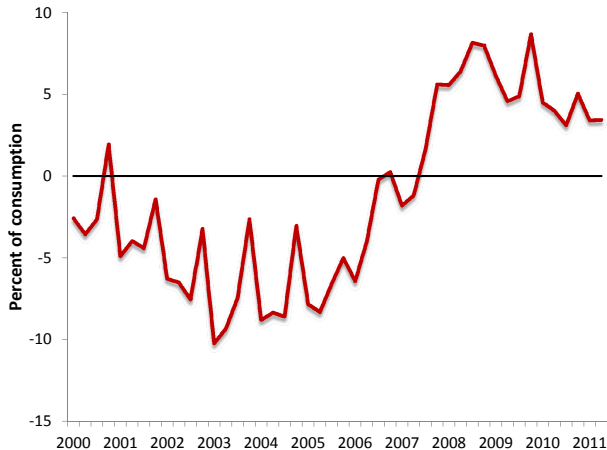
The Financial Wedge

THE RATIO OF CONSUMPTION TO DISPOSABLE INCOME
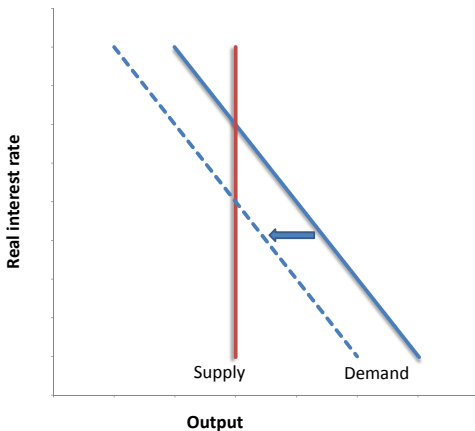
Real Household Liabilities

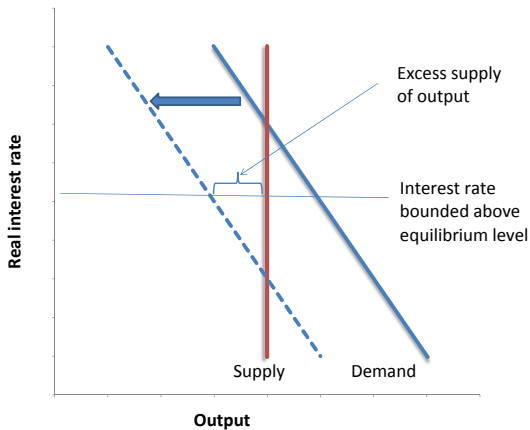# BURDEN OF DELEVERAGING AS A PERCENT OF CONSUMPTION

GOOGLE SEARCHES FOR "WITHDRAWAL PENALTY"

IN EQUILIBRIUM, THE REAL INTEREST RATE IS AT THE LEVEL THAT EQUATES OUTPUT DEMAND TO SUPPLY

Excess Supply of Output when the ZLB Binds

Excess supply of output

Interest rate bounded above equilibrium level

Real interest rate

Supply   Demand

Output

Real and nominal interest rates

Differ by the rate of inflation

Friedman: inflation depends on slack and an inertial term relating to expectations

Sargent: inflation depends on the context

Central banks are firmly on the Friedman side, as expressed in the New Keynesian Calvo model
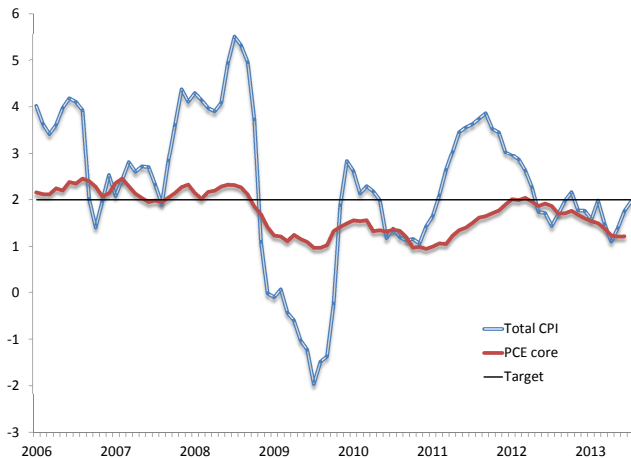
Recent inflation

Strongly anchored in the 1 to 3 percent per year range

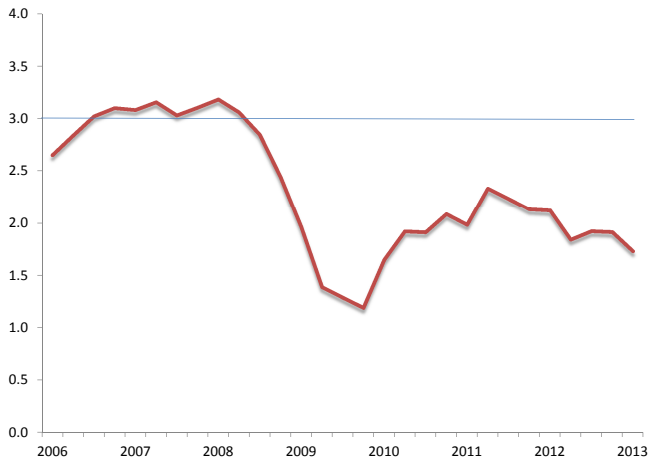Stock-Watson Jackson Hole paper 2010: no support for Friedman

Inflation falls a bit as the economy contracts but does not continue to fall despite several years of slack

This behavior contrasts to the Great Depression, when extreme deflation occurred

Two Measures of U.S. Inflation

U.S. Wage Inflation

Clashing theories of unemployment

Most models of the ZLB take employment as determined by product demand and unemployment as a residual

The reigning theory (DMP) links unemployment to the product market only in certain specific ways and does not support the idea that unemployment is just a residual

Recent work goes beyond the residual theory and integrates some version of DMP in a complete GE model

ZLB Analysis with Shifts in Both Demand and Supply
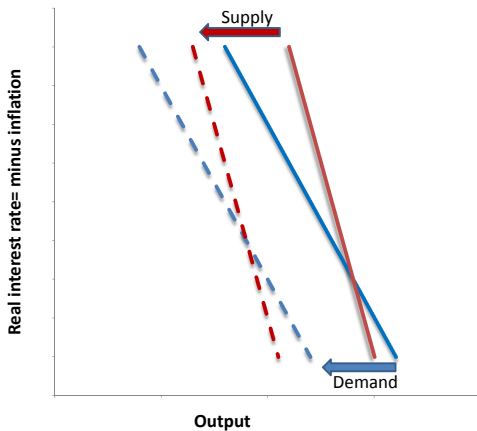
DMP MODEL

Focuses on the job-creation decision of the employer

When an employer adds a worker, the employer gains the present value of the difference between the worker's marginal contribution to revenue (the marginal revenue product of labor) and the worker's pay

This present value is the *job value*

To reach the point where this gain occurs, the employer expends recruiting effort. The net benefit to the employer is the job value less the cost of recruiting a worker. With free entry to hiring, employers push recruiting effort to the point where the net benefit is zero. Thus the job value controls the amount of recruiting effort

Job value and unemployment

Positive relation between recruiting effort and the speed with which job-seekers find jobs

When employers are making high effort—posting many vacancies and advertising their existence—job-seekers find jobs quickly

Unemployment is then low

Models of fluctuations in job value and thus in unemployment

Walsh: In the New Keynesian model, the marginal revenue product of labor falls in recessions, which lowers the job value

Mortensen: Sticky prices result in depressed prices for intermediate products, and the job value falls at firms making those products

Gertler-Sala-Trigari: Sticky wages result in lower job value when the marginal product of labor falls

Most recent suggestions

Hall: In times of high risk premiums, when the stock market is low, the same risk premiums result in low discounted values of the future flow of value from a newly hired worker

Hagedorn, Karahan, Manovskii, and Mitman: Higher UI benefits raise workers' outside option in wage bargaining and lower the job value

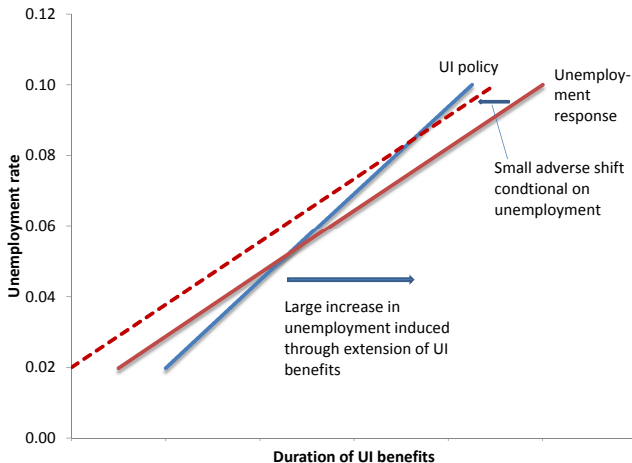# JOB VALUE FROM JOLTS COMPARED TO WILSHIRE STOCK-MARKET INDEX
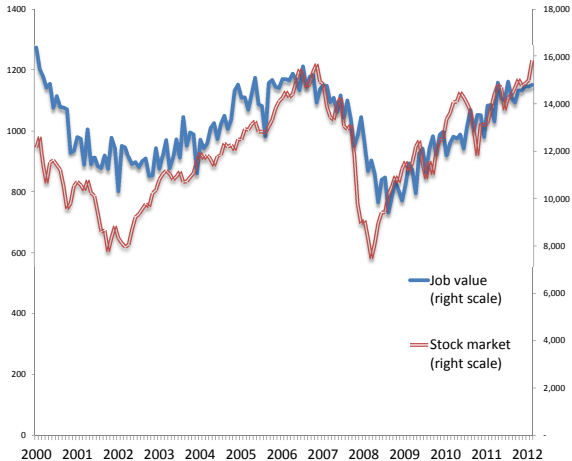
Wage channel

HKMM find that the wage channel raised unemployment by 3.1 percentage points in 2010

Compare adjacent counties in different states—same local conditions but different UI durations

AMPLIFICATION THROUGH UI EXTENSIONS

EVALUATION OF HKMM

Strong endogeneity of UI duration because of triggers and discretionary extensions plainly motivated by high unemployment

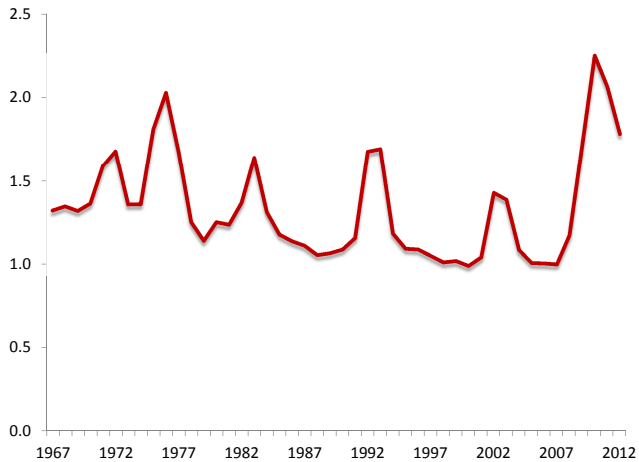Some of the counties have population centers hundreds of miles apart

Questionable data on unemployment, but results for wages, vacancies, and employment are supportive

Detailed evaluation on my website

DURATION OF AVERAGE SPELL OF UI COVERAGE, MONTHS
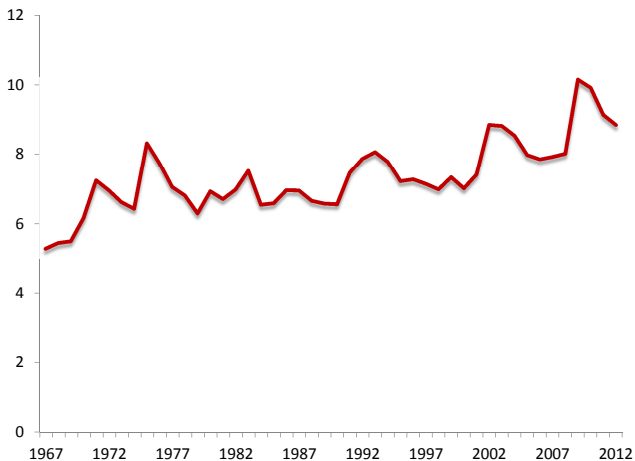
INDEX OF REAL UNEMPLOYMENT BENEFITS PER MONTH

THE JOB VALUE IS BACK TO NORMAL BUT UNEMPLOYMENT IS 7.3 PERCENT

▶ Declining matching efficiency lowers job-finding rate and raises unemployment

▶ In particular, more generous UI benefits may cut search effort and reduce matching efficiency (moral hazard)

▶ Declining turnover lowers unemployment

▶ Higher dispersion across labor markets raises average unemployment

▶ Lower labor-force participation may lower unemployment

▶ It takes time to work off a stock of high-duration, low re-employment rate unemployed

Analysis of matching efficiency

"Measuring Matching Efficiency with Heterogeneous Jobseekers" with Sam Schulhofer-Wohl
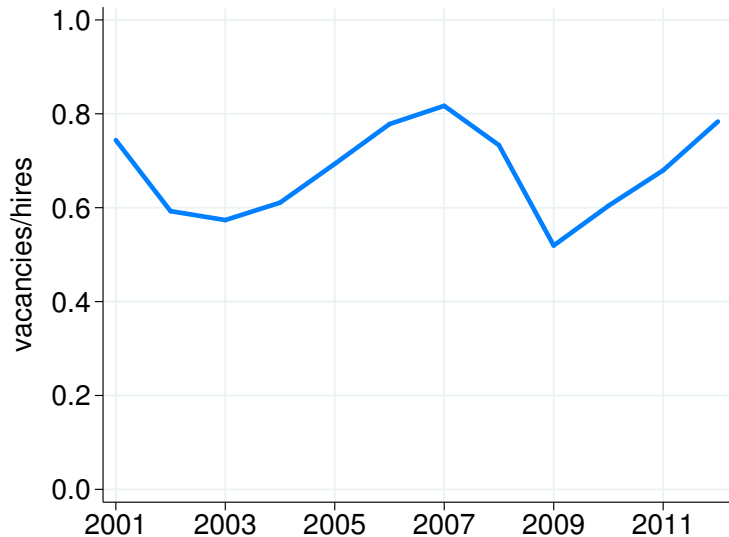
Based on CPS adjusted transition rates among 6 categories of unemployment, 2 categories of employment, and out-of-labor-force

Directly related to shifts of the Beveridge curve: Lower matching efficiency implies outward shift of curve

Tightness

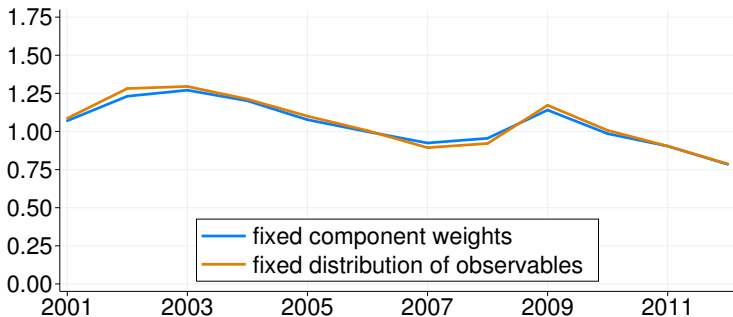$$T_t = \frac{V_t}{H_t}$$
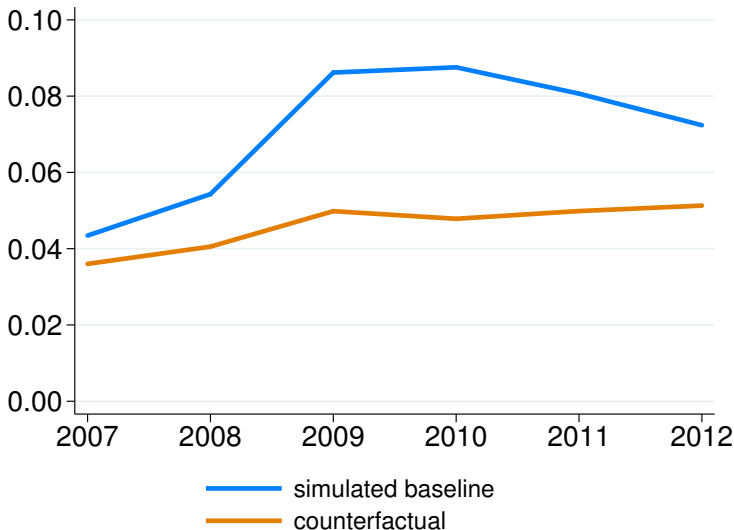
AGGREGATE TIGHTNESS

Matching efficiency

$$f_{i,t} = \gamma_{i,t} T_t$$

$$\gamma_{i,t} = \frac{f_{i,t}}{T_t}$$

OVERALL MATCHING EFFICIENCY

# Counterfactual unemployment rate with pre-recession tightness

# Moral-hazard effect of UI benefits

Farber-Valletta is the most recent paper, confirming small effect of less than 0.5 percentage points

They look at how rapidly job-seekers find work and leave the labor force, given unemployment and employment growth in the local market
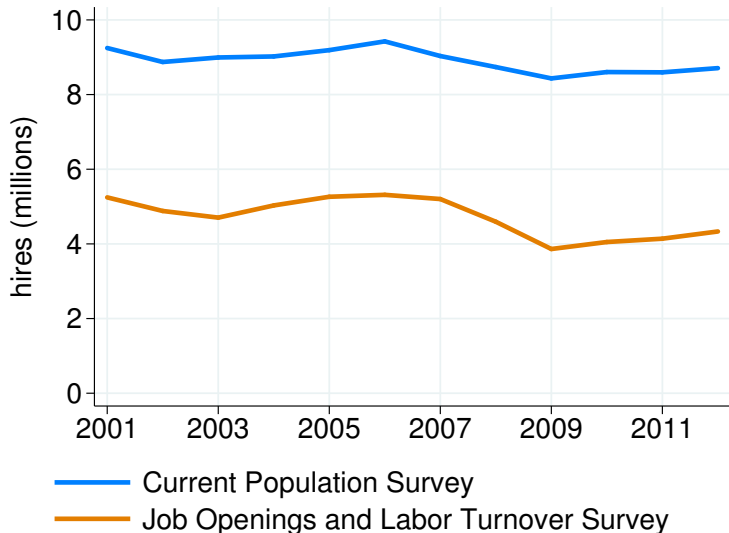
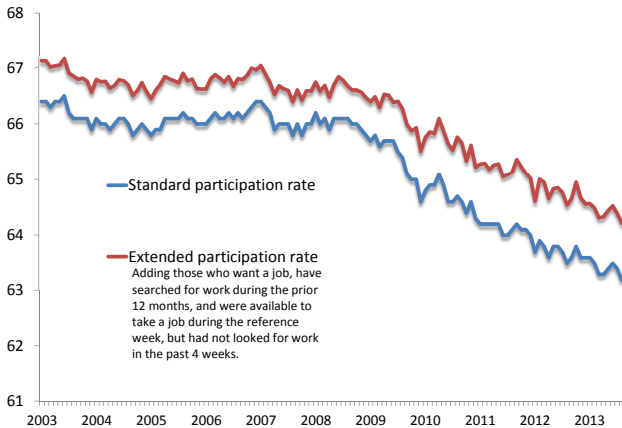# Coefficient of variation of unemployment rate across 9 regions
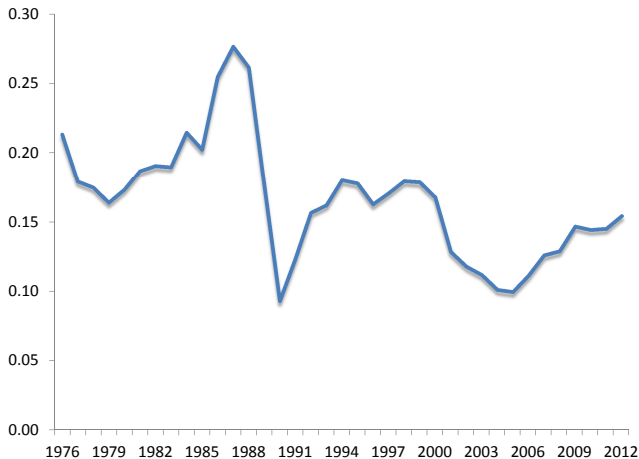
COEFFICIENT OF VARIATION OF UNEMPLOYMENT RATE ACROSS 29 OCCUPATIONS
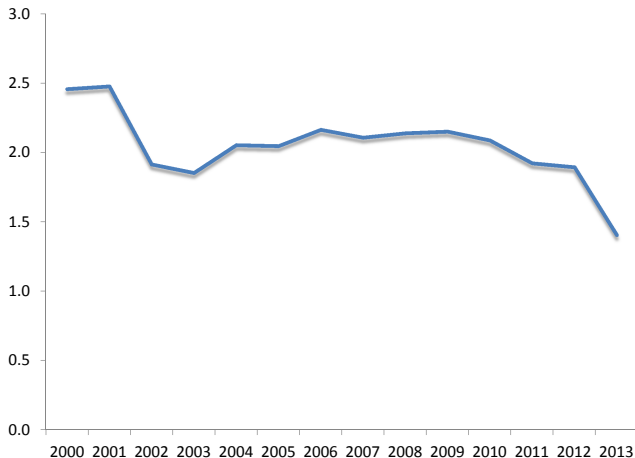
TWO MEASURES OF TURNOVER RATE

TWO MEASURES OF THE LABOR-FORCE PARTICIPATION RATE

Conclusions

The crisis depressed the job value substantially and the DMP model can be integrated into a GE model convincingly; there is no clash

The drop in job value resulted from higher discounts and other factors triggered by the crisis; UI extensions a factor but probably not very large

With the job value back to normal, unemployment remains at 7.3 percent primarily because of the overhang of long-duration unemployment and secondarily because of declining match efficiency, including the moral hazard effects of UI

The remaining effects of the crisis operate through the collapse of labor-force participation

FURTHER READING

Farber, Henry S. and Robert G. Valletta, "Do Extended Unemployment Benefits Lengthen Unemployment Spells? Evidence from Recent Cycles in the U.S. Labor Market," Working Paper 19048, National Bureau of Economic Research May 2013.

Gertler, Mark and Antonella Trigari, "Unemployment Fluctuations with Staggered Nash Wage Bargaining," *The Journal of Political Economy*, 2009, *117* (1), 38–86.

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Hagedorn, Marcus, Fatih Karahan, Iourii Manovskii, and Kurt Mitman, "Unemployment Benefits and Unemployment in the Great Recession: The Role of Macro Effects," October 2013. National Bureau of Economic Research Working Paper 19499.

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Walsh, Carl E., "Labor Market Search and Monetary Shocks," in S. Altug, J. Chadha, and C. Nolan, eds., *Elements of Dynamic Macroeconomic Analysis*, Cambridge University Press, 2003, pp. 451–486.