

Economics of Education

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Description

This course provides an introduction to the economic analysis (both theoretical and empirical) of the investment in and provision of education.

The theoretical background that explains individual and public investment in education is reviewed and linked to empirical evidence. One important application is the analysis of the returns to education both at the micro and macro level.

Finally the course will analyze the production and provision of education. Examples are the importance of inputs such as teachers and class size, the role of incentives and the analysis of peer effects.

The course will consist of a general introduction by the instructors, followed by presentation of papers by a group of students (taken from starred papers).

Prerequisites

Econometrics 1 & 2, Micro-Economics

Grading

Based on group presentations (25%) and an exam (75%).

1 (MG-Oct 16) Human capital theory

- Becker, G.S. (1962). "Investment in Human Capital: A Theoretical Analysis," *Journal of Political Economy* 70, pp. 9-49.
- Becker G.S, *Human Capital: A theoretical and empirical analysis with special reference to education*, Columbia University Press, NY, 1964.
- Bedard, K., "Human Capital versus Signaling Models: University Access and High School Dropouts", *Journal of Political Economy*; 109(4), pp. 749-75.
- Ben-Porath, Y. (1967), "The Production of Human Capital and the Life Cycle of Earnings" *Journal of Political Economy* 67(4): 352-365.
- Lang, K. and D. Kropp, (1986). "Human Capital versus Sorting: The Effects of Compulsory Attendance Laws" *Quarterly Journal of Economics* 101, pp. 609-24.
- Spence, M. (1973), "Job Market Signalling" *Quarterly Journal of Economics* 87(3): 355-74.
- Stiglitz, J.E. (1975). "The theory of 'screening', education, and the distribution of income". *American Economic Review* 65 (3), 283-300.
- Weiss, A. "Human Capital vs. Signaling Explanations of Wages" *Journal of Economic Perspectives* 9 (Fall 1995) pp.133-54.
- Tyler, J.H., R.J. Murnane and J.B. Willett. (2000) "Estimating the Labor Market Signaling Value of the GED" *Quarterly Journal of Economics* 115, pp. 431- 468.
- P. Arcidiacono, P. Bayer and A. Hizmo, (2008) "Beyond Signaling and Human Capital: Education and the Revelation of Ability" NBER Working Paper 13951

2 (MG-Oct 23) Returns to schooling

- *Angrist, J. and A. Krueger (1991) "Does compulsory school attendance affect schooling and earnings?" *Quarterly Journal of Economics*, pp. 979-1015.
- Ashenfelter, O., Harmon, C. and H. Oosterbeek (1999) "A review of estimates of the schooling/earnings relationship, with tests for publication bias". *Labour Economics* 6. pp. 453-470.
- Bound J., Jaeger D. and Baker R. (1995) "Problems with instrumental variables estimation when the correlation between the instruments and the endogenous explanatory variable is weak", *Journal of the American Statistical Association*, vol. 90, 443-450.
- Card D. (2001) "Estimating the return to schooling: progress on some persistent econometric problems", *Econometrica*, vol. 69, 1127-1160.
- *Duflo E. (2001) "Schooling and labor market consequences of school construction in Indonesia : Evidence from an unusual policy experiment", *American Economic Review*, vol. 91, september.
- Griliches Z. (1977) "Estimating the return to schooling: some econometric problems", *Econometrica*, vol. 45, 1-22.
- Griliches Z. (1979) "Siblings models and data in economics: beginnings of a survey", *Journal of Political Economy*, vol 87, S37-S64.
- *Maurin E. and McNally S. (2008), "Vive la Révolution ! Long Term Returns of 1968 to the Angry Students", *Journal of Labor Economics*, 26(1), 1-35.

- Mincer J., *Schooling, experience and earnings*, Columbia University Press, NY, 1974.
- *Willis, R.J and S. Rosen. (1979) "Education and self-selection," *Journal of Political Economy*, vol. 87, no. 5, pp. S7 - 36.

3 (MG-Oct 30) Demand for education and liquidity constraints

- Acemoglu D. and Pischke J-S. (2001) " Changes in the wage structure, family income, and children's education", *European Economic Review*, vol. 45, 890-904.
- Becker G. and Tomes N. (1986) " Human capital and the rise and fall of families" , *Journal of Labour Economics*, vol. 4, S1-S39.
- Cameron S. and Taber Ch. (2004) " Estmation of educational borrowing constraints using returns to schooling" , *Journal of Political Economy*, vol. 112, 132-182.
- Carneiro, P. and J.J. Heckman. (2002). "The Evidence on Credit Constraints in Post-Secondary Schooling," *Economic Journal* 112, pp. 705-734.
- *Dearden, Emmerson, Frayne and Meghir (2005) " Education subsidies and school drop-out rates", IFS working paper 05/11, June.
- *Garibaldi, Giavazzi, Ichino and Rettore (2007) " College cost and time to complete a degree: evidence from tuition discontinuities", NBER working paper 12863, April.
- Keane M. (2002) " Financial aid, borrowing constraints and college attendance: evidence from structural estimates", *American Economic Review*, vol. 92, 293-297.
- *Keane M. and Wolpin K. (2001) " The effect of parental transfers and borrowing constaints on educational attainment", *International Economic Review*, vol. 42, 1051-1103.
- *Van der Klaauw, W. 2002. "Estimating the Effect of Financial Aid Offers on College Enrollment: A Regression-Discontinuity Approach," *International Economic Review* 43(4), pp. 1249-1287.
- *Dynarski, S. (2003). "Does Aid Matter? Measuring the Effect of Student Aid on College Attendance and Completion" *American Economic Review* 93:1, pp. 279-288.

4 (MG-Nov 6 & 13) Public provision, School choice & Vouchers

- *Angrist, et. al. (2002). "Vouchers for Private Schooling in Columbia: Evidence from a Randomized Natural Experiment." *American Economic Review* 92, pp. 1535-58.
- Bergstrom, T., Blume L. and H. Varian (1986) "On the private provision of public goods", *Journal of public economics*
- S.E. Black. (1999) "Do Better Schools Matter? Parental Valuation of Elementary Education." *The Quarterly Journal of Economics* 114(2), pp. 577-99.
- Epple D. and Romano R. (1998) "Competition between private and public schools, vouchers and peer group effects" *American Economic Review*, vol. 88, p. 33-62.
- Fernandez R. and Rogerson R. (1995) "Public Education and Income Distribution: A Dynamic Quantitative Evaluation of Education- Finance Reform", *The Review of Economic Studies*, 62(2), 249-262

- *Figlio D. and Getzler L. (2002) "Accountability, ability and disability: gaming the system", NBER Working Paper 9307.
- Glomm G. and Ravijumar B. (1992) "Public versus private investment in Human capital: Endogenous growth and income inequality", *Journal of Political Economy*, 100(4), 818-834.
- Holmes G., Desimone J. and Rupp N. (2003) "Does school choice increase school quality ?" NBER Working Paper 963.
- C. Hoxby. (2000) "Does Competition Among Public Schools Benefit Students and Taxpayers?" *American Economic Review* 90(5), pp. 1209-1238.
- Hoxby C. (2002) "School choice and school productivity (or could school choice be a tide that lifts all boats)", NBER Working Paper 8873.
- Hoxby C. (2005) "Competition among public schools : A Reply to Rothstein", NBER Working Paper 11216.
- *Hsieh C. and Urquiola M., "The effects of generalized school choice on achievement and stratification: Evidence from Chile's school voucher program", *Journal of Public Economics*, forthcoming.
- Krueger, A. and P. Zhu (2004). "Another Look at the New York City School Voucher Experiment." *American Behavioral Scientist*. 47(5), pp. 658-98.
- Ladd, H. (2002) "School Vouchers: A Critical View" *Journal of Economic Perspectives* 16(4), pp. 3-24.
- Neal, D. (2002) "How Vouchers Could Change the Market for Education." *Journal of Economic Perspectives* 16(4), pp. 25-44.
- Rothstein J. (2005) "Does competition among public schools benefit students and taxpayers ? A Comment on Hoxby (2000)", NBER Working Paper 11215.
- Tiebout, C. (1956). "A Pure Theory of Local Expenditures." *Journal of Political Economy* 64(5), pp. 416-424.
- *Urquiola M. (2005) "Does school choice lead to sorting? Evidence from Tiebout variation", *American Economic Review*, September, vol. 95, p. 1310-1326.

5 (MG-Nov 20) Economic growth and externalities

- *Aghion, P., L. Boustan, C. Hoxby, and J. Vandebussche. (2005) "Exploiting States' Mistakes to Estimate the Causal Impact of Education on Growth." NBER Working Paper.
- Benhabib J. and Spiegel M. (1994) "The role of human capital in economic development. Evidence from aggregate cross-country data, *Journal of Monetary Economics*, vol. 34, 143-173.
- Barro R. (1991) "Economic growth in a cross-section of countries", *Quarterly Journal of Economics*, vol. 106, 407-443.
- Barro R. and Lee J. (1993) "International comparisons of educational attainment" *Journal of Monetary Economics* 32, 363-394.
- Bills M. and Klenow P. (2000) "Does schooling cause growth ?", *American Economic Review* 90, 1160-1183.

- De la Fuente A. and Domenech R. (2006) "Human capital in growth regressions: how much difference does data quality make?", *Journal of the European Economic Association*, vol. 47, 1-36.
- Hanushek, E. and D. Kimko. (2000). "Schooling, Labor-Force Quality, and the Growth of Nations." *American Economic Review* 90, pp. 1184-1208.
- Jones C. (1995) "Time series tests of endogenous growth models", *Quarterly Journal of Economics*, vol. 110, 495-525.
- Krueger, A.B. and M. Lindahl (2001) "Education for Growth: Why and for Whom?," *Journal of Economic Literature* 39(4), pp. 1101-1136.
- Mankiw G., Romer D. and Weil D. (1992) "A contribution to the empirics of economic growth", *Quarterly Journal of Economics*, vol. 107, 407-437.
- *Moretti E. (2004) "Workers' Education, Spillovers and Productivity: Evidence from Plant-Level Production Functions" *American Economic Review* 94(3).
- Nelson R. and Phelps E. (1966) "Investment in Humans, technological diffusion and economic growth" *American Economic Review*, vol. 56, 69-75.
- Romer P. (1990) "Endogeneous technical change", *Journal of Political Economy*, vol. 89, S71-S102.

6 (EL-Nov 27) How education affects health & criminal behavior

Core

- Becker, G.S. (1968) "Crime and Punishment: An Economic Approach" *The Journal of Political Economy* (76)2, pp. 169-217
- Grossman, M. (1972) "On the concept of health capital and the demand for health", *Journal of Political Economy*, 80, 223-55.
- Jacob, B. and Lefgren, L. (2003). "Are Idle Hands the Devil's Workshop? Incapacitation, Concentration and Juvenile Crime." *American Economic Review* 93(5), pp.1560-1577

Additional reading

- Arendt, J.N. (2005), Does Education Cause Better Health? A Panel Data Analysis Using School Reforms for Identification, *Economics of Education Review* 24, pp. 149-160.
- Cutler, D. and A. Lleras-Muney (2006). Education and Health: Evaluating Theories and Evidence. NBER Working Paper
- Fougère, D. F. Kramarz, J. Pouget (2008), "Youth Unemployment and Crime in France" *The Journal of the European Economic Association*, forthcoming.
- Haveman, R.H.. and B.L. Wolfe, "Schooling and Economic Well-Being: The Role of Nonmarket Effects" *Journal of Human Resources* 19(3), pp. 377-407
- Jacob, B.A. and L. Lefgren (2003) "Are idle hands the devil's workshop? Incapacitation, concentration, and juvenile crime" *The American Economic Review* 93(5), pp. 1560-1577

- *Lleras-Muney, A. (2005) "The Relationship Between Education and Adult Mortality in the U.S". *Review of Economic Studies*, Vol. 72(1),
- Lochner, L. (2004). Education, work, and crime: A human capital approach. *International Economic Review* 45, pp. 811-843.
- *Lochner, L. and E. Moretti (2004) "The Effect of Education on Criminal Activity: Evidence from Prison Inmates, Arrests and Self-Reports", *American Economic Review* 94(1)
- *Oreopoulos, P. (2007), Do dropouts drop out too soon? Wealth, health and happiness from compulsory schooling, *Journal of Public Economics*, Volume 91, pp. 2213-2229.

7 (EL-Dec 4) Incentives in Education

Core

- Angrist, J.D. and V. Lavy, "The Effect of High Stakes High School Achievement Awards: Evidence from a School-Centered Randomized Trial," IZA Working Paper 1146, May 2004.
- Bettinger, E. and R. Slonim (2007) "Patience among children" *Journal of Public Economics* 91(1-2), pp. 343-363
- Podgursky, M.J. and M.G. Springer (2007) "Teacher performance pay: A review" *Journal of Policy Analysis and Management* 26(4), 909–949. ([link to PDF](#))

Additional reading

- *Bandiera, O. and V. Larcinese and I. Rasul (2009) Blissful Ignorance? Evidence From a Natural Experiment on The Effect of Individual Feedback on Performance ([link to PDF](#))
- *Bettinger, E. (2008) Paying to Learn: The Effect of Financial Incentives on Elementary School Test Scores. ([link to PDF](#))
- Dee, T.S., and B. Jacob, "Do High School Exit Exams Influence Educational Attainment or Labor Market Performance," NBER Working Paper 12199, April 2006.
- Hanushek, E. and M. Raymond. (2004) "Does School Accountability Lead to Improved Student Performance?" NBER Working Paper 10591
- Holmstrom, B. and P. Milgrom (1991). "Multitask Principal-Agent Analysis: Incentive Contracts, Asset Ownership and Job Design, *Journal of Law, Economics and Organization* 7, pp. 24–52.
- Kane, T. and D. Staiger (2002). "Volatility in school test scores: Implications for test-based accountability systems." *Brookings Papers on Education Policy*, pp. 235-283.
- Kremer, M., E. Miguel, and R. Thornton, "Incentives to Learn," *Review of Economics and Statistics*, 2008
- *Lavy, V. (2002) Evaluating the effect of teachers' group performance incentives on pupil achievement, *Journal of Political Economy* 110(6), pp. 1286-1317.
- Lazear, E. (2000) "Performance Pay and Productivity," *American Economic Review* 90(5), 1346-1361

- Leuven, E., H. Oosterbeek, and B. Van der Klaauw. "The effect of financial rewards on students achievement: Evidence from a randomized experiment", forthcoming Journal of the European Economic Association.
- *Muralidharan K. and V. Sundararaman (2009) Teacher Performance Pay: Experimental Evidence from India. (link to PDF)

8 (EL-Dec 11) Class size and resources

Core

- Angrist, J. and Lavy, V. (1999). 'Using Maimonides' rule to estimate the effect of class size on student achievement', *Quarterly Journal of Economics* 114 (May), pp. 535–575.
- Hoxby, C. M. (2000): "The Effects of Class Size on Student Achievement: New Evidence from Population Variation," *Quarterly Journal of Economics* 115(4), 1239–1285.
- Krueger, A. (1999) "Experimental Estimates of Education Production Functions" *Quarterly Journal of Economics* 114(2), pp 497-532.

Additional reading

- *Bressoux, P., F. Kramarz and C. Prost (2008), "Teachers' Training, Class Size, and Students' Outcomes: Learning from Administrative Forecasting Mistakes" *Economic Journal*
- Card, D. and A. Payne. School finance reform, the distribution of school spending, and the distribution of student test scores. *Journal of Public Economics*, 83(1):49–82, 2002.
- *Dobbie, W. and R. Fryer (2009) Are High-Quality Schools Enough to Close the Achievement Gap? Evidence from a Bold Social Experiment in Harlem. Mimeo. (link to PDF)
- Krueger, A. (2003). "Economic Considerations and Class Size." *The Economic Journal* 113(485), pp. 34-63.
- Leuven, E., M. Lindahl, H. Oosterbeek, and D. Webbink. (2007). The effect of extra funding for disadvantaged students on achievement *Review of Economics and Statistics* 89(4). 721-736.
- Leuven, E., Oosterbeek, H. and M. Rønning. (2008). "Quasi-experimental estimates of the effect of class size on achievement in Norway" *Scandinavian Journal of Economics* 110(4), pp. 663-693.
- Hanushek, E.A. (1986). "The Economics of Schooling: Production and Efficiency in Public Schools." *Journal of Economic Literature* 24(3), pp. 557-77.
- Hanushek, E.A. (2003). "The Failure of Input-Based Resource Policies." *The Economic Journal* 113(485). pp. F64-F98.
- *Urquola, M. and E. Verhoogen. (2009) Class size caps, sorting, and the regression discontinuity design. *American Economic Review*, 99(1), 179-215

9 (EL-Dec 18) Teacher quality and teacher labor markets

Core

- Corcoran, S. P., W. N. Evans, and R. M. Schwab. (2004). "Changing Labor-Market Opportunities for Women and the Quality of Teachers, 1957-2000," *American Economic Review* 94(2), pp. 230-235

- Rockoff, J. E. (2004), "The impact of individual teachers on student achievement: Evidence from panel data", *American Economic Review* 94(2), 247–252.
- Jacob, B. and L. Lefgren. (2004). "The Impact of Teacher Training on Student Achievement: Quasi-Experimental Evidence from School Reform Efforts in Chicago." *Journal of Human Resources*. 39(1) : 50-79.

Additional reading

- Angrist, J.D. and J. Guryan. (2004). "Does Teacher Testing Raise Teacher Quality? Evidence from State Certification Requirements." *American Economic Review* 94(2), 241-246
- Angrist, J. and V. Lavy. (2000) "Does Teacher Training Affect Student Achievement? Evidence from Matched Comparisons in Jerusalem Public Schools." *Journal of Labor Economics* 19, pp. 343-369
- Ballou, D. (1999). "Do Public Schools Hire the Best Applicants?" *Quarterly Journal of Economics* 111(1), pp. 97-133.
- *Dee, T.S. (2004). "Teachers, Race, and Student Achievement in a Randomized Experiment." *Review of Economics and Statistics* 86(1), 195-210.
- Hoxby, C.M. and A. Leigh. (2004) "Pulled Away or Pushed Out? Explaining the Decline of Teacher Aptitude in the U.S." *American Economic Review* 94(2), pp. 236-240.
- Kleiner, M. (2000). "Occupational Licensing." *Journal of Economic Perspectives* 14(4), pp. 189-202.
- Rivkin, S., E. Hanushek, and J. Kain. (2004). "Teachers, Schools, and Academic Achievement." *Econometrica* 73(2), pp. 417-458.
- *Rothstein, J. (2009) Teacher Quality in Educational Production: Tracking, Decay, and Student Achievement." Forthcoming, *Quarterly Journal of Economics* (link to PDF)
- Van Ewijk, R. (2009). "Same work, lower grade? Student ethnicity and teachers' subjective assessments", Mimeo, University of Amsterdam. (link to PDF)

10 (EL-Jan 8) Early childhood

Core

- Currie, J. (2001). "Early Childhood Intervention Programs: What Do We Know?" *Journal of Economic Perspectives* 15.2: 213-238.
- Guryan, J., E. Hurst, and M. Schettini Kearney (2008) "Parental Education and Parental Time With Children", NBER Working Paper No. 13993
- Todd, P. and K. Wolpin. (2003) "On the Specification and Estimation of the Production Function for Cognitive Achievement," *Economic Journal* 113: F3-F33.

Additional reading

- *Baker, M., J. Gruber, and K. Milligan. 2008. "Universal Childcare, Maternal Labour Supply, and Family Well-Being" *Journal of Political Economy* 116(4): 709-745.
- *Black, SE, PJ Devereux, KG Salvanes (2008) "Too young to leave the nest: The Effects of school starting age" NBER Working paper 13969
- Cascio, E. (2009). "Do Investments in Universal Early Education Pay Off? Long-term Effects of Introducing Kindergartens into Public Schools." NBER Working Paper 14951
- Case, A., A. Fertig and C. Paxson. (2005) "The lasting impact of childhood health and circumstance" *Journal of Health Economics* 24(2), pp. 365-389
- Currie, J. E. Garces and D. Thomas (2002). "Longer Term Effects of Head Start," *American Economic Review* 92(4), pp. 999-1012
- Deming, D. and S. Dynarski (2008) "The lengthening of childhood" *Journal of Economic Perspectives* 22(3), pp. 71-92, Summer.
- Ermisch, J. and M. Francesconi (2001). "Family Matters: Impacts of Family Background on Educational Attainments." *Economica* 68, pp. 137-156.
- Garces, E. and Thomas, D. and Currie, J. (2002) "Longer-term effects of Head Start" *American Economic Review* 92(4), pp. 999-1012
- Heckman, J.J. and D. V. Masterov. (2007) The productivity argument for investing in young children. NBER Working Paper 13016
- Heckman, J.J., S.H. Moon, R. Pinto, P.A. Savelyev, A. Yavitz (2009) The Rate of Return to the High/Scope Perry Preschool Program(link to PDF)
- Leuven, E., M. Lindahl, H. Oosterbeek, and D. Webbink. (2009) Expanding schooling opportunities for 4-year-olds. *Economics of Education Review*, forthcoming. (link to PDF)
- *Ludwig, J. and D. Miller. (2008) "Does Head Start Improve Children's Life Chances? Evidence from a Regression Discontinuity Design." *Quarterly Journal of Economics* 122(1): 159-208.

11 (EL- Jan 15) Peer Effects

Core

- Hoxby, C.M. (2000) "Peer Effects in the Classroom: Learning from Gender and Race Variation," NBER Working Paper No. 7867.
- Lazear, E.P. (2001) "Educational Production" *The Quarterly Journal of Economics* 116(3), pp. 777-803
- Manski, C. (2003) "Economic Analysis of Social Interactions," *Journal of Economic Perspectives* 14:3, 115-136.
- Sacerdote, B. (2001) "Peer Effects with Random Assignment: Results for Dartmouth Roommates," *Quarterly Journal of Economics* 116(2), pp. 681-704.

Additional reading

- Ammermueller, A. and J.-S. Pischke (2009) "Peer Effects in European Primary Schools: Evidence from PIRLS," *Journal of Labor Economics* 27, pp. 315-348
- *Angrist, J.D. and Lang, K. (2004) "Does School Integration Generate Peer Effects? Evidence from Boston's Metco Program," *American Economic Review*, 94(5), pp. 1613-1634.
- Bayer, P. , Hjalmarsson, R. and D. Pozen (2009) "Building Criminal Capital Behind Bars: Peer Effects in Juvenile Corrections" *Quarterly Journal of Economics*
- Brock, W.A., and S.N. Durlauf (2001) "Discrete Choice with Social Interactions," *Review of Economic Studies* 68(2) , 235–260.
- Cooley, J. (2008) Desegregation and the Achievement Gap: Do Diverse Peers Help?", Mimeo. (link to PDF)
- Ding, W. and S.F. Lehrer (2007). "Do Peers Affect Student Achievement in China's Secondary Schools?," *The Review of Economics and Statistics* 89(2), pp. 300-312
- *Duflo, E., P. Dupas and M. Kremer (2008) Peer Effects and the Impact of Tracking: Evidence from a Randomized Evaluation in Kenya (link to PDF)
- *Hoxby, Caroline M. and Gretchen Weingarth, "Taking Race Out of the Equation: School Reassignment and the Structure of Peer Effects", Mimeo, Harvard University, 2005. (link to PDF)
- Manski, C. (1993) "Identification of Endogenous Social Effects: The Reflection Problem," *Review of Economic Studies* 60:3, 531–542.
- *Sojourner, Aaron. 2008. Inference on peer effects with missing peer data: Evidence from Project STAR. Unpublished manuscript, Department of Economics, Northwestern University, Evanston, IL. (link to PDF)