Applied Time Series Econometrics Analysis with STATA & EViews

COURSE OVERVIEW

Approximate Training Hours: 30-35 hours spanning over a period of 5 weeks.

Applied Time Series Econometrics Analysis with STATA & EViews is an instructor-led course.

Course Contents:

- **Time series data sources**
- **Time series data processing**
- **Classical time series analysis**
- **Stationarity**
- **Uni-variate time series modelling**
- **Structural breaks**
- **Co-integration**
- **Multi-variate time series modelling**
- **Advanced multi-variate time series modelling**
- **Diagnostic tests**
- **Volatility modelling**

Prerequisites: Basic calculus, matrices, probability distributions, basic econometrics.

Topic	Details of Topic
Time series data sources	Data collection from various sources like World Bank, International Monetary Fund, Central Banks, Statista, etc.
Time series data processing	Data transformation, data deflation (changing from current to constant prices), base year shifting, splicing of two or more series, de-seasonalising data [excel based]
Classical time series analysis	Secular trend – graphic method, semi-average method, moving average method, method of least squares Seasonality – method of simple averages, ratio to trend method, ratio to moving average method, link relative method Cyclicality – residual method, reference cycle method, direct method, harmonic analysis method

Stationarity	Trend stationary, difference stationary, tests for unit root like Autocorrelation function, Augmented Dickey Fuller test, Phillips Perron test, etc.
Uni-variate time series modelling	Autoregressive model (AR), Moving Average model (MA), Autoregressive Moving Average model (ARMA), Autoregressive Integrated Moving Average model (ARIMA), Seasonal ARIMA model
Structural breaks	Exogenous test for structural breaks - Chow test, Endogenous tests for structural breaks – Bai-Perron test, Zivot-Andrews test
Co-integration	Engel Granger test, Johansen test, Bounds test
Multi-variate time series modelling	VAR model, VECM model, ARDL model
Advanced multi-variate time series modelling	SVAR model, Bayesian VAR, Markov Switching model
Diagnostic tests	Autocorrelation, Heteroscedasticity, Multi-collinearity, Normality, Specification error, Structural stability
Volatility modelling	Overview of ARCH and GARCH models

Note: The course includes theoretical lectures followed by empirical analysis using real data sets on both STATA and EViews.

References:
1. Applied Econometrics Time Series by Walter Enders – 3rd Edition
2. Basic Econometrics by D. Gujarati – 5th Edition
3. Theory of Econometrics by A. Koutsoyannis – 2nd Edition
4. Econometrics by Example by D. Gujarati – 2nd Edition
5. Fundamentals of Mathematical Statistics – S. C. Gupta & V. K. Kapoor – 20th Edition