Standards and Trade: Empirical Evidence and Case Studies

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Outline and Objectives

- Do standards affect trade?
  - Focus on Bank research – empirical evidence

- Developing country case examples
  - Aflatoxin, pesticides, export success

- Concluding remarks
  - Policy considerations
  - Research ahead
Why Standards Matter

- Benefit of standards
  - Quality, information exchange, technology transfer, health, safety

- Technical regulations as protection
  - Non-transparent rules
  - Import specific testing, certification rules
  - “Domestic” science drives rules
Challenges for Empirical Analysis

- Standards complex and non-transparent
- Scarcity of methodological frameworks
- Data availability
World Bank Research

- Initial work with gravity model approach
- Leverage existing data sets

**Motivation**
- Empirical analysis – standards and trade
- Harmonization a reality?
- Developing country impact – capacity to meet standards, voice in debate
Aflatoxin standards and trade

- Data
  - FAO-WHO survey -- JECFA
  - Trade -- UN COMTRADE
  - 15 importing countries and 31 exporters (1989-99)

- Cereals, Fruits, Vegetables, Edible Nuts

- EU harmonized standard at 2 ppb (2002)
Estimated Relationship between Aflatoxin B1 Standards and Trade Flows

US$ billion

Aflatoxin B1 standard (ppb)
Results

- $670 million loss to Africa - EU standard on aflatoxin (2 ppb)
- Saving 2.3 per billion lives in Europe
- $38 billion gain at Codex (9 ppb)
Pesticide Residue Standards

- 1400 pesticides used world-wide
- Bans on most hazardous (DDT etc)
- Chlorpyrifos pesticide
  - Most widely used on bananas
Context

- Dependency of developing countries on pesticide use
  - 25-30 percent productivity increase

- Health and safety risks
  - On-farm ingestion by workers
  - Environmental discharge of toxic chemicals
  - Dietary intake
Empirical Analysis

- 11 importers and 19 exporters
  - 1997-99

- Chlorpyrifos MRLs for importing countries (EU 0.05 ppm)

- Does regulatory stringency affect trade?
Results

- Ten percent increase in stringency
  - 14.8% decrease in banana imports

- EU (0.05 ppm) vs. U.S. limits (0.1 ppm)
  - US$ 280 mil decline in imports

- Codex standard (2.0 ppm)
  - US$ 900 million increase in exports vs. most stringent
Trade Flows under Different Harmonization Scenarios

Without EU quota
With EU Quota

Pre-Harmonization
0.05 ppm
0.1 ppm
0.5 ppm
2.0 ppm

US$ million

0
200
400
600
800
1000
1200
1400
1600
1800
World Bank TBT Survey

- Investigate impact of standards at the firm level

- Cross country, cross industry statistical analysis

- 619 firms - 17 developing countries in 2002

- Support from U.K. DFID and USAID
Research Questions

- Compliance costs.....
  - Cost of investment (product redesign, plant upgrades, etc.)
  - Recurrent costs (additional labor and other inputs to maintain compliance)

- Impact on exports......
  - Testing procedures
  - Duplication and market diversification
World Bank TBT Database: Selected Results

Firms that Face Foreign Technical Regulations

% of responded firms

Lat. Amer. & Caribbean  South Asia  East Europe  Sub-Saharan Africa

Agriculture  Manufacture
World Bank TBT Database – Factors Important for Export Success in Africa

Share of Firms Reporting the Following Factors Important in Africa

- Freight charges
- Product quality
- Import tariffs
- Low demand
- Access to credit
- Supply of skilled labor

%
World Bank TBT Database – Compliance Costs in Africa

Total Investment Costs to Comply with Standards as a Share in Sales by Country

- Kenya
- South Africa
- Uganda
- All regions

%
Empirical Analysis: Examples

- “The costs of complying with foreign product standards for firms in developing countries”
  Maskus, Otsuki and Wilson (2005)

- “Standards and technical regulations: Do they matter to export success in developing countries?”
  Chen, Otsuki and Wilson (in process)
Chen, Otsuki, Wilson

- Data from World Bank TBT Database
- Estimate impact of standards and technical regulations on firms' export performance
- Do technical requirements affect firms' propensity to export and market diversification?
Chen, Otsuki, Wilson

- **Analytical Framework:**
  - Simple model of a firm’s export decisions considering fixed and variable costs of meeting standards.
  - Estimate marginal effects of technical requirements on firms’ decision to enter export markets with ordered logit model.
Preliminary Findings

- **Standards do affect export share:**
  - Testing procedures reduce export share by 9%
  - Lengthy inspection process reduces export share by 4%

- **Standards do affect market diversification:**
  - Quality standards reduce likelihood of exporting to multiple markets by 13%
  - Testing procedures reduce likelihood of exporting to multiple markets by 3%
  - Standards affect market diversification much more for firms which import inputs.
Policy Considerations

- Continued unilateral regulatory policy – costly
  - Harmonization and convergence a myth?

- Codex and international standards – mandatory
  - Re-negotiate the WTO SPS Agreement

- Mutual Recognition Agreements (MRAs) can expand market access
Research Ahead

- Data needed - time series
- Standards in broader trade cost context
- Dynamic effects of regulatory change
- Consortium – “Global Standards Analysis Project”
Thank You

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