

## East Asia Training & Consultancy Pte Ltd

Head Office: Singapore

Regional Offices: Malaysia, Indonesia, Thailand, Philippines, Vietnam, Hong Kong, Bahrain

Fax : (65)-62506369 Tel: (65)-62199062

Email : enquiry@eastasiatc.com.sg

Website: www.eastasiatc.com.sg

The STATA logo consists of the word "STATA" in a bold, white, sans-serif font, with a registered trademark symbol (®) to its upper right. The logo is set against a dark blue background that features a subtle, glowing light effect on the right side.

Statistical Software for Professionals

# APPLIED ECONOMETRIC METHODS USING STATA

## 4-Day Professional Development Workshop

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**East Asia Training & Consultancy Pte Ltd** invites you to attend a four -day professional development workshop, reviewing econometric methods for research using Stata to analyse the course databases. Stata is the well-known statistics and econometrics software package developed by StataCorp (USA). Stata is a statistical software package that offers a broad range of statistics to professional researchers in many disciplines. Stata is particular useful to professionals working in areas of business, social science, health and medical research, education, economics and science.

### OBJECTIVE

This short course is designed to provide applied researchers with a sound understanding of Stata's capabilities for data management and statistical analysis, focusing on the methodologies most widely applied in econometrics.

### SUMMARY

The first day of the course highlights Stata usage for effective, auditable data management and develops the concept of a Stata workflow for replicable research.

The second day presents linear regression topics, including the concepts of factor variables and marginal-effects calculations new to Stata version 11, and goes on to discuss instrumental variables estimation, maximum likelihood estimation and models for limited dependent variables.

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The third day focuses on models appropriate for the analysis of count data and categorical response data in the first session, and models for longitudinal/panel data analysis in the second session.

The fourth day is devoted to presenting effective use of Stata programming techniques to automate the workflow and develop capabilities that extend the program's usefulness, incorporating the use of the Mata matrix programming language to gain computational efficiency.

### WHO SHOULD ATTEND

The course is designed for applied researchers in government, industry and academe who have

- (a) some prior familiarity with the use of Stata and
- (b) who have completed an undergraduate course in statistics/econometrics.

The course will provide participants with up-to-date knowledge on Stata's data management, estimation and automation capabilities, including a number of key enhancements available in latest version 11 of June 2009, with particular emphasis placed on strategies to develop sound research practices and efficient use of the software.

### FEE & REGISTRATION

The fee includes extensive course materials, data-sets, lectures, lunches, morning and afternoon coffee/tea breaks, receptions and the opportunity to network with researchers, economists and biostatisticians across the various industries in Asia. This is a "hands-on" workshop. Participants are required to bring their own laptops with Stata installed in them.

**The number of participants is restricted.** Please register early to guarantee your place. Please complete the official registration form and fax to (65)-62506369 or email it to us at [stata@eastasiatc.com.sg](mailto:stata@eastasiatc.com.sg) to reserve your place. Confirmation will only be made upon receiving full payment. Further instructions will be sent to confirmed participants.

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### **COURSE OUTLINE**

#### **SESSION 1, DAY 1, AM (2.5 hrs)**

##### Overview of Stata

- User interface, help system, file management, working with do-file editor
- Updating program and accessing user-written routines
- Data management: basic principles of organization and transformation
- Data management tools and data validation
- Introduction to graphics
- Producing publication-quality output and graphics

#### **SESSION 2, DAY 1, PM (3.5 hrs)**

##### The Stata workflow

- Development of an auditable workflow
- Strategies for data validation
- Strategies for data cleaning and transformation
- Tools for combining and reshaping data sets
- Strategies for reuse of intermediate results
- Strategies for report and graphics automation

#### **SESSION 3, DAY 2, AM (2.5 hrs)**

##### Regression, Factor Variables, Marginal Effects

- Basics of regression methodology
- Estimation with factor variables
- Regression diagnostics, predictions
- Computing and interpreting marginal effects

#### **SESSION 4, DAY 2, PM (3.5 hrs)**

##### Instrumental Variables, MLE, Limited Dependent Variables

- Instrumental variables (IV) models
- IV-GMM modeling and diagnostics
- Maximum likelihood (MLE) techniques; Wald, LM, LR tests

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- Binary response models: logit and probit
- Models for proportions data
- Ordinal response models: ordered logit and probit

### **SESSION 5, DAY 3, AM (2.5 hrs)**

Models for count data and categorical response data

- Poisson and negative binomial regression
- Extended count data models
- Proportional odds models
- Multinomial logit models

### **SESSION 6, DAY 3, PM (3.5 hrs)**

Models for longitudinal / panel data and mixed/multilevel models

- Fixed effects / random effects models
- Seemingly unrelated regressions models
- Dynamic panel data (DPD) models
- Generalised estimating equations (GEE) models
- Basics of mixed and multilevel models

### **SESSION 7, DAY 4, AM (2.5 hrs)**

Introduction to programming

- Programming with do-files
- Do-file programming: recipes
- Programming with ado-files
- Ado-file programming: developing a Stata command

### **SESSION 8, DAY 4, PM (3.5 hrs)**

Programming in Stata

- Programming ml, nl, nlsur, gmm function evaluators
- Programming egen functions
- Introduction to Mata
- Mata programming: interfacing with Stata
- Mata programming: recipes