Department of Economics, East West University

ECO 465: Econometrics (Spring 2018)

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Course Description

Econometrics is a technique constantly used in business, finance, economics, government, consulting and many other fields. While econometrics is closely related to statistics, in reality it is more than just "statistics using economic data". For example, an econometric model of consumption is very different from a statistical or regression model of consumption because of the underlying behavior of economic agents. Other specific issues that underlie economic data are trends, seasonality and cycles.

This course will cover some core topics in econometrics including (bivariate and multivariate) linear regression models; hypothesis testing; and special issues in regression models such as multicollinearity, heteroscedasticity and autocorrelation. Other important topics to be covered are dummy variable model, autoregressive distributed lag model, and time series econometrics.

All theoretical concepts will be demonstrated with applied examples based on economic data of various kinds. Although this course will primarily use Stata 13 (or higher) for estimation, students are free to use any software such as Eviews or R.

Course Objective

When the field of econometrics was developed, it was primarily a time series econometrics because at that time cross-sectional and panel data were not much available. Still today, economics graduates who work in non-academic institutions (private sector, government, and NGOs) mostly rely on time series data. Hence a special attention will be paid to time series data including topics such as trends (deterministic and stochastic), unit roots, cointegration and error correction model. Time permitting, the topic of forecasting will be discussed.

Course Outcomes

By the end of the course, students shall:

- Understand the concept and derivation of Gauss-Markov theorem.
- Be able to distinguish between theoretical and empirical model.
- Be able to distinguish the "cause" and "effect" in economic relationships.
- Understand different types of data such as cross-section, time series and panel data.
- Know how to explore websites of different data providers for various data need.
- Be able to estimate linear and nonlinear regression models and economically interpret the results.
- Understand the various steps involve in writing an applied term paper in economics.

Textbooks

- **Introduction to Econometrics** by James Stock and Mark Watson, Third Edition, Addison-Wesley, 2011.
- **Basic Econometrics** by Damodar Gujarati and Dawn Porter, Fifth edition, McGraw-Hill, 2009.
- **A Guide to Econometrics** by Peter Kennedy, Sixth Edition, Wiley-Blackwell, 2008.

Office Hours

- **Instructor:** Any weekday from 10 am to 4 pm (except Monday). Room 347.
- **TA:** TBA. Room # 350.

Topics

Chapter	Topics
Topic 1	Economic questions and data
Topic 2	Review of probability and statistics
Topic 3	Linear regression with one regressor and hypothesis testing
Topic 4	Linear regression with multiple regressors and hypothesis testing (includes heteroskedasticity and multicollinearity) • *Empirical assignment involving application of multiple linear regression model using cross-section data*
Topic 5	Nonlinear regression functions • *Empirical assignment on environmental Kuznets curve*
Topic 6	Dummy (binary) variable regression • *Empirical assignment on the effect of financial sector reform program in Bangladesh on the demand for money*
Topic 7	Time series regression and forecasting (includes autocorrelation)
Topic 8	Distributed lag model (dynamic causal effects) • *Empirical assignment on inflation forecasting and the application of cointegration and error correction model*

Evaluation

Assignments	30%
Quizzes	20%
Midterm	25%
Final	25%

Grading Policy: Late submission of assignments will be penalized (up to 50% or less). If you missed the midterm test, your final will be comprehensive. Quizzes will be unannounced, so if you miss any, there is not make-up.

Note: Students are expected to follow academic code of conducts in the classroom and during the exams. Class preparation and participation are important components of this course. Class absenteeism undermines students' academic performance.