

Environmental and Natural Resource Economics

Economics 677, Fall 2011

TR 5:05-6:20pm, HBB 327

Professor:

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Office Hours: My “official” hours are Tuesdays, 2:00-3:00pm and Wednesdays, 9:00-11:00am.

However, please feel free to stop by at any time or otherwise arrange for an appointment.

Course Description:

This course focuses on the “demand side” of environmental economics. The beginning of the course lays important foundations, including essentials of welfare economics, mechanism design theory and survey techniques. Then, the main stated and revealed preferences techniques for estimating the nonmarket values associated with environmental and other public goods are covered, including benefits associated with health risk reductions. The course concludes with a discussion of the environmental program evaluation literature.

Prerequisites:

Two semesters each of Ph.D.-level Microeconomic Theory and Econometrics, OR instructor permission.

Evaluative Criteria:

The course grade will be based on a research proposal/paper (20%), three problem sets (30%), a midterm (20%), and a final (30%). I reserve the right to implement quizzes and factor these into the course grade, in which case the weights on other work will be adjusted proportionally.

Research Proposal/Paper: If you are not writing part or your entire dissertation in environmental economics, this assignment will give you experience formulating a research idea worthy of pursuit. For those interested in environmental economics research, this will provide you with a foundation for a dissertation chapter, field paper, publication, or all of the above. Although you are only required to write a proposal, I encourage those in their third year (or beyond) to instead write a research paper. This course then serves as a valuable commitment device and provides you with feedback on your research. Your proposal/paper grade will be broken down into a research sketch (20%), draft proposal/paper (20%) and final proposal/paper (60%).

Texts:

Champ, P.A., K.J. Boyle, and T.C. Brown (eds.). 2003. *A Primer on Nonmarket Valuation*.

Norwell, MA: Kluwer Academic Publishers. (Required)

Freeman III, A.M. 2003. *The Measurement of Environmental and Resource Values: Theory and Methods*, Second Edition. Washington, DC: Resources for the Future Press. (Suggested)

Haab, T.C. and K.E. McConnell. 2002. *Valuing Environmental and Natural Resources: The Econometrics of Non-Market Valuation*. Cheltenham, UK: Edward Elgar Publishing. (Suggested)

The following is a list of books that you may wish to purchase or have access to. I have consulted these books in preparation for this class.

- a) Bateman, I. and K.G. Willis. 1999. *Valuing Environmental Preferences: The Theory and Practice of the Contingent Valuation Method in the US, EU and Developing Countries*. Oxford, UK: Oxford University Press.
- b) Dillman, D.A., J.D. Smyth and L.M. Christian. 2008. *Internet, Mail, and Mixed-Mode surveys: The Tailored Design Method*, third edition. New York: John Wiley Co.
- c) Greene, W.H. 2012. *Econometric Analysis*, Seventh Edition. Upper Saddle River, NJ: Prentice Hall.
- d) Louviere, J., D. Hensher, and J. Swait. 2000. *Stated Choice Methods – Analysis and Application*. Cambridge, UK: Cambridge University Press.
- e) Mas-Colell, A., M.D. Whinston and J.R. Green. *Microeconomic Theory*. New York: Oxford University Press.

Students with Disabilities: If you have a documented disability and need special accommodations, please come see me as soon as possible. Special accommodations will be handled discretely.

Academic Dishonesty: With the exception of collaboration on problem sets, any work submitted will be your own. I reserve the right to take appropriate actions, as mandated by University policies, in the event of suspected cheating or plagiarism.

Attendance Policy: I will not formally take attendance, nor will your course grade be adjusted downward for poor attendance. However, this is a reasonably demanding graduate course and it is presumably in your best interest to attend. Further, in the case your course grade is on the margin, I reserve the right to give you the benefit of the higher grade if you actively participate in the course.

Policy on Make-up Work: Only in special circumstances (i.e. ones outside of your control) will you receive even partial credit for late assignments, or be allowed to take an exam at an alternative date. If you foresee such circumstances, it is in your best interest to bring this to my attention prior to an assignment due date or exam date.

Course Website: This course utilizes the “Blackboard” online course management system (<http://online.utk.edu/>). Here you will find the course syllabus, some handouts, assignments and most journal articles that are listed below. I will update the gradebook so you can track your progress and verify that grades for assignments you turn in have been recorded accurately. Please check the website for important announcements.

Course Outline and Reading List:¹

I. Welfare Economics [5 lectures]

Textbook Material

Champ, Boyle and Brown, Chapters 1, 2, 4, and 8.

Bateman and Willis, Chapter 6 (by R. Sugden).

Freeman, Chapter 3

Haab and McConnell, Chapter 1.

¹All referenced chapters from Champ, Boyle and Brown, and all articles are required reading. Other “textbook material” is suggested for those desiring additional background. Additional journal articles, including most of those cited or discussed in lecture, can be found on our course Blackboard site.

Mas-Colell, Winston and Green, Chapter 3 (p. 80-91).

Journal Articles

- Willig, R. 1976. Consumer's Surplus Without Apology. *American Economic Review* **66**: 589-597.
- Randall, A. and J.R. Stoll. 1980. Consumer's Surplus in Commodity Space. *American Economic Review* **70**: 449-455.
- Hanemann, W.M. 1991. Willingness to Pay and Willingness to Accept: How Much Can They Differ? *American Economic Review* **81**(3): 635-647.
- Horowitz, J.K. and K.E. McConnell. 2002. A Review of WTA/WTP Studies. *Journal of Environmental Economics and Management* **44**(3): 426-447.
- Horowitz, J.K. and K.E. McConnell. 2003. Willingness to Accept, Willingness to Pay and the Income Effect. *Journal of Economic Behavior and Organization* **51**: 537-545.
- Plott, C.R. and K. Zeiler. 2005. The Willingness to Pay–Willingness to Accept Gap, the "Endowment Effect," Subject Misconceptions, and Experimental Procedures for Eliciting Valuations. *American Economic Review* **95**(3): 530-545.
- Kling, C.L., J.A. List and J. Zhao. 2011. A Dynamic Explanation of the Willingness to Pay and Willingness to Accept Disparity. *Economic Inquiry*.

II. Background essentials [3 lectures]

Textbook Material

*Champ, Boyle, and Brown, Chapter 3.

Dillman, Smyth and Christian.

Greene, Chapter 19 (p. 872-883).

Mas-Colell, Winston and Green, Chapter 23.

A. Mechanism Design

Nobel Foundation. 2007. The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2007: Mechanism Design Theory.

B. Survey Design

Various survey materials posted/ linked on Blackboard

C. Sample Selection

Vossler, C.A. and J. Kerkvliet. 2003. A criterion validity test of the contingent valuation method: comparing hypothetical and actual voting behavior for a public referendum. *Journal of Environmental Economics and Management* **45**: 631-649.

III. Stated Preference Methods [5 lectures]

Textbook Material

*Champ, Boyle and Brown, Chapters 5 & 6.

Bateman and Willis, Chapter 11 (by W.M. Hanemann and B. Kanninen).

Freeman, Chapter 6.

Greene, Chapter 21 (p. 663-689; 719-735)

Haab and McConnell, Chapters 2-5.

Louviere, Hensher and Swait book.

Journal Articles

- Carson, R.T. and T. Groves. 2007. Incentive and Information Properties of Preference Questions. *Environmental and Resource Economics* **37**(1): 181-210.
- Hanemann, W.M. 1984. Welfare Evaluations in Contingent Valuation Experiments with Discrete Responses. *American Journal of Agricultural Economics* **66**(3): 332-341.

- Cameron, T.A. and M.D. James. 1987. Efficient Estimation Methods for 'Closed-Ended' Contingent Valuation Surveys. *The Review of Economics and Statistics* **69**: 269-276.
- Carson, R.T., N.E. Flores and N.F. Meade. 2001. Contingent Valuation: Controversies and Evidence. *Environmental and Resource Economics* **19**: 173-210.
- Johnston, R.J. 2006. Is Hypothetical Bias Universal? Validating Contingent Valuation Responses Using a Binding Public Referendum. *Journal of Environmental Economics and Management* **52**: 469-481.
- Vossler, C.A. and M.F. Evans. 2009. Bridging the Gap between the Field and the Lab: Environmental Goods, Policy Maker Input, and Consequentiality. *Journal of Environmental Economics and Management* **58**: 338-345.
- Vossler, C.A., M. Doyon and D. Rondeau. Truth in Consequentiality: Theory and Field Evidence on Discrete Choice Experiments. *American Economic Journal*.
- Scarpa, R., M. Thiene and K. Train. 2008. Utility in willingness to pay space: a tool to address the confounding random scale effects in destination choice to the Alps. *American Journal of Agricultural Economics* **90**: 994-1010.
- Bateman, I.J., A.A. Munro, and G.L. Poe. 2008. Decoy Effects in Choice Experiments and Contingent Valuation: Asymmetric Dominance. *Land Economics* **84**(1):115-127.
- Bateman, I.J., R.T. Carson, B. Day, D. Dupont, J.J. Louviere, S. Morimoto, R. Scarpa and P. Wang. 2008. Choice Set Awareness and Ordering Effects in Discrete Choice Experiments. Working paper, University of East Anglia, UK.

Midterm: Oct 13th (over all material above)

IV. Hedonic Pricing Methods [3 lectures]

Textbook Material

- Champ, Boyle and Brown, Chapter 10 pp. 331-378.
- Freeman, Chapter 11.
- Haab and McConnell, Chapter 9.

Journal Articles

- Rosen. S. 1974. Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition. *Journal of Political Economy* **82**(1): 34-55.
- Boyle, K.J., P.J. Poor and L.O. Taylor. 1999. Estimating the Demand for Protecting Freshwater Lakes from Eutrophication. *American Journal of Agricultural Economics* **81**: 1118-1122.
- Chattopadhyay, S. 1999. Estimating the Demand for Air Quality: New Evidence Based on the Chicago Housing Market. *Land Economics* **75**(1): 22-38.
- Smith, V.K. and J.C. Huang. 1995. Can Markets Value Air Quality? A Meta-Analysis of Hedonic Property Value Models. *Journal of Political Economy* **103**(1): 209-227.
- Michael, H.J., K.J. Boyle and R. Bouchard. 2000. Does the Measurement of Environmental Quality Affect Implicit Prices Estimated from Hedonic Models? *Land Economics* **76**(2): 283-298.
- Kuminoff, N.V., C.F. Parmeter and J.C. Pope. 2010. Which hedonic models can we trust to recover the marginal willingness to pay for environmental amenities? *Journal of Environmental Economics and Management* **60**(3): 145-160.

V. Valuing risk reductions – VSL [3 lectures]

Textbook Material

- Champ, Boyle and Brown, Chapter 10, pp. 379-393.

Freeman, Chapter 10 (p. 297-321) and Chapter 12.

Journal Articles

Viscusi, W.K. and J.E. Aldy. 2003. The Value of a Statistical Life: A Critical Review of Market Estimates Throughout the World. *The Journal of Risk and Uncertainty* 27(1): 5-76.

Evans, M.F. and V.K. Smith. 2006. Do we really understand the age-VSL relationship? *Resource and Energy Economics* 28: 242-261.

DeLeire, T., S. Khan and C. Timmins. 2009. Roy Model Sorting and Non-Random Selection in the Valuation of a Statistical Life. Working paper.

Knieser, T.J., W.K. Viscusi and J.P. Ziliak. 2010. Policy relevant heterogeneity in the value of statistical life: New evidence from panel data quantile regressions. *Journal of Risk and Uncertainty* 40: 15-31.

Kochi, I. and L. Taylor. 2010. Risk Heterogeneity and the Value of a Statistical Life: Further Market-Based Evidence. Working Paper.

VI. Recreation Demand Analysis [3 lectures]

Textbook Material

Champ, Boyle and Brown, Chapter 9.

Freeman, Chapter 13.

Greene, Chapter 21 (p. 740-752).

Haab and McConnell, Chapters 6-8.

Journal Articles

Berman, M.D. and H.J. Kim. 1999. Endogenous On-Site Time in the Recreation Demand Model. *Land Economics* 75(4): 603-619.

Feather, P. and W.D. Shaw. 1999. Estimating the Cost of Leisure Time for Recreation Demand Models. *Journal of Environmental Economics and Management* 38: 49-65.

Train, K.E. 1998. Recreation Demand Models with Taste Differences Over People. *Land Economics* 74(2): 230-239.

Smith, V.K. and Y. Kaoru. 1990. Signals or Noise? Explaining the Variation in Recreation Benefit Estimates. *American Journal of Agricultural Economics* 72(2): 419-433.

Smith, V.K. and Y. Kaoru. 1990. What Have We Learned since Hotelling's Letter? A Meta-Analysis. *Economics Letters* 32(3): 267-272.

VII. Environmental Program Evaluation [5 lectures] (Guest Lecturer: Michael Price)

A. Quasi-experimental approaches

Greenstone, M. and T. Gayer. 2009. Quasi-Experimental and Experimental Approaches to Environmental Economics. *Journal of Environmental Economics and Management* 57: 21-44.

Ashenfelter, O. and M. Greenstone. 2004. Using Mandated Speed Limits to Measure the Value of a Statistical Life. *Journal of Political Economy* 112(1): S226-S267.

Chay, K. and M. Greenstone. 2005. Does Air Quality Matter? Evidence from the Housing Market. *Journal of Political Economy* 113(2): 376-424.

Schlenker, W. and W.R. Walker. 2010. Air Pollution and Contemporaneous Health: Evidence from Random Variation in Pollution Shocks from Airports. Columbia University Working Paper.

Currie, J. and M. Neidell. 2005. Air Pollution and Infant Health: What Can We Learn From California's Recent Experience? *Quarterly Journal of Economics* 120(3): 1003-1030.

Knittel, C.R., D. Miller, and N.J. Sanders. 2011. Caution, Drivers! Children Present. Traffic, Pollution, and Infant Health. MIT Working Paper.

Morietti, E. and M. Neidell. 2009. Pollution, Health, and Avoidance Behavior: Evidence from the Ports of Los Angeles. NBER Working Paper No. 14939.

B. Natural experiments

Wolak, F.A. 2011. Do Residential Customers Respond to Hourly Prices? Evidence from a Dynamic Pricing Experiment. *American Economic Review: Papers & Proceedings* **101**(3): 83-87.

Allcott, H. 2010. Rethinking Real-Time Electricity Pricing. MIT Working Paper.

Kotchen, M.J. and L.E. Grant. Forthcoming. Does Daylight Saving Time Save Energy? Evidence from a Natural Experiment in Indiana. *The Review of Economics and Statistics*.

Ferraro, P.J. and M. Price. Forthcoming. Using Non-pecuniary Strategies to Influence Behavior: evidence from a large-scale field experiment. *The Review of Economics and Statistics*.

Allcott, H. Forthcoming. Social Norms and Energy Conservation. *Journal of Public Economics*.

Ayres, I. S. Raseman, and A. Shih. 2009. Evidence from Two Large Field Experiments that Peer Comparison Feedback Can Reduce Residential Energy Usage. NBER Working Paper No. 15386.

Final: Thursday, December 8th, 5:00-7:00pm