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Session 11 Ex-post FTA-impact analysis

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Outline

- Gravity models for FTA impact assessment
- Trade-creation and trade diversion in gravity models
- Dealing with econometric issues

Gravity models for FTA impact assessment

- The standard theoretical gravity specification includes *exporter-time* and *importer-time* fixed effects, and considers only international trade flows (i.e. for $i \neq j$).
- The basic FTA-gravity model include an FTA dummy

  RTA_{ijt} = 1 if country i and j are in the same FTA at time t, and 0 otherwise.

OLS:

$$\ln X_{ij,t} = \pi_{i,t} + \chi_{j,t} + \beta_1 \ln DIST_{ij} + \beta_2 CNTG_{ij} + \beta_3 LANG_{ij} + \beta_4 CLNY_{ij} + \beta_5 RTA_{ij,t} + \varepsilon_{ij,t}$$

PPML:

$$\ln X_{ij,t} = \exp\left[\pi_{i,t} + \chi_{j,t} + \beta_1 \ln DIST_{ij} + \beta_2 CNTG_{ij} + \beta_3 LANG_{ij} + \beta_4 CLNY_{ij} + \beta_5 RTA_{ij,t}\right] \times \varepsilon_{ij,t}$$

Trade-creation and trade diversion

- Suppose that countries *i* and *j* belong to a common FTA, whereas country *k* does not.

- If, after the FTA's formation, *i* imports more from *j* and less from *k*, trade diversion is likely.
- If, in contrast, country *i* imports more from *j* and *k*, trade creation is likely.

Ex. whether MERCOSUR is trade diverting or trade creating?

- Two dummy variables:
  - *BothinM* = 1 if i and j are both members of MERCOSUR at time t and 0 otherwise
  - *OneinM* = 1 if the importer (i) belongs to MERCOSUR but the exporter (j) does not.

$$\ln X_{ijt} = \beta_0 + \beta_1 I_i + \beta_2 J_{jt} + \beta_3 \ln(\text{dist}_{ij}) + \beta_4 \text{cont}_{ij} + \beta_5 \text{lang}_{ij} + \beta_6 \text{ccol}_{ij} + \beta_7 \text{col}_{ij} + \beta_8 \text{landlock}_{ij} + \\ + \beta_9 \text{OneinM}_{ijt} + \beta_{10} \text{BothinM}_{ijt} + \varepsilon_{ijt} \qquad (3.8)$$

Assuming all RTA coefficients are significant:

β9 > 0 and β10 > 0 implies trade creation.

β9 > 0 and β10 < 0 suggests trade diversion.

Limitations

- FTAs are likely to have reverse causality with trade.
- FTAs may have non-linear and phasing-in effects over time.
- Trade diversion from domestic sales does not capture in the model without domestic trade data
- FTA may be created to serve non-trade goals.

DEALING WITH ECONOMETRIC ISSUES

Addressing potential endogeneity of RTAs

- Following Baier and Bergstrand (2007), the gravity specification is modified to include pair fixed effects (μ_{ij}) in addition to the theoretically-motivated *importer-time* and *exporter-time* fixed effects:

$$X_{ij,t} = \exp\left[\pi_{i,t} + \gamma_{j,t} + \mu_{ij} + \beta_k RTA_{ij,t}\right] \times \varepsilon_{ij,t}$$