Trade Flows and Trade Policy Analysis

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Application of the gravity model: Trade effects of the WTO

- Since 1950, the expansion of world trade has been unprecedented in world history

Annual growth	1870-1913	1950-2005
Exports	3.4%	6.2%
GDP	2.1%	3.8%
Ratio	1870 1913	1950 2005
Trade/GDP	4.6% 7.9%	5.5% 19.4%

The role of the WTO

- 3 reasons for the expansion of world trade

1. Technological changes (lower transport and communication costs)
2. Changes in economic organization (vertical specialization and offshoring)
3. Changes in trade policies

- …But trade liberalization can take place unilaterally, bilaterally, regionally and multilaterally
- What has been the role of the multilateral liberalization fostered by the GATT/WTO?

WTO membership and trade: Rose (2004)

- Rose (2004) used an augmented gravity model to estimate the impact of WTO accession on bilateral trade

- The study covers 178 countries in the period 1948-1999

- The dependent variable is average bilateral exports and imports in real US $ (deflated by the US GDP deflator)

- The estimated gravity model takes the form:

$$\ln(X_{ijt}) = \beta_0 + \beta_1 \ln D_{ij} + \beta_2 \ln(Y_i Y_j)_t + \beta_3 \ln(Y_i Y_j / Pop_i Pop_j)_t$$
$$+ \beta_4 Lang_{ij} + \beta_5 Cont_{ij} + \beta_6 Landl_{ij} + \beta_7 Island_{ij} + \beta_8 \ln(Area_i Area_j)$$
$$+ \beta_9 ComCol_{ij} + \beta_{10} CurCol_{ijt} + \beta_{11} Colony_{ij} + \beta_{12} ComNat_{ij}$$
$$+ \beta_{13} CU_{ijt} + \beta_{14} FTA_{ijt,}$$
$$+ \gamma_1 Bothin_{ijt} + \gamma_2 Onein_{ijt} + \gamma_3 GSP_{ijt}$$
$$+ \Sigma_t \phi_t T_t + \varepsilon_{ijt}$$

WTO membership and trade: Rose (2004)

- Bothin = 1 if both countries are WTO members 0 otherwise
  - Intended to capture trade creation
- Onein = 1 if only one of the two countries in the pair is a WTO member
  - Intended to capture trade diversion
- GSP = 1 if either country was beneficiary of GSP from partner

- Baseline estimation: OLS with year effects, robust standard errors (Table 1)
- Parameters of Interest: γ_1, γ_2, and γ_3

Discussion of Rose (2004) and subsequent literature

- Rose argues that there is no strong evidence that GATT/WTO membership increases a country's trade

- Baseline estimation: $\gamma_1 = -0.04$ is not significant

- Little evidence of trade diversion

- The GSP has a positive and significant effect on trade

- Robust to a number of sensitivity test:
  - Running cross-sectional analysis every 5 years from 1950-95
  - Allowing the effect to change across rounds (Annecy, Torquay, Geneva, Dillon, Kennedy, Tokyo, Uruguay)
  - Allowing the effect to change by region (South Asia, East Asia, Middle East and North Africa, Sub-Saharan Africa, Latin America and the Caribbean), and income class (high, middle low income countries)

Problems with Rose results

1. Between 1950 and 1994, 63 developing countries joined the GATT, BUT they did not have commitments to liberalize their trade regimes

2. A transition period for tariff reduction is generally allowed for

3. In many circumstances, countries benefited already from MFN treatment or preferential tariffs before the accession to GATT/WTO

4. In other cases, acceding countries removed important barriers to trade incompatible with WTO prior to accession

5. Many developing countries are exporters of fuels and minerals, and have a comparative advantage in agriculture. Fuels and minerals always faced low tariffs in developed countries, while Agriculture still remains a highly protected sector