This is a one semester (required) course covering basic statistical and econometric methods necessary for quantitative research in public policy. While the lectures will discuss derivation of various techniques, the emphasis will be on understanding the concepts and applying them to real data for policy formulation. There is no required text; the book Introduction to Econometrics by G.S. Maddala and K. Lahiri (Wiley, 4th edition, 2009) may be useful. You can consult other econometrics textbooks such as by H. Theil and G. Judge et al. The applications part of the course will be based on journal articles. The overall grade will be based on 3 assignments during the semester that will include empirical applications. The broad course outline is:

1. Revision of basic linear regression model in matrix notation, asymptotic distribution theory, and time series methods.

2. Applications of regression methods for estimating models such as for consumption functions for the U.S. using aggregate time series data; a data set will be provided for the first assignment.

3. Identification of simultaneous equation systems.

4. Estimation of single equations by instrumental variables and 2 Stage Least Squares and their asymptotic distributions.

5. Diagnostic tests for model specification and some aspects of statistical decision theory.

6. Survey design and applications of probit and logistic models to demographic data from developing countries; a processed data set will be provided for the second assignment.


8. Estimation of fixed and random effects models from longitudinal (“panel”) data

9. Applications of panel data methods to data sets such as the World Development Indicators for formulating health policies; WDI data will be provided for the third assignment.

10. Conceptual issues such as “causality” and the analysis of data from randomized controlled trials for policy evaluation.

The data sets necessary for three sets of assignments will be provided in Stata; Ms Xiayun Tan (tan@umd.edu) will help students with data and estimation issues. Students will be expected to interpret the empirical results for formulating evidence-based policies.