

## Econometrics I: 2010-11

1. Method of least squares, graphical demonstration, least squares estimates (matrix notation), interpretation – Frisch-Waugh theorem
  2. Statistical properties: Statistical Model (assumptions on the population), mean and variance of estimates, Gauss-Markov theorem
  3. Finite sample results: Normality of disturbance term, variance of  $\hat{\sigma}^2$ , inference and hypothesis tests – t and F
  4. Special topics: Restricted least squares,  $R^2$  and model selection, omitted variable bias, multi-collinearity, dummy variables
  5. Basic results of asymptotic theory: weak law of large numbers, central limit theorem, consistent estimators
  6. Large sample results for OLS, hypothesis testing
  7. Heteroscedasticity and Autocorrelation – consistency and asymptotic distribution of OLS estimator, correcting OLS standard errors, generalized least squares
  8. Examples of endogeneity: Lagged dependent variable with autocorrelation, Measurement errors, Omitted variables, Simultaneous equation bias and implications of OLS.
  9. The idea of instrument variables and procedure in the case of one endogenous variable and one instrument. Example of IVs.
- Not covered
10. General IV procedures: Asymptotic distribution of IV, 2SLS, GMM, Overidentification test, Rank and Order conditions of identification
  11. Panel data methods
  12. Limited Dependent Variables and Selection Bias