

LABOR ECONOMICS 250A
UCSD
PROF. JULIAN BETTS
Fall 2003
COURSE OUTLINE

The course will provide a blend of theoretical labor economics and applied research. There will also be a fairly heavy methodological emphasis, especially early in the course. This emphasis is designed to help prepare you to read and evaluate empirical work in this course and in the other 2 labor courses in the graduate sequence, 250B and C. The methodology toolkit should also prove extremely useful for any other field of applied micro that you study.

There will be no class on Thursday November 6.

We will cover three broad themes:

- A Review of Non-Structural and Related Identification Techniques in Labor Economics
- B The Supply Side of the Labor Market
- C Theories of Unemployment and Empirical Evidence on Unemployment

Requirements for the Course

You are required to do one in-class presentation of a recently published paper, plus write your own term paper on a subject in labor economics of your choosing. You are also expected to attend and participate actively in all classes, and are encouraged to attend relevant Applied Seminar talks during the quarter.

If you prefer to take this course on an S/U basis rather than for a letter grade, the requirements are as above except that instead of a term paper, you would do an additional in-class presentation of a recently published paper. You are encouraged to enroll on a letter grade basis.

Evaluation

20% A 25 minute class presentation on a paper published in the last 5 years on a topic of your choice. You can choose an article from the following reading list or something published in a major journal. Deadline: Provide me with a paper that you would like to present by Tuesday of Week 3 (October 14). Please give me a hardcopy or preferably an emailed pdf file or link. Presentations: Will occur throughout the quarter on Tuesdays of Weeks 4, 6, and 8 in class. Slots are on a first-come first-served basis. You should bring enough handouts for all the class. The handout should include a description of the paper topic, methodological approach, strengths and weaknesses, and suggestions for extensions. Also please email or otherwise provide a copy of the paper to classmates at least a week before your presentation. We will have a 5 minute discussion of the paper at the end of your presentation.

10% Class participation, including participation in discussion of others' papers.

5% A paper proposal. Please give me a one to three page proposal with a few references by Thursday of Week 2 in class (October 9). (You should also feel free to consult me more informally before that time.) Most likely you will choose to write a 20-25 page literature review of a topic in labor economics. Some of you may have initiated more empirically oriented projects in Professor Gordon's or Professor Antonovics' class last year. You are welcome to continue with that work in this course, but you must clear this with me and provide me with a copy of the final version of the paper(s) you prepared for those classes, along with a clear statement of how you will extend that analysis. However, I do not encourage you to develop an empirical project from scratch just for this course, due to the severe time limitations. A third alternative, for those of you taking the 3rd year paper course, is to pair up the 250A paper requirement with the 3rd year literature review you may be writing this fall. Again, please let me know about this in advance and provide a brief writeup on how you plan to extend your paper beyond what you plan to do for your third year literature review course.

This winter and spring Eli Berman and Kate Antonovics will be offering Labor Economics 250B/C, and they want you to know that it is not only feasible but desirable for you to think about extending the paper you will write in this course in their subsequent courses, with the goal of completing an original paper by spring.

15% A paper rough draft. Due: In class Thursday of week 7 (Nov. 13). This should be a 8-20 page rough draft of your paper.

50% A final draft of your paper. Due: In class on Thursday of week 10 (Dec. 4). There will be no extensions beyond the end of quarter, and papers submitted after Dec. 4 will lose 5 percentage points (out of 50) per day late.

(For students taking the course on an S/U basis, the grading is 40% for each of the two presentations and 20% for class participation.)

Office Hours

My office hours are Wednesday 3-4 and other times by appointment. (I will also try to answer e-mail about the course quickly.)

A More Detailed Agenda:

A. A Review of Non-Structural and Related Identification Techniques in Labor Economics

- 1) Selectivity Correction and Propensity Score Matching
- 2) Fixed Effects
- 3) Natural Experiments/Difference-in-Difference Models
- 4) Instrumental Variables
- 5) Regression Discontinuities
- 6) Experiments

(We will cover some examples of structural approaches in the course (e.g. Willis and Rosen), but Econ 250B and especially 250C will include a discussion of structural estimation in labor economics.)

B. The Supply Side of the Labor Market

1) The Quantity of Labor Supplied

a) Labor Supply

- i) Static Labor Supply -- Theory and Estimation
- ii) Dynamic Labor Supply -- Theory and Basic Estimation
- iii) Using Non-linear Budget Constraints Induced by Taxes and Subsidies to Estimate Labor Supply Responses

b) The Economics of Immigration

2) The Quality of Labor Supplied: Human Capital

a) The Economics of Education

- i) What Does Education Do? A Review of the Theories of Human Capital, Social Capital and Signaling
- ii) Econometric Techniques For Estimating The Causal Returns To Education
 - a) Standard Approach

- b) Heckman Selectivity Correction
 - c) IV Methods
 - d) Fixed Effect Methods
 - ii) Human Capital Versus Signaling: Empirical Evidence
 - iii) The Determinants Of School Quality
 - a) Literature Review on School Inputs and Student Outcomes
 - b) Recent Findings
 - c) School Choice, School Competition and School Standards -- Recent
- Reviews of the Literature
- d) Postsecondary School Quality

b) On-the-Job Training

C. Theories of Unemployment and Empirical Evidence on Unemployment

1) An Overview Of Different Theoretical Explanations and Evidence

a) Efficiency Wages

b) Minimum Wages And Unemployment

c) Insider-Outsider Hysteresis Theories

d) Sectoral Shifts

e) Equilibrium Models of Employment: Friction and Search

2) Empirical Evidence on the Incidence and Duration of Unemployment

Papers preceded by an asterisk (*) represent key papers that we will focus on extensively in class. Please let me know of any incorrect references in the attached reading list.

READING LIST

A. A Review of Non-Structural Identification Techniques in Labor Economics

* Angrist, Joshua and Alan Krueger (1999), "Empirical Strategies in Labor Economics," in the *Handbook of Labor Economics*, Vol. 3A, O. Ashenfelter and D. Card, eds. Amsterdam: Elsevier Science.

This paper covers most but not all of the following issues.

1) Selectivity Correction and Propensity Score Matching

Rosenbaum, Paul and Donald Rubin (1983), "The Central Role of the Propensity Score in Observational Studies for Causal Effects", *Biometrika* 70:1, 41-55.

Rosenbaum, Paul and Donald Rubin (1985), "Reducing Bias in Observational Studies Using Subclassification on the Propensity Score," *Journal of the American Statistical Association*, 79, pp. 516-524.

Heckman, James (1976), "The Common Structure of Statistical Models of Truncation, Sample Selection and Limited Dependent Variables and a Simple Estimator for Such Models", *Annals of Economic and Social Measurement* 5:475-492.

Smith, Jeffrey and Petra Todd (2001), "Reconciling Conflicting Evidence on the Performance of Propensity-Score Matching Methods", *American Economic Review*, May, 91:2, 112-118.

2) Fixed Effects

See Angrist and Krueger (1999) above and multiple references later in the course.

3) Natural Experiments/Difference-in-Difference Models

M. Bertrand, E. Duflo, and S. Mullainathan (2002), "How Much Should We Trust Differences-in-Differences?", NBER WP No. 8841, March.

4) Instrumental Variables

Angrist J., G. Imbens, and D. Rubin (1996), "Identification of Causal Effects Using Instrumental Variables," *JASA* 91, 443-455.

5) Regression Discontinuities

Cook, Thomas and Donald Campbell, "The Regression-Discontinuity Design," in *Quasi-Experimentation, Design & Analysis Issues for Field Settings*, Houghton Mifflin, 1979, pp. 137-146.

* Hahn, Jinyong, P. Todd and W. Van Der Klaauw (2001) "Identification and estimation of treatment effects with a regression-discontinuity design", *Econometrica*, Jan., 69:1, 201-209.

6) Experiments

Burtless, Gary (1995) The Case for Randomized Field Trials in Economic and Policy Research," *Journal of Economic Perspectives* 9 (Spring), 63-84.

* Heckman, James Rober LaLonde, and Jeff Smith. (1999) "The Economics and Econometrics of Active Labor Market Programs," *Handbook of Labor Economics*, Vol. 3A, O. Ashenfelter and D. Card, eds. Amsterdam: North Holland, 1865-2097.

LaLonde, Robert (1995) "The Promise of Public Sector-Sponsored Training Programs," *Journal of Economic Perspectives* 9 (Spring): 149-68.

* LaLonde, Robert (1986), "Evaluating the Econometric Evaluations of Training Programs with Experimental Data," *American Economic Review*, September, 604-620.

B. The Supply Side of the Labor Market

1) The Quantity of Labor Supplied

a) Labor Supply

* Blundell, Richard and Thomas MaCurdy (1999) "Labor Supply: A Review of Alternative Approaches", in *Handbook of Labor Economics*, Volume 3A, eds O. Ashenfelter and D. Card, Amsterdam: Elsevier Science.

Killingsworth, Mark (1983), *Labor Supply*, (Cambridge: Cambridge University Press) Chapters 1 and 2.

* Ben-Porath, Yoram (1973), "Labor Force Participation Rates and the Supply of Labor", *Journal of Political Economy* (May/June).

i) Static Labor Supply -- Theory and Estimation

* Heckman, James (1974), "Shadow Prices, Market Wages and Labor Supply", *Econometrica* (July).

* Heckman, James (1979), "Sample Selection Bias as a Specification Error With an Application to the Estimation of Labor Supply Functions", in James Smith (Ed.) *Female Labor Supply*, (Princeton: Princeton University Press).

Moffitt, Robert (1984), "The Estimation of a Joint Wage-Hours Labor Supply Model", *Journal of Labor Economics*, (October).

Mroz, Thomas (1987), "The Sensitivity of an Empirical Model of Married Women's Hours of Work to Economic and Statistical Assumptions", *Econometrica*, (July).

ii) Dynamic Labor Supply -- Theory and Basic Estimation

Altonji, Joseph (1986), "Intertemporal Substitution in Labor Supply: Evidence from Micro Data", *Journal of Political Economy*, (June), Supplement.

* Heckman, James (1974), "Life Cycle Consumption and Labor Supply: An Explanation of the Relationship between Income and Consumption Over the Life Cycle", *American Economic Review* (March).

* Heckman, James and Thomas MaCurdy (1980), "A Life Cycle Model of Female Labor Supply", *Review of Economic Studies*, (January).

Lucas, Robert E. and Leonard Rapping (1969), "Real Wages, Employment, and Inflation", *Journal of Political Economy*, (October).

* MaCurdy, Thomas (1981), "An Empirical Model of Labor Supply in a Life Cycle Setting", *Journal of Political Economy* (December).

iii) Using Non-linear Budget Constraints Induced by Taxes and Subsidies to

Estimate Labor Supply Responses

*Richard Blundell, Alan Duncan, and Costas Meghir (1998), "Estimating Labor Supply Responses Using Tax Reforms," *Econometrica*, July, 827-61.

Ziliak, James and Thomas Kneisner (1999), "Estimating Life Cycle Labor Supply Tax Effects," *Journal of Political Economy*, April, 326-59.

Eissa, Nada and Jeffrey Liebman (1996), "Labor supply response to the earned income tax credit" *Quarterly Journal of Economic*, May (111:2).

Moffitt, Robert (1986), "The Econometrics of Piecewise-Linear Budget Constraints," *Journal of Business and Economic Statistics*, 4:3, 317-328.

b) The Economics of Immigration

* Borjas, George (1999) "The Economic Analysis of Immigration," in O. Ashenfelter and D. Card, eds., *Handbook of Labor Economics*, vol. 3A, pp. 1697-1750.

2) The Quality of Labor Supplied: Human Capital

a) The Economics of Education

i) What Does Education Do? A Review of the Theories of Human

Capital, Social Capital and Signaling

* Ben-Porath, Yoram (1967), "The Production of Human Capital and the Life Cycle of Earnings," *Journal of Political Economy* (75:4), 352-265.

Mincer, Jacob (1974), *Schooling, Experience and Earnings*, New York: Columbia University Press for NBER.

* Spence, Michael (1973), "Job Market Signalling", *Quarterly Journal of Economics*.

Stiglitz, Joseph (1975), "The Theory of Screening, Education, and the Distribution of Income", *American Economic Review*.

Bowles, Samuel, Gintis, Herbert and Osborne, Melissa (2001), "The Determinants of Earnings: A Behavioral Approach," *Journal of Economic Literature*, December, 39(4): 1137-1176.

ii) Econometric Techniques For Estimating The Causal Returns To

Education

a) Standard Approach

b) Heckman Selectivity Correction

* Griliches, Zvi (1977), "Estimating the Returns to Schooling: Some Econometric Problems", *Econometrica*, 45, Jan. pp. 1-22.

* Heckman, James (1979), "Sample Selection Bias as a Specification Error", *Econometrica*, 47, pp. 153-161.

* Willis, R.J. and S. Rosen (1979), "Education and Self-Selection", *Journal of Political Economy*, 87, (Supplement, October), pp. S7-S36.

c) IV Methods

* Angrist, Joshua D. and Alan B. Krueger (1991), "Does Compulsory School Attendance Affect Schooling and Earnings?", *Quarterly Journal of Economics*, 56, #4, pp. 979-1014.

Angrist, Joshua D. and Alan B. Krueger (1991), "The Effect of Age at School Entry on Educational Attainment: An Application of Instrumental Variables with Moments from Two Samples", *Journal of the American Statistical Association*, 87, #418, June, pp. 328-336.

Angrist, Joshua D. and Alan B. Krueger (1994), "Why do World War II Veterans Earn More than Nonveterans?", *Journal of Labor Economics*, 12, #1, Jan., pp. 74-97.

* Ashenfelter, Orley and Alan Krueger (1994), "Estimates of the Economic Return to Schooling from a New Sample of Twins", *American Economic Review*, December.

* Bound, John, David A. Jaeger and Regina M. Baker (1995), "The Cure Can be Worse than the Disease: A Cautionary Tale Regarding Instrumental Variables", *Journal of the American Statistical Association*, June.

Card, David (1999), "The Causal Effect of Education on Earnings", in Orley Ashenfelter and David Card (eds.), *Handbook of Labor Economics Volume 3A*.

Card, David (1993), "Using Geographic Variation in College Proximity to Estimate the Return to Schooling", NBER Working Paper 4483. Published in 1995 in *Aspects of Labour Market Behaviour: Essays in Honour of John Vanderkamp*, Louis Christofides et al. (eds.), Toronto: University of Toronto Press.

Kane, Thomas J. and Cecilia E. Rouse (1995), "Labor Market Returns to Two- and Four-Year College", *American Economic Review*, June.

Staiger, Douglas and James H. Stock (1997), "Instrumental variables regression with weak instruments", *Econometrica* v65, n3 (May 1997).

Harmon, Colm and Ian Walker (1995), "Estimates of the Economic Return to Schooling for the United Kingdom", *American Economic Review*:1278-1286.

d) Fixed Effect Methods

Altonji, Joseph and Thomas Dunn (1996), "The Effects of Family Characteristics on the Return to Education", *Review of Economics and Statistics*, (November).

Angrist, Joshua and Whitney Newey (1991), "Over-identification Tests in Earnings Functions with Fixed Effects", *Journal of Business and Economic Statistics* (July).

Ashenfelter, Orley and David Zimmerman (1997), "Estimates of the Returns to Schooling from Sibling Data: Fathers, Sons and Brothers", *Review of Economics & Statistics* v79, n1 (Feb.).

* Ashenfelter, Orley and Alan Krueger (1994), "Estimates of the Economic Return to Schooling from a New Sample of Twins", *American Economic Review* (December). (Note: This paper uses both instrumental variables and fixed effects.)

* Light, Audrey (1995), "The Effects of Interrupted Schooling on Wages", *Journal of Human Resources* (Summer).

ii) Human Capital Versus Signaling: Empirical Evidence

Altonji, Joseph (1995), "The Effects of High School Curriculum on Education and Labor Market Outcomes", *Journal of Human Resources*, (Summer).

Altonji, Joseph and Charles R. Pierret (2001), "Employer Learning and Statistical Discrimination", *Quarterly Journal of Economics*, Feb. 116:1 313-350.

Bedard, Kelly (2001), "Human Capital Versus Signaling Models: University Access and High School Dropouts", *Journal of Political Economy*, Aug., (109:4), 749-775.

* Farber, Henry S. and Robert Gibbons (1995), "Learning and Wage Dynamics", *Quarterly Journal of Economics* (November).

* Gibbons, Robert and Lawrence F. Katz (1991), "Layoffs and Lemons", *Journal of Labor Economics*, 9, #4, pp. 351-380.

* Lang, Kevin and David Kropp (1986), "Human Capital versus Sorting: The Effects of Compulsory Attendance Laws", *Quarterly Journal of Economics*, 101, #3, pp. 609-624.

Rose, Heather and Julian R. Betts (2001), **Math Matters: The Links between High School Curriculum, College Graduation, and Earnings**, San Francisco: Public Policy Institute of California.

Weiss, Andrew (1988), "High School Graduation, Performance, and Wages", *Journal of Political Economy* (96:4).

iii) The Determinants Of School Quality

a) Literature Review on School Inputs and Student Outcomes

Coleman, James et al. (1966), *"Equality of Educational Opportunity"*, Washington: Government Printing Office.

* Hanushek, Eric A. (1986), "Production and Efficiency in Public Schools", *Journal of Economic Literature*, 24, #3, pp. 1141-1177.

See also the articles in Burtless, Gary (Ed.) (1996), *"Does Money Matter? The Effect of School Resources on Student Achievement and Adult Success."* (Washington, DC: Brookings Institution).

b) Recent Findings

* Betts, Julian R., (1995), "Does School Quality Matter? Evidence from the National Longitudinal Survey of Youth", *Review of Economics and Statistics*.

* Betts, Julian R., (1996), "Is There a Link Between School Inputs and Earnings? Fresh Scrutiny of an Old Literature", in Gary Burtless (Ed.), *"Does Money Matter? The Effect of School Resources on Student Achievement and Adult Success."* (Washington, DC: The Brookings Institution).

Bishop, J.H., (1989), "Is the Test Score Decline Responsible for the Productivity Growth Decline?", *American Economic Review*, 79, pp. 178-197.

* Card, David and Alan B. Krueger (1992a), "Does School Quality Matter? Returns to Education and the Characteristics of Public Schools in the United States", *Journal of Political Economy*, 100, pp. 1-40.

Card, David and Alan B. Krueger (1992b), "School Quality and Black-White Relative Earnings: A Direct Assessment", *Quarterly Journal of Economics*, 57, #1, pp. 151-200.

Card, David and Alan B. Krueger (1996), "School Resources and Student Outcomes: An Overview of The Literature and New Evidence from North and South Carolina", *Journal Of Economic Perspectives*, (10:4), (Fall).

Grogger, J., (1996), "Does School Quality Explain the Recent Black/White Wage Trend?", *Journal of Labor Economics* (April).

Hanushek, Eric A. and Lori L. Taylor (1990), "Alternative Assessments of the Performance of Schools: Measurement of State Variations in Achievement", *Journal of Human Resources*, 25, #2, pp. 179-201.

* Heckman, James J, Anne S. Layne-Farrar and Petra E. Todd (1996), "Does Measured School Quality Really Matter?", in Gary Burtless (Ed.), "Does Money Matter? The Effect of School Resources on Student Achievement and Adult Success." (Washington, DC: The Brookings Institution).

* Lazear, Edward (2001), "Educational Production", *Quarterly Journal of Economics*, August (116:3). This paper is also available as NBER Working Paper 7349.

See also the November 1996 issue of *Review of Economics and Statistics* for a Symposium on School Quality and Educational Outcomes.

Krueger, Alan B. (1999), "Experimental Estimates of Education Production Functions", *Quarterly Journal of Economics* (May):497-532.

c) School Choice, School Competition and School Standards --

Recent Reviews of the Literature

All three of the following articles appeared in the March 1998 issue of *Economic Policy Review*, and are downloadable in pdf format from the NY Fed (www.ny.frb.org).

Betts, Julian (1998), "The Two-Legged Stool: The Neglected Role of Educational Standards in Improving America's Schools".

Hoxby, Caroline M. (1998), "What Do America's 'Traditional' Forms of School Choice Teach Us about School Choice Reforms?".

Rouse, Cecilia E. (1998), "Schools and Student Achievement: More Evidence from the Milwaukee Parental Choice Program".

School Choice

Hoxby, Caroline M. (2000), "Does Competition among Public Schools Benefit Students and Taxpayers?", *American Economic Review*, December.

Theoretical Work on Standards

* Costrell, Robert M. (1994), "A Simple Model of Educational Standards", *American Economic Review*, September, 84(4), pp. 956-71.

* Betts, Julian R., (1998), "The Impact of Educational Standards on the Level and Distribution of Earnings", *American Economic Review*, (88:1), pp. 266-275.

d) Postsecondary School Quality

James, E., N. Alsalam, J.C. Conaty and D.-L. To, (1989), "College Quality and Future Earnings: Where Should You Send Your Child to College?", *American Economic Review*, 79, #2, pp. 247-252.

Dale, Stacy Berg and Alan B. Krueger (2002), "Estimating the Payoff to Attending a More Selective College: An Application of Selection on Observables and Unobservables", *Quarterly Journal of Economics*, Nov.

b) On-the-Job Training

Lynch, Lisa (1992) "Private-Sector Training and the Earnings of Young Workers," *American Economic Review* (March).

Barron, John M., Mark Berger and Dan Black (1999), "Do workers pay for on-the-job training?" *Journal of Human Resources*, Spring (34:2) 235-252.

C. Theories of Unemployment and Empirical Evidence on Unemployment

1) An Overview Of Different Theoretical Explanations and Evidence

Katz, Lawrence F. (1988), "Some Recent Developments in Labor Economics and Their Implications for Macroeconomics", *Journal of Money, Credit and Banking*, 20, #3, August, pp. 507-522.

Stiglitz, Joseph E. (1986), "Theories of Wage Rigidity", in James L. Butkiewicz, Kenneth J. Koford and Jeffrey B. Miller (Eds.), *Keynes' Economic Legacy: Contemporary Economic Theories*, New York: Praeger, pp. 153-206.

den Haan, Wouter J., Gary Ramey and Joel Watson (2000), "Job destruction and propagation of shocks", *American Economic Review*, June.

- * Katz, Lawrence and Alan B. Krueger (1992), "The Effect of the Minimum Wage on the Fast Food Industry", *Industrial and Labor Relations Review*, (October).
- * Kennan, John (1995), "The Elusive Effects of Minimum Wages", *Journal of Economic Literature*, (33:4) (December).
- * Kim, Taeil and Lowell Taylor (1995), "The Employment Effect In Retail Trade Of California's 1988 Minimum Wage Increase", *Journal of Business & Economic Statistics* (13:2), (April).
- Neumark, David and William Wascher (1994), "Employment Effects of Minimum and Subminimum Wages: Reply to Card, Katz, and Krueger", *Industrial and Labor Relations Review*, (47:3), April.
- Neumark, David and William Wascher (1992), "Employment Effects of Minimum and Subminimum Wages: Panel Data on State Minimum Wage Laws", *Industrial and Labor Relations Review*, (46:1), October.
- Neumark, David and William Wascher (1995), "Minimum-Wage Effects On School And Work Transitions Of Teenagers", *American Economic Review*, (85:2), (May).
- Neumark, David and William Wascher (1995), "Minimum Wage Effects On Employment And School Enrollment", *Journal Of Business and Economic Statistics*, (13:2), (May).
- Neumark, David and William Wascher (1995), "The Effect Of New Jersey's Minimum Wage Increase On Fast-Food Employment: A Re-Evaluation Using Payroll Records", NBER Working Paper #5224. See also their article in *American Economic Review* December 2000 and reply by Card and Krueger in same article.
- Rebitzer, James B and Lowell Taylor (1995), "The Consequences Of Minimum Wage Laws: Some New Theoretical Ideas", *Journal of Public Economics*, (56:2) (February).
- Watson, Nadine (1996), Ph.D. Thesis, University of California, San Diego.
- Baker, Michael, Dwayne Benjamin and Shuchita Stanger (1999), "The Highs and Lows of the Minimum Wage Effect: A Time Series Cross-Section Study of the Canadian Law", *Journal of Labor Economics* (April).
- ** Brown, Charles (1999), "Minimum Wages, Employment, and the Distribution of Income", in *Handbook of Labor Economics*, Volume 3B, eds O. Ashenfelter and D. Card, Amsterdam: Elsevier Science.

c) Insider-Outsider/Hysteresis Theories

- Blanchard, Olivier J. and Lawrence H. Summers (1986), "Hysteresis and the European Unemployment Problem", in Stanley Fischer (Ed.), *NBER Macroeconomics Annual 1986*, Cambridge: MIT Press, pp. 15-77.
- * Lindbeck, Assar and Dennis J. Snower (1988), "Cooperation, Harassment, and Involuntary Unemployment: An Insider-Outsider Approach", *American Economic Review* 78, #1, pp. 167-188.

d) Sectoral Shifts

- Abraham, Katherine G. and Lawrence F. Katz (1986), "Cyclical Unemployment: Sectoral Shifts or Aggregate Disturbances?", *Journal of Political Economy*, 94, June, pp. 507-522.
- Brainard, S. Lael and David M. Cutler (1993), "Sectoral Shifts and Cyclical Unemployment Reconsidered", *Quarterly Journal of Economics*, 58, #1, Feb., pp. 219-243.
- * Lilien, David M. (1982), "Sectoral Shifts and Cyclical Unemployment", *Journal of Political Economy*, 90, August, pp. 777-793.
- Murphy, Kevin M. and Robert H. Topel (1987), "The Evolution of Unemployment in the United States", in *NBER Macroeconomics Annual 2*, pp. 11-58.

e) Equilibrium Models of Employment: Friction and Search

- Mortensen, Dale T. and Christopher A. Pissarides (1999), "New Developments in Models of Search in the Labor Market," in O. Ashenfelter and D. Card, eds., *Handbook of Labor Economics* 3B, pp. 2567-2627.

2) Empirical Evidence on the Incidence and Duration of Unemployment

- Davis, Steven and John Haltiwanger (1992), "Gross Job Creation, Gross Job Destruction, and Employment", *Quarterly Journal of Economics*, Aug. 107:3, 819-863.
- Machin, Stephen and Alan Manning (1999), "The Causes and Consequences of Longterm Unemployment in Europe," in O. Ashenfelter and D. Card, eds., *Handbook of Labor Economics* 3C, pp. 3085-3139.
- Katz, Lawrence and Bruce Meyer. "Unemployment Insurance, Recall Expectations, and Unemployment Outcomes", *Quarterly Journal of Economics*, Nov. 1990.
- McCall, Brian (1996), "Unemployment Insurance Rules, Joblessness and Part-Time Work", *Econometrica*, May.