

ARTNeT- GIZ Capacity Building Workshop on Introduction to Gravity Modelling:
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Session 4-5: The benchmark of theoretical gravity models

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Overview of the workshop

Day 1 : Introduction to the gravity approach

- Concepts of traditional gravity models and its problems
- Estimating traditional gravity model in STATA

Day 2 Theoretical Gravity models

- Estimating theoretical gravity models
 - Concepts and the importance
 - Fixed Effect models
 - Baier-Bergstrand approach

Day 3 Consolidation

- Brainstorming on group exercises
- Group presentation and comments
- Wrap-up

Introduction

- The basic gravity model provides a respectable place to start.
- But if we look more closely, we will find that it has some unattractive implications from an economic point of view.
- Doing some theory allows us to reformulate the gravity model in much more attractive way.

$$\ln X_{ij} = b_0 + b_1 \ln(Y_i) + b_2 \ln(Y_j) + b_3 \ln(t_{ij}) + \dots + e_{ij}$$

- Yesterday, we interpreted $b_3 = -1$ as indicating that a 1% increase in bilateral distance (trade cost) is associated with a 1% decrease in bilateral trade.
- In fact, this presents some serious problems in the context of a world with many countries.
- Do trade flows between i and j only depend on bilateral trade costs, without any adjustment for the level of trade costs prevailing on other routes?

Major weaknesses of the basic gravity:

$$\ln X_{ij} = b_0 + b_1 \ln(Y_i) + b_2 \ln(Y_j) + b_3 \ln(t_{ij}) + e_{ij}$$

The basic gravity model cannot handle the facts that:

1. Trade costs of the third party can affect trade between the two partners.
2. Relative trade costs (relative prices, to be exact) matter, not absolute trade costs

A consequence:

- The OLS basic gravity models encounter the omitted variables bias

Ex. trade creation and trade diversion are not captured by the basic gravity model.

The theoretical gravity model

- A number of papers try to lay theoretical foundations to gravity model
- For the starting point, we will focus on Anderson & Van Wincoop (AvW), 2003. “The gravity with gravitas”.
- There are several theoretical gravity models developed for particular purposes.
 - Ex. Helpman et.al. (2008), Chaney (2008).
 - Showing complex empirical issues that OLS cannot handle
 - Sources such as the gravity course on Ben Shepherd’s website at <http://www.developing-trade.com/> provide rich details.

AvW (2003)

- The most formal benchmark for theoretical gravity model so far
 - Bringing the gravity model a step closer to GE effects
 - Accounting for “relative price effects” on trade flow

*Things affecting “**relative price**” can influence bilateral trade flow. No matter the “things” happen between the two trading partners or happen with third parties.*

Building gravity on micro-foundation

- Consumers have love of variety preferences with CES structure
- Producers are under monopolistic competition
- Introducing trade costs, and related domestic and foreign prices
- Closing the model with macroeconomic

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_3341

