1. Classical Linear Regression Model

1.1.Simple Regression

The classical linear regression model
The ordinary least squares (OLS) method of estimation
The assumptions of the CLRM
Violations of the assumptions
Properties of the OLS estimators
Linearity
The overall goodness of fit
Problems associated with *R2*
Hypothesis testing and confidence intervals
Testing the significance of the OLS coefficients
Confidence intervals
How to estimate a simple regression in EViews

1.2 Multiple Regression

Derivation of the multiple regression coefficients
The three-variable model
The k-variables case
The assumptions of the multiple regression model
The variance-covariance matrix of the errors
Properties of the multiple regression model OLS estimators
R2 and adjusted *R2*
General criteria for model selection
Multiple regression estimation in EViews
Hypothesis testing.
Testing individual coefficients
Testing linear restrictions
The F-form of the likelihood ratio test
Testing the joint significance of the X's
F-test for overall significance in EViews
Adding or deleting explanatory variable
Omitted and redundant variables test in EViews
How to perform the Wald test in EViews
The *t* test (A special case of the Wald procedure)

2. Violating the Assumptions of the CLRM

2.1.Multicollinearity

Perfect multicollinearity
Consequences of perfect multicollinearity
Imperfect multicollinearity
Consequences of imperfect multicollinearity
Detecting problematic multicollinearity
Simple correlation coefficient
R2 from auxiliary regressions
Variance inflation factor (VIF)

2.2. Heteroskedasticity

Introduction: what is heteroskedasticity?
Consequences of heteroskedasticity on OLS estimators
A general approach
A mathematical approach
Detecting heteroskedasticity
The informal way
The Goldfeld-Quandt test
The Glesjer LM test
The White test
Resolving heteroskedasticity
Generalized (or weighted) least squares

2.3.Autocorrelation

Introduction: what is autocorrelation?
What causes autocorrelation?
First and higher order autocorrelation
Consequences of autocorrelation on the OLS estimators
Detecting autocorrelation
The graphical method
The Durbin-Watson test
The Breusch-Godfrey LM test for serial correlation
Computer example of the Breusch-Godfrey test
Durbin's *h* test in the presence of lagged dependent variables
Computer example of Durbin's *h* test
Resolving autocorrelation

3. Topics in Econometrics

3.1.Dummy variables

Introduction: the nature of qualitative information
The use of dummy variables
Intercept dummy variables
Slope dummy variables
The combined effect of intercept and slope dummies
Computer example of the use of dummy variables
Using more than one dummy variable
Using seasonal dummy variables
Computer example of dummy variables with multiple categories

3.2.Misspecification

Omitting influential or including non-influential explanatory variables
Consequences of omitting influential variables
Including a non-influential variable
Omission and inclusion· of relevant and irrelevant variables at the
Wrong Functional Forms
Various functional forms
Log-log functional form

3.3.Tests for misspecification

Normality of residuals
Jarque-Bera test
The Ramsey RESET test for general misspecification
Approaches in choosing an appropriate model
The traditional view: average economic regression
The Hendry 'general to specific approach'
The traditional view: average economic regression