ECON777201 Econometric Methods   Dep't of Economics   Prof. Arthur Lewbel
Spring 2019   Boston College   Maloney 315, x2-3678

The goal of this course is to provide an understanding of the econometric theory that underlies common econometric models. The focus is on the regression model and its extensions. After taking this course, students should be able to:
1. Choose appropriate models and estimators for given economic applications.
2. Interpret regression model estimates.
3. Diagnose potential problems with models and know how to remedy them.
4. Have sufficient grounding in econometric theory to begin advanced work in the field.
The course is pitched at a little higher level than the course textbook, which is Greene, W. H., "Econometric Analysis," 8th edition, Prentice Hall (denoted by G below, followed by chapter number). The book is supplemented with additional readings. These readings are available at
https://www2.bc.edu/arthur-lewbel/EC772-readings.zip.

I teach using a blackboard instead of slides, since that slows the material to a good pace and increases flexibility to respond to questions. Still, course notes will be made available. These were prepared by students in previous years, and so may contain errors and omit some material. Extra credit will be given to students who improve, expand, or correct these notes!

<div align="center">SYLLABUS</div>

1. Regression vs correlation and causes.
2. Finite Sample Properties of Estimators. G Appendix C
3. Asymptotic Properties of Estimators. G Appendix D, Also Eric Zivot's Primer.
4. Classical regression. G 4.
5. Specification issues: multicollinearity, coefficient interpretation, dummies. G 5,6
6. Maximum likelihood estimation and binary choice example G 14, 17.1-17.3
7. Inference, hypothesis tests. G 5
8. GLS, non-iid errors (autocorrelation and heteroskedasticity) G 9, 20.
9. Dynamic and time series models. G 20
10. IV and 2SLS estimation, endogeneity and simultaneity. G 8, 10.
11. Nonlinear models, GMM, Extremum estimators. G 7,12,13, Newey-McFadden chapter
12. Nonparametric estimators. Lewbel nonparametric notes, G. 7,12, Hardle-Linton chapter
13. Program Evaluation, Treatment Effects. G 6, Imbens and Wooldridge lectures 1, 2, Lewbel Identification Zoo, section 5.
14. Difference in Difference, Regression Discontinuity. G 6, Imbens and Wooldridge, lectures 11, 12.
15. Other topics if time permits: Identification (lecture notes), More on discrete dependent variables and panel data G 17, 11

Useful resources are Eric Zivot's Primer on Asymptotics:
http://faculty.washington.edu/ezivot/econ583/asymptoticsprimer.pdf .
Bruce Hansen's Econometrics textbook: http://www.ssc.wisc.edu/~bhansen/econometrics/Econometrics.pdf .
Lewbel Nonparametrics notes: https://www2.bc.edu/arthur-lewbel/NonparamClass.pdf
Newey, Whitney K. & McFadden, Daniel, 1994. "Large sample estimation and hypothesis testing," Handbook of Econometrics, in: R. F. Engle & D. McFadden (ed.), Handbook of Econometrics, edition 1, volume 4, chapter 36, pages 2111-2245 Elsevier.
Wooldridge, J. M. (2002) Econometric Analysis of Cross Section and Panel Data.
Imbens and Wooldridge lecture notes:
http://www.irp.wisc.edu/newsevents/workshops/appliedmicroeconometrics/schedule1.htm
Lewbel Identification zoo: https://www2.bc.edu/arthur-lewbel/identification-zoo-15.pdf

GRADING: Midterm: 45%, Final: 45%, attendance/participation 10%.