

LABOR ECONOMICS 250B
UCSD
PROFESSORS ELI BERMAN AND JULIAN BETTS
Winter 2005
COURSE OUTLINE

The course will provide a blend of theoretical labor economics and applied research. The three main themes will be labor supply, labor demand, and wage and employment determination. There will also be a fairly heavy methodological emphasis. 250A is NOT a prerequisite for 250B.

We will cover three broad themes:

- A The Supply Side of the Labor Market (Including Education and Training)
- B Theories of Unemployment and Empirical Evidence on Unemployment
- C Labor Demand
- D Increased Returns to Skills and Increased Income Inequality

Professor Betts will teach topics A and B and Professor Berman will teach topics C and D.

Requirements for the Course/Schedule

To do well in this course you should have completed microeconomics and econometrics (A-C) courses. It would be helpful if you have already taken Labor Economics 250A or its predecessor 236B, because there we covered many of the empirical methods that we will use in this course. If you are unsure please consult the 250A course syllabus at <http://weber.ucsd.edu/~jbetts/250A%202004.html> and discuss with either of us if there are holes in your knowledge of the relevant empirical methods.

You are required to write your own term paper, on a subject in labor economics of your choosing. There will also be a final exam. You are also expected to attend and participate actively in all classes.

There will be no classes on Monday 1/17 or Monday 2/17 (UCSD holidays) or on Wed. 1/26.

Evaluation

5% A paper proposal. Please email both of us a one to three page proposal with a few references by Wednesday of Week 2 in class. (You should also feel free to consult either of us more informally before that time.) Most likely you will choose to write a 15-25 page literature review of a topic in labor economics. Ideally this literature review would also include suggestions for future research. Alternatively you could initiate or continue an applied project. Some of you may have initiated more empirically oriented projects in 250A. You are welcome to continue with that work in this course, but you must clear this with us and provide us 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, we 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 extend your 3rd year literature review in a new direction. A fourth alternative is to take an existing paper you have written in a closely related field such as public economics and propose to us how you will extend it. Again, please provide us with a copy of the paper in pdf or hardcopy and a plan for extending your work.

45% A final draft of your paper. Due: In class on Wednesday of week 10 (March 9). Please bring two copies. There will be no extensions beyond the end of quarter, and papers submitted after March 9 will lose 5 percentage points (out of 50) per day late.

50% A three-hour final exam in finals week.

Readings

We provide a detailed reading list later in this syllabus. A very useful supplementary graduate text on labor economics (the only one we know of) is available at the bookstore:

Cahuc, Pierre and Andre Zylberberg (2004), **Labor Economics**, Cambridge, MA: MIT Press.

Office Hours

Professor Betts will hold office hours Mondays 9:30-10:30 throughout the quarter.

Professor Berman's hours will be announced at a later date

A More Detailed Agenda:

A. The Supply Side of the Labor Market

1) The Quantity of Labor Supplied

- 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
- iv) Pensions and Retirement
- v) Health Insurance and Labor Supply

2) The Quality of Labor Supplied: Human Capital

a) The Economics of Education

- i) Human Capital Theory
- ii) Econometric Techniques For Estimating The Returns To Education
 - a) Standard Approach
 - b) Heckman Selectivity Correction
 - c) IV Methods
 - d) Fixed Effect Methods
- iii) Human Capital Versus Signaling
 - a) A Review of the Signaling Model
 - b) Empirical Evidence
- iv) The Determinants of School Quality
 - a) Literature Review on School Inputs and Student Outcomes
 - b) Recent Findings
 - c) Peer Groups and Ability Grouping
 - d) School Choice and School Competition
 - e) School Standards and Accountability
- v) Postsecondary School Quality

b) On-the-Job Training

c) Government Training Programs

B. 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

2) Empirical Evidence on the Incidence and Duration of Unemployment

a) Gross Job Flows

b) Unemployment Insurance and the Duration of Unemployment

C. Labor Demand

Static Models

Empirical Applications of Static Models

Dynamic Models

Equilibrium with Heterogeneous Labor

Immigration

D. Increased Returns to Skills and Increased Income Inequality

The basic facts on quantities and prices

Race

International Evidence

Historical Perspective

Basic Human Capital Theory

Trade as an Explanation

Skill Biased Technological Change as an Explanation

Human Capital and Technological Change in Growth Models

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

The readings for sections C and D to be taught by Professor Berman may be updated before he begins teaching in week 7 or 8.

READING LIST

A. 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.

iv) Pensions and Retirement

Coile, Courtney and Jonathan Gruber (2000), "Social Security and Retirement," NBER Working Paper No. 7830, August.

Samwick, Andrew (1998) "New Evidence on Pensions, Social Security, and the Timing of Retirement," *Journal of Public Economics*, November 1998, 207-36.

Gruber, Jonathan and Peter Orszag (2000), "Does the Social Security Earnings Test Affect Labor Supply and Benefits Receipt?" NBER Working Paper No. 7923, September.

v) Health Insurance and Labor Supply

Madrian, Brigitte (1994), "Employment-Based Health Insurance and Job Mobility: Is There Evidence of Job Lock?" *Quarterly Journal of Economics*, February, 27-54.

Gruber, Jonathan and Madrian, Brigitte C (1997) "Employment separation and health insurance coverage", *Journal of Public Economics*; December.

2) The Quality of Labor Supplied: Human Capital

a) The Economics of Education

i) Human Capital Theory

Becker, Gary (1975), **Human Capital**, 2nd edition, Chicago: University of Chicago Press.

* Ben-Porath, Y, "The Production of Human Capital and the Life Cycle of Earnings," *Journal of Political Economy*, August 1967, pp. 352-65.

ii) Econometric Techniques For Estimating The Returns To Education

a) Standard Approach

b) Heckman Selectivity Correction

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

* 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).

iii) Human Capital Versus Signaling

a) A Review of the Signaling Model

* 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*.

b) 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 (2004), "The Effect of High School Courses on Earnings", *Review of Economics and Statistics*, May (**86**:2), pp. 497-513.

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

iv) 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).

Betts, Julian R. (1996), "Do School Resources Matter Only for Older Workers?", *Review of Economics and Statistics* (**78**:4), pp. 638-652.

Betts, Julian R. (2001), "The Impact of School Resources on Women's Earnings and Educational Attainment: Findings from the National Longitudinal Survey of Young Women", *Journal of Labor Economics*, (**19**:3), pp. 635-657.

Betts, Julian R. and Jamie L. Shkolnik (2000), "The Behavioral Effects of Variations in Class Size: The Case of Math Teachers", *Educational Evaluation and Policy Analysis*, Summer, (**20**:2), pp. 193-213.

Betts, Julian R., Andrew Zau and Lorien Rice (2003), **Determinants of Student Achievement: New Evidence from San Diego**, San Francisco: Public Policy Institute of California.

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.

Hanushek, Eric A., John F. Kain, and Steven G. Rivkin (1998), "Teachers, Schools, and Academic Achievement" National Bureau of Economic Research Working Paper 6691.

* 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).

Hoxby, Caroline M. (1996), "How Teachers' Unions Affect Education Production," *Quarterly Journal of Economics*, 111:3.

* 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.

Loeb, Susanna and Marianne E. Page (2000), "Examining the Link between Teacher Wages and Student Outcomes: The Importance of Alternative Labor Market Opportunities and Non-pecuniary Variation," *Review of Economics and Statistics*, August, 82(3): 393-408.

c) Peer Groups and Ability Grouping

Angrist, Joshua D. and Kevin Lang (2002), "How Important are Classroom Peer Effects? Evidence from Boston's Metco Program," National Bureau of Economic Research Working Paper 9263.

Argys, L. M., Rees, D. I., Brewer, D. J., 1996. Detracking America's Schools: Equity at Zero Cost? *Journal of Policy Analysis and Management* 15, (4), 623-645.

Betts, Julian R. and Jamie L. Shkolnik (2000), "The Effects of Ability Grouping on Student Math Achievement and Resource Allocation in Secondary Schools", *Economics of Education Review*, (19:1), pp. 1-15.

Betts, Julian R. and Andrew Zau (2003), "Peer Groups and Academic Achievement: Panel Evidence from Administrative Data," manuscript, Department of Economics, UCSD.

Hanushek, Eric A., John F. Kain, Jacob M. Markman and Steven G. Rivkin (2001), "Does Peer Ability Affect Student Achievement?" National Bureau of Economic Research Working Paper 8502.

Hoxby, Caroline M., "Peer Effects in the Classroom: Learning from Gender and Race Variation," NBER Working Paper No. 7867, 2001.

Lazear, Edward (2001), "Educational Production", *Quarterly Journal of Economics*, August (116:3). This paper is also available as NBER Working Paper 7349. (This paper has as much to say about peers as it does about class size.)

Vigdor, Jacob L. and Thomas S. Nechyba (2004), "Peer Effects in North Carolina Public Schools." Kennedy School of Government Program on Education Policy and Governance Research Paper #04-20, July 2004.

d) School Choice and School Competition

Cullen, Julie, Jacob, B. and Levitt, S. (2000), "The impact of school choice on student outcomes: An analysis of the Chicago public schools," NBER Working Paper 7888, National Bureau of Economic Research.

Epple, Dennis and Romano, Richard (1998), "Competition Between Private and Public Schools, Vouchers, And Peer-Group Effects," *American Economic Review* 88, 33-62.

Hoxby, Caroline M. (1998), "What Do America's 'Traditional' Forms of School Choice Teach Us about School Choice Reforms?", (March) *Economic Policy Review*, downloadable from www.ny.frb.org.

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

Hoxby, Caroline M. "School Choice and School Productivity (Or, Could School Choice be a Rising Tide that Lifts All Boats," in C. Hoxby, ed. *The Economics of School Choice*, Chicago: University of Chicago Press, 2003.

Hsieh, C. and Urquiola, M. (2003), "When Schools Compete, How Do They Compete? An Assessment of Chile's Nationwide School Voucher Program," NBER Working Paper 10008, National Bureau of Economic Research.

Krueger, A. and Zhu, P. (2003), "Another look at the New York City school voucher experiment, NBER Working Paper 9418, National Bureau of Economic Research.

Myers, D., Peterson, P., Mayer, D., Chou, J. and Howell, W. (2000), "School Choice In New York City After Two Years: An Evaluation Of The School Choice Scholarships Program," Research Paper 8404-045, Mathematica Policy Research Inc.

Rouse, Cecilia E. (1998), "Schools and Student Achievement: More Evidence from the Milwaukee Parental Choice Program", (March) *Economic Policy Review*, downloadable from www.ny.frb.org.

e) School Standards and Accountability

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.

Empirical Evidence

Betts, Julian (1998), "The Two-Legged Stool: The Neglected Role of Educational Standards in Improving America's Schools", (March) *Economic Policy Review*, downloadable from www.ny.frb.org.

Betts, Julian R. Betts and Jeff Grogger (2003), "The Impact of Grading Standards on Student Achievement, Educational Attainment, and Entry-Level Earnings", *Economics of Education Review*, (**22**:4), August, pp. 343-352.

v) 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) Government Training Programs

* 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.

Ashenfelter, Orley and David Card (1985) "Using the Longitudinal Structure of Earnings to Estimate the Effect of Training Programs on Earnings," *Review of Economics and Statistics*, 648-60.

Heckman, James and V.J. Hotz (1989) "Choosing Among Alternative Nonexperimental Methods for Estimating the Impact of Social Programs: The Case of Manpower Training," *JASA* 84 (408), December, 862-880.

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

* R. Dehejia and S. Wahba (1999), "Causal Effects in Non-Experimental Studies: Re-Evaluating the Evaluation of Training Programs," *JASA* 94 (December), 1053-62.

Abadie, Alberto, J. Angrist, and G. Imbens (2002), "Instrumental Variables Estimates of the Effects of Training on the Quantiles of Trainee Earnings," *Econometrica* 70 (January), 91-117.

Heckman, James, H. Ichimura and P. Todd (1997), "Matching as an econometric evaluation estimator: Evidence from evaluating a job training programme", *Review of Economic Studies*, Oct. 64:221, 605-654.

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.

B. 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.

a) Efficiency Wages

a) Survey Articles

Carmichael, H. Lorne (1990), "Efficiency Wage Models of Unemployment - One View", *Economic Inquiry*, **28**, April pp. 269-295.

Lang, Kevin and Shulamit Kahn (1990), "Efficiency Wage Models of Unemployment - A Second View", *Economic Inquiry*, **28**, April pp. 296-306.

b) The Shirking Model

* Shapiro, Carl and Joseph Stiglitz (1984), "Equilibrium Unemployment as a Worker Discipline Device", *American Economic Review*, **74**, June, pp. 433-444.

c) Other Models

i) Adverse Selection

* Weiss, A. (1980), "Job Queues and Layoffs in Labor Markets with Flexible Wages", *Journal of Political Economy*, **88**, June, pp. 526-538.

ii) Turnover Costs

* Salop, Steven C. (1979), "A Model of the Natural Rate of Unemployment", *American Economic Review*, **69**, March, pp. 117-125.

iii) Sociological Explanations

Akerlof, George A. (1982), "Labor Contracts as Partial Gift Exchange", *Quarterly Journal of Economics*, **47**, November, pp. 543-569.

Akerlof, George A. (1984), "Gift-Exchange and Efficiency Wage Theory: Four Views", *American Economic Review*, **74**, May, pp. 79-83.

d) Theoretical Objections

i) Two Theoretical Objections to the Shirking Model

* Carmichael, H. Lorne (1985), "Can Efficiency Wage Unemployment be Involuntary?", *American Economic Review*, **75**, pp. 1213-1214.

* Macleod, Bentley and James Malcolmsom (1989), "Implicit Contracts, Incentive Compatibility and Involuntary Unemployment", *Econometrica*, **57**, pp. 312-322.

Shapiro, Carl and Joseph Stiglitz (1985), "Can Efficiency Wage Unemployment be Involuntary: Reply", *American Economic Review*, **75**, pp. 1215-1217.

ii) A Further Qualification of Both the Shirking and Adverse Selection

Models

* MacLeod, Bentley and James M. Malcolmson (1988), "Reputation and Hierarchy in Dynamic Models of Employment", *Journal of Political Economy*, **96**, #4.

e) A Review of Empirical Evidence

Blackburn, McKinley and David Neumark (1992), "Unobserved Ability, Efficiency Wages, and Interindustry Wage Differentials", *Quarterly Journal of Economics*, **107**, #4, pp. 1421-1436.

Cappelli, Peter and Keith Chauvin (1991), "An Interplant Test of the Efficiency Wage Hypothesis", *Quarterly Journal of Economics*, **106**, #3, pp. 769-787.

* Gibbons, Robert and Lawrence Katz (1992), "Does Unmeasured Ability Explain Inter-Industry Wage Differentials?", *Review of Economic Studies*, **59**, #3, July, pp. 515-535.

Groshen, Erica L. and Alan B. Krueger (1990), "The Structure and Supervision of Pay in Hospitals", *Industrial and Labor Relations Review*, **43**, #3, Special Issue, pp. S134-S146.

Krueger, Alan B. and Lawrence H. Summers (1988), "Efficiency Wages and the Inter-Industry Wage Structure", *Econometrica*, **56**, #2, pp. 259-293.

b) Minimum Wages And Unemployment

Brown, Charles, Curtis Gilroy, and Andrew Kohen (1982), "The Effect of the Minimum Wage on Employment and Unemployment", *Journal of Economic Literature*, (June).

Card, David (1992), "Do Minimum Wages Reduce Employment? A Case Study of California, 1987-89", *Industrial and Labor Relations Review*, (October).

* Card, David and Alan B. Krueger (1994), “Minimum Wages and Employment - A Case Study of the Fast Food Industry in New Jersey and Pennsylvania”, *American Economic Review*, (84:4), September.

Card, David and Alan B. Krueger (1995), *Myth and Measurement : The New Economics of the Minimum Wage*, (Princeton, N.J.: Princeton University Press).

Card, David, Lawrence Katz and Alan Krueger (1994), “Comment on David Neumark and William Wascher, ‘Employment Effects of Minimum and Subminimum Wages: Panel Data on State Minimum Wage Laws’”, *Industrial and Labor Relations Review*, (47:3), April.

Castillo, Alida and Richard B. Freeman (1992), “When the Minimum Wage Really Bites: The Effect of the U.S.-Level Minimum on Puerto Rico”, in George J. Borjas and Richard B. Freeman (Eds.), *The Economic Effects of Immigration in Source and Receiving Countries*, (Chicago: University of Chicago Press).

* 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.

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