Economic impact of trade law: partial and general equilibrium with structural gravity

Andrew Myburgh\textsuperscript{a} \quad Jordi Paniagua\textsuperscript{b}

\textsuperscript{a}World Bank
\textsuperscript{b}University of Valencia

Economic Analysis of International Commercial Law Reform Project
6th Workshop September 2020, Rome, Italy
The aim of these slides

- Get a taste of an economist’s approach to the *economic analysis of international commercial law reform* for non-economists (open an economist’s seminar room)
  - What is are PE and GE impacts of reforming trade law (commercial dispute settlement) on trade?
    - Partial Equilibrium: Effects on trade flows
    - General Equilibrium: Effects of trade flows on Consumers, Producers & Welfare (GDP)
- Discuss how the EA ICLR framework could be useful for economists
Motivation

UNCTAD & WTO: trade policy analysis


Yoto V. Yotov, Roberta Pirmartini, José-Antonio Monteiro, and Marco Larch
Outline

1 Motivation

2 Background

3 Data & Empirics

4 Results

5 Conclusions
What is International Commercial Arbitration?
Benefits of arbitration
Myburgh & Paniagua (2016, JLE)

- The majority of contracts (80%) that cross borders implement mechanisms to settle disputes through international commercial arbitration.
  - Disputes are adjudicated before private tribunals and the resulting awards are enforced in domestic courts.
- Arbitration provides an effective and predictable dispute settlement mechanism:
  1. Flexible, confidential & final:
     - Award can be executed worldwide
  2. Increases the trust between parties:
     - High cost of engaging in nuisance suits
  3. Reduces the uncertainty of litigation in domestic courts in trade disputes:
     - Choice of law
Background

Trade


FDI

Previous Results boiled down

1. International agreements
   - Ratifying the NY convention on arbitration has increased FDI bilateral flows by 77% and trade flows by 19% (on average)

2. Domestic law reform
   - Implementing UNCITRAL Model Laws (arbitration) has increased FDI flows by 67% and trade flows by 7% (on average)
   - Conciliation model law has a positive but moderate effect on FDI and trade

- Arbitration increases the size of FDI projects, rather than their number
  - The effect is greater for larger projects, distant countries and weaker contractual environments
Our Contributions
Limitations of previous literature and how to overcome it

1. Importer and exporter impact
   - Ratifying the NY convention on arbitration increases intl. trade at the importer (exporter) by 114% (92%) with respect to domestic trade.

2. Effect on consumers & producers
   - Consumer prices have sunk by 3.83%
   - Producers prices have increased by 3.03%

3. Effect on welfare
   - World’s GDP has increased by 6.61%
   - OECD GDP has increased by 5.29%
## The mystery of the shrinking tables

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Notes: Robust standard errors in parentheses, clustered by country pair
Structural Gravity

- Structural gravity is the new “Gold Standard” in gravity models

\[ X_{ij} = T_{ij} \frac{Y_i E_j}{\Pi_i P_j} \]

- \( Y_i \) is the total value of production in i: \( Y_i = X_{ii} + \sum_{j \neq i} X_{ij} \)
- \( E_j \) is the expenditure in country j: \( E_j = X_{jj} + \sum_{j \neq i} X_{ij} \)
- \( \Pi_i \) and \( P_j \) are structural outward and inward multilateral resistance terms (Anderson & van Wincoop, 2003).

- Structural gravity forces account for 100% of variation in product/importer/time and product/exporter/time fixed effects estimated from empirical gravity equations with PPML (Fally 2015)
Trade policy Analysis: Structural Gravity
WTO & UNCTAD Recommendations (Yotov et al., 2016)

- **Recommendation 1:** *Use Panel Data.*
  - Estimation efficiency and pair-fixed-effects methods for endogeneity
- **Recommendation 2:** *Allow for Adjustment in Trade Flows*
  - Adjustment in bilateral trade flows in response to trade policy
- **Recommendation 3:** *Include Intra-national Trade Flows.*
  - Consistency with gravity theory & identification of the effects of bilateral trade policies
  - Identification of the effects of country-specific trade policies
    - The effects on international trade are measured relative to the effects on intra-national trade
- **Recommendation 4:** *Use Directional Time-varying Fixed Effects*
  - Importer-time and exporter-time fixed effects
- **Recommendation 5:** *Employ Country-Pair Fixed Effects*
  - Endogeneity and all time-invariant bilateral trade costs
- **Recommendation 6:** *Estimate Gravity with PPML*
  - Heteroskedasticity, zero trade flows and ensures that the gravity fixed effects are identical to their corresponding structural terms
Identifying country-specific effects in structural gravity

BRDR is a dummy that identifies international FDI (or trade)

\( IQ_{jt} \times BRDR_{ij} \) is not collinear with MRT and can be used to identify the effect of the euro on host countries
- More specifically the effect of the euro on FDI relative to domestic investment
- However not on home and host countries simultaneously
General Equilibrium effects

- GEPPML uses a useful property of PPML (Fally 2105) to recover consumer and producer prices from MRT
  - PPML translate the initial response of factory-gate prices into changes in the gravity fixed effects
  - Endogenizes the value of output to estimate a structural GE gravity counterfactuals
- GEMPPL needs internal trade data (for total output and expenditure)
  - We use international and domestic trade form COMTRADE and UNIDO (WTO website) 1986-2017
GE analysis can be ex-ante or ex-post

1. Examples of ex-ante GE:
   1. Brexit, Catalan independence, “Bring back jobs” policy

2. Examples of ex-post:
   1. Arbitration, Euro
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Robust clustered standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
### Results

#### PE: Trade Effects

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Robust clustered standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
CFL: NY Convention did not exist: GDP change

Myburgh & Paniagua (WB & UV) Economic impact of trade law UNIDROIT, Rome 2020 18 / 24
CFL: NY Convention did not exist: Consumer prices change

Myburgh & Paniagua (WB & UV) Economic impact of trade law UNIDROIT, Rome 2020
CFL: NY Convention did not exist: Consumer prices change
Take-aways (for economists & non-economists)

- Our PE empirical results confirm two important traits:
  1. Arbitration had a positive and significant effect on intl. trade at the country level
- and our GE results:
  1. Arbitration had a significant contribution to economic welfare
  2. Arbitration increased consumer and producer welfare
Take-aways (for non-economists & economists) particularly legal scholars...

- **Challenge:** How to integrate Economic Assessment of International Commercial Law Reform Project “EA ICLR” Framework?
  - Academic economists use models and math because that’s what we know to do
- Help us build better and more realistic models
  - Are the premises accurate? Are critical assumptions unrealistic? Are the conclusions plausible? Is the model too simplistic or over-complicated? Does the underlying model apply to the case in hand? Are the relationships causal?
- Help us access better data
  - Are the data relevant? Are there better data sources?
- The “EA ICLR” Framework can help structure communication between legal and economics scholars
  - Integration with WTO/UN policy assessment standards
Thanks and acknowledgments*

Contact details:

- www.uv.es/jorposo2
- jordi.paniagua@uv.es

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Figure 4.2 Deriving consumer and producer surplus