The gravity models for trade research

ARTNeT-CDRI Capacity Building Workshop

"Gravity Modelling"

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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
- Estimating trade potential in STATA

Day 2 Theoretical Gravity models

- Estimating theoretical gravity models
 - Fixed Effect models
 - Random Effect models
 - Baier-Bergstrand approach
- Often-made mistakes

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 b3 = -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?

The basic gravity model picks up some important empirical regularities, but has been posited without any explicit theoretical foundation.

 If we add in some micro-foundations, hopefully we will be able to derive something that looks a lot like gravity, but deals with the relative cost problem.

Theoretical gravity models

The theoretical gravity model

- A number of papers try to fix those problems by laying 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 <u>http://www.developing-trade.com/</u> 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.

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_4589

