

Economics 881 Empirical Methods in Development

Duncan Thomas

Class: Friday 8:45-11:45
Social Sciences 111
Class website: <http://ipl.econ.duke.edu/dthomas/ec881/>

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Office hours: Monday 3:30-5:00 pm and by appointment

1. Goals

The primary goal of this module is to evaluate empirical approaches to the investigation of long-standing and emerging issues in the micro-economics of development and related fields. Throughout the class, emphasis will be placed on the interaction between the theoretical underpinning of behavioral models and choosing appropriate empirical methods in order to advance scientific understanding of the processes that are investigated. The course will discuss empirical methods ranging from random assignment to structural modeling, taking examples from the literature, with a substantive focus on health and human capital as well as understanding behaviors of individuals, households and families. Empirical challenges that arise with the estimation of models using complex survey and longitudinal data will be discussed along with the interplay between theory, data collection and estimation.

Examples will illustrate how economic models can provide insights into understanding behavior and how, with appropriate research design, high quality data and prudent choice of econometric methods, it is possible to assess the empirical content of those models and their contributions to understanding the world around us. These examples should provide you with the foundation to apply these kinds of models and methods to a wide range of problems in economics in the field of development and more broadly.

For each topic, we will begin by laying out the main issues within an economic framework, relying primarily on standard consumer demand theory. We will proceed to assess the value of different research designs that might be used to investigate the topic; these will take into account the underlying theory, concerns with measurement and econometric methodology. The course will then discuss existing empirical evidence and evaluate what we have learnt.

2. Course requirements

The course will follow a lecture format. Every student is expected to participate in all aspects of the class. While you will not be formally graded on your classroom participation, the value to you and your colleagues of asking questions and raising new ideas cannot be over-stated. Guidance about the key readings for each lecture will be provided. Students will be expected to have read those papers prior to each lecture.

Grades will depend on two activities. First, there will be a set of empirical and conceptual assignments that will involve estimation of models, interpreting evidence and discussing approaches to addressing scientific questions. You may work in groups when you complete these assignments but you should write up your own results. The assignments will be distributed in class and will contribute 50% to the final grade. Second, there will be an open-book assessment which will be based on the material covered in the course. The assessment will be distributed in class on 12 October. The exam will contribute 50% to the final grade. Please submit all assignments and your exam electronically to dthomas@econ.duke.edu.

3. Development at Duke

There are several intellectual activities that I encourage you to engage with at Duke. First, the Labor and Development Seminar Series is held on Wednesdays from 3.15-4.45 pm in Social Sciences 111. The seminars bring some of the best people in labor and development to campus to present and discuss their work. This is a spectacular opportunity to see work in progress and learn about the problems that we all encounter in our research and how we think about addressing them. See <http://ipl.econ.duke.edu/seminars/labordev/>

Second, the International Population Health and Development (IPHD) workshop is held on Fridays from 12.00 noon to 1.00 pm in Social Sciences 111. IPHD is a forum for students and faculty who are interested in development to present their own work in progress. See <http://ipl.econ.duke.edu/seminars/iphd/>

4. Development on-line: Resources for recent research

There are tons of on-line resources for development including those at the World Bank and JPAL, for example. Two that have very useful collections of recent research in development are the NBER Development Economics Program (<http://nber.org/programs/dev/dev.html>) and associated Working Papers (<http://nber.org/papersbyprog/DEV.html>). The BREAD web site also has recent working papers (<http://ibread.org/bread/working>) as well as a page that includes announcements for conferences (<http://ibread.org/bread/announcements>). I encourage you to review those sites regularly as well as read the general interest economics journals and development field journals.

5. Topics covered

A. Agricultural household: households as consumers and producers;

- Theory and evidence
- Are rural markets complete?
- Labor markets in rural settings

B. Collective models of individuals, households and families

- Individuals and households: Theory and evidence
- Testing the unitary, bargaining and collective models of households
- Living arrangements and family behavior
- Testing models of family behavior

C. Health over the life course

- Early life health and later life outcomes: Theory, biology and evidence
- Health and SES: Isolating causal pathways
- Causal impact of health on labor market outcomes
- Causal impact of income on health

D. Education

- Returns to education
- Impediments to school enrolment: Information and resources
- Returns to post school training
- Exploiting experimental data to validate dynamic structural models
- Education production function: Impact of inputs

6. Readings

Overview of methodological and substantive advances in development

- Acemoglu, D. (2010). "Theory, General Equilibrium, and Political Economy in Development Economics" *Journal of Economic Perspectives*, 24(3): 17-32.
- Angrist, J. and A. Krueger. (1999). "Empirical Strategies in Labor Economics", *Handbook of Labor Economics*, Volume 3, Ashenfelter, A. and D. Card, eds., Amsterdam: Elsevier Science.
- Angrist, J. and J.-S. Pischke. (2009). *Mostly harmless econometrics. An empiricist's companion*. Princeton University Press.
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- Bardhan, Pranab and Christopher Udry. (2000). *Development Microeconomics*. Oxford University Press: NY.
- Banerjee Abhijit and Esther Duo (2007). The Economic Lives of the Poor. *Journal of Economic Perspectives* 21.1:141-168
- Banerjee A. and E. Duflo. (2010). Giving Credit Where It Is Due, *Journal of Economic Perspectives*, 24.3:61-80
- Banerjee Abhijit and Esther Duflo. (2011). *Poor Economics*, Public Affairs, NY.
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- Chiappori P-A. and M. Mazzocco (2017). Static and inter-temporal household decisions. *Journal of Economic Literature*. 44.3:985-1045.
- Chernozhukov, Victor, Meter Demirer, Esther Duflo and Ian Fernandez-Val. (2018). Generic machine learning inference on heterogenous treatment effects in randomized experiments. NBER working paper 24678.
- Cleveland, W. S. (1979). Robust locally weighted regression and smoothing scatterplots. *Journal of the American Statistical Association* 74.368:829-36.
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- Deaton, A. and J. Muellbauer. (1980). *Economics and Consumer Behavior*, Cambridge University Press, Chapters 1, 2, 3, 4 and 11.
- Deaton, A. (2010). "Instruments, randomization, and learning about development", *Journal of Economic Literature*, 48(2): 424-455.
- Deaton, A. (2010). "Understanding the Mechanisms of Economic Development", *Journal of Economic Perspectives*, 24(3): 3-16.
- Deaton, A and N. Cartwright. (2018). Understanding and misunderstanding randomized controlled trials. *Social Science and Medicine*, 210:2-21. (Also see other articles in that volume.)
- Duflo, Esther, Rachel Glennerster, and Michael Kremer. (2007). "Using Randomization in Development Economics Research: A Toolkit", in T. P. Schultz and J. Strauss (eds.), *Handbook of Development Economics*, Volume 4.

- Dupas, P and E Miguel. (2017). Impacts and determinants of health levels in low income countries. In A. Banerjee and E. Duflo, eds., *Handbook of Field Experiments*.
- Efron, B. (1982). *The Jackknife, the Bootstrap and other Resampling Plans*. SIAM, CBMS-NSF Conference Series.
- Heckman, James (2010). Building Bridges between Structural and Program Evaluation Approaches to Evaluating Policy, *Journal of Economic Literature* 48.2:356-98.
- Heckman, James and Sergio Urzua. 2010. Comparing IV with Structural Models: What Simple IV Can and Cannot Identify". In: *Journal of Econometrics* 156.1, pp. 27-37.
- Imbens, G. W. (2010). Better LATE than nothing: Some comments on Deaton (2009) and Heckman and Urzua (2009). *Journal of Economic Literature*, 48(2), 399-423
- Lee, D. and T. Lemieux. (2010). "Regression Discontinuity Designs in Economics", *Journal of Economic Literature*, 48:281-355.
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- Wooldridge, J. (2002). *Econometrics of cross section and panel data*. Cambridge, MA: MIT Press.

A. Agricultural household models

- Benjamin, D. (1992). Household composition, labor markets and labor demand: testing for separation in agricultural household models, *Econometrica*, March, 60:287-298.
- Bowlus, Audra J. and Terry Sicular. (2003). Moving toward markets? Labor allocation in rural China, *Journal of Development Economics*, 71:561-583.
- Dillon, Brian and Christopher Barrett. (2017). Agricultural factor markets in sub-Saharan Africa: An updated view with formal tests for market failure. *Food Policy* 67:64-77.
- Dillon, Brian, Peter Brummond and Germano Mwabu. (2017). Asymmetric non-separation and rural labor markets. Mimeo.
- Foster, A. and M. Rosenzweig. (2017). Are there too many farms in the world? Labor-market transaction costs, machine capacities and optimal farm size. NBER working paper 23909.
- Jacoby, Hannan. (1993). Shadow wages and peasant family labor supply: an econometric application to the Peruvian Sierra, *Review of Economic Studies*, October, 60.4:903-21.
- Jayachandran, Seema. (2006). "Selling Labor Low: Wage Responses to Productivity Shocks in Developing Countries," *Journal of Political Economy*, 114(3):538-575
- Kaur, Supreet. (2018). "Nominal Wage Rigidity in Village Labor Markets," *American Economic Review*, forthcoming.
- Kaur, Supreet and Aprajit Mahajan. (2018). Separation failures: Market-level evidence for labor misallocation. Mimeo.
- LaFave, D. and D. Thomas. (2016). Farms, families and markets: New evidence on completeness of markets in agricultural settings. *Econometrica*, 84.5:1917-60..
- LaFave, D., E. Peet and D. Thomas. (2018). Are rural markets complete? Mimeo.
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- Newman, J. and P. Gertler. (1994). Family productivity, labor supply and welfare in a low income country, *Journal of Human Resources*, Fall, 29.4:989-1026.

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- Rosenzweig, M. (1980). Neoclassical theory and the optimizing peasant: an econometric analysis, *Quarterly Journal of Economics*, February, 94.1:31-55.
- Singh, I., L. Squire and J. Strauss (eds.) 1986. *Agricultural Household Models: Extensions, Applications and Policy*, Baltimore: Johns Hopkins University Press, chapters 1 and 2.
- Singh, I., L. Squire and J. Strauss, (1986). "A Survey of Agricultural Household Models: Recent Findings and Policy Implications", *World Bank Economic Review*
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- Strauss, J. (1984). Joint determination of food consumption and production in rural Sierra Leone: estimates of a household-firm model, *Journal of Development Economics*, Jan-Feb, 14:77-104.
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B. Collective models of individuals and families

- Altonji, J., F. Hayashi and L. Kotlikoff. (1992). Is the extended family altruistically linked? *American Economic Review*, December, 82.5:1177-98.
- Altonji, J., F. Hayashi and L. Kotlikoff. (1997). Parental Altruism and Inter Vivos Transfers: Theory and Evidence, *Journal of Political Economy*, 105.6.
- Ashraf, N. (2009). Spousal Control and Intra-Household Decision Making: An Experimental Study in the Philippines. *American Economic Review*, 99.4:1245-77.
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- Bourguignon, Francois, Martin Browning, Pierre-Andre Chiappori and Valerie Lechene. (1993). Intrahousehold allocation of consumption: some evidence on French data, *Annales d'Economie et de Statistiques*, Jan-Mar, 29:137-56.
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- Thomas, D. (1990). Intra-household resource allocation: an inferential approach, *Journal of Human Resources*, Fall, 25:635-664.
- Thomas, D. (1994). Like father like son or like mother like daughter: parental education and child health, *Journal of Human Resources*, Fall, 29:950-988.
- Udry, C. (1996). Gender, agricultural production and the theory of the household, *Journal of Political Economy*, 104.5:1010-46.
- Voena, A. (2015). Yours, mine and ours: Do divorce laws affect the intertemporal behavior of married couples? *American Economic Review*, 105.8:2295-2332.
- Ward-Batts, J. (2008) Out of the Wallet and into the Purse: Modeling Family Expenditures to Test Income Pooling, *Journal of Human Resources* 43.2:325-31

C. Health over the life course

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- Baird, Sara, Joan Hicks, Michael Kremer and Edward Miguel (2011). "Worms at Work: Long-run Impacts of Child Health Gains", Mimeo.
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- Hoddinott, J., J. Maluccio, J. Behrman, R. Flores and R. Martorell. (2008). Effect of a nutrition intervention during early childhood on economic productivity in Guatemalan adults. *Lancet*, 381:411-16.
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D. Education

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