UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

ARTNeT-GIZ Capacity Building Workshop

Introduction to Gravity Modelling

19-21 April 2016

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 basic gravity econometrics using Stata;

3. An appreciation of data and estimation issues involved in the use of gravity models in a range of applied trade policy topics.

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. 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.

Workshop facilitators: Dr. Witada Anukoonwattaka, (ESCAP/ARTNeT), Dr. Selim Raihan (SANEM/ARTNeT)

19 April : The Basics

08:45 - 09:00:   Registration

09:00 - 09:15:   Opening Remarks (GIZ)

Session 1 (Witada Anukoonwattaka, ESCAP)

09.15 – 11.00: Introduction to tools for evidence-based trade policy formulation

- Introduction to the workshop and its objectives; overview of methods and approach.
- Why evidence does matter for policy formulation?
- What are available statistical tools for policy analysis?
    - The difference between ex-ante and ex-post policy analysis
    - An overview of available tools:
        - Descriptive statistics and trade indicators,

- Simulation modelling based on Partial and CGE models,
- Econometric analysis (such as a gravity model)

Session 2 (Witada Anukoonwattaka, ESCAP)
11.00 – 12.30:   Introduction to using gravity models for trade analysis

- Concepts and stylized facts of the gravity approach

- Example of applications

- Major weakness of an intuitive gravity model.

(15 minutes break at around 10:00-10:15)

12:30-13:30:   Lunch Break

Session 3 (Selim Raihan, SANEM)
13.30 -17.00:   Using Stata to estimate the basic gravity model.

- Revision of Stata basics:
    - Structure and setup;
    - Online resources;
    - Data manipulation: importing, merging, sorting, etc.
    - Exploratory data analysis: summary statistics, correlations, graphs, etc.

- The OLS estimation of a basic gravity model .
    - The regression, the OLS assumptions, and the output
    - Simple and compound hypothesis testing;
    - Interpretation of results.

(15 minutes break at around 15:00-15.15)

20 April : The theoretical gravity

Session 4 (Witada Anukoonwattaka,ESCAP)
09:00 – 12.00   The benchmark model

- Concepts of the theoretical gravity model

- The Anderson and Van Wincoop (AvW 2003) model

- Empirical implication

- Identifying ("trade potentials") using gravity approach

- Implementation in Stata

(15 minutes break at around 10:00-10:15)

12:00-13:00:   Lunch Break

Session 5 (Witada Anukoonwattaka, ESCAP)
13.00 – 16.00 – Approaches for dealing with policy variables

- The augmented FE gravity model and the concerns
- The Baier and Bergstrand (BB) approach
- Implementation in Stata

Session 6 (Selim Raihan, SANEM)
16.00 -17.00 – Briefing on advance issues

- Endogeniety issues
- Zero trade flows

(15 minutes break at around 15:00-15.15)

21 April: Using gravity in research works and wrap up

Session 7
09.00-12.00 - Consolidation and group exercises

- Group brainstorming on exercises and project ideas

(15 minutes break at around 10:00-10:15)

12:00-13:00:   Lunch Break

Session 8
13.00-17.00 –Working in groups

- Group presentation and comments
- Discussions on project ideas
- The workshop wrap up

(15 minutes break at around 15:00-15.15)