

Labor Economics I

MIT (14.661/14.661A)
Fall 2024

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This course covers traditional and contemporary topics in labor economics and aims to encourage the development of independent research interests. Prerequisites are intermediate microeconomics (including basic duality) and familiarity with econometrics at the level of *Mostly Harmless Econometrics*.

The class is offered in two versions, 14.661 and 14.661A, meeting together.

Class requirements

All 661/661A participants are expected to:

- Attend class and recitation each week
- Take an out-of-class final during exam week
- Complete 4 problem sets
- Come to class prepared to discuss readings
- Be prepared for a weekly brief impromptu presentation (BIP) in which a randomly chosen student summarizes 1 of 2 articles assigned from our reading list. BIPs are timed (90 seconds) and done without slides or notes.

In addition, 661A participants are expected to:

- Complete an empirical project involving replication and extension of published work

The 661A empirical project is detailed in a separate note posted on Canvas. Economics Ph.D. students aiming to satisfy requirements for Labor as a major field should take 661A.

Auditors are expected to do the coursework required for credit.

Grading

Labor students may earn a total of 100 regular points plus 5 participation points as follows:

- 14.661 – 4 problem sets (10 points each); final (60 points); 5 participation points for attendance awarded as .25 each for up to 20 classes, excluding the first (i.e., up to 5 excused absences)
- 14.661A – 4 problem sets (10 points each); final (40 points); empirical project (20 points); 5 participation points awarded as in 14.661

READINGS (Angrist)

Books (mostly for review) are on reserve. An (M) flags studies done as part of an MIT Ph.D. thesis.

J. Angrist and S. Pischke, *Mostly Harmless Econometrics: An Empiricist's Companion*, Princeton University Press, 2009 (MHE; a graduate reference on empirical methods).

J. Angrist and S. Pischke, *Mastering 'Metrics*, Princeton University Press, 2014 (MM; 'metrics review and many relevant applications).

G. Borjas, *Labor Economics* 8e, McGraw-Hill, 2020.

I. Labor Market Facts and Trends

Goldin, Claudia. "Labor Markets in the 20th Century." NBER Historical Working Paper No. 8, June 1994. [also in *Cambridge Economic History of the US*, chapter 10, pp. 549-624]

Romer, Christina. "Spurious Volatility in Historical Unemployment Data." *Journal of Political Economy* 94 (1), February 1986, 1-37.

Rothstein, Jesse. "Unemployment and Job Search in the Great Recession." *Brookings Papers on Economic Activity* 43 (Fall 2011), 143-213.

Goldin, Claudia, and Robert A. Margo. "The Great Compression: The Wage Structure in the United States at Mid-century." *Quarterly Journal of Economics*, February 1992.

Goldin, Claudia, and Lawrence F. Katz. *The Race Between Education and Technology*. Harvard University Press, 2010.

T. Lemieux, "The Changing Nature of U.S. Wage Inequality," *J. of Population Economics*, 2007.

D. Autor, L. Katz, and M. Kearney, "Trends in U.S. Wage Inequality: Revising the Revisionists," *The Review of Economics and Statistics*, May 2008. (M)

E. Saez and T. Piketty, "Income Inequality in the United States: 1913-1998," *Quarterly Journal of Economics*, February 2003 (and web updates on Saez home page).

W. Kopczuk, E. Saez, and J. Song, "Earnings Inequality and Mobility in the United States: Evidence from Social Security Data Since 1937," *The QJE*, 125(1), February 2010.

C.B. Mulligan and Y. Rubinstein, "Selection, Investment, and Women's Relative Wages over Time," *The QJE* 123 (August 2008), 1061-1110.

H. Farber, "Employment, Hours, and Earnings Consequences of Job Loss; US Evidence from the Displaced Workers Survey," *JOLE* 35 S1 (July 2017).

D. Autor, "Why Are There Still So Many Jobs? The History and Future of Workplace Automation," *J. Economic Perspectives* 29 (Summer 2015), 3-30.

D. Autor, "Work of the Past, Work of the Future," *The AER* 109 (May 2019), 1-32.

D. Autor and M. Wasserman, "[Wayward Sons: The Emerging Gender Gap in Labor Markets and Education](#)," *Third Way*, March 2013.

K. Charles, E. Hurst, and M. Schwartz, "The Transformation of Manufacturing and the Decline in US Employment," *NBER Macro Annual Volume* 33 (2019).

B. Meyer and J. Sullivan, "Consumption and Income Inequality in the U.S. Since the 1960s," *The JPE* (forthcoming), [manuscript, June 2022](#).

II. Labor Supply

'*Metrics*: Sections 3-4 in Angrist and Krueger, "Empirical Strategies in Labor Economics," Chapter 23 in the *HOLE*, Volume 3A, 1999 (AK99).

A. Basics

A. Deaton and J. Muellbauer, *Economics and Consumer Behavior*, Cambridge University Press, 1980, especially Chapter 4.

O. Ashenfelter and J. Heckman, "The Estimation of Income and Substitution Effects in a Model of Family Labor Supply," *Econometrica*, 42[1], January 1974, 73-86.

Heckman, James J., "Shadow Prices, Market Wages and Labor Supply," *Econometrica*, 42[4], July 1974, 679-94.

R. Blundell and T. MaCurdy, "Labor Supply: A Review of Alternative Approaches," The HOLE Volume 3A, chapter 27, 1999.

G. Imbens, D.B. Rubin, and B. Sacerdote, "Estimating the Effect of Unearned Income on Labor Supply: Evidence from a Survey of Lottery Players," *American Economic Review* 91 (2001).

D. Cesarini, E. Lindqvist, M. Notowidigdo, and R. Östling, "The Effect of Wealth on Individual and Household Labor Supply: Evidence from Swedish Lotteries," *American Economic Review*, 107 (December 2017).

B. Tax and Transfer Programs

R. Moffitt, "Welfare Programs and Labor Supply," *Handbook of Public Economics: Volume 4*. eds. A. Auerbach and M. Feldstein, September 2002.

N. Eissa and J. Leibman, "Labor Supply Response to the Earned Income Tax Credit," *Quarterly Journal of Economics* 111 (May 1996).

B. Meyer and D. Rosenbaum, "Welfare, the Earned Income Tax Credit, and the Labor Supply of Single Mothers" (with Dan T. Rosenbaum), *Quarterly Journal of Economics* CXVI, August 2001, 1063-1114.

Greenberg, D., and H. Halsey, "Systematic Misreporting and Effects of Income Maintenance Experiments on Work Effort: Evidence from the SIME-DIME," *Journal of Labor Economics*, 1[4], October 1983, 380-407.

O. Ashenfelter, "Determining Participation in Income-Tested Social Programs," *Journal of the American Statistical Association*, 78[383], September 1983, 517-525.

O. Ashenfelter and M. Plant, "Non-Parametric Estimates of the Labor Supply Effects of Negative Income Tax Programs," *Journal of Labor Economics*, 8[1] Part 2, 1990, S397-S415.

Plant, M., "An Empirical Analysis of Welfare Dependence," *American Economic Review*, 74[4], September 1984, 673-684.

R. Blank, "Evaluating Welfare Reform in the United States," *Journal of Economic Literature*, December 2002, 1105-66.

D. Card and D. Hyslop, "Estimating the Effects of a Time-Limited Earnings Subsidy for Welfare-Leavers," *Econometrica* 73 (November 2005), 1723-1770.

J. Rothstein, "Is the EITC as Good as an NIT? Conditional Cash Transfers and Tax Incidence." *American Economic Journal: Economic Policy* 2(1), February 2010, p.p. 177-208.

R. Chetty, J. Friedman, and E. Saez, "Using Differences in Knowledge Across Neighborhoods to Uncover the Impacts of the EITC on Earnings," *The AER* 103 (December 2013), 2683-2721.

B.D. Meyer, C. Murphy, and J.X. Sullivan, "Changes in the Distribution of Economic Well-Being During the COVID-19 Pandemic," NBER Working Paper No. 29878 (March 2022).

C. Household and Family Models

'Metrics: MHE Chapter 4; MM Chapter 3 (Instrumental variables).

Becker, Gary S., 1981, *A Treatise on the Family*, Cambridge: Harvard University Press.

Gronau, R., "Leisure, Home Production, and Work -- The Theory of the Allocation of Time Revisited," *Journal of Political Economy*, 85[6], December 1977, 1099-1124.

J. Angrist and W. Evans, "Children and their Parents' Labor Supply: Evidence from Exogenous Variation in Family Size," *AER* 88[3], June 1998, 450-477.

Gelbach, J., "Public Schooling for Young Children and Maternal Labor Supply," *American Economic Review*, 92, March 2002, 307-322. (M)

M. Fitzpatrick, "Revising Our Thinking About the Relationship Between Maternal Labor Supply and Preschool," *J. Human Resources* 47 (Summer 2012).

M. Kearney, "Is There an Effect of Incremental Welfare Benefits on Fertility Behavior? A Look at the Family Cap," *Journal of Human Resources* 39(2), 2004. (M)

T. Hofmarcher and E. Plug, "Specialization in Same-Sex and Different-Sex Couples," *Labour Economics* 77 (August 2022).

LATE-Breaking IV 'Metrics

J. Angrist and I. Fernandez-Val, "Extrapolating: External Validity and Overidentification in the LATE Framework," Chapter 11 in *Advances in Economics and Econometrics (Tenth World Congress)*, 2013.

J. Angrist, V. Lavy, and A. Schlosser, "New Evidence on the Causal Link between the Quantity and Quality of Children," *The Journal of Labor Economics* (October 2010).

P. Kline and C.R. Walters, "Evaluating Public Programs with Close Substitutes: The Case of Head Start," *The QJE* 131 (November 2016), 1795-1848.

D. Aaronson, et al., "The Effect of Fertility on Mothers' Labour Supply Over the Last Two Centuries," *The Economic Journal* 131 (January 2021).

The Pandemic Home Front

C. Amuedo-Dorantes, M. Marcen, and M. Morales, "Schooling and Parental Labor Supply: Evidence from COVID-19 School Closures in the United States," *ILR Review*, May 2022.

B. Hansen, Joseph J. Sabia, and J. Schaller, "Schools, Job Flexibility, and Married Women's Labor Supply," NBER Working Paper No. 29660 (August 2022).

N. Bloom, R. Han, and J. Liang, "How Hybrid Work From Home Works Out," NBER Working Paper No. 30292 (January 2023).

D. The Life-Cycle Model

The Life Cycle Model; PIH and ISE Theory; Panel Data 'Metrics

'Metrics: MHE Sections 4.1 and 5.1; MM Chapter 3 (IV and grouped data)

J. Angrist, "Grouped-Data Estimation and Testing in Simple Labor Supply Models," *Journal of Econometrics*, 47[2], 1991, 243-266.

J. Angrist, "Does Labor Supply Explain Fluctuations in Average Hours Worked?," NBER Working Paper No. 3312 (March 1990).

Lucas, R.E., and L. Rapping, "Real Wages, Employment, and Inflation," *Journal of Political Economy*, 77[5], September-October 1969, 721-764.

G. Becker and G. Ghez, The Allocation of Time and Goods Over the Life-Cycle, Columbia University Press, 1975.

R. Hall, "Stochastic Implications of the Life-Cycle PIH," *The JPE* 86, 1978.

T. MaCurdy, "An Empirical Model of Labor Supply in a Life-Cycle Setting," *Journal of Political Economy*, 89[6], December 1981, 1059-1085.

J. Altonji, "Intertemporal Substitution in Labor Supply: Evidence from Micro Data," *Journal of Political Economy*, 94[3] Part 2, June 1986, S176-S215.

Browning, Deaton and Irish, "A Profitable Approach to Labor Supply and Commodity Demand Over the Life-Cycle," *Econometrica*, 53[3], May 1985, 503-543.

D. Card, "Intertemporal Labor Supply: An Assessment," in C. Sims, ed., Advances in Econometrics Sixth World Congress, vol. II, Cambridge University Press, 1994, 49-78.

R. Blundell, A. Duncan, and C. Meghir, "Estimating Labor Supply Responses Using Tax Reforms," *Econometrica* 66 (1998), 827-861.

P.J. Devereux. "Small Sample Bias in Synthetic Cohort Models of Labor Supply," *The Journal of Applied Econometrics*, June 2007, 839-848.

Target Earnings vs the ISH

A. Mas and A. Pallais, "Valuing Alternative Work Arrangements," *The AER*, 2017.

A. Mas and A. Pallais, "Labor Supply and the Value of Non-Work Time: Experimental Estimates from the Field," *American Economic Review: Insights*, 1 (2019).

C. Camerer, L. Babcock, G. Lowenstein, and R. Thaler, "Labor Supply of New York City Cabdrivers: One Day at a Time," *QJE* 112 (1997), 407-441.

Oettinger, Gerald S., “An Empirical Analysis of the Daily Labor Supply of Stadium Vendors,” *Journal of Political Economy*, 107[2], April 1999, 360-92.

H. Farber, “Is Tomorrow Another Day? The Labor Supply of New York City Cab Drivers,” *The JPE*, February 2005.

E. Fehr and L. Goette, “Do Workers Work More if Wages are High? Evidence from a Randomized Field Experiment,” *American Economic Review* 97, March 2007.

H. Farber, “Reference-Dependent Preferences and Labor Supply: The Case of New York City Taxi Drivers,” *The American Economic Review* 98 (2008), 1069-1082.

T. Stafford, “What Do Fisherman Tell Us that Taxi Drivers Don’t? An Empirical Investigation of Labor Supply,” *Journal of Labor Economics*, 33[3], 2015.

J. Angrist, S. Caldwell, and J. Hall, “Uber versus Taxi: A Driver’s Eye View,” *American Economic Journal: Applied Economics* 13 (July 2021) (M).

S. Caldwell and E. Oehlsen, “Gender Differences in Labor Supply: Experimental Evidence from the Gig Economy,” UC Berkeley Economics Department, manuscript, September 2023 (M).

III. Labor Demand and Demand-Side Institutions and Policies

A. Neoclassical Theory of Firm Behavior

D. Hamermesh, “The Demand for Labor in the Long Run,” Chapter 8 in O. Ashenfelter and R. Layard [eds.] Handbook of Labor Economics, Volume 1, 1986.

D. Card, “Unexpected Inflation, Real Wages, and Employment Determination in Union Contracts,” *American Economic Review*, September 1990, 669-88.

J. Angrist, “Short-Run Demand for Palestinian Labor,” *Journal of Labor Economics*, July 1996.

Katz and Murphy, “Changes in Relative Wages, 1963-87: Supply and Demand Factors,” *The QJE* 107 (Feb 1992), 35-78.

D. Card and T. Lemieux, “Can Falling Supply Explain the Rising Return to College for Younger Men? A Cohort-based Analysis,” *The QJE* 116 (May 2001), 705-746.

B. Market Structure and the Min

Basic Theory

Metrics: MHE Chapter 5; MM Chapter 5 (Diffs-in-diffs).

D. Card, “Using Regional Variation to Measure the Effect of the Federal Minimum Wage,” *Industrial and Labor Relations Review*, October 1992.

D. Card and A. Krueger (1994), “Minimum Wages and Employment: A Case Study of the Fast Food Industry in NJ and PA,” *The AER* 84 (September 1994).

R. Dickens, S. Machin and A. Manning, “The Effects of Minimum Wages on Employment: Theory and Evidence from Britain”, *J. Labor Econ.*, 17[1], January 1999, 1-22.

A. Manning, *Monopsony in Motion: Imperfect Competition in Labor Markets*, Princeton University Press, 2003.

Propper, Carol and Van Reenen, John. “Can Pay Regulation Kill? Panel Data Evidence on the Effect of Labor Markets on Hospital Performance,” *Journal of Political Economy*, 2010, 118 (2). pp. 222-273.

Minimum Wage and Related Wage-Floor Effects

D. Neumark, J.M. Salas, W. Wascher, “Revisiting the Minimum Wage—Employment Debate: Throwing Out the Baby with the Bathwater?,” *ILR Review* 67 (May 2014).

D. Cengiz, A. Dube, A. Lindner, and B. Zipperer, “The Effect of Minimum Wages on Low-Wage Jobs,” *The QJE* 134 (August 2019).

P. Harasztosi and A. Lindner, “Who Pays for the Minimum Wage?,” *The AER* 109 (Aug 2019).

O. Ashenfelter S. Jurajda, “Minimum Wages, Wages, and Price Pass-Through: The case of McDonald's,” *J. Labor Econ.* 40 (April 2022).

E. Derenoncourt, C. Noelke, D. Weil, and B. Taska, “Spillover Effects of Voluntary Employer Minimum Wages,” NBER Working Paper No. 29425 (Rev. June 2022).

C. Immigration and Migration

Metrics: A. Abadie, “Using Synthetic Controls...” *The JEL* 59 (June 2021).

G.E. Johnson, “The Labor Market Effects of Immigration,” *Industrial and Labor Relations Review* 33 (April 1980).

G. Borjas (1995) “The Economic Benefits from Immigration,” *JEP* 9 (Spring), 3-22.

J. Altonji and D. Card, “The Effects of Immigration on the Labor Market Outcomes of Less-Skilled Natives,” in J. Abowd and R. Freeman, eds., *Immigration, Trade, and the Labor Market*, University of Chicago Press, 1991, 201-234.

D. Card, “The Impact of the Mariel Boatlift on the Miami Labor Market.” *Industrial and Labor Relations Review*, vol.43, (January 1990), pp. 245--257.

Borjas, George J., Richard B. Freeman, and Lawrence F. Katz. “How Much Do Immigrant and Trade Affect Labor Market Outcomes?” *Brookings Papers on Economic Activity*, no. 1 (1997).

Pischke, Jörn-Steffen, and Johannes Velling, “Employment Effects of Immigration to Germany: An Analysis Based on Local Labor Markets,” *The Rev. Ec. Stat.* 79 (Nov. 1997).

J. Angrist and A. Kugler, “Protective or Counter-Productive? Labor Market Institutions and the Effect of Immigration on EU Natives,” *The Economic Journal*, June 2003.

G. Borjas, “The Labor Demand Curve is Downward Sloping: Reexamining the Impact of Immigration on the Labor Market,” *QJE* November 2003.

P. Cortes, "The Effect of Low-Skilled Immigration on US Prices: Evidence from CPI Data," *JPE* 2008, 381-422. (M)

D. Card, "Immigration and Inequality," *AER* 99 (May 2009), 1-21.

C.L. Smith, "The Impact of Low-skilled Immigration on the Youth Labor Market," *Journal of Labor Economics* 30(1), 2012, 55-89. (M)

G. Ottaviano and G. Peri, "Rethinking the Effects of Immigration on Wages," *J. of the Eur. Ec. Assoc.* 10 (2012), 152-197.

G. Borjas, "The Wage Impact of the *Marielitos*: A Reappraisal," *Industrial and Labor Relations Review*, 70 (2017).

M. Clemens and J. Hunt, "The Labor Market Effects of Refugee Waves: reconciling Conflicting results," *ILR Review* 72 (2019; see also Borjas' rejoinder in the same issue).

IV. Intro to Human Capital

A. Schooling, Experience, and Earnings

Basic Theory

J. Mincer, Schooling, Experience, and Earnings, New York: NBER, 1974.

G. Becker, Human Capital, 3rd Edition, Chicago: University of Chicago Press, 1993.

R.J. Willis, "Wage Determinants," Chapter 10 in the *HOLE*, volume 1, 1987.

Ben-Porath, Yoram (1967). "The Production of Human Capital Over the Life Cycle," *Journal of Political Economy*, Vol. 75, No. 4-1, pp. 352-365.

R.J. Willis, and Sherwin Rosen, "Education and Self-Selection," *Journal of Political Economy*, 87[5] Part 2, Oct 1979: S7-S36.

R. Freeman, "Demand for Education," Chapter 6 in *The Handbook of Labor Economics*, Volume 1, 1986.

HK vs Signaling; Ability Bias

K. Lang and D. Kropp (1986), "Human Capital Versus Sorting: The Effects of Compulsory Attendance Laws," *Quarterly Journal of Economics* 101, 609-624.

Tyler, John, Richard J. Murnane and John Willett, "Estimating the Labor Market Signaling value of the GED," *Quarterly Journal of Economics*, May 2000. (M)

P. Martorell and D. Clark, "The Signaling Value of a High School Diploma," *Journal of Political Economy*, 122[2], April 2014.

B. Empirical Earnings Functions

Returns to Schooling, Experience, and OJT

‘Metrics: MM Chapter 6; AK99 Section 2.

Z. Griliches, “Estimating the Returns to Schooling: Some Econometric Problems,” *Econometrica*, January 1977.

Angrist, J.D. and A. Krueger, “Does Compulsory Schooling Attendance Affect Schooling and Earnings?” *Quarterly Journal of Economics*, 106[4], Nov 1991, 979-1014.

J. Kling, “Interpreting Instrumental Variables Estimates of the Returns to Schooling,” *JBES* 19 (July 2001). (M)

D. Card, “Estimating the Return to Schooling: Progress on Some Persistent Econometric Problems.” *Econometrica* 69 (September 2001).

P. Oreopoulos, “Estimating Average and Local Average Treatment Effects of Education when Compulsory Schooling Laws Really Matter,” *American Economic Review* 96(1), March 2006, pp. 152-175. See also August 2008 ([Link](#)) correction.

G. Aryal, M. Bhuller, and F. Lange, “Signaling and Employer Learning with Instruments,” *The AER* 112 (May 2022).

J. Angrist and B. Frandsen, “Machine Labor,” *J. Labor Econ.* 40 (April 2022).

B. Jovanovic (1979) “Firm-Specific Capital and Turnover,” *Journal of Political Economy*, 87.6 (December), 1246-60.

J. Altonji and R. Shakotko, “Do Wages Rise with Job Seniority?,” *Review of Economic Studies*, July 1987.

Topel Robert (1991). “Specific Capital, Mobility, and Wages: Wages Rise with Job Seniority” *Journal of Political Economy* 99, n1 145-76.

K. M. Murphy and F. Welch, “Empirical Age-Earnings Profiles,” *JOLE* 8 (April 1990).

Topel Robert and Michael Ward (1992). “Job Mobility and the Careers of Young Men,” *Quarterly Journal of Economics* 107 [2], 439-479.

Lazear, Edward P. *Personnel Economics*, (Cambridge: MIT Press), 1995, Chapter 7.

J. Angrist, “Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records,” *American Economic Review*, 80[3], June 1990, 313-336.

J. Angrist and S. Chen, “Schooling and the Vietnam-Era GI Bill: Evidence from the Draft Lottery,” *American Economic Journal: Applied Economics*, April 2011, 3, 96-119.

Acemoglu, Daron and Jörn-Steffen Pischke (1999). “Beyond Becker: Training in Imperfect Labor Markets,” *Economic Journal* vol 109 February 1999, pp F112-142.

Autor, David H. (2001). "Why do Temporary Help Firms Provide Free General Skills Training?", *Quarterly Journal of Economics*, Vol. 116, No. 3, pp. 1409-1448. (M)

Jacobson, Louis, Robert LaLonde and Daniel Sullivan (1993). "Earning Losses of Displaced Workers," *American Economic Review*, vol. 83, pp. 685-709.

B. Crepon, et al. (2013). "Do Labor Market Policies have Displacement Effects? Evidence from a Clustered Randomized Experiment," the *QJE* 128, pp. 531-580.

C. School Quality and Education Production

Metrics: MHE Chapter 6; MM Chapter 4 (Regression Discontinuity Designs).

F. Welch, "Black-White Differences in Returns to Schooling," *The AER* 63 (December 1973).

D. Card and A. Krueger, "School Quality and Black-White Relative Earnings: A Direct Assessment," *Quarterly Journal of Economics* 107, February 1992.

A. Krueger, "Experimental Estimates of Education Production Functions," *QJE* 114 (May 1999).

J. Angrist and V. Lavy, "Using Maimonides Rule to Estimate the Effects of Class Size on Academic Achievement," *QJE* 114 (May 1999), 533-575.

J. Angrist, V. Lavy, J. Leder-Luis, and A. Shany, "Maimonides Rule Redux," *AER: Insights* 1 (December 2019).

A. Abdulkadiroglu, J. Angrist, S. Dynarski, T. Kane, and P. Pathak. "Accountability and Flexibility in Public Schools: Evidence from Boston's Charters and Pilots," *The Quarterly Journal of Economics*, 2011, 126(2), 699-748.

S. Dale and A. Krueger, "Estimating the Payoff to Attending a More Selective College: An Application of Selection on Observables and Unobservables," *The QJE* 117 (Nov. 2002).

A. Abdulkadiroglu, J. Angrist, and P. Pathak. "The Elite Illusion: Achievement Effects at Boston and New York Exam Schools," *Econometrica*, 2014, 82(1), 137-196.

J. Angrist, E. Bettinger, M. Kremer "Vouchers for Private Schooling in Colombia: Evidence from a Natural Experiment," *The AER* 92 (December 2002).

A. Abdulkadiroglu, P. Pathak, and C. Walters, "Free to Choose: Can School Choice Reduce Achievement?," *AEJ: Applied Economics* 10 (2018).

J. Angrist and K. Lang, "Does School Integration Generate Peer Effects? Evidence from Boston's Metco Program," *The AER* 94 (December 2004).

J. Angrist, G. Gray-Lobe, C. Idoux, and P. Pathak, "Still Worth the Trip? School Busing Effects in Boston and New York," NBER Working Paper No. 30308 (Revised June 2024).

J. Mountjoy, "Community Colleges and Upward Mobility," *The AER* 112 (August 2022).

J. Angrist, P. Hull, and C. Walters, "Methods for Measuring School Effectiveness," *Handbook of the Economics of Education*, August 2023.

J. Guryan, “Desegregation and Black Dropout Rates,” *The AER* 94 (September 2004). (M)

W. Dobbie and R. Fryer, “The Medium-Term Impacts of High-Achieving Charter Schools,” *The JPE* 123 (October 2015).

S. Billings, D. Deming, J. Rockoff, “School Segregation, Educational Attainment, and Crime: Evidence from the End of Busing in Charlotte-Mecklenburg,” *The QJE* 138 (Feb. 2014).

J. Angrist, P. Hull, P. Pathak, and C. Walters, “Credible School Value-Added with Undersubscribed School Lotteries,” *The Rev. Econ. Stat.* 106 (January 2024).

J. Angrist, P. Pathak, R. Zarate, “Choice and Consequence: Assessing Mismatch at Chicago Exam Schools,” *J. Public Econ.* 223 (2023).

J. Angrist, P. Hull, P. Pathak, and C. Walters, “Race and the Mismeasure of School Quality,” *AER: Insights* 6 (March 2024).

D. A Few Financial Aid Effects

S.M. Dynarski, “Does Aid Matter? Measuring the Effect of Student Aid on College Attendance and Completion,” *The American Econ. Rev.* 93 (2003). (M)

J. Angrist, D. Lang, and P. Oreopoulos, “Incentives and Services for College Achievement: Evidence from a Randomized Trial,” *American Economic Journal: Applied Economics* 1 (January 2009).

E.P. Bettinger, BT Long, P. Oreopoulos, and L. Sanbonmatsu, “The Role of Application Assistance and Information in College Decisions,” *The QJE* 127 (August 2012).

J. Angrist, D. Lang, and P. Oreopoulos, “Incentives and Services for College Achievement: Evidence from a Randomized Trial,” *American Economic Journal: Applied Economics* 1 (January 2009).

S.R. Cohodes and J.S. Goodman, “Merit Aid, College Quality, and College Completion: Mass. Adams’ Scholarship as an In-kind Subsidy,” *The AEJ: Applied Economics* 6 (2014). (M)

S.M. Dynarski, C.J. Libassi, K. Michelmore, and S. Owen, “Closing the Gap: The Effect of Reducing Complexity and Uncertainty in College Pricing on the Choices of Low-Income Students,” *The AER* 111 (June 2021).

J. Angrist, D. Autor, and A. Pallais, “Marginal Effects of Merit Aid for Low-Income Students,” *The QJE* 137 (May 2022).

V. Unions in the Private and Public Sectors

Metrics: MHE Section 5.1 (Panel Data)

H. Gregg Lewis, *Union Relative Wage Effects: A Survey*, University of Chicago Press, 1986.

Farber, Henry. “The Analysis of Union Behavior,” Chapter 18 In Orley Ashenfelter and Richard Layard (eds), *The HOLE*, Volume II, 1986.

J.N. Brown and O.C. Ashenfelter, "Testing the Efficiency of Employment Contracts," *Journal of Political Economy* 1986, S40-S87.

O. Ashenfelter and G. Johnson, "Bargaining Theory, Trade Unions, and Industrial Strike Activity," *The AER* 59 (1969), 35-49.

G. Jakubson, "Estimation and Testing of the Union Wage Effect Using Panel Data," *Review of Economic Studies*, 1991, 971-91.

C. Hoxby, "How Teachers Unions Affect Education Production," *The QJE*, August 1996.

J. DiNardo and D.S. Lee, "Economic Impacts of New Unionization on US Private Sector Employers: 1984-2001," *QJE* 119 (2004), 1383-1442.

D. Lee and A. Mas, "Long-run Impacts of Unions on Firms: New Evidence from Financial Markets, 1961-1999," *The Quarterly Journal of Economics*, 2012, 127(1), 333-378.

B. Frandsen, "The Effects of Collective Bargaining Rights on Public Employee Compensation: Evidence from Teachers, Fire Fighters, and Police," *The ILRR*, 2016. (M)

B. Frandsen, "The Surprising Impacts of Unionization: Evidence from Matched Employer-Employee Data," *JOLE* 39 (October 2021). (M)

Second Part - Acemoglu

Cahuc and Zilberberg's *Labor Economics* MIT Press, 2004 is a useful reference. You may also want to consult the lecture notes on my website (Acemoglu, Daron and David Autor, *Lectures in Labor Economics*, Web notes), though these do not cover all our material.

I. Labor Market Externalities

A. Non-Pecuniary and Pecuniary Externalities in the Labor Market

Rauch, James E. (1993) "Productivity Gains from Geographic Concentration of Human Capital: Evidence from the Cities" *Journal of Urban Economics* 34, 380-400.

Acemoglu, Daron (1996) "A Microfoundation for Social Increasing Returns in Human Capital Accumulation," *Quarterly Journal of Economics* 111 [3], 779-804.

* Acemoglu, Daron and Joshua Angrist (2000) "How Large Are The External Returns to Education: Evidence from Compulsory Schooling Laws" *NBER Macro Annual* 2000.

Moretti, Enrico (2004) "Human Capital Externalities in Cities." *Handbook of Regional and Urban Economics*. Vol. 4. Elsevier, 2004. 2243-2291.

Ciccone, Antonio and Giovanni Peri (2006) "Identifying Human Capital Externalities: Theory with Applications." *The Review of Economic Studies* 73.2: 381-412.

B. Signaling

* Spence, Michael (1973) "Job Market Signaling" *Quarterly Journal of Economics*, 87(3), 355 – 374.

Stiglitz, Joseph (1986) "The Theory of Screening, Education, and the Distribution of Income" *American Economic Review*, 66, 283 – 300.

Lang, Kevin, and David Kropp (1986) "Human Capital Versus Sorting: The Effects of Compulsory Attendance Laws," *Quarterly Journal of Economics* 101(2), 609-624.

Bedard, Kelly (2001) "Human Capital Versus Signaling Models: University Access and High School Dropouts." *Journal of Political Economy* 109.4, 749 – 775.

Chevalier, Arnaud, Colm Harmon, Ian Walker, and Yu Zhu (2004) "Does Education Raise Productivity, or Just Reflect It?" *The Economic Journal* 114, no. 499: F499-F517.

* Tyler, John, Richard J. Murnane and John Willett (2000) "Estimating the Labor Market Signaling value of the GED" *Quarterly Journal of Economics*, 115(2), 431-468.

II. Social Mobility, Peer Effects and Human Capital

A. Social Mobility

* Becker, Gary and Nigel Tomes "Human capital and the rise and fall of families," *Journal of Labor Economics* 4, (1986) S1-S39.

* Solon, Gary "Intergenerational Income Mobility in the United States" *American Economic Review* v82, n3 (June 1992): 393-408

Zimmerman, David J. "Regression Toward Mediocrity in Economic Stature" *American Economic Review* v82, n3 (June 1992): 409-29

Mulligan Casey (1997) *Parental Priorities and Economic Inequality*, (1997) University of Chicago Press.

Chetty, Raj, Nathaniel Hendren, Patrick Kline and Emmanuel Saez (2014) "Is the United States Still a Land of Opportunity? Recent Trends in Intergenerational Mobility" *American Economic Review: Papers and Proceedings*, 104(5), 141-147.

* Chetty, Raj, Nathaniel Hendren, Patrick Kline and Emmanuel Saez (2014) "Where Is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States" *Quarterly Journal of Economics*, vol. 129(4), pages 1553-1623.

* Chetty, Raj, Nathaniel Hendren, and Lawrence F Katz (2016) "The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment." *American Economic Review* 106.4, 855 – 902.

Roback, Jennifer (1982) "Wages, Rents and the Quality of Life" *Journal of Political Economy*, 90(6), 1257-1278.

* Galor, Oded and Joseph Zeira (1993) "Income Distribution and Macroeconomics." *Review of Economic Studies*, 60, pp. 35-52.

* Benabou, Roland (1993) "Workings of a City: Location, Education and Production", *Quarterly Journal of Economics*, Vol. 108, No. 3, pp. 619-652.

* Benabou, Roland (1996) "Heterogeneity, Stratification and Growth: Macroeconomic Implications of Community Structure in School Finance" *American Economic Review* Vol. 86, No. 3, pp. 584-609.

Fernandez, Racquel and Richard Rogerson (1996) "Income Distribution, Communities and the Quality of Public Education," *Quarterly Journal of Economics* 111(1), 135-164.

Hoxby, Caroline (1996) "Are Efficiency and Equity in School Finance Substitutes or Complements", *Journal of Economic Perspectives*, Vol. 10, No. 4, pp. 51-72.

B. Peer Effects

Lazear, Edward P. (2001) "Educational Production" *Quarterly Journal of Economics*, 116(3), 777-803.

Black, Sandra (1999) "Do Better Schools Matter? Parental Evaluation of Elementary Education" *Quarterly Journal of Economics*, 114(3), 577-600.

Bayer, Patrick Fernando Ferreira and Robert MacMillan (2007) "Unified Framework for Measuring Preferences for Schools and Neighborhoods," *Journal of Political Economy*, 115(4), 588-68.

Manski, Charles (1993) "Identification of Endogenous Social Effects: the Reflection Problem," *Review of Economic Studies*, 60, 531-542.

Angrist, Joshua (2014) "The Perils of Peer Effects," *Labour Economics*, vol. 30(C), pages 98-108.

* Crepon, Bruno, Esther Duflo, Grugand, Marc, Rathelot, Roland and Philippe Zamora (2014) "Do Labor Market Policies have Displacement Effects? Evidence from a Clustered Randomized Experiment," *The Quarterly Journal of Economics*, vol. 128(2), pages 531-580.

* Sacerdote, Bruce (2001) "Peer Effects with Random Assignment: Results from Dartmouth Roommates" *Quarterly Journal of Economics*, 116, 681-704.

Zimmerman, David (2003) "Peer Effects in Higher Education: Evidence from a Natural Experiment," *Review of Economics and Statistics*, 85, 9-23.

Lyle, David (2007) "Estimating and Interpreting Peer and Role Model Effects from Randomly Assign Social Groups at West Point" *Review of Economics and Statistics*, 89, 289-299.

Mas, Alex and Enrico Moretti (2009) "Peers at Work" *American Economic Review*, vol. 99(1), pages 112-45, March.

Card, David and Laura Giuliano (2013) "Peer Effects in Multiple Equilibria in the Risky Behavior of Friends," *The Review of Economics and Statistics*, MIT Press, vol. 95(4), pages 1130-1149, October.

* Bramoulle, Yann, Habiba Djebbari, and Bernard Fortin (2009) "Identification of Peer Effects through Social Networks" *Journal of Econometrics*, 150, 41-55.

Acemoglu, Daron, Camilo Jimeno Garcia and James a Robinson (2015) "State Capacity and Economic Development: A Network Approach," *American Economic Review*, vol. 105(8), pages 2364-2409, August.

* Carrell, Scott, Bruce Sacerdote and James West (2013) "From Natural Variation to Optimal Policy? The Lucas Critique Meets Peer Effects" *Econometrica*, 81(3), 855-882.

Zarate, Roman Andres (2018) "Social and Cognitive Peer Effects: Experimental Evidence from Selective High Schools in Peru" MIT mimeo.

III. Incentives, Agency and Efficiency Wages

A. Multitasking

* Holmstrom, Bengt (1979) "Moral Hazard and Observability" *Bell Journal of Economics*, 10, 74-91.

Lazear, Edward (2000) "Performance Pay and Productivity." *American Economic Review*, 90(5): 1346-61.

* Holmstrom, Bengt and Milgrom, Paul (1991) "Multitask Principal-Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design" *Journal of Law, Economics and Organization* vol 7, n0 (Special Issue): 24-52

Baker, George P. (1992) "Incentive Contracts and Performance Measurement " *Journal of Political Economy* v100, n3: 598-614

Courty, Pascal, and Gerald Marschke (2004) "An Empirical Investigation of Gaming Responses to Explicit Performance Incentives." *Journal of Labor Economics* 22: 23-56.

* Oyer, Paul (1998) "Fiscal Year Ends and Nonlinear Incentive Contracts: The Effect on Business Seasonality." *Quarterly Journal of Economics* 113:149-85.

Alston, Lee, and Robert Higgs (1982) "Contractual Mix in Southern Agriculture since the Civil War: Facts, Hypotheses, and Test." *Journal of Economic History* 42:327-53.

B. Career Concerns in the Private and the Public Sector

* Holmstrom, Bengt (1999) "Managerial Incentive Problems: A Dynamic Perspective" *Review of Economic Studies* 66, n1: 169-82.

Dewatripont, Mathias; Ian Jewitt; and Jean Tirole (1999) "The Economics of Career Concerns, Part I: Comparing Information Structures," *Review of Economic Studies*, January, 66(1),183-198.

Dixit, Avinash (2002) "Incentives and Organizations in the Public Sector: An Interpretative Review", *Journal of Human Resources* 37 (4), Fall, 696-727.

Acemoglu, Daron, Michael Kremer and Atif Mian (2007) "Incentives in Markets, Firms and Governments" *Journal of Law, Economics and Organizations*, December 2007.

Chevalier, Judith and Glenn Ellison (1999) "Career Concerns of Mutual Fund Managers." *Quarterly Journal of Economics* 114: 389-432.

Fehr, Ernst, and Simon Gächter (2002). "Do incentive contracts undermine voluntary cooperation?."

C. Efficiency Wages

* Carl Shapiro and Joseph Stiglitz (1984) "Unemployment as Worker Discipline Device," *American Economic Review*, vol. 74(3), pages 433-44, June.

Bulow, Jeremy and Lawrence Summers (1986); "A Theory of Dual Labor Markets with Application to Industrial Policy, Discrimination and Keynesian Unemployment" *Journal of Labor Economics*, Vol 4, pp376-415.

Acemoglu, Daron and Andrew Newman (2002) "The Labor Market and Corporate Structure," *European Economic Review*, December, volume 46, pp. 1733-1756.

Lazear, Edward (1996) *Personnel Economics*, MIT University Press, Chapter 3.

Raff, Danielle and Lawrence Summers (1987) "Did Henry Ford Pay Efficiency Wages?" *Journal of Labor Economics*, vol. 5, S57-S86.

Campbell III, Carl M., and Kunal S. Kamani (1997) "The Reasons for Wage Rigidity: Evidence from a Survey of Firms." *Quarterly Journal of Economics*, 112(3), 759 – 789.

Neil, Derek (1993) "Supervision and Wages Across Industries," *Review of Economics and Statistics*, August, 1993, vol. 75, pp. 409-17.

Krueger, Alan B. (1991) "Ownership, Agency and Wages: An Examination of Franchising in the Fast Food Industry." *Quarterly Journal of Economics*, 106(1) 75 – 101.

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

* Krueger, Alan B, and Lawrence H. Summers (1988) "Efficiency Wages and the Inter-Industry Wage Structure, *Econometrica*, 56(2) 259 - 93.

IV. Investment in Skills

A. Holdups and Investments

* Grout, Paul, 1984 "Investment and Wages in the Absence of Binding Contracts: A Nash Bargaining Approach," *Econometrica*, 52, 449-460.

Grossman, Sanford and Oliver Hart (1986) "The Costs and Benefits of Ownership: a Theory of Vertical and Lateral Integration" *Journal of Political Economy*, vol. 94, pp. 691-719.

Hart, Oliver and John H. Moore, 1990 "Property Rights and the Nature of the Firm" *Journal of Political Economy*, 98, 1119-58

B. Investment in General Skills

Acemoglu, Daron (1997a) "Training and Innovation in An Imperfect Labor Market," *Review of Economic Studies* 64, 445-464.

* Acemoglu, Daron and Steve Pischke (1998). "Why Do Firms Train", *Quarterly Journal of Economics*, Vol. 113, No. 1, pp. 79-119.

* Acemoglu, Daron and Steve Pischke (1999). "The Structure of Wages and Investment in General Training," *Journal of Political Economy*, vol 107, June 1999, pp. 539-572.

* Autor, David H. (2001) "Why do Temporary Help Firms Provide Free General Skills Training?," *Quarterly Journal of Economics*, Vol. 116, No. 3, pp. 1409-1448.

Acemoglu, Daron and Steve Pischke (1999). "Beyond Becker: Training in Imperfect Labor Markets," *Economic Journal* vol 109 February 1999, pp F112-142.

Acemoglu, Daron and Steve Pischke (2000) "Minimum Wages and on-the-Job Training" *Research in Labor Economics* 22, 2003, 159-202.

C. Specific Skills, Investments and Learning

Topel Robert (1991). "Specific Capital, Mobility, and Wages: Wages Rise with Job Seniority" *Journal of Political Economy* v99, n1 145-76

Baker, George, Michael Gibbs and Bengt Holmström (1994), "The Wage Policy of a Firm," *Quarterly Journal of Economics* 109(4), pp. 921-955.

* Jacobson, Louis, Robert LaLonde and Daniel Sullivan (1993). "Earning Losses of Displaced Workers," *American Economic Review*, vol. 83, pp. 685-709.

Neal, Derek (1995). "Industry-Specific Human Capital: Evidence From Displaced Workers," *Journal of Labor Economics*, October, 1995, vol. 13, pp. 653-77.

Altonji, Joseph and R. Shakotko (1987). "Do Wages Rise With Seniority?" *Review of Economic Studies*, 54, 1987, 437-459.

Abraham Katherine and Henry Farber (1986). "Job Duration, Seniority, and Earnings," *American Economic Review*, 1986, 278-297.

* Jovanovic, Boyan (1979). "Job Matching and the Theory of Turnover," *Journal of Political Economy*, 1979, 972-990.

* Jovanovic, Boyan (1979). "Firm Specific Capital and Turnover," *Journal of Political Economy*, 1979, 1246-1260.

* Lazear, Edward (2003). "Firm-Specific Human Capital: A Skill Weights Approach." NBER Working Paper No. 9679.

Topel Robert and Michael Ward (1992). "Job Mobility and the Careers of Young Men," *Quarterly Journal of Economics* 107 [2], 439-479.

* Prendergast, Canice (1993). "The Role of Promotion in Inducing Specific Human Capital Acquisition", *Quarterly Journal of Economics*, Vol. 108, No. 2, pp. 523-534.

Charmichael, Lorne, (1983). "Firm-Specific Capital and Promotion Ladders", *Bell Journal of Economics*, Vol. 14, No. 1, pp. 251-258.

Lazear, Edward P. *Personnel Economics*, (Cambridge: MIT Press), 1995, Chapter 7.

Farber, Henry and Robert Gibbons (1996). "Learning and Wage Dynamics" *Quarterly Journal of Economics*, 111, 107-147.

V. Search and Unemployment

A. Unemployment, Non-Employment and Labor Market Flows

* Nickell, Steve (1997) "Unemployment and Labor Market Rigidities: Europe versus North America," *Journal of Economic Perspectives*, Vol 11, pp. 55-74.

Shimer, Robert (1998) "Why Is the U.S. Unemployment Rate So Much Lower?" *Macroeconomics Annual*, 1998

Juhn, Chinhui, Kevin Murphy and Robert H. Topel, (1991) "Why Has the Natural Rate of Unemployment Increased over Time?" *Brookings Papers on Economic Activity*, 1991(2) pp.75-126

* Elsby, Michael, Bart Hobjin and Aysegul Sahin (2010) "The Labor Market in the Great Recession" *Brookings Papers on Economic Activity*, vol. 41(1 (Spring), pages 1-69

OECD (1994); *Jobs Study* Volumes 1 and 2.

Blanchard, Olivier and Peter Diamond (1989); "The Beveridge Curve" *Brookings Papers on Economics Activity* 1989:1, pp 1-60.

Davis, Steven J., R. Jason Faberman, and John Haltiwanger. (2006) "The flow approach to labor markets: New data sources and micro-macro links." *Journal of Economic perspectives* 20.3: 3-26.

B. The Partial Equilibrium Search Model

* Rogerson, Richard, Robert Shimer and Randall Wright (2004) "Search Models of the Labor Market: A Survey" *Journal of Economic Literature*, 43, pp. 959-988.

C. The Basic Equilibrium Search Framework

* Pissarides, Christopher; *Equilibrium Unemployment Theory*, MIT Press, 2000

Hosios, Arthur (1990) "On the Efficiency of Matching and Related Models of Search and Unemployment." *Review of Economics Studies* 57:2, 279-98.

* Mortensen, Dale and Christopher Pissarides (1994). "Job Creation and Job Destruction in the Theory of Unemployment" *Review of Economic Studies* Vol 61, pp 397-416.

D. Monopsony

* Ashenfelter, Orley C., Henry Farber, and Michael R. Ransom (2010) "Labor Market Monopsony." *Journal of Labor Economics* 28.2: 203-210.

* Bhaskar, Venkataraman, Alan Manning, and Ted To (2002) "Oligopsony and Monopsonistic Competition in Labor Markets." *Journal of Economic Perspectives* 16.2: 155-174.

Boal, William M., and Michael R. Ransom (1997) "Monopsony in the Labor Market." *Journal of Economic Literature* 35.1: 86-112.

Manning, Alan (2003) *Monopsony in Motion: Imperfect Competition in Labor Markets*. Princeton University Press, 2003.

* Burdett, Kenneth and Dale T. Mortensen (1998) "Wage Differentials, Employer Size, and Unemployment." *International Economic Review*: 257-273.

Postel-Vinay, Fabien, and Jean-Marc Robin (2002) "Equilibrium Wage Dispersion with Worker and Employer Heterogeneity." *Econometrica* 70 .6 (2002): 2295-2350.

Caldwell, Sydnee, and Nikolaj Harmon. "Outside options, bargaining, and wages: Evidence from coworker networks." Unpublished manuscript, Univ. Copenhagen (2019).

E. Assignment Models

Rosen, Sherwin (1981) "The Economics of Superstars," *American Economic Review*, 71, pp. 845-858.

* Sattinger, Michael (1975) "Comparative Advantage and the Distribution of Earnings and Abilities," *Econometrica*, 43, pp. 455-468.

* Teulings, Coen N. (1995) "The Wage Distribution in a Model of the Assignment of Skills to Jobs," *Journal of Political Economy*, 103, pp. 280-315.

* Gabaix, Xavier and Augustin Landier (2006) "Why Has CEO Pay Has Increased so Much?" *Quarterly Journal of Economics*, 123, pp. 49-100.

Tervio, Marko (2008) "The Difference that CEOs Make: An Assignment Model Approach," *American Economic Review*, 98, pp. 642-668.

Acemoglu, Daron, David Laibson and John List (2014) "Equalizing Superstars: The Internet and the Democratization of Education" *American Economic Review: Papers and Proceedings*, pp. 523-527.

F. The Composition of Jobs

* Acemoglu, Daron (2001), "Good Jobs vs Bad Jobs" *Journal of Labor Economics*, January 2001, vol 19, pp 1-22.

* Acemoglu, Daron (1999). "Changes in Unemployment and Wage Inequality: An Alternative Theory and Some Evidence," *American Economic Review* 89(6), 1259-1278.

Autor, David and David Dorn (2013) "The Growth of Low-Skill Service Jobs and Polarization in the US Labor Market" *American Economic Review*, 103(5), 1553-1597

Jaimovich, Nir and Henry Siu (2013) "The Trend Is the Cycle: Job Polarization and Jobless Recoveries," NBER Working Papers 18334.

Foote, Christopher L. and Richard W. Ryan (2015) "Labor Market Polarization over the Business Cycle," *NBER Macroeconomics Annual* 2015 29:1, 371-413.

G. Real and Nominal Wage Rigidity (for future reference; we will probably not have time for this topic)

Shimer, Robert (2005) “The Cyclical Behavior of Equilibrium Unemployment in Vacancies” *American Economic Review*, vol 95, 25-49.

Hall, Robert E. (2008) “Limited Influence of Unemployment on the Wage Bargain” *American Economic Review*, vol 98, 1653-1674.

* Shimer, Robert (2008) “The Consequences of Rigid Wages and Search Models” *Journal of European Economic Association*, vol 2, 469-479.

* Pissarides, Christopher (2009) “The Unemployment Volatility Puzzle: Is Wage Stickiness the Answer?” *Econometrica*, vol 77, 1339-1369.

Shimer, Robert (2012) “Wage Rigidities and Jobless Recoveries” *Journal of Monetary Economics*, 59, S65-S77.

* Bewley, Truman (1999), *Why Wages Don't Fall During a Recession*, Harvard University Press.

* Card, David and Dean Hyslop (1997). “Does inflation grease the wheels of the labor market?” In C. D. Romer and D. H. Romer (eds.), *Reducing Inflation: Motivation and Strategy*. NBER, Studies in Business Cycles, 30. Chicago: University of Chicago Press.

Dickens W.T., L. Goette, E.L. Goshen, S. Holden, J. Messina, M.E. Schweitzer, J. Turunen, and M.E. Ward (2007). “How wages change: micro evidence from the International Flexibility Project,” *Journal of Economic Perspectives*, 21(2),195-214.

* Fehr, Ernest, and Lorenz Goette (2005), “Robustness and Real Consequences of Nominal Wage Rigidity,” *Journal of Monetary Economics*, vol. 52(4), pages 779-804.

Nickell, Steve , and Glenda Quintini (2003). “Nominal wage rigidity and the rate of inflation.” *The Economic Journal* vol. 113, 762–781.

Kaur, Supreet (2019). Nominal wage rigidity in village labor markets. *American Economic Review*, 109.10: 3585-3616.