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 and framework
  - Empirical analysis – standards and trade
  - Harmonized vs. non-harmonized standards
  - Developing country impact
Policy Context

- Debate over risk, precaution, trade
  - Food safety, WTO disciplines, use of international standards

- Developing country focus
  - Comparative advantages and interests

- Harmonization of regulation – why not?
Aflatoxin standards and trade

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

- Cereals, Fruits, Vegetables, Edible Nuts

- EU harmonized standard at 2 ppb
Results

- $670 million loss to Africa - EU standard on aflatoxin (2ppb)

- Saving 2.3 per billion lives in Europe

- $38 billion global loss (Europe vs. Codex at 9 ppb)
Estimated Relationship between Aflatoxin B1 Standards and Trade Flow
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?
Trade Flows under Different Harmonization Scenarios

- Without EU quota
- With EU Quota
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$ 3.5 billion increase in exports
World Bank TBT Database

- Investigate impact of technical requirements at the firm level

- Cross country, cross industry statistical analysis

- Survey of 619 firms - 17 developing countries

- Support from U.K. Department for International Development linked to USAID-funded project in Africa
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

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

% of responded firms

- 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
Empirical Analysis: Examples


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

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