ARTNeT/RIS Follow-up Workshop on Gravity Modelling of Trade Facilitation and “Behind the Border” Measures Affecting Trade
21-25 September 2009, New Delhi, India

Venue: Research and Information System for Developing Countries (RIS)
Zone IV-B Fourth Floor, Indian Habitat Centre

TENTATIVE PROGRAMME

Introduction

This workshop aims to provide participants with the following:

1. A solid understanding of the gravity model of bilateral trade, including its theoretical basis;
2. Practical skills in applying best practice gravity econometrics using Stata;
3. An introduction to advanced gravity modeling techniques;
4. An appreciation of data and estimation issues involved in the application of gravity models to the analysis of topics such as: trade costs, trade facilitation, and behind-the-border measures; international production networking; trade in services; and governance, regulatory institutions, and corruption.

In light of these objectives, the structure of the workshop will alternate between presentations by the trainer based on the existing literature, and “hands on” applications in which participants will be invited to explore concrete applications using real data. Empirical examples will focus on economies in the Asia-Pacific region, and on sectors of particular interest to them. In addition, participants will be required to work in groups to conduct an exercise tracing through all aspects of the gravity modeling process, from research design to presentation and interpretation of results.

Monday, 21 September 2009: Revision of the Basics

Registration (8:30-9:00)

Opening remarks (9:00-9:15)

Session 1 (9:15-10:30)
- Introduction to the workshop and its objectives; overview of methods and approach.
- Presentation of the “basic” gravity model, and brief discussion of some empirical applications.

Coffee Break (10:30 – 10:45)

Session 2 (10:45-12:00)
- Estimating the basic gravity model by ordinary least squares (OLS), and interpreting results.
- Overview of the “theoretical” gravity model.
- Estimating the “theoretical” gravity model using fixed or random effects, and interpreting results.

Session 3 (13:15-14:30)
- Empirical exercise 1—Revision of Stata basics:
  - Structure and setup;
  - Online resources;
Data manipulation: importing, merging, sorting, etc.
- Exploratory data analysis: summary statistics, correlations, graphs, etc.
- Tricks of the trade: do files, logs, and formatting output.

Session 4 (14:45-16:00)
- Empirical exercise 2—Using Stata to estimate the gravity model:
  - OLS regression;
  - Fixed effects regression;
  - Random effects regression;
  - Simple and compound hypothesis testing;
  - Interpretation of results.

Tuesday, 22 September 2009: Advanced Gravity Modeling

Session 1 (9:15-10:30)
- Dealing with zero trade flows:
  - Trade propensity, sample selection, and the Heckit estimator;
  - The log of gravity, and the Poisson estimator;
  - Censoring and the Tobit estimator.

Session 2 (10:45-12:00)
- Empirical exercise 3—Trade propensity and zero trade flows
  - Using Stata to estimate the Probit and Logit models;
  - Using Stata to estimate the Heckit model;
  - Using Stata to estimate the Poisson model;
  - Using Stata to estimate the Tobit model;
  - Interpretation and comparison of results

Session 3 (13:15-14:30)
- Dealing with endogeneity using two stage least squares, and related techniques.

Session 4 (14:45-16:00)
- Empirical exercise 4—Dealing with endogeneity:
  - Using Stata to estimate models with instrumental variables;
  - Checking instrument validity in Stata;
  - Interpretation of results.

Wednesday, 23 September 2009: Data for Gravity Modeling

Session 1 (9:15-10:30)
- Overview of data sources for gravity modeling, including sector-specific work:
  - WB World Trade Indicators;
  - ITC Market Access Indicators;
  - WB Logistics Performance Index;
  - WB WITS;
  - WB Enterprise Surveys;
  - WTO databases.

Session 2 (10:45-12:00)
- Overview of data sources (continued).

Session 3 (13:15-14:30)
• Overview of data sources (continued).
• ARTNET online gravity interface.

Session 4 (14:45-16:00)
• Aggregation of data using principal components and related methods.
• Empirical exercise 5—Principal components analysis in Stata.

Thursday, 24 September 2009: Complements to Standard Gravity Models

Session 1 (9:15-10:30)
• Estimation of correlated gravity models using SUR.
• Analyzing correlated trade propensities using the bivariate Probit model.

Session 2 (10:45-12:00)
• Using trade shares to analyze patterns of specialization.
• Inferring trade costs using the inverse of gravity (“levity”).

Session 3 (13:15-14:30)
• Empirical exercise 6—Correlated gravity and trade propensity models in Stata.
• Empirical exercise 7—Using Stata to estimate trade share equations.

Session 4 (14:45-16:00)
• Empirical exercise 8—Implementing the “levity” model in Stata.
• Using firm level data to complement gravity.
• Empirical exercise 9—Using Stata to estimate models with firm-level data.

Friday, 25 September 2009: The Gravity Modeling Process—From Research Design to Results

Session 1 (9:15-10:30)
• Introduction to research design as it pertains to the gravity model.
• Research design workshop:
  – Distribution of group exercises examining trade facilitation and behind-the-border measures in the Asia-Pacific;
  – Preparation of short group presentations focusing on: stating the research question; identifying data sources and limitations; and discussing estimation strategies, including difficulties and possible solutions.

Session 2 (10:45-12:00)
• Research design workshop (continued):
  – Group presentations and discussion.

Session 3 (13:15-14:30)
• Overview of WTO/ARTNET research papers.
• Research presentations by participants.

Session 4 (14:45-16:00)
• Research presentations by participants.
• Conclusion.

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