

**Professors Steven J. Davis and Erik Hurst**  
**Applied Macroeconomics – Micro Data for Macro Models**  
**Fall 2013, University of Chicago**

**Course Outline and Annotated Reading List for Davis Lectures**

Lecture notes will be posted to the course website on Chalk. Make sure you have access to the course website throughout the quarter.

All readings can be found online. Unless otherwise noted, you should read the published version.

\*\* = Papers considered in lectures; required reading for the course.

\* = Papers treated briefly in lectures, or which are useful complements to papers covered in lectures; highly recommended readings.

No \*\* or \* = other suggested readings if you want to explore a particular topic.

**I. Using Large-Scale Longitudinal Business Databases: Selected Studies**

Papers in this section use large-scale longitudinal business databases to study productivity, labor market flows, and other aspects and consequences of business dynamics. Papers 2, 4, 5, 6, 8 and 11 introduce you to several major longitudinal firm-level and establishment-level databases for the United States. Section II below introduces other important U.S. longitudinal business databases. Similar datasets are available for many other countries, as illustrated by papers 1, 3, 9, 13 and 14.

Papers 2 and 14 provide excellent overviews of the expansive literature that studies productivity behavior using firm-level and establishment-level data sources. Papers 10, 11 and 13 are important contributions to this area of research. Several other papers listed below focus on productivity and labor market outcomes associated with private equity buyouts: see 1, 3, 4, 12 and 14. Papers 5, 7 and 8 develop evidence of major secular changes in business volatility, and papers 2, 4, 5, 9 and 11 in Section II below consider the closely related topic of secular changes in the pace of labor market flows.

The classroom lecture for Section I will focus on “Volatility and Dispersion in Business Growth Rates: Publicly Traded versus Privately Held Firms” (Paper 5) and “Private Equity, Jobs, and Productivity” (Paper 4).

1. Balsvik, Ragnhild and Stefanie Haller, 2012. “Acquisitions, Labour Turnover and Wages,” working paper, preliminary draft, August.
2. Bartelsman, E.J. and Mark Doms, 2000. “Understanding Productivity: Evidence from Longitudinal Microdata,” *Journal of Economic Literature*, 38, no. 3, 569-594.

3. \*Boucly, Quentin, David Sraer and David Thesmar, 2011. “Growth LBOs,” *Journal of Financial Economics*. Studies French private equity buyouts using an empirical design similar to that of “Private Equity, Jobs, and Productivity.” Results suggest that private equity plays a rather different role in France as compared to the United States.
4. \*\*Davis, Steven J., John Haltiwanger, Ron Jarmin, Josh Lerner and Javier Miranda, 2013, “Private Equity, Jobs, and Productivity,” NBER Working Paper No. XXX.
5. \*\*Davis, Steven J., John Haltiwanger, Ron Jarmin and Javier Miranda, 2007, “Volatility and Dispersion in Business Growth Rates: Publicly Traded versus Privately Held Firms,” in *NBER Macroeconomics Annual, 2006*, 107-155.
6. \*Davis, Steven J. et al., 2009, “Measuring the Dynamics of Young and Small Businesses: Integrating the Employer and Nonemployer Universes”. In *Producer Dynamics: New Evidence from Micro Data*, edited by Timothy Dunne, J. Bradford Jensen and Mark J. Roberts, University of Chicago Press. Also available as NBER Working Paper No. 13226.
7. Davis, Steven J. and James A. Kahn “Interpreting the Great Moderation: Changes in the Volatility of Economic Activity at the Macro and Micro Levels,” *Journal of Economic Perspectives*, Fall 2008. Read this paper to gain an understanding of how the evidence in Davis et al. (2007) relates to the large macro literature on the Great Moderation.
8. Decker, Ryan, John Haltiwanger, Ron Jarmin and Javier Miranda, 2013. “The Secular Decline in Business Dynamism in the U.S.,” working paper, May.
9. Fackler, Daniel, Claus Schnabel and Joachim Wagner, 2012. “Lingering Illness or Sudden Death? Pre-Exit Employment Developments in German Establishments,” IZA Discussion Paper no. 7081 (December).
10. Foster, Lucia, John Haltiwanger and C.J. Krizan. 2001. “Aggregate Productivity Growth: Lessons from Microeconomic Evidence,” *New Directions in Productivity Analysis*, edited by Edward Dean, Michael Harper and Charles Hulten. University of Chicago Press.
11. Foster, Lucia, John Haltiwanger and Chad Syverson. 2008. “Reallocation, Firm Turnover and Efficiency: Selection on Productivity or Profitability” *American Economic Review*.
12. Hotchkiss, Eric, David C. Smith and Per Stromberg, 2012. “Private Equity and the Resolution of Financial Distress,” working paper, July 2012.
13. Hsieh, Chang-Tai and Pete Klenow, 2009. “Misallocation and Manufacturing TFP in China and India,” *Quarterly Journal of Economics*.
14. Olsson, Martin and Joacim Tag, 2012. “Private Equity and Employees,” IFN Working Paper 906. March.
15. Syverson, Chad, 2011. “What Determines Productivity?” *Journal of Economic Literature*.

## **II. The Flow Approach to Labor Markets and Unemployment: Empirical Foundations**

**Note: I will spend little time on this section in class but will post old lecture notes.**

This section develops empirical foundations for the flow approach to labor market dynamics and theories of frictional unemployment. Some studies in this section – e.g., *Job Creation and Destruction* and related work reviewed in “Gross Job Flows” – mainly exploit longitudinal business databases. Other studies – e.g., Blanchard and Diamond (1989) and Elsby et al. (2009) – mainly exploit household surveys. For a gentle introduction to the literature, you should first

read Davis, Faberman and Haltiwanger (2006). Then read my short piece for the NBER reporter, which ties together several papers in Sections I and II. From there, you can profitably read any of the studies listed in this section. Davis and Haltiwanger (1999) offer an extensive review of first-generation empirical research on labor market flows, and Petrongolo and Pissarides (2001) offer an extensive review of research on matching functions.

The pace of U.S. labor market flows exhibits a pronounced secular decline. The deeper reasons for this phenomenon and its implications for economic performance are not yet well understood. For evidence regarding the secular behavior of U.S. labor market flows and related analysis and discussion, see Davis (2008), Davis et al. (2010), Davis, Faberman and Haltiwanger (2012), and Hyatt and Spletzer (2013) below and Davis et al. (2007) and Decker et al. (2013) in Section I above.

1. Blanchard, Olivier J. and Peter Diamond, 1989. "The Beveridge Curve," *Brookings Papers on Economic Activity*, " 2, 1-60.
2. Davis, Steven J. 2008. "The Decline of Job Loss and Why It Matters," *American Economic Review, Papers & Proceedings*, May.
3. \*\*Davis, Steven J., 2010. "Labor Market Flows, Business Dynamics, and Unemployment," *NBER Reporter*.
4. \*\*Davis, Steven J., R. Jason Faberman and John Haltiwanger, 2006. "The Flow Approach to Labor Markets: New Data Sources and Micro-Macro Linkages," *Journal of Economic Perspectives*.
5. Davis, Steven J., R. Jason Faberman and John Haltiwanger. 2012. "Labor Market Flows in the Cross Section and Over Time," *Journal of Monetary Economics*, January.
6. Davis, Steven J., R. Jason Faberman, John Haltiwanger and Ian Rucker, 2010. "Adjusted Estimates of Worker Flows and Job Openings in JOLTS." In Abraham, Harper and Spletzer, editors, *Labor in the New Economy*. University of Chicago Press.
7. Davis, Steven J. and John Haltiwanger (1999) "Gross Job Flows," *Handbook of Labor Economics*, Volume 3B, Orley Ashenfelter and David Card, editors, Amsterdam: North-Holland.
8. Davis, Steven J., John C. Haltiwanger, and Scott Schuh, 1996. *Job Creation and Destruction*. Cambridge, MA: MIT Press, 1996. Reprinted in paper back in 1998.
9. Davis, Steven J. et al., 2010, "Business Volatility, Job Destruction, and Unemployment," *American Economic Journal: Macroeconomics*, April.
10. Elsby, Michael, Ryan Michaels and Gary Solon. 2009. "The Ins and Out of Cyclical Unemployment," *American Economic Journal: Macroeconomics*, 1(1), 84-110.
11. Hyatt, Henry R. and James R. Spletzer, 2013. "The Recent Decline in Employment Dynamics," CES Working Paper no. 13-03, March.
12. Petrongolo, Barbara, and Pissarides, Christopher A., 2001. "Looking into the Black Box: A Survey of the Matching Function," *Journal of Economic Literature*, 39(3): 390-431.

#### Selected Micro-Oriented Analyses of Labor Market Flows

1. Gibbons, Robert, Lawrence F. Katz, Thomas Lemieux, and Daniel Parent, "Comparative Advantage, Learning, and Sectoral Wage Determination," *Journal of Labor Economics*, October 2005, 23 (4), 681-724.
2. Gonzalez, Francisco M. and Shouyong Shi, "An Equilibrium Theory of Learning, Search, and Wages," *Econometrica*, March 2010, 78 (2), 509-537.

3. Jovanovic, Boyan, "Job Matching and the Theory of Turnover," *Journal of Political Economy*, October 1979, 87 (5), 972-90.
4. Jovanovic, Boyan, "Matching, Turnover, and Unemployment," *Journal of Political Economy*, 1984, 92 (1), 108-22.
5. Moscarini, Giuseppe, "Job Matching and the Wage Distribution," *Econometrica*, March 2005, 73 (2), 481-516.
6. Topel, Robert H. and Michael P. Ward, "Job Mobility and the Careers of Young Men," *Quarterly Journal of Economics*, 1992, 107 (2), 439-79.

### III. Policy Uncertainty

This section considers a rapidly emerging literature on economic policy uncertainty. Our classroom treatment will address the measurement of economic policy uncertainty and issues that arise in evaluating the relationship of policy uncertainty to macroeconomic performance. As part of this discussion, we will introduce methods for using automated text-string searches on digital newspaper archives to construct new measures of economic policy uncertainty. Similar methods can be applied to quantify other concepts that are not well captured by traditional measures and data sources. As time permits, we will consider a few empirical studies of the relationship between policy uncertainty and economic outcomes and briefly discuss theoretical models of the mechanisms that link policy uncertainty to macroeconomic performance.

There is an older, larger and broader literature on the economic effects of uncertainty. See Baker et al. (2012) for references to a few key articles in the broader literature. My list below includes only a few articles from the broader literature that are especially relevant to policy uncertainty.

1. Ales, Laurence, Pricila Maziero and Pierre Yared, 2012. "A Theory of Political and Economic Cycles," working paper, August.
2. Andersen et al. 2012. "Late Budgets," *American Economic Journal: Economic Policy*, November.
3. Azzimonti, Marina, 2013. "The Political Polarization Index," working paper. 20 June.
4. \*\*Baker, Scott, Nick Bloom and Steven J. Davis, 2013. "Measuring Economic Policy Uncertainty." Latest draft at [www.PolicyUncertainty.com](http://www.PolicyUncertainty.com)
5. Born, Benjamin and Pfeifer, Johannes, "Policy risk and the business cycle", University of Bonn mimeo, 2012.
6. \*Brogaard, Jonathan and Andrew Detzel, 2012. "The Asset Pricing Implications of Government Economic Policy Uncertainty," June.
7. Bussiere, Matthieu and Christian Mulder, 2000. "Political Instability and Economic Vulnerability," *International Journal of Finance and Economics*, 5, 309-330.
8. Caggiano, Giovanni, Efrem Castelnuovo and Nicolas Groshenny, 2012. "Policy Uncertainty Shocks and Labor Market Dynamics in the U.S." working paper, September.
9. \*Durnev, Art, 2010. "The Real Effects of Political Uncertainty: Elections and Investment Sensitivity to Stock Prices," working paper, McGill University, September.
10. Fatas, Antonio and Ilian Mihov, 2013. "Policy Volatility, Institutions, and Economic Growth," *Review of Economics and Statistics*.

11. Fernandez-Villaverde, Jesus, Guerron-Quintana, Pablo, Kuester, Keith and Juan Rubio-Ramirez (2012), "Fiscal volatility shocks and economic activity", University of Pennsylvania mimeo.
12. Giavazzi, Francesco and Michael McMahon, 2012. "Policy Uncertainty and Household Savings," *Review of Economics and Statistics*, May.
13. Gilchrist, Simon, Jae W. Sim and Egon Zakrajsek, 2010, "Uncertainty, Financial Friction and Investment Dynamics,
14. Hartley, Jonathan, 2012. "Health Care Reform and Health Care Stocks: Evidence from the Supreme Court Ruling," BFI Working Paper no. 2012-009.
15. Hassett, Kevin A. and Gilbert E. Metcalf, 1999. "Investment with Uncertain Tax Policy: Does Random Tax Policy Discourage Investment?" *Economic Journal*, 109, no. 457 (July), 372-393.
16. \*Julio, Brandon and Youngsung Yook, 2012. "Political Uncertainty and Corporate Investment Cycles," *Journal of Finance*, February.
17. Kim, Hyunseob and Howard Kung, 2012. "Asset Redeployability, Economic Uncertainty, and Corporate Investment," working paper, August.
18. \*Leduc, Sylvain and Zheng Liu, 2012. "Uncertainty Shocks Are Aggregate Demand Shocks," Federal Reserve Bank of San Francisco Working Paper 2012-10.
19. Mulligan, Casey, 2012. "Uncertainty, Redistribution, and the Recession," working paper, University of Chicago.
20. Mumtaz, Haroon and Paolo Surico, 2012. "Fiscal Uncertainty in the Short and Long Run," working paper, September.
21. Narita, Futoshi, 2011. "Hidden Actions, Risk-Taking, and Uncertainty Shocks," University of Minnesota, February.
22. \*Pastor, Lubos and Veronesi, Pietro, 2012. "Uncertainty about government policy and stock prices," *Journal of Finance*, 67, 1219-1264.
23. \*Pastor, Lubos and Veronesi, Pietro, 2013. "Political Uncertainty and Risk Premia," forthcoming, *Journal of Financial Economics*.
24. Rodrik, Dani, 1991. "Policy Uncertainty and Private Investment," *Journal of Development Economics*, 36, 229-242.
25. Roriz, Fernando, 2012. "Political Uncertainty and Stock Market Returns," working paper, Department of Economics, PUC-Rio.
26. \*Shoag, Daniel and Stan Veuger, 2013. "Uncertainty and the Geography of the Great Recession," AEI Economics Working Paper 2013-05, September.
27. Christiano, Lawrence, R. Motto and M. Rostagno, 2012. "Risk Shocks."
28. Di Tella, Sebastian, 2012. "Uncertainty Shocks and Balance Sheet Recessions," working paper, MIT.

This course will consider only one small slice of recent work that uses automated text search methods as a research tool. See the following papers to gain a fuller appreciation for how these methods can be deployed in economics research.

#### Selected Studies that Use Automated Text String Search Methods

1. Gentzkow, Matthew and Jesse Shapiro, 2010. "What Drives Media Slant? Evidence from U.S. Daily Newspapers," *Econometrica*, 78, 35-72.

2. Groseclose, Tim and Jeffrey Milyo, 2005. "A Measure of Media Bias," *Quarterly Journal of Economics*.
3. Taddy, Matthew A., 2013. "Multinomial Inverse Regression for Text Analysis," *Journal of the American Statistical Association*, 108.
4. NBER Summer Institute Econometric Lectures, 2013: Econometric Methods for High-Dimensional Data at <http://conference.nber.org/confer/2013/SI2013/ML/mlprg.html>.

#### **IV. Displaced Workers: Earnings Losses and other Effects of Job Loss**

Equilibrium search theory and competitive equilibrium theory do not offer ready explanations for the magnitude of the earnings losses and other costs that many workers experience in the wake of job loss. Empirical research on this topic goes back a long way, but the extent and quality of this work has improved greatly in recent years, largely due to the advent of large-scale longitudinal worker-employer datasets. Jacobson, Lalonde and Sullivan (1993) provide an early and influential study that exploited the power of such datasets and applied empirical techniques previously developed in the literature on program evaluation. More recent studies in the same mold include Couch and Placzek (2010), Von Wachter, Song and Manchester (2009), Davis and von Wachter (2011) and many other studies listed below.

1. Basten, Christoph, Andreas Fagereng and Kjetil Telle, 2013. "Saving and Portfolio Allocation before and after Job Loss," working paper, July. This paper and the one below by Gallen investigate whether foreknowledge about displacement affects worker savings behavior.
2. Bewley, Truman F., 1999. *Why Wages Don't Fall During a Recession*. Cambridge, MA: Harvard University Press. Reprinted in paperback in 2002. An interesting book, full of ideas about wage rigidity in the face of negative labor demand shocks.
3. \*Couch, Kenneth A. and Dana W. Placzek, 2010. "Earnings Losses of Displaced Workers Revisited," *American Economic Review*, 100, no. 1, 572-589.
4. Couch, Kenneth A., Nicholas A. Jolly and Dana W. Placzek, 2011. "Earnings Losses of Displaced Workers and the Business Cycle: An Analysis with Administrative Data," *Economics Letters*, 111, pages 16-19. More evidence that workers experience larger, more persistent earnings losses when displaced during bad economic times.
5. Burda, Michael C. and Antje Mertens, 2001, "Estimating wage losses of displaced workers in Germany," *Labour Economics*, 8, no. 1, 15-41.
6. Davis, Steven J., 2006. "Job Loss, Job Finding and Unemployment in the U.S. Economy over the Past 50 Years: Comment," *NBER Macroeconomics Annual 2005*.
7. \*\*Davis, Steven J. and Till von Wachter, 2011. "Recessions and the Costs of Job Loss," *Brookings Papers on Economic Activity*.
8. \*Den Haan, Wouter, Garey Ramey and Joel Watson (2000) "Job Destruction and the Experiences of Displaced Workers," *Carnegie-Rochester Conference Series on Public Policy*, 52, 87-128.
9. Doppelt, Ross, 2013. "Skill Flows: A Theory of Human Capital and Unemployment," working paper, 25 July.
10. Gallen, Yona, 2013. "Anticipating Unemployment: Savings Evidence from Denmark," Northwestern University.

11. Gruber, Jonathan, 1997. "The Consumption Smoothing Benefits of Unemployment Insurance," *American Economic Review*, 87, no. 1, 192-205. An important study that quantifies the role of U.S. unemployment insurance in consumption smoothing by job-losing workers.
12. Hall, Robert E., 1995. "Lost Jobs," *Brookings Papers on Economic Activity*, 1: 221-273.
13. \*Jacobson, Louis S., Robert J. LaLonde, and Daniel G. Sullivan. 1993. "Earnings Losses of Displaced Workers." *American Economic Review*, 93(4): 685-709. A seminal paper on the earnings losses of displaced workers.
14. \*Jung, Philip and Moritz Kuhn, 2012. "Earnings Losses and Labor Mobility over the Life Cycle," working paper, July.
15. Ljungqvist, Lars and Thomas Sargent, 1998. "The European Unemployment Dilemma," *Journal of Political Economy*, 106, 514-550.
1. Manning, Alan, 2011. "Imperfect Competition in Labour Markets," *Handbook of Labor Economics*, Volume 4, edited by Orley Ashenfelter and David Card. Section 2.1 reviews previous studies on the topic of hiring costs.
16. This paper offers a different, and rather eclectic, perspective on many of the topics treated in this course. A good source of ideas for research topics.
17. Pratap, Sangeeta and Erwan Quintin, 2011. "Financial Crises and Labor Market Turbulence," *Journal of Monetary Economics*.
18. Pries, Michael, 2004, "Persistence of employment fluctuations: A model of recurring job loss," *Review of Economic Studies*, 71(1), January, 193-215.
19. Ruhm, Christopher J. 1991 "Are Workers Permanently Scarred by Job Displacements?" *American Economic Review* 81, no. 1, 319-324.
20. Schmitz, Hendrik, 2011. "Why Are the Unemployed in Worse Health? The Causal Effect of Unemployment on Health," *Labour Economics*.
21. Schwerdt, Guido, 2011. "Labor Turnover before Plant Closure: 'Leaving the Sinking Ship' vs. 'Captain Throwing Ballast Overboard,'" *Labour Economics*
22. Stevens, A. H. 1997. "Persistent Effects of Job Displacement: The Importance of Multiple Job Losses," *Journal of Labor Economics* 15, 165-188.
23. \*Sullivan, Daniel, and Till von Wachter, 2009. "Job Displacement and Mortality: An Analysis Using Administrative Data," *Quarterly Journal of Economics*, 124(3), 1265-1306.
24. Topel, Robert H. 1990. "Specific Capital and Unemployment: Measuring the Costs and Consequences of Job Loss." *Carnegie-Rochester Conference Series on Public Policy*, 33, 181-214.
25. Von Wachter, Till, Jae Song and Joyce Manchester, 2009. "Long-Term Earnings Losses due to Job Separation During the 1982 Recession: An Analysis Using Longitudinal Administrative Data from 1974 to 2004," Columbia University Department of Economics Discussion Paper No. 0708-16.
26. Von Wachter, Till and Elizabeth Weber Handwerker. 2009. "Variation in the Cost of Job loss by Worker Skill: Evidence Using Matched Data from California, 1991-2000.
27. Krebs, Tom, 2007. "Job Displacement Risk and the Cost of Business Cycles," *American Economic Review*, 97, no. 3, 664-686

Theoretical and empirical studies of specific human capital are highly relevant to the literature on the earnings losses associated with job loss. See the studies listed above under Selected Micro-Oriented Analyses of Labor Market Flows and the following studies:

#### Selected Studies of Specific Human Capital

1. Becker, Gary. 1962. "Investment in Human Capital: A Theoretical Analysis," *Journal of Political Economy*, 70(5), 9-49.
2. Hashimoto, M. 1981. "Firm-Specific Human Capital as a Shared Investment," *American Economic Review*, 71, 475-482.
3. Kambourov, Gueorgui and Iourii Manovskii. 2009. "Occupational Specificity of Human Capital," *International Economic Review*, 50(1), February, 63-115.
4. Neal, Derek. 1995. "Industry-Specific Human Capital: Evidence from Displaced Workers," *Journal of Labor Economics*, 13(4), 653-677.
5. Oi, Walter, 1962. "Labor as a Quasi-Fixed Factor," *Journal of Political Economy*, 70, 538-555.
6. Parent, D. 2000. "Industry-Specific Capital and the Wage Profile: Evidence from the National Longitudinal Survey of Youth and the Panel Study of Income Dynamics", *Journal of Labor Economics*, 18(2), 306-323.
7. Weinberg, Bruce, 2001. "Long-term wage fluctuations with industry-specific skills." *Journal of Labor Economics*, 19, no 1, 231-264.

#### **V. Employer Behavior on the Hiring Margin**

A vast empirical literature explores the characteristics, behavior and outcomes of the unemployed. Theories of individual and aggregate unemployment behavior are also well developed. Explaining cyclical fluctuations in the unemployment rate, for example, is one of the principal goals of equilibrium search models. In contrast, the study of employer behavior in the process of forming new employment relationships is relatively underdeveloped. The papers listed here consider several aspects of employer behavior on the new hires margin.

##### A. Job Vacancies in the Hiring Process

1. \*\*Davis, Steven J., R. Jason Faberman and John C. Haltiwanger, 2013. "The Establishment-Level Behavior of Vacancies and Hiring," *Quarterly Journal of Economics*, May.
2. \*Oyer, Paul and Scott Schaefer, 2010. "Personnel Economics: Hiring and Incentives," NBER Working Paper no. 15977.
3. \*Pissarides, Christopher A., 2000. *Equilibrium Unemployment Theory*, second edition. Cambridge, MA: MIT Press, especially chapter 5.
4. Hobijn, Bart, 2012. "The Industry-Occupation Mix of U.S. Job Openings and Hires"

##### B. Evidence on Hiring Costs

2. \*Manning, Alan, 2011. "Imperfect Competition in Labour Markets," *Handbook of Labor Economics*, Volume 4, edited by Orley Ashenfelter and David Card. Section 2.1 reviews previous studies on the topic of hiring costs.
3. \*Silva, Jose and Manuel Toledo. 2009. "Labor Turnover Costs and the Cyclical Behavior of Vacancies and Unemployment." *Macroeconomic Dynamics*, 13 (Supplement 1), 76-96.



### C. Selected Theoretical Models of the Hiring Process

1. Galenianos, Manolis. 2012. "Hiring Through Referrals." Working paper, Pennsylvania State University.
2. Kaas, Leo and Philipp Kircher. 2011. "Efficient Firm Dynamics in a Frictional Labor Market," working paper, University of Pennsylvania.
3. Montgomery, James, D., 1990. "Social Networks and Labor-Market Outcomes: Towards an Economic Analysis," *American Economic Review*, 81, no. 5, 1408-1418.
4. Wolthoff, Ronald P. 2012. "Applications and Interviews: Structural Analysis of Two-Sided Simultaneous Search," working paper, University of Chicago.

### D. Hiring as an Investment Decision

1. Yashiv, Eran, 2000. "Hiring as Investment Behavior," *Review of Economic Dynamics*, 3, 486-522.
2. Yashiv, Eran, 2000. "The Determinants of Equilibrium Unemployment," *American Economic Review* 90, no. 5 (December) 1297-1322.
3. Merz, Monika and Eran Yashiv, 2007. "Labor and the Market Value of the Firm," *American Economic Review* 97, no. 4 (September) 1419-1431.

### E. Wage Behavior on the New Hires Margin

1. Abraham, Katharine G. and John C. Haltiwanger, 1995. "Real Wages and the Business Cycle," *Journal of Economic Literature*. Surveys the older literature on wage cyclicality, which goes back many decades.
  2. \*Bils, Mark, 1985. "Real Wages over the Business Cycle: Evidence from Panel Data," *Journal of Political Economy*, 93 (August), 666-689. An important early study that uses micro data to address a first-order macro question.
  3. \*Hall, Robert E. and Alan B. Krueger, 2010. "Evidence on the Incidence of Wage Posting, Wage Bargaining, and On-the-Job Search," *American Economic Journal: Macroeconomics*.
  4. Galuscak, Kamil et al. 2010. "The Determination of Wages of Newly Hired Employees: Survey Evidence of Internal versus External Factors." ECB Working Paper No. 1153.
  5. \*Gertler, Mark and Antonella Trigari. 2009. "Unemployment Fluctuations with Staggered Nash Wage Bargaining." *Journal of Political Economy* 117(1), 38-86.
  6. \*Guimaraes, Paulo, Anabela Carneiro and Pedro Portugal, 2012. "Real Wages and the Business Cycle: Accounting for Workers and Firm Heterogeneity," *American Economic Journal: Macroeconomics*.
  7. Haefke, Christian, Marcus Sonntag, and Thijs van Rens. 2008, "Wage Rigidity and Job Creation." Discussion Paper No. 3714, IZA.
  8. Kudlyak, Marianna. 2011. "The Cyclicity of the User Cost of Labor with Search and Matching," Working Paper 09-12R, Federal Reserve Bank of Richmond.
  9. \*Pissarides, Christopher, 2009, "The Unemployment Volatility Puzzle: Is Wage Stickiness the Answer?" *Econometrica*, 77(5), 1339-1369.
  10. Solon, Gary, Pedro Martins and Jonathan Thomas. 2012. "Measuring What Employers Really Do about Entry Wages over the Business Cycle," *American Economic Journal: Macroeconomics*.
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If we have time to take up another topic in my portion of the course, I will choose one of the following:

- Job Search Behavior by Workers
- Psychological Effects of Job Loss and Unemployment
- Persistent Wage Effects of Past Labor Market Conditions
- Selected Studies of Wage Rigidities

You can find (old) lecture notes for the third and fourth bullet points above (and a few other topics) on my teaching website at <http://faculty.chicagobooth.edu/steven.davis/teaching.html>.

That site also includes earlier incarnations of the course syllabus, with annotated reading lists for the following topics:

- Introduction to Search and Matching Models of Frictional Unemployment
- The Unemployment Volatility Puzzle in Equilibrium Search Models
- Wage Rigidities as a Solution to the Unemployment Volatility Puzzle
- Persistent Wage Effects of Past Labor Market Conditions
- Other Empirical Studies of Wage Rigidities
- Employer Behavior on the Separation Margin
- Theoretical Explanations for Wage Rigidities
- New Keynesian Models with Wage Rigidities
- New Keynesian Models with Wage Rigidities and Frictional Unemployment
- Psychological Effects of Job Loss and Unemployment