PhD Summer School 2013, University of Stavanger, Norway, June 24-28.

Theory and Practice of Efficiency and Productivity Measurement

Tentative Course Outline

Course Objective: Participants will be introduced to a set of parametric, semi- and non-parametric econometric models with applications that illustrate each of the models. The applications will include production, cost, distance functions, etc. Special emphasis will be given to modeling and estimating production/cost efficiency models. Both R and Stata programs will be used in the LAB sessions. By the end of the class participants will be able to undertake a research project using either parametric and/or semi- and non-parametric approaches.

Instructors: Professor Subal C. Kumbhakar, Binghamton University
Professor Christopher F. Parameter, University of Miami

24 June (Monday)

Objective: Notions of efficiency from a primal perspective will be introduced and the use of both the primal and distance function perspectives will be discussed. The emphasis will be on technical efficiency.

Topics:
(a) Introduction
(b) Cross-Sectional Methods
   i. Distribution Free Methods
   ii. Maximum Likelihood Methods
(c) Skewness
   i. Tests of Skewness
   ii. The Wrong Skew Problem
(d) Estimating Firm-Specific Inefficiency
   i. Confidence Intervals
   ii. Tests of Correct Distributional Form
(e) Estimation/Inference of Cross-Sectional SF models in R and STATA – LAB session (Afternoon).

25 June (Tuesday)

Objective: Introduce panel data models and discuss various specifications with or without technical change.

Topics:
(a) Panel Data Methods
   i. Distribution Free Methods
   ii. Maximum Likelihood Estimation
   iii. Time Constant Variables
(b) Measurement of Technical Change
(c) Estimation/Inference of Panel Data SF models in R and STATA – LAB session (Afternoon).

26 June (Wednesday)

Objective: System estimation using cost function models.

Topics:

(a) System Methods
(b) Cost System Issues
   i. Input/Output Oriented Inefficiency
   ii. Fixed Inputs
   iii. Greene Problem
(c) System Estimation/Inference of SF models in R and STATA – LAB session (Afternoon).

27 June (Thursday)

Objective: Modeling determinants of inefficiency. Introduce some alternative models.

Topics:

(a) Determinants of Inefficiency
   i. The Scaling Property
   ii. Mean versus Variance Effects
(b) Alternative SF models (mixture models/Zero Inefficiency SF)
(c) Estimation in R and STATA – LAB session (Afternoon).

28 June (Friday)

Objectives: Introduce semi- and non-parametric models to estimate.

Topics:
(a) Semi- and non-parametric methods for estimating SF models.
   i. Kernel Smoothing
   ii. Semiparametric Production Frontier
iii. Deconvolved Technical Inefficiency
iv. Nonparametric Estimation of the Determinants of Inefficiency
(b) Estimation of Non/semiparametric SF models in R and STATA – LAB session
(Afternoon).

**Parametric Course Reading List (tentative -- will be updated)**

Some of the literature below will be suggested additional reading.


