The Effects of Non-Tariff Measures on Prices, Trade, and Welfare: CGE Implementation of Policy-Based Price Comparisons

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The Effects of Non-Tariff Measures on Prices, Trade, and Welfare: CGE Implementation of Policy-Based Price Comparisons

A roadmap of the presentation

- We construct a policy database of alleged NTMs by product, sector, type, and country imposing them
- Then, we econometrically assign price gaps to them using retail prices, controlling for sector-specific causes of deviations from PPP (approximately, the wholesale-retail margin)
- Then, we simulate their hypothetical elimination in CGE for three sectors (processed foods, apparel, and footwear)
- All of this is done with a 2001 baseline.
- This is work in progress.
Sources of Policy Data

• The USITC NTM Database
  – 3000 + records drawn from EU Market Access Database, USTR National Trade Estimate, WTO Trade Policy Reviews

• UNCTAD TRAINS

• “Complaint reports” vs. self-notification
Contents of the USITC NTM Database
53 countries (including EU), 15 policy categories

- Anticompetitive practices/competition policy
- Corruption
- Customs
- Export policies
- Government procurement
- Import licensing
- Import prohibitions
- Import quotas
- Intellectual property rights (but this probably *lowers*, not *raises* prices)
- Investment
- Sanitary and phytosanitary requirements
- Services
- Standards, testing, certification and labeling
- State trading
- Taxes

*Product, sector, and specific barrier detail is included – see Manifold and Donnelly (2003).*
Econometric Strategy

1. Estimate the tariff equivalent of NTMs for many products and countries.
   - EIU City Data: Retail prices for 160+ products, housing and services, from 123 cities, in 79 countries

2. Use explicit data on NTM incidence.
   - UNCTAD TRAINS (Using WITS)
   - USITC NTM Database
   - Definition used in this exercise: TRAINS 6000 (quantitative restrictions) plus USITC NTM entries for import quotas, bans, non-automatic licensing, VERs, prior authorizations

3. Estimate the tariff equivalent of NTMs directly.
   - Differentiated products model of retail prices
   - Dummy variables capturing NTM incidence
Micro Foundation - Retail Price Equation

\[ P_{i}^{R} = \bar{P} + \mu_i + \sum_{j=1}^{M} \theta_j (C_{Tij} + t_{ij} + r_{ij}) \]  

Where:
- \( P_{i}^{R} \) is retail price in city i
- \( \mu \) are distribution costs in city i
- \( P \) is average "world" price
- \( C \) are transport costs
- \( t \) are specific tariffs
- \( r \) are rents from NTMs
- \( \theta \) is the share of varieties produced by city j

Assumptions: All cities consume all varieties of a good, and the observed retail price is a simple average of all varieties of good x found in retail stores in city i. This price reflects the home country's tariffs, NTMs, local distribution costs, and transport costs.
III. Estimation Method

- Estimate as a panel--cross-country, over cities--using GLS, and country heteroskedasticity correction

- Assume the constant term incorporates the impact of large country trade barriers on smaller countries' prices

- Include SUR correction

- Pool data for like products and include product-specific constants
Estimating equation (pooled by GTAP sector)

\[ P^s_r = a_0' + a_1' \cdot RG_r + a_2' \cdot D_r + \alpha_3 \cdot Z_r + \alpha_4 \cdot \delta_r' \cdot d_r + \alpha_5 \cdot \delta_t' \cdot t_r + a_6' \cdot DUM \cdot NTM \]

- In which \( P \) are the retail prices, \( RG \) are regional-specific fixed effects, \( D \) are specific product dummies, \( Z \) are city-specific variables influencing the markup, \( d \) is distance (remoteness), \( t \) is the ad valorem tariff, and \( DUM \cdot NTM \) indicates that a city is in a particular country having an NTM.
- Log-log GLS with SUR across products/within sectors, correcting for region-specific heteroskedasticity.
- In some cases \( RG \) is used as a proxy for \( DUM \cdot NTM \) when this is necessary to achieve identification of the model.
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Conceptual Framework

• How to introduce NTM into simulation models?
  – Model explicitly (e.g., quantity contraints)
  – Introduce as price wedges or price gaps (NTMs introduce price distortions)

• How to introduce price gaps into simulation model?
  – Tariff equivalent
  – Export tax equivalent
  – Structural frictions

• Choice made on a case by case basis
## Conceptual Framework

<table>
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<tr>
<th>Features</th>
<th>Impact of removal</th>
<th>Examples</th>
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<td><strong>Tariff Equivalent</strong></td>
<td>Economic rents collected as government revenues</td>
<td>Worse terms of trade, Efficiency gains</td>
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<td><strong>Export tax equivalent</strong></td>
<td>Economic rents collected by exporting country</td>
<td>Better terms of trade, Efficiency gains</td>
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<td><strong>Sand in the wheels</strong></td>
<td>No economic rents, all deadweight efficiency losses</td>
<td>Worse terms of trade, Efficiency gains</td>
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Simulated removal of barriers - Highlights

• Global welfare gains from removal of this class of NTMs are about $90 billion, mostly accruing to liberalizers. This is probably low – see last slide

• Biggest gains from regional liberalization by Japan ($37.7 billion) and the EU ($28.7 billion)

• Biggest gains from sectoral liberalization in apparel ($64 billion), misc. machinery and equipment ($11.7 billion), paper and publishing ($5.6 billion) and leather and footwear ($4.6 billion)
Goals of future research

- Cover a wider range of policies – should raise estimate of effects.
- Improve NTM estimates (which are currently unconstrained as to sign) - should raise estimate of effects. Also use multiple years of price data.
- Estimate quantity effects econometrically
- Tailor simulation technique to type of policy – effect uncertain.