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# Cyclical Unemployment, Structural Unemployment

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*Mundell-Fleming Lecture*

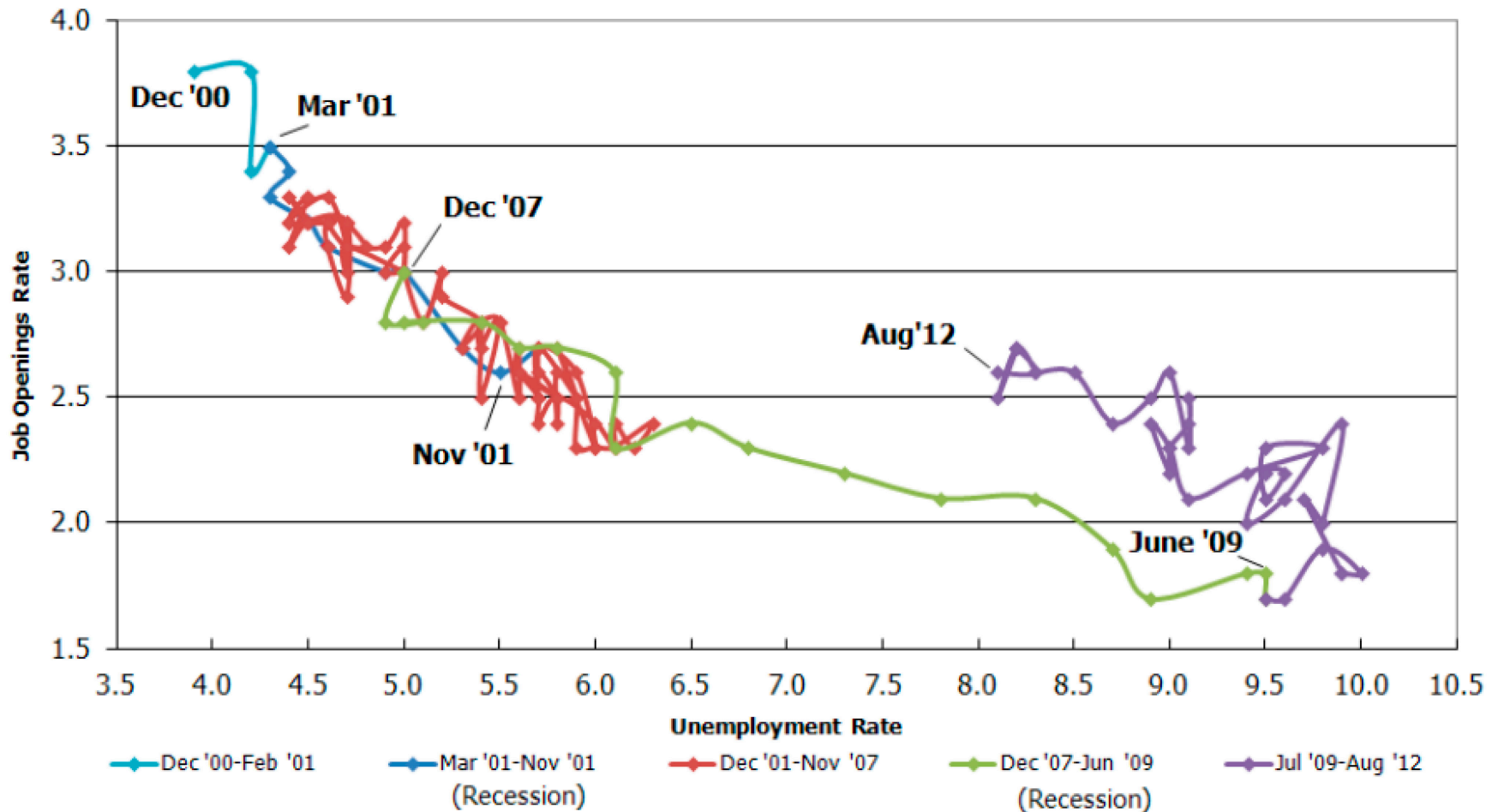
**“Cyclical Unemployment,  
Structural Unemployment”**

Peter Diamond

November 8, 2012

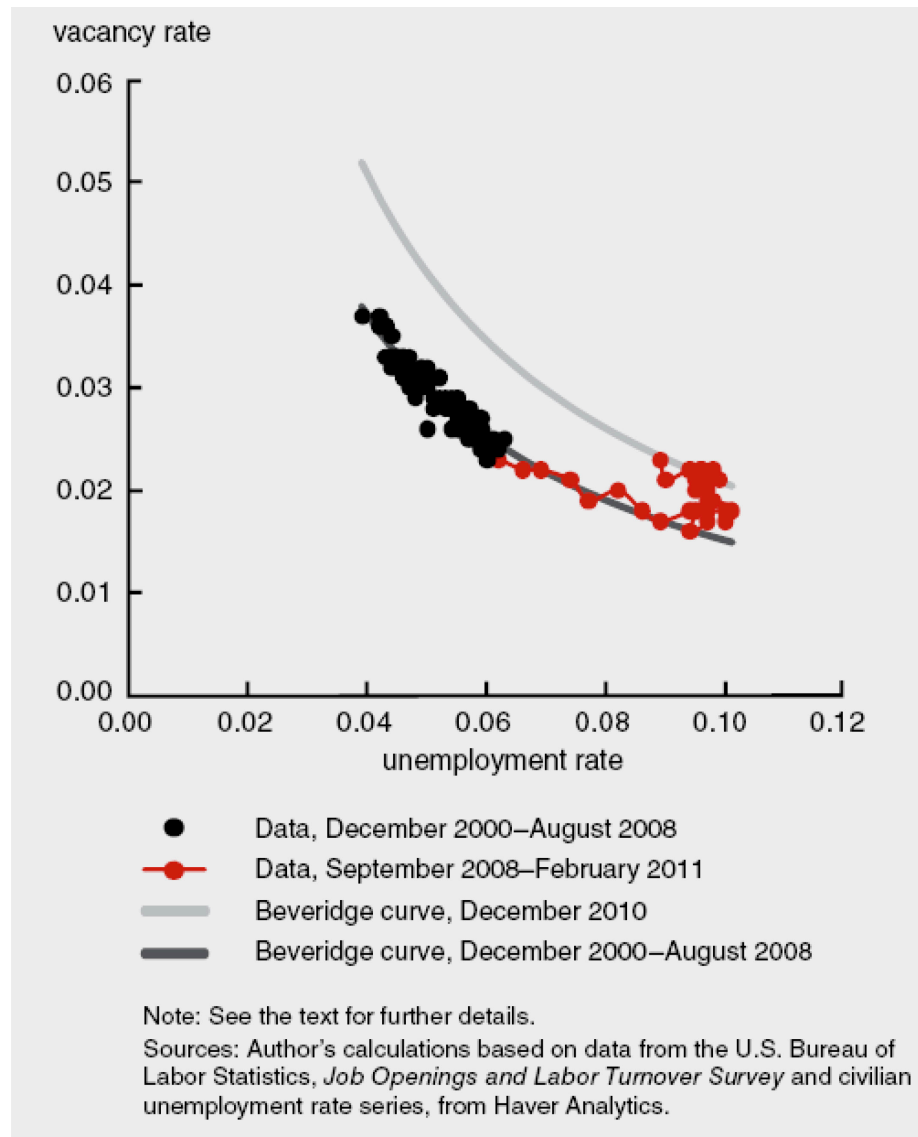
“... since the U. S. recession was formally declared ended in June 2009 ... we see evidence of increased recruiting activity on the part of the business sector together with no apparent decline in the unemployment rate. One interpretation of this recent pattern is that matching jobs with workers has become more difficult in the wake of an exceptionally severe recession. If this is the case, then it is not immediately clear how monetary or fiscal policies might alleviate the problem.”

# The Beveridge Curve (job openings vs. unemployment rate) (Seasonally adjusted)



Source: Bureau of Labor Statistics, Current Population Survey and Job Openings and Labor Turnover Survey, October 10, 2012.

## Fitting Beveridge Curves During the Great Recession

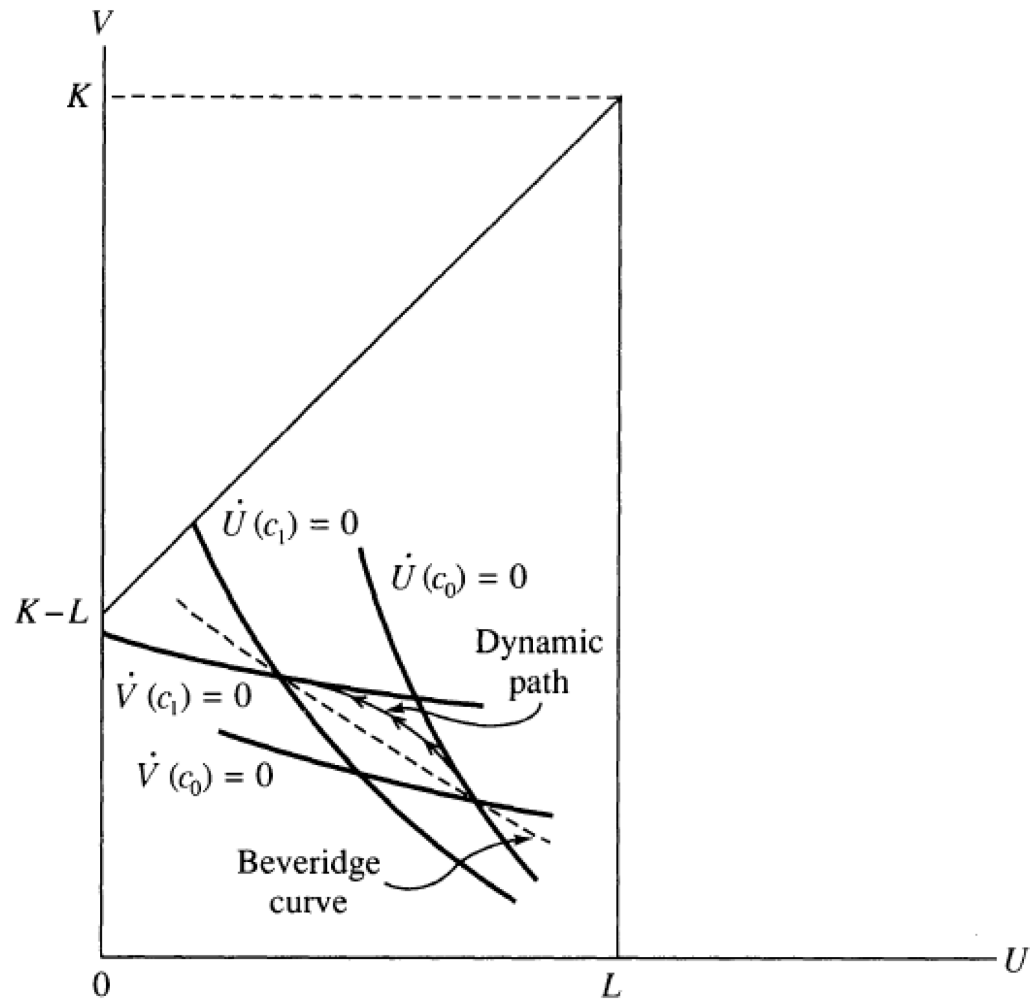


Source: “Evaluating the role of labor market mismatch in rising unemployment”  
Figure 2, by Gadi Barlevy, in 3Q/2011, *Economic Perspectives*.

$$m[u, v] = Au^\alpha v^{1-\alpha}$$

$$u = \frac{s}{s + A(v/u)^{1-\alpha}}$$

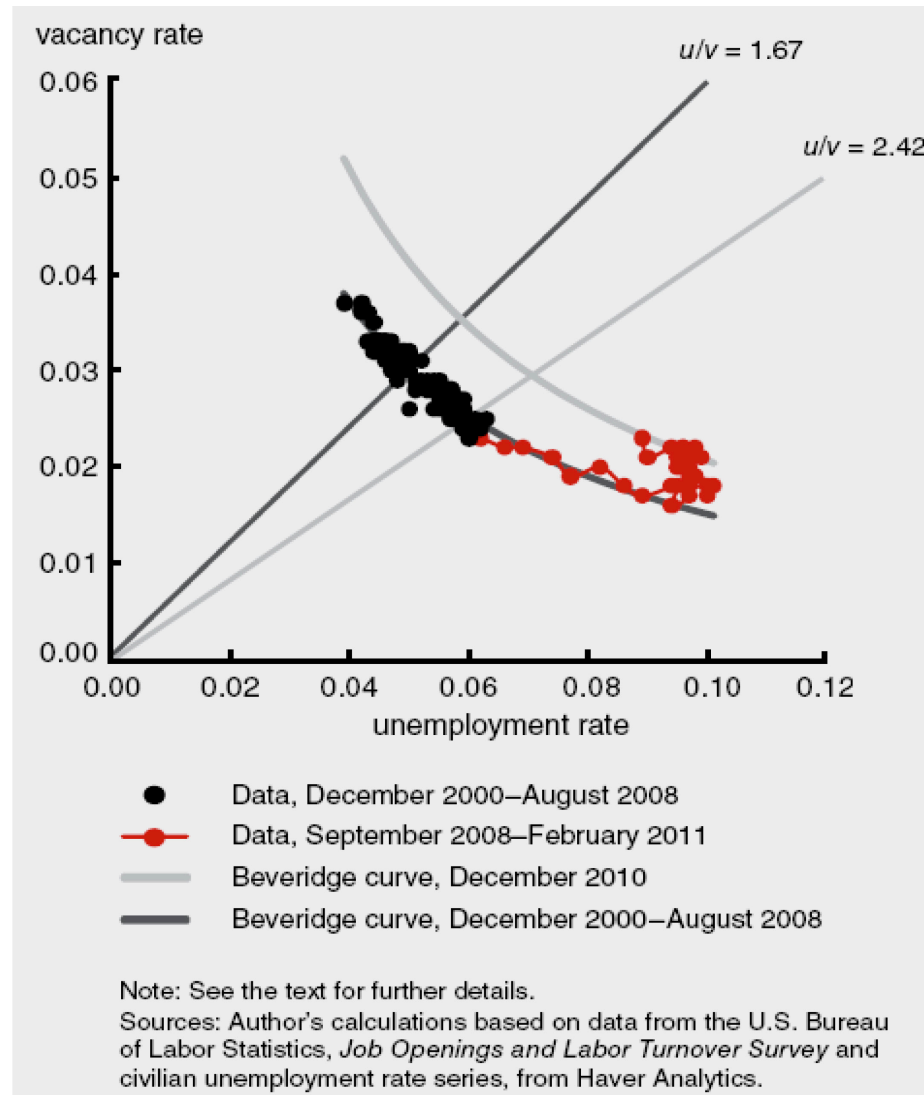
## Shift in Aggregate Activity (c)



Source: Olivier Blanchard, Peter Diamond "The Beveridge Curve" *Brookings Papers on Economic Activity*, Vol. 1989 No.1., Figure 3.

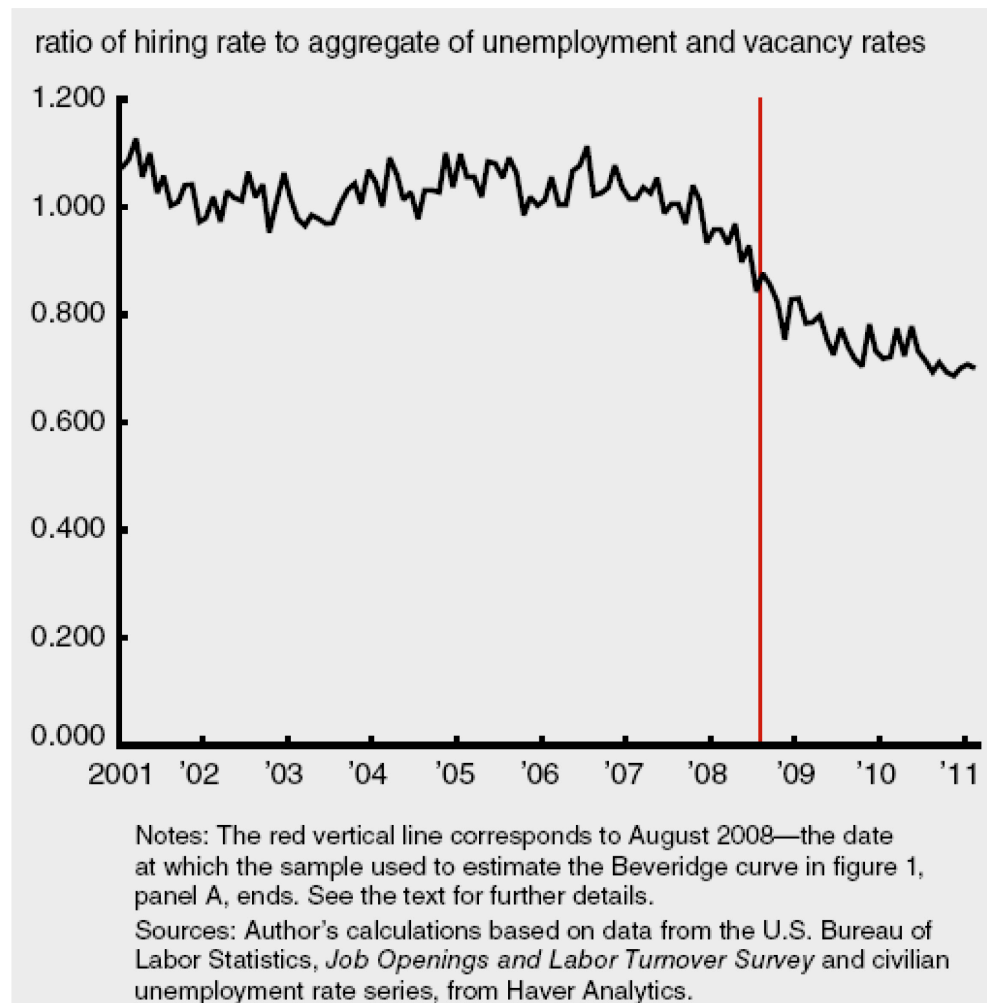


## Computing Unemployment Response from Shock to Match Productivity A



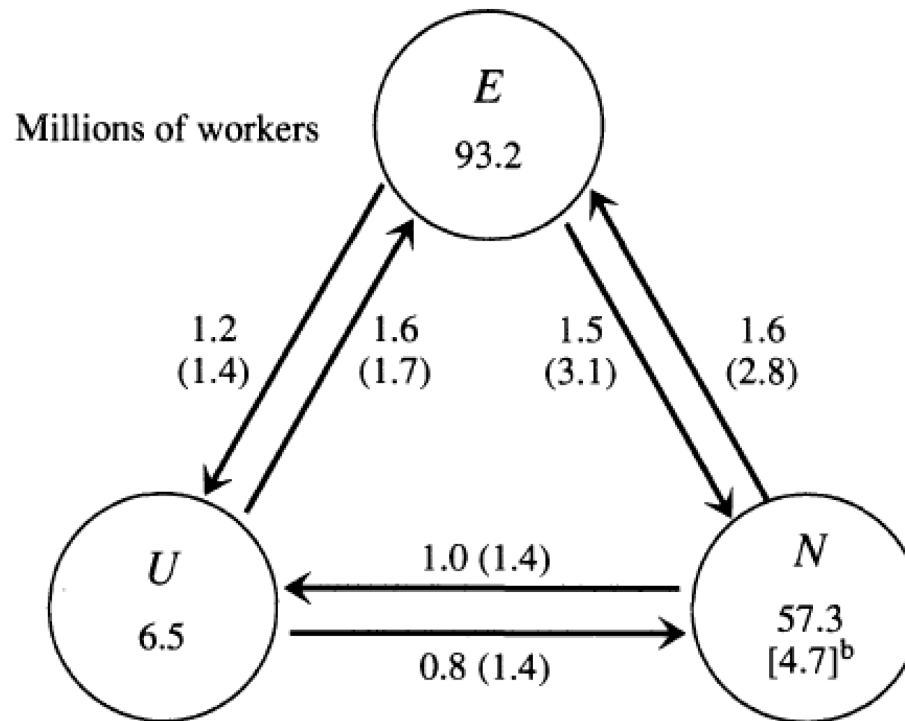
Source: “Evaluating the role of labor market mismatch in rising unemployment”  
Figure 4, by Gadi Barlevy, in 3Q/2011, *Economic Perspectives*.

## Implied Match Productivity Using Data on New Hires, 2001-11.



Source: “Evaluating the role of labor market mismatch in rising unemployment”  
Figure 3, by Gadi Barlevy, in 3Q/2011, *Economic Perspectives*.

# Average Values of Gross Stocks and Flows for Employment, Unemployment, and Not in the Labor Force, January 1968–May 1986



Source: “The Cyclical Behavior of the Gross Flows of U.S. Workers” by Olivier Blanchard and Peter Diamond, *Brookings Papers on Economic Activity*, Vol. 2, 1990, page 92.

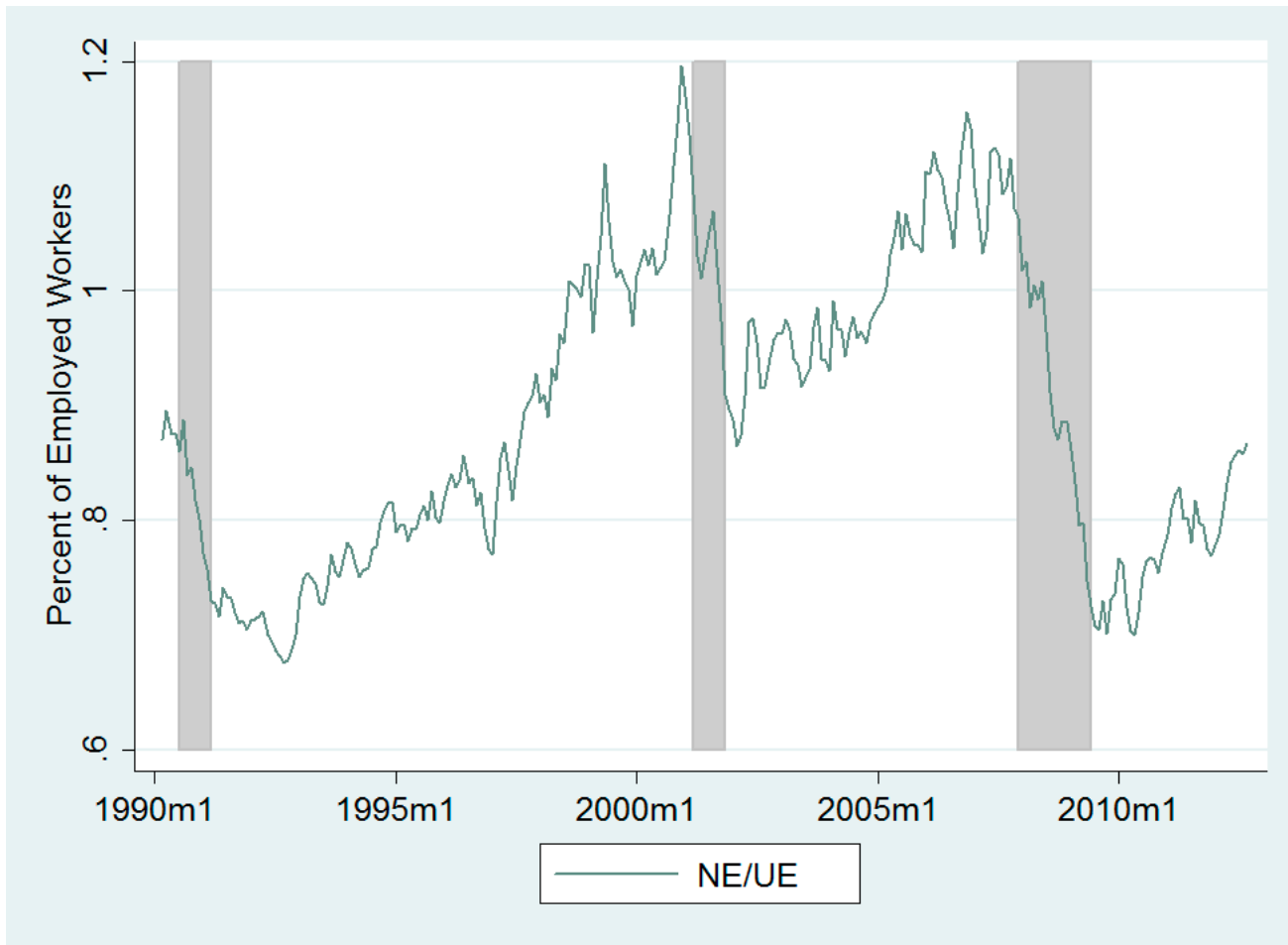
Stock numbers are from the Current Population Survey (CPS). For flow data, authors used the Abowd-Zellner adjusted gross flow series. The original unadjusted numbers from the CPS appear in parentheses. All numbers are in millions.

a. The variables  $E$ ,  $U$ , and  $N$  represent employment, unemployment, and not in the labor force respectively.

b. The bracketed stock figure for  $N$  equals the number of people who “want a job.”

# Ratio of Flows into Employment, 1990:2-2012:9

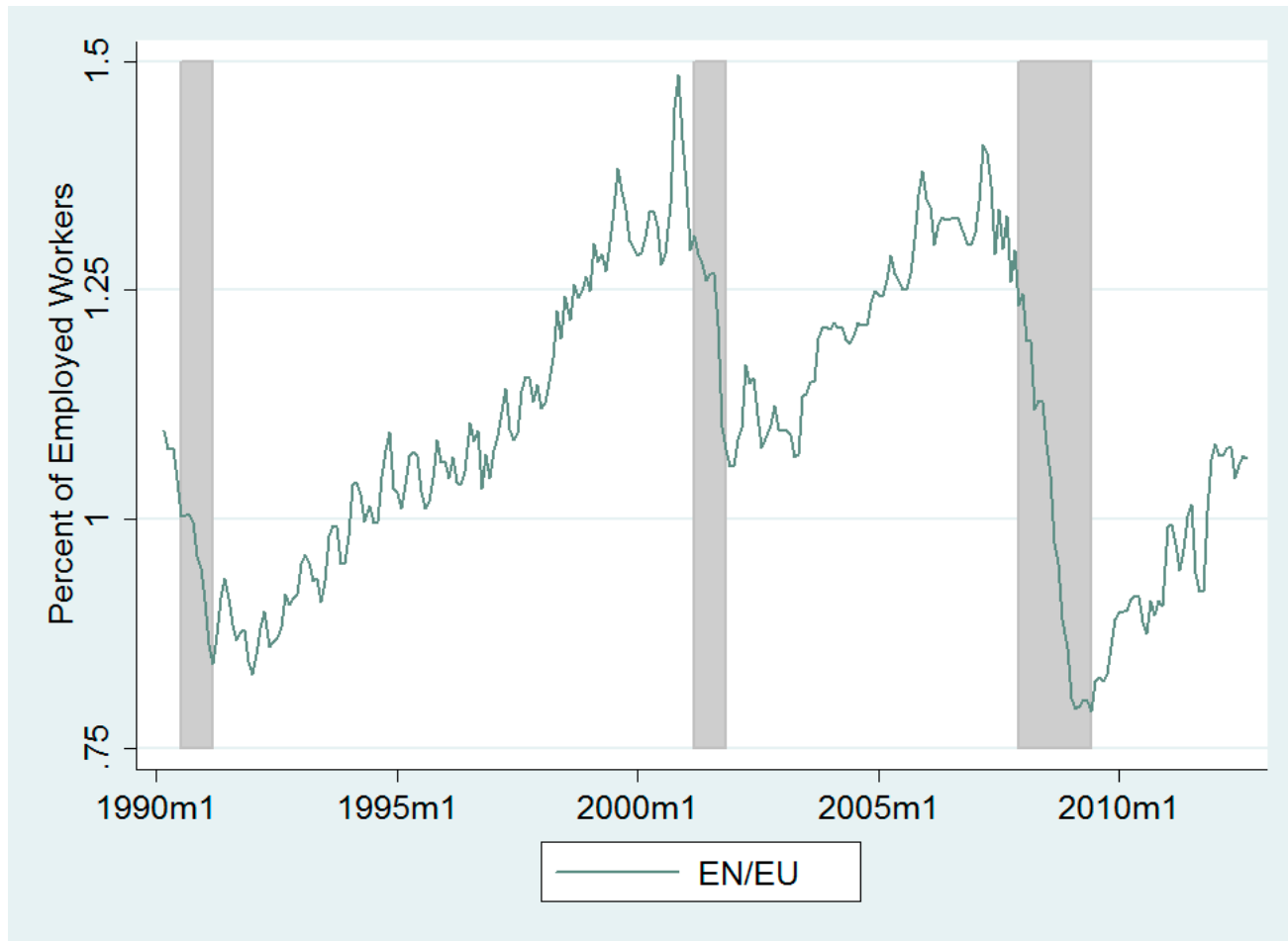
3-Month Moving Average



Source: CPS data from Haver Analytics; Flows adjusted using multiplicative factors from Bleakley, Ferris and Fuhrer (1999)

# Ratio of Flows out of Employment, 1990:2-2012:9

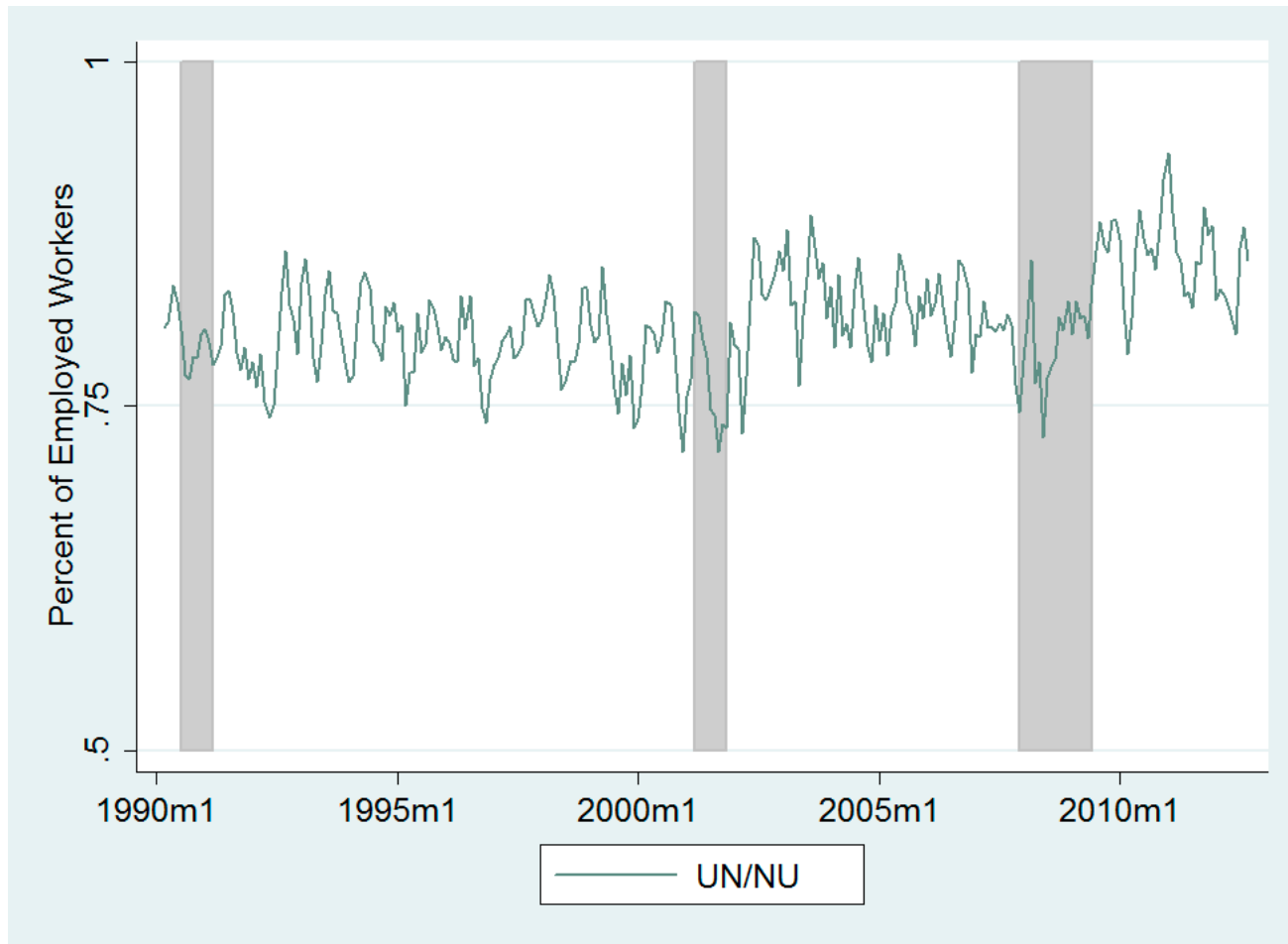
3-Month Moving Average



Source: CPS data from Haver Analytics; Flows adjusted using multiplicative factors from Bleakley, Ferris and Fuhrer (1999)

# Flows Between Unemployment and Not in Labor Force, 1990:2-2012:9

3-Month Moving Average



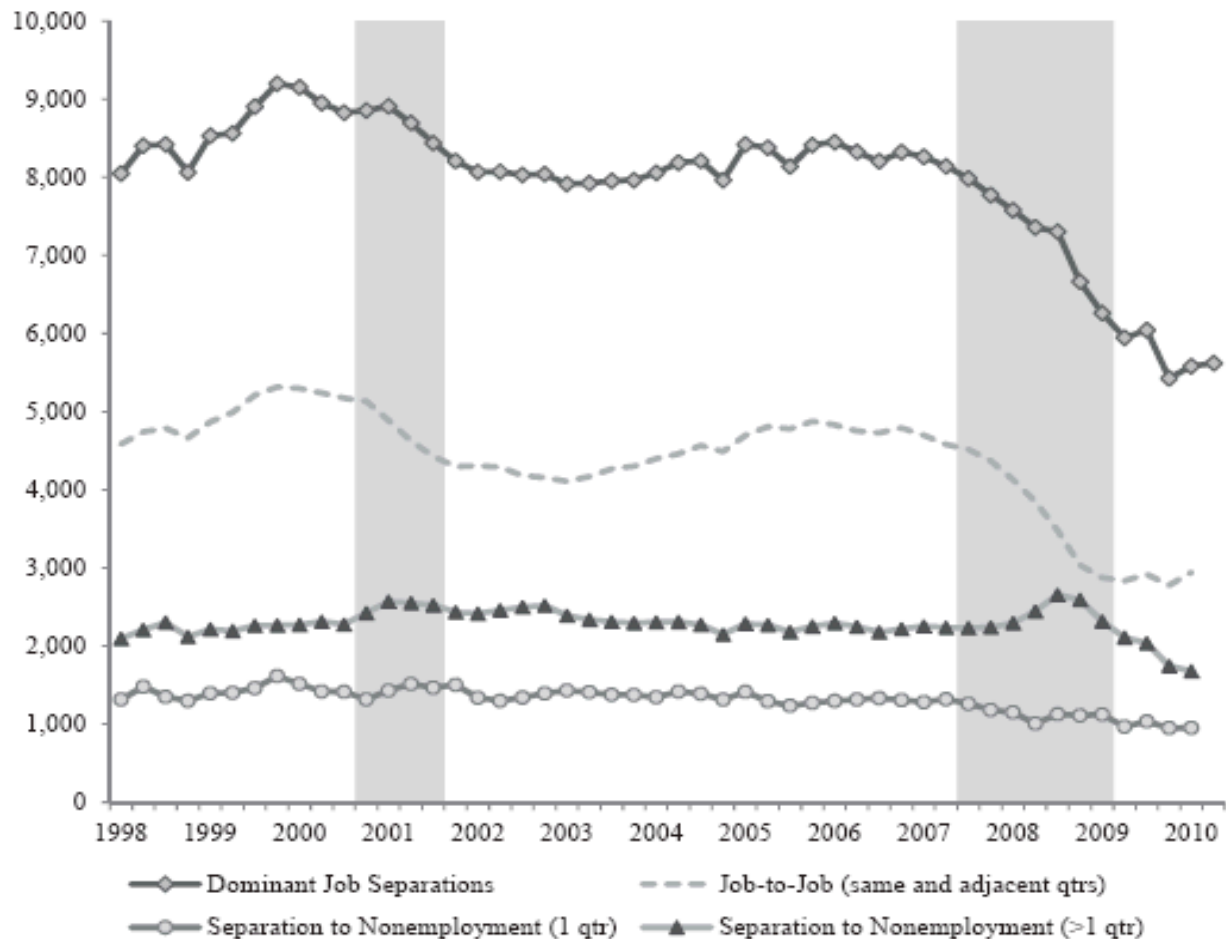
Source: CPS data from Haver Analytics; Flows adjusted using multiplicative factors from Bleakley, Ferris and Fuhrer (1999)

Gross Flows among Labor Market States with EE Flows, 1994 and 1996-2003  
(percent of population and percent of state in first month, monthly)

State in first month	State in Second Month			
	Same Employer	New Employer	Unemployed	NLF
As a percent of population				
Employed	59.0	1.6	0.8	1.7
Unemployed	--	1.0	1.7	0.8
NLF	--	1.6	0.8	31.0
As a percent of state in first month				
Employed	93.4	2.6	1.3	2.7
Unemployed	--	28.3	48.4	23.3
NLF	--	4.8	2.4	92.8

Source: Bruce Fallick & Charles A. Fleischman, 2004. "Employer-to-employer flows in the U.S. labor market: the complete picture of gross worker flows," *Finance and Economics Discussion Series* 2004-34, Board of Governors of the Federal Reserve System (U.S.).

## Total Dominant Job Separations by Non-employment 1998:2 – 2010:2 (in thousands)

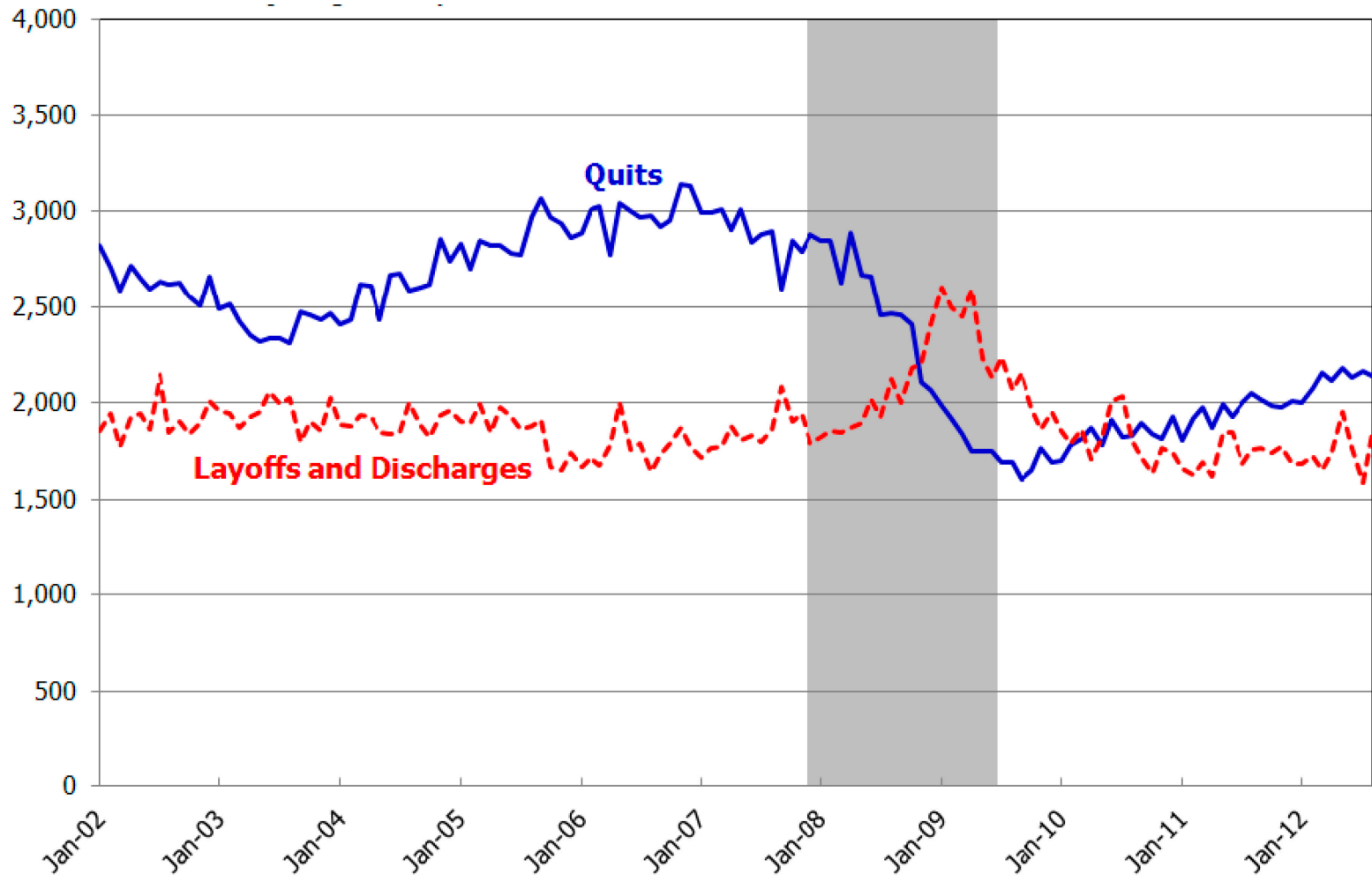


**Source:** “Job-To-Job Flows and the Business Cycle,” Figure 1a, Henry Hyatt and Erica McEntarfer, U.S. Bureau of the Census, *CES 12-04*, March 2012.

**Notes:** Shaded areas denote NBER recession quarters. Calculated from LEHD microdata, national employment histories for workers in nine states.



# Quits, Layoffs, and Discharges (Seasonally adjusted, in thousands)



Source: Bureau of Labor Statistics, Job Openings and Labor Turnover Survey, October 10, 2012.

Note: Shaded area represents recession as determined by the National Bureau of Economic Research (NBER).

“Employers with no recorded vacancies at month’s end account for 45% of aggregate employment. At the same time, establishments reporting zero vacancies at month’s end account for 42% of all hires in the following month.”

“The Establishment-Level Behavior of Vacancies and Hiring,” p. 2, by Steven J. Davis, R. Jason Faberman, and John C. Haltiwanger

## Mean Vacancy Duration by Industry

Industry	Days
Natural Resources & Mining	12.8
Construction	8.3
Manufacturing	19.3
Transport, Wholesale, Utilities	19.1
Retail Trade	13.7
Information	32.0
FIRE	29.0
Prof. & Business Services	20.4
Health & Education	35.4
Leisure & Hospitality	14.6
Other Services	18.8
Government	31.4

Source: “The Establishment-Level Behavior of Vacancies and Hiring,” Figure 3, by Steven J. Davis, R. Jason Faberman, and John C. Haltiwanger

## Mean Vacancy Duration by Establishment Size

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<b>Establishment Size</b>	<b>Days</b>
0-9 Employees	16.5
10-49 Employees	15.2
50-249 Employees	17.1
250-999 Employees	24.1
1,000-4,999 Employees	37.9
5,000+ Employees	38.9

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Source: “The Establishment-Level Behavior of Vacancies and Hiring,” Figure 3, by Steven J. Davis, R. Jason Faberman, and John C. Haltiwanger

## Mean Vacancy Duration by Worker Turnover Category

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<b>Industry</b>	<b>Days</b>
First Quintile (lowest turnover)	87.9
Second Quintile	52.8
Third Quintile	32.8
Fourth Quintile	18.4
Fifth Quintile (highest turnover)	8.7

Source: “The Establishment-Level Behavior of Vacancies and Hiring,” Figure 3, by Steven J. Davis, R. Jason Faberman, and John C. Haltiwanger

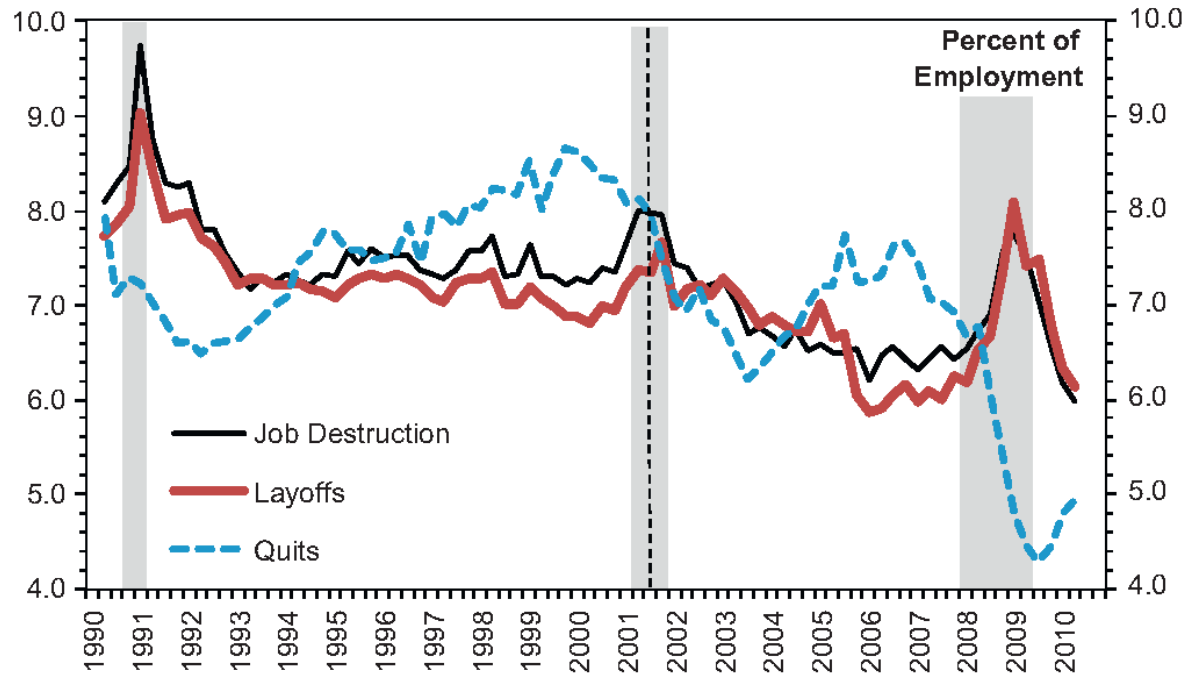
# Quarterly Job and Worker Flows for the U.S. Private Sector 1990:2-2009:4 (as a percent of employment)



Notes: Series drawn from methodology used in Davis, Faberman and Haltiwanger (2010), "Labor Market Flows in the Cross Section and Over Time". Series measured from Business Employment Dynamics (BED) and Job Openings and Labor Turnover Survey (JOLTS). Pre-2001:3 Hires, Separations, Layoffs and Quits are Model Based Estimates.

Source: John Haltiwanger, personal communication

# Quits, Layoffs, and Job Destruction

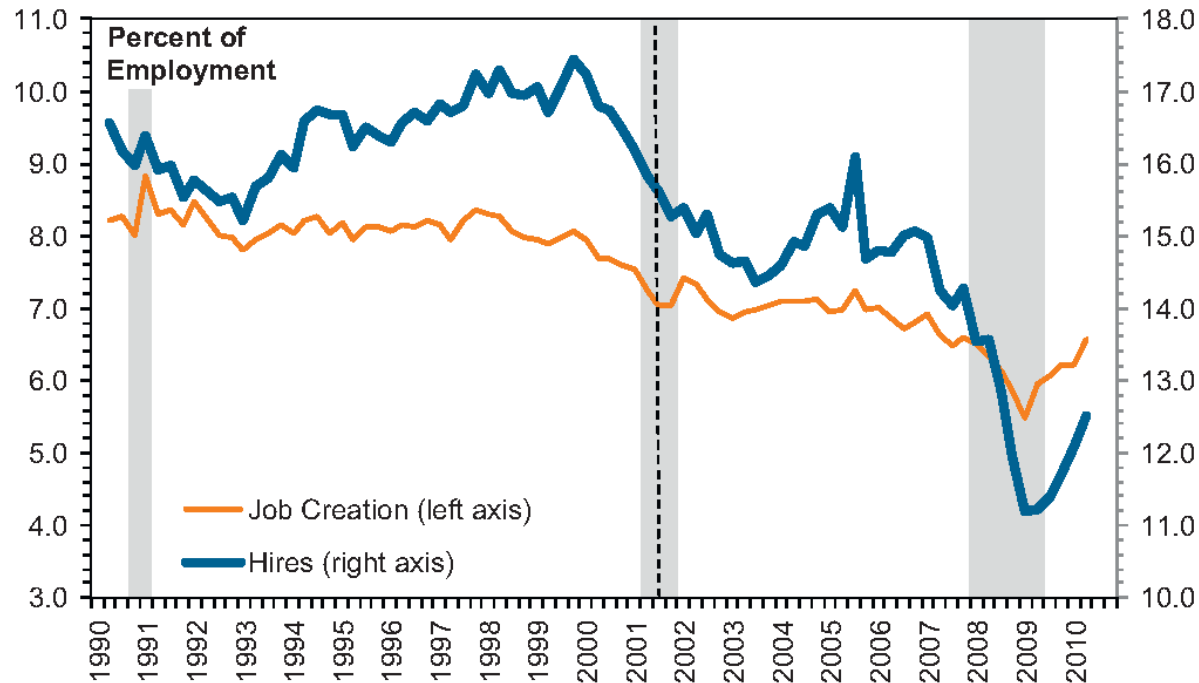


**Fig. 1.** Quits, layoffs, and job destruction.

Sources: Quit and layoff rates (2001Q3–2010Q2) are authors' calculations using JOLTS establishment microdata weighted to an aggregate value for each quarter using growth rate densities from the BED. Job destruction rates (1990Q2–2010Q2) are authors' tabulations directly from the BED data. All estimates are seasonally adjusted. All rates are percentages of employment. Backcasted estimates of the quit and layoff rates are included to the left of the dashed vertical line.

Source: "Labor Market Flows in the Cross Section and Over Time," Figure 1, by Steven J. Davis, R. Jason Faberman, and John C. Haltiwanger, in 2012, *Journal of Monetary Economics*

# Hiring and Job Creation



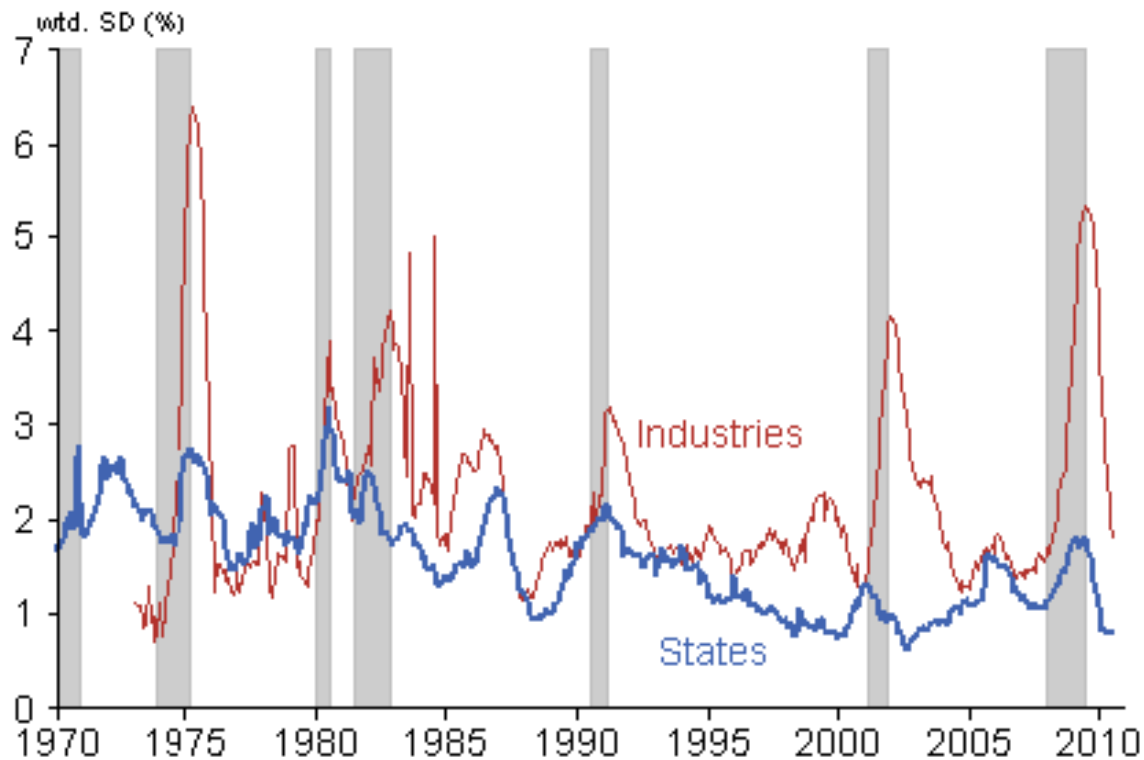
**Fig. 2.** Hiring and job creation.

Sources: Hiring rates (2001Q3–2010Q2) are authors’ calculations using JOLTS establishment microdata weighted to an aggregate value for each quarter using growth rate densities from the BED. Job creation (1990Q2–2010Q2) rates are authors’ tabulations directly from the BED data. All estimates are seasonally adjusted. All rates are percentages of employment. Backcasted estimates of the hiring rate are included to the left of the dashed vertical line.

Source: “Labor Market Flows in the Cross Section and Over Time,” Figure 1, by Steven J. Davis, R. Jason Faberman, and John C. Haltiwanger, in 2012, *Journal of Monetary Economics*



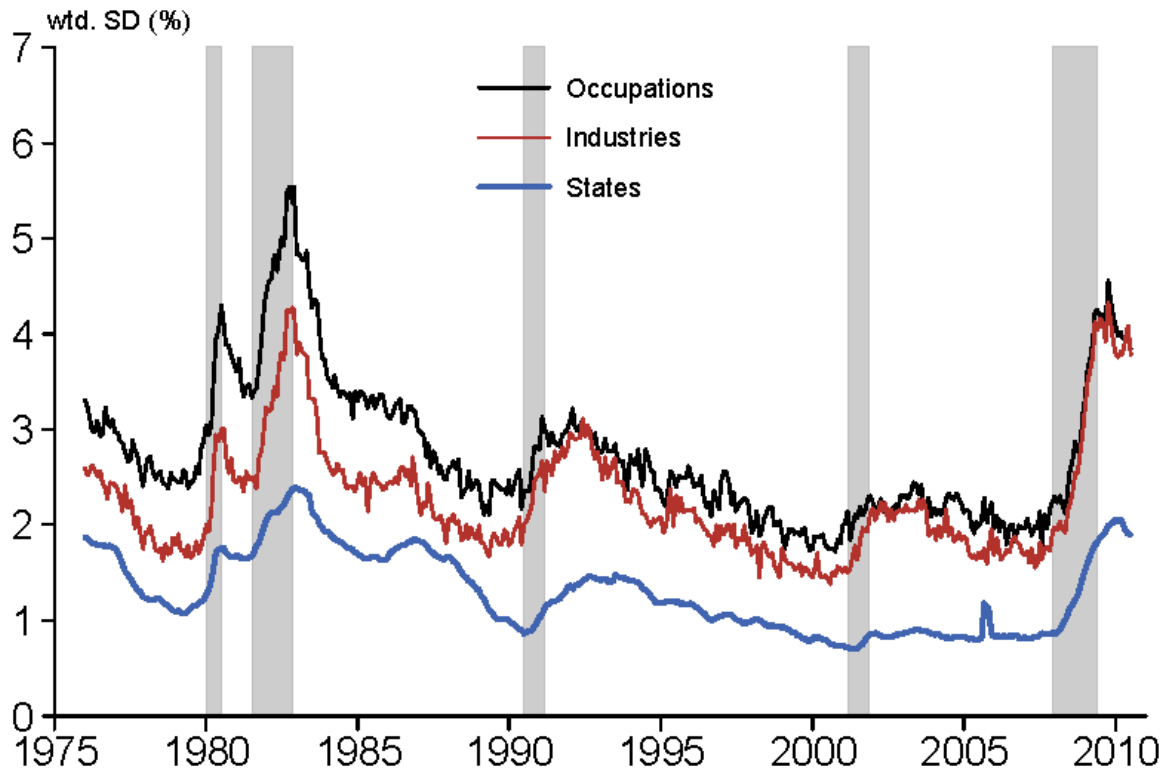
**Figure 3**  
**Dispersion in employment growth**



Note: Weighted standard deviation of payroll employment growth (12-month change) across 13 major industries and 50 states plus DC. Gray bars denote NBER recessions. Data are through August 2010.

Source: "Is Structural Unemployment on the Rise," Figure 3, by Rob Valletta and Katherine Kuang, in 2010-34, *FRBSF Economic Letter*

**Figure 4**  
**Dispersion in the unemployment rate**



Note: Weighted standard deviation of unemployment rate across 11 occupations, 13 industries, and 50 states plus DC. Gray bars denote NBER recessions. Data are through July 2010.

Source: "Is Structural Unemployment on the Rise," Figure 4, by Rob Valletta and Katherine Kuang, in 2010-34, *FRBSF Economic Letter*