

University of Oregon
Department of Economics
Winter Term 2004

ECN 607: APPLIED MICROECONOMETRICS

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SYLLABUS

COURSE OBJECTIVE: The purpose of this course is to introduce the student to the application of econometric techniques commonly used by the microeconomist. The emphasis is on the specification, estimation, interpretation, and testing of microeconomic models rather than a thorough treatments of the asymptotic properties of estimators. Methods considered include panel data estimators, instrumental variables estimators, and maximum likelihood estimation of limited dependent variable models. Most of you have seen theoretical treatment of these techniques in EC 425/525, so emphasis will be on application through various computer/homework assignments, critical review of working papers, and your own empirical project.

READINGS: William Greene's *Econometric Analysis, Fifth Edition* is the required text for the class and will likely be your main reference even after this class. Jeffrey Wooldridge's *Econometric Analysis of Cross Section and Panel Data* is a strongly recommended text for this course. At the end of this syllabus are listed other texts you may find useful – again, not just for this class, but for your future research efforts. Journal articles will be assigned in class as necessary.

COURSE PROJECTS AND EXAMS: The significant portion of your workload will be computer/homework assignments. This class is meant to get your hands dirty working with data and standard econometric software. Econometric assignments will require STATA, which is loaded on TERF room computers. If you have access problems to STATA, please see me as soon as possible. Some of the assignments will ask you to assess the technique and presentation of empirical results in papers I have refereed recently to build your intuition about what constitutes “solid” applied work. You can work on these homework assignments with a maximum of two others, if you choose, and hand in one homework for the group.

Another significant portion of your grade will be an empirical term paper due on **Monday, March 15** by 5 pm. Late papers will receive a substantial penalty. Below I provide further details on the expectations for this paper.

There will also be a midterm during class on Thursday, February 26 which will be based on material covered during previous class periods and in your homework/computer assignments. The breakdown of grades for these components is the following.

50%	HOMEWORK/ASSIGNMENTS
25%	MIDTERM
25%	EMPIRICAL PROJECT

GENERAL OUTLINE OF COURSE

(As this is the first time I am teaching the course, so please view this outline as suggestive, not definitive. I would also be happy to consider other topics suggested by students.) Readings will be announced in class each week.

WEEK 1: Review, Methodology and Specification

WEEK 2: Review, Methodology and Specification

WEEK 3: Panel Data Estimators

WEEK 4: Panel Data Estimators

WEEK 5: Instrumental Variable Techniques and Issues

WEEK 6: Self-selection, Censoring and Related Issues

WEEK 7: Qualitative Dependent Variables: Probit, Logit, etc.

WEEK 8: MIDTERM – Thursday, February 26

WEEK 9: Count Data Models

WEEK 10: Special Topics – Spatial Regression Techniques?

EMPIRICAL TERM PAPER: The purpose of this paper is for the student to conceptualize and execute a study in applied microeconometrics. You may have a topic in mind and are welcome to use that topic for the paper after consultation with me. For other students, a topic must be identified within the first two weeks of the term in consultation with the instructor. I have some suggestions of possible problems that could be examined with available international trade and FDI data, but we may also be able to identify available data and issues in other fields. Papers should be 10-15 pages of text (double-spaced) and should generally follow this form:

I. INTRODUCTION (1-2 pages): Identify a specific issue (problem) the paper will address and motivate why we should care about this issue. The last paragraph should briefly summarize your main empirical findings.

II. THEORY (1-3 pages): The microeconomics necessary to answer the issue (problem) should be written to provide a foundation on which to perform the empirical experiment. Ideally, a theoretical model is presented, but this section may be more discussion. Regardless, your hypotheses (and theoretical assumptions behind these hypotheses) should be clear.

III. EMPIRICAL MODEL (2-3 pages): The empirical model should consist of: 1) An equation (or set of equations) that follow directly from the theory; 2) A statement of properties of the variables (e.g., which are exogenous, which are endogenous); 3) A statement of the properties of the error structure. You should also be very clear about expected signs and key hypothesis tests.

IV. DATA (2-3 pages): The main task of this section is to describe variable construction and data sources, such that any qualified person could replicate your work without consulting you. It is helpful to be conscious of the “ideal” data set and discuss the relevant ways in which your data depart from this ideal and, if appropriate, how the econometric techniques are modified to accommodate this.

V. EMPIRICAL RESULTS (3-5 pages): This section should begin with a general discussion of the characteristics of your results. You should discuss how well you model(s) fit, the correspondence of

signs with priors, specification issues, etc. Make sure you closely relate your results to the theory and hypotheses you construct in the first half of the paper. The accompanying tables of results should be presented in a professional manner and be sufficiently self-contained, such that a reader can ascertain all relevant information from the tables without having to consult the text.

VI. CONCLUSION (1 page): Summarize the problem you set out to answer and what the empirical evidence suggests is the answer. This is also the time to provide any further caveats and discuss what would be fruitful avenues to extend this work in the future.

OPTIONAL READINGS AND TEXTS

General Methods

- Amemiya, Takeshi (1986). *Advanced Econometrics*, (Cambridge, MA: Harvard University Press).
- Berndt, Ernst (1990). *The Practice of Econometrics: Classic and Contemporary*, (Reading, MA: Addison-Wesley Publishing Co.).
- Bowden, Roger and Darrell Turkington (1984). *Instrumental Variables*, (Cambridge: Cambridge University Press).
- Cramer, J.S. (1986). *Econometric Applications of Maximum Likelihood Methods*, (Cambridge, UK: Cambridge University Press).
- Davidson, Russell and James MacKinnon (1993). *Estimation and Inference in Econometrics*, (Oxford, UK: Oxford University Press).
- Deaton, Angus (1997). *The Analysis of Household Surveys*, (Baltimore: Johns Hopkins University Press).
- Godfrey, Les G. (1988). *Misspecification Tests in Econometrics*, (Cambridge: Cambridge University Press).
- Goldberger, Arthur (1991). *A Course in Econometrics*, (Cambridge, MA: Harvard University Press).
- Gourieroux, Christian and Alain Monfort (1995). *Statistics and Econometric Models: Volumes I and II*, (Cambridge: Cambridge University Press).
- Griliches, Zvi, and Michael Intriligator (1986). *Handbook of Econometrics, Volumes I-IV*, (Amsterdam: North Holland).
- Hardle, Wolfgang (1990). *Applied Nonparametric Regression*, (Cambridge: Cambridge University Press).
- Hayashi, Fumio (2000). *Econometrics*, (Princeton, NJ: Princeton University Press).
- Johnston, Jack, and John DiNardo (1997). *Econometric Methods, 4th Edition*, (New York: McGraw-Hill).
- Judge, George, W.E. Griffiths, R. Carter Hill, Helmut Lutkepohl, and Tsoung-Chao Lee (1985). *The Theory and Practice of Econometrics, 2nd Edition*, (New York: John Wiley and Sons).
- Maddala, G.S., C.R. Rao, and H.D. Vinod (1993). *Handbook of Statistics 11: Econometrics*, (Amsterdam: North Holland).
- Ruud, Paul (2000). *An Introduction to Classical Econometric Theory*, (Oxford, UK: Oxford University Press).
- Spanos, Aris (1986). *Statistical Foundations of Econometric Modelling*, (Cambridge: Cambridge University Press).
- White, Halbert (1984). *Asymptotic Theory for Econometricians*, (Orlando, FL: Academic Press).

Limited-Dependent and Panel Methods

- Aldrich, John and Forrest Nelson (1984). *Linear Probability, Logit, and Probit Models*, Sage University Paper Series #45.
- Amemiya, Takeshi (1981). "Qualitative Response Models: A Survey," *The Journal of Economic Literature*, Vol. 19.

- Amemiya, Takeshi (1984). "Tobit Models: A Survey," *Journal of Econometrics*, Vol. 24.
- Allison, Paul (1984). *Event History Analysis: Regression for Longitudinal Event Data*, Sage University Paper 46, (Newbury Park, CA: Sage Publications, Inc.).
- Baltagi, Badi (1995). *Econometric Analysis of Panel Data, 1st Edition*, (John Wiley & Sons)
- Baltagi, Badi (1995). "Panel Data," A special issue of the *Journal of Econometrics*.
- Ben-Akiva, Moshe and Steven Lerman (1985). *Discrete Choice Analysis: Theory and Application to Travel Demand*, (Cambridge, MA: MIT Press).
- Cameron, A. Colin and Pravin K. Trivedi (1986). "Econometric Models Based on Count Data: Comparison and Applications of Some Estimators and Tests," *Journal of Applied Econometrics* 1.
- Cameron, A. Colin and Pravin K. Trivedi (1998). *Regression Analysis of Count Data*, (Cambridge: Cambridge University Press).
- Chamberlain, G. (1984). "Panel Data," in Z. Griliches and M. Intriligator, eds., *Handbook of Econometrics Vol. II*, 1247-1318.
- Hsiao, Cheng (1986). *Analysis of Panel Data*, (Cambridge, UK: Cambridge University Press).
- Kiefer, Nicholas (1988). "Economic Duration Data and Hazard Functions," *Journal of Economic Literature* 26.
- Lancaster, Tony (1990). *The Econometric Analysis of Transition Data*, (Cambridge, UK: Cambridge University Press).
- Matyas, Laszlo, and Patrick Sevestre (1992). *The Econometrics of Panel Data*, (Dordrecht: Kluwer).
- Pudney, Stephen (1989). *Modelling Individual Choice: The Econometrics of Kinks, Corners and Holes*, Oxford, U.K.: Basil Blackwell Ltd.).
- Train, Kenneth (1986). *Qualitative Choice Analysis: Theory, Econometrics and an Application to Automobile Demand*, (Cambridge, MA: MIT Press)