

# Outline of the Econometric(s) Models

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## 1. Traditional Econometrics

- 1.1 Classical linear Regression Model
- 1.2 Assumptions, Properties and Goodness of fit
- 1.3 Other forms of Classical Regression Model
- 1.4 Violation and Correction of assumptions of Regression Model
- 1.5 Dummy Variables and its types
- 1.6 Simultaneous equation model, and conditions for identification

## 2. Time series Econometrics

- 2.1 Univariate Time series
- 2.2 Auto Regressive model
- 2.3 Moving Average Model
- 2.4 Autoregressive Moving average Model (ARMA)
- 2.5 Autoregressive Integrated Moving Average (ARIMA)
- 2.6 Box Jenkins (BJ) Methodology

## 3. Unit root test without Breaks

- 3.1 Dickey-Fuller (1976)

- 3.2 Augmented Dickey-Fuller (1979)
- 3.3 Philips and Perron (1988)
- 3.4 KPSS (1992)
- 3.5 Autoregressive Integrated Moving Average (ARIMA)
- 3.6 DF-GLS (Elliot et al, 1996)

#### 4. Unit root test with Breaks

- 4.1 Perron (1989)
- 4.2 Zivot and Andrews (1992)
- 4.3 Lumsdaine and Papell (1997)
- 4.4 Perron (1997)
- 4.5 Lee and Strazicich (2003)
- 4.6 Lee and Strazicich (2004)

#### 5. Cointegration tests without Breaks

- 5.1 Co-integrating Regression Durbin Watson (CRDW)
- 5.2 Engel Granger (1987) co-integrating Test
- 5.3 Johansen (1991)
- 5.4 Pesaran, Shin, and Smith Bound testing approach (1999,2000)
- 5.5 Narayan (2005)

#### 6. Cointegration tests with Breaks

- 6.1 Gregory and Hansen (1996a, 1996b)
- 6.2 Johansen et al (2001)

6.3 Carrion-i-Silvestre and Sanso (2006)

6.4 Luptaphol et al (2004))

6.5 Saikkonam and Luptaphol (2000)

6.6 Inoue (1999)

6.7 Hatemi J.A. (2008)

6.8 Narayan and Pope (2016)

## 7. Causality test

7.1 Granger Causality

7.2 Sims Causality

7.3 Causality test through Weak and strong Exogeneity test

7.4 Toda Yamamoto (1995)

## 8. Vector Autoregressive Model (VAR)

8.1 Impulse Response Function (IRF)

8.2 Variance Decomposition

## 9. Vector Error Correction Model (VECM)

9.1 Forecast Error Impulse Response Function (FEIRF) for VECM

## 10. Structural VAR (SVAR)

10.1 Recursive Way: Sims (1980)

10.2 Wold Restriction

10.3 Identification based on Economic Theory

10.4 Identification based on Heteroscedasticity

10.5 Sign Restriction

10.6 Restriction based on Dynamic Stochastic General Equilibrium (DSGE) model

## 11. Structural Vector Error Correction Model (SVECM)

## 12. Structural Cointegrating VAR (S-CI-VAR)

## 13. Factor Modelling Approach (FMA)

13.1 Static Factor Models

13.2 Dynamic Factor Models

## 14. Methods of Extracting Factors

14.1 Principal Component Analysis (PCA)

14.2 Bayesian likelihood: Kohm and center (1994) and Otok and Whitemen (1998)

14.3 Spectral Analysis

## 15. Nonlinear Time Series Models

15.1 Non-Linear AutoRegressive Model (NLAR)

15.2 Generalized Nonlinear Autoregressive (GNLAR)

15.3 Bi-Linear Model

## 16. Threshold Models

16.1 Threshold Regressive Model

16.2 Threshold AutoRegressive (TAR)

16.3 Self-Exciting Threshold AutoRegressive Model (SETAR Model)

16.4 Autoregressive Self Exiting Threshold

16.5 Non SETAR

16.6 Multivariate SETAR

16.7 Tsey (1998) Multivariate TAR

16.8 Multiple regime TAR

## 17. Smoothing Models

17.1 Granger and Terasvirta (1993), Smoothing Transition Regression Model (STRM)

17.2 STAR Models

17.2.1 Logistic STAR (LSTAR)

17.2.2 Exponential STA (ESTAR)

17.2.3 Multiple Regime STAR (MRSTAR)

17.2.4 Vector STAR (VSTAR)

17.2.5 Time Varying STAR (TVSTAR)

## 18. Regime Switching Models (RSM)

18.1 Regime Switching Regression (RSR)

18.2 Markov Switching AR (MSAR)

18.3 Markov Switching VAR (MS-VAR)

18.4 Markov Switching VECM (MS-VECM)

## 19. Artificial Neural Network (ANN)

### 19.1 Parametric

19.1.1 Ramsey (1969) RESET Test

19.1.2 Tsey (1989)

19.1.3 Threshold Test

### 19.2 Non-Parametric

19.2.1 McLeod and Li(1983)

19.2.2 Bi-spectral Test

19.2.3 BDS statistics

## 20. Volatility Models

### 20.1 Univariate Volatility Models

20.1.1 ARCH

20.1.2 GARCH

20.1.3 GJR (TGARCH)

20.1.4 EGARCH

20.1.5 APARCH

20.1.6 VAR (Value at Risk)

### 20.2 Multivariate Volatility Models

20.2.1 VEC: Vech and Diagonal VEC

20.2.2 BEKK Model

20.2.3 CCC Model

20.2.4 DCC Model

20.2.5 BDCC/RS-DCC-Block Model

20.2.6 Stochastic Volatility Model

20.2.7 Factor ARCH Model

## 21. Panel Data Analysis

21.1 Linear Panel Model

21.2 Fixed and Random Effects

21.3 Hausman Test (1978)

21.4 Dynamic Panel Data models

21.5 Panel ARDL

21.6 Panel Mean Group(PMG)

## 22. Panel Unit root Tests without Breaks

22.1 Levin and Lee (1992)

22.2 Levin Lin and Chu

22.3 Im, Pesaran and Shin(1997)

22.4 Maddala and Wu (1999)

22.5 Haris and Tzavalis(1999)

22.6 Breitung(2000)

22.7 Hadri(2000)

22.8 Choi(2001)

## 23. Panel Cointegration Tests without Breaks

23.1 Mc Coskey and Kao (1999)

23.2 Kao (1998)

23.3 Pedroni (1997,1999,2000)

23.4 Larsson(2001)

23.5 Banerjee, marcellino and osbet (2004)

23.6 Bai and Ng (2004)

23.7 Weterlund (2005a, 2005b)

23.8 Westerlund(2007)

## 24. Panel Cointegration Tests with Breaks

24.1 Carrion-i-Silvestre, Barrio-Castove and Lopez-Bezo(2006)

24.2 Benerjee and Carrion(2006)

24.3 Westerlund and Edgeston(2006)

24.4 Westerlund(2006a, 2006b)

## 25. Panel Vector Autoregressive Model (PVAR)

## 26. Panel Vector Error Correction Model(PVECM)

## 27. Structural Panel VAR)

## 28. Factor Augmented Panel VAR(FA-P-VAR)

## 29. Panel Regime Switching

## 30. Time Series in Frequency Domain

30.1 Spectral Analysis

30.2 Filters

### 30.3 Population spectrum and Period Periodogram

### 30.4 Lag Windows

#### 29.4.1 Barlett Window

#### 29.4.2 Turkey Window

#### 29.4.3 Daniell Window

#### 29.4.4 Tukey-Hanning Window

## 31. Cross Spectral Analysis

### 31.1 Short time Fourier Transform and Gabor transform

## 32. Wavelet Types

### 32.1 Discrete Wavelet

#### 32.1.1 Beylkin

#### 32.1.2 BNC

#### 32.1.3 Coifler

#### 32.1.4 Haar

#### 32.1.5 Symlet

### 32.2 Continous

#### 32.2.1 Beylkin

#### 32.2.2 BNC

#### 32.2.3 Coifler

#### 32.2.4 Haar

#### 32.2.5 Symlet

### 32.3 Lag Windows

#### 32.3.1 Complex Mexican hat

#### 32.3.2 Fbsp

#### 32.3.3 Morlet

#### 32.3.4 Shannon

### 33. Bayesian Econometrics

#### 33.1 Bayesian Vector Autoregression (BVAR)

#### 33.2 Getting the Priors

##### 33.2.1 Metropolis Sampling

##### 33.2.2 Metropolis Hasten Algorithm

##### 33.2.3 Markov Chain Monte Carlo Simulation (MC-MC) Sampling

##### 33.2.4 Slides Sampling