

Standards and Trade: Empirical Evidence and Case Studies



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ERS Conference, November 3, 2005



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

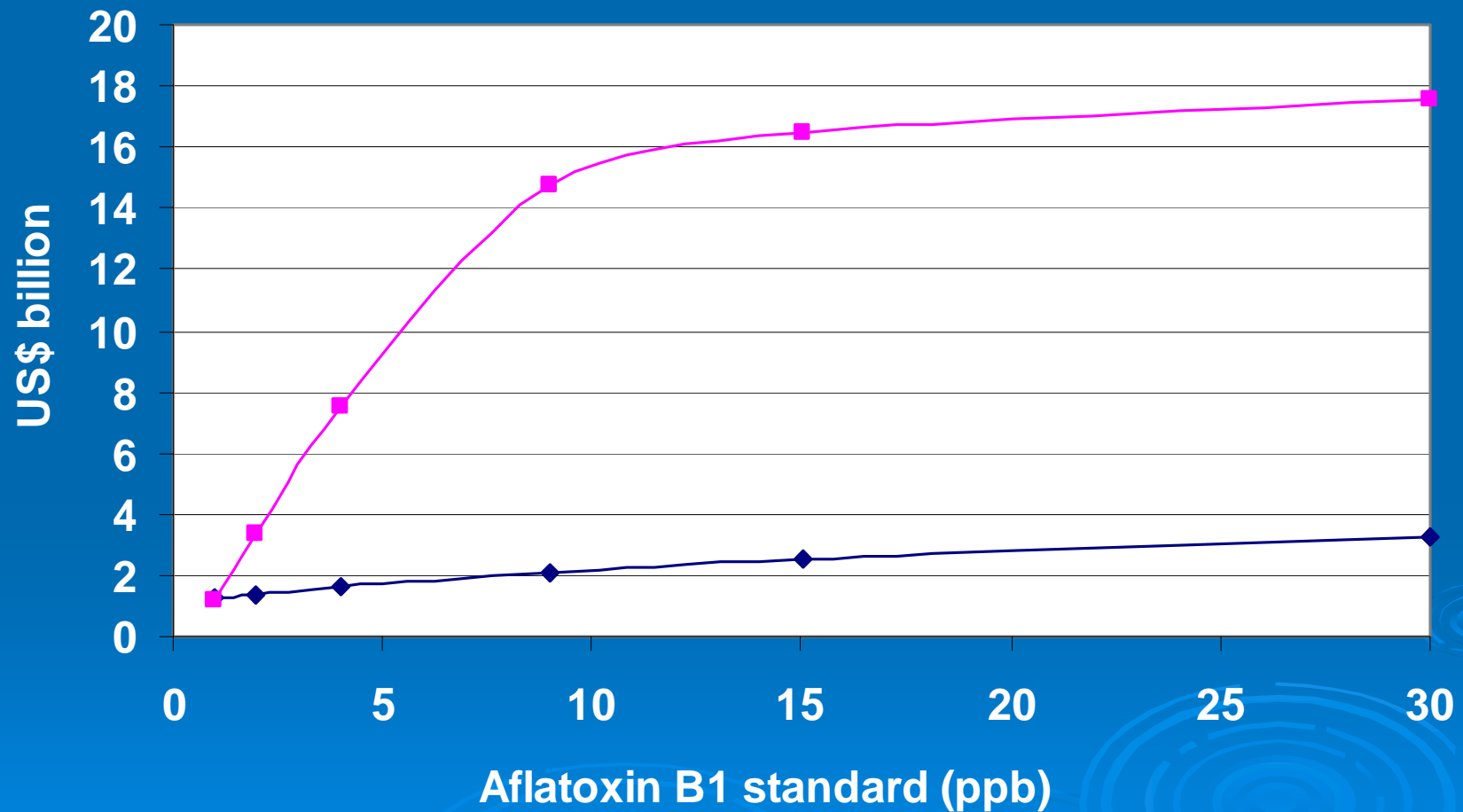
➤ Data

- 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



Results

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

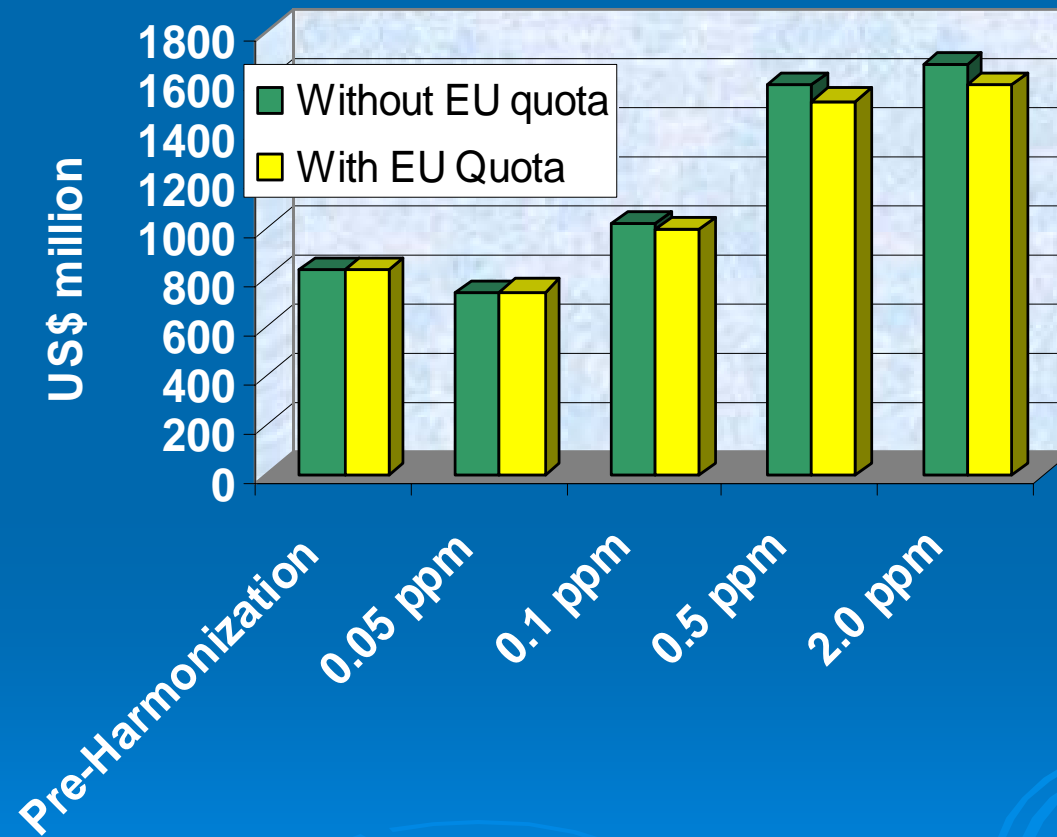
Empirical Analysis

- 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



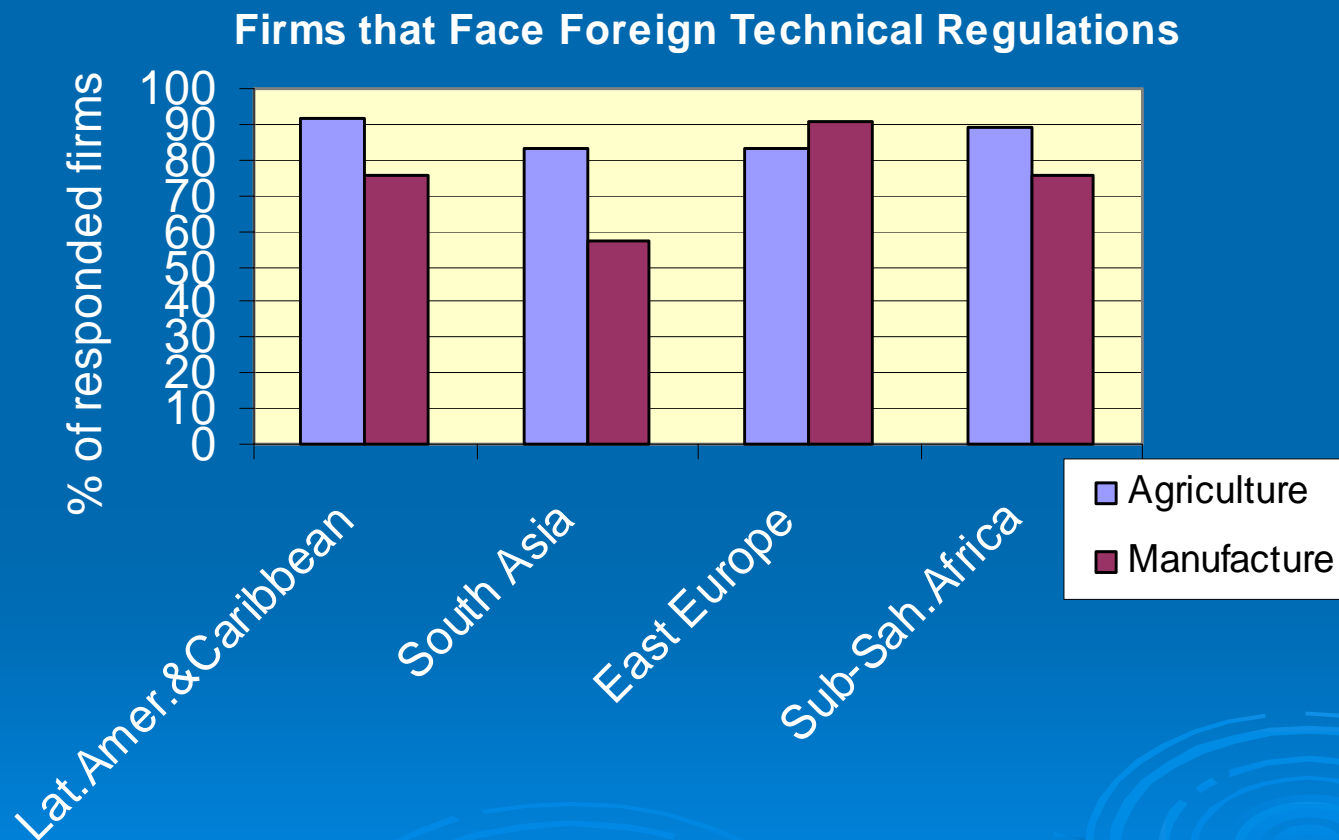
World Bank TBT Survey

- 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

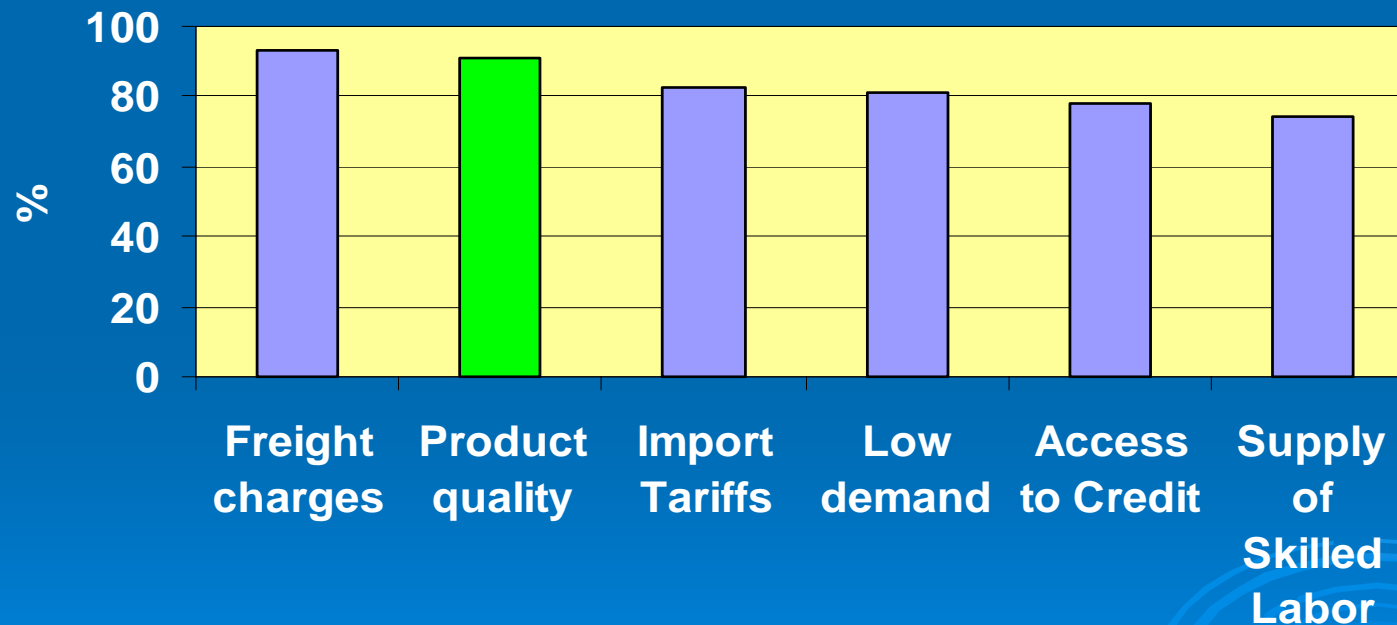
- Compliance costs.....
 - Cost of investment (product redesign, plant upgrades, etc.)
 - Recurrent costs (additional labor and other inputs to maintain compliance)
- Impact on exports.....
 - Testing procedures
 - Duplication and market diversification

World Bank TBT Database: Selected Results



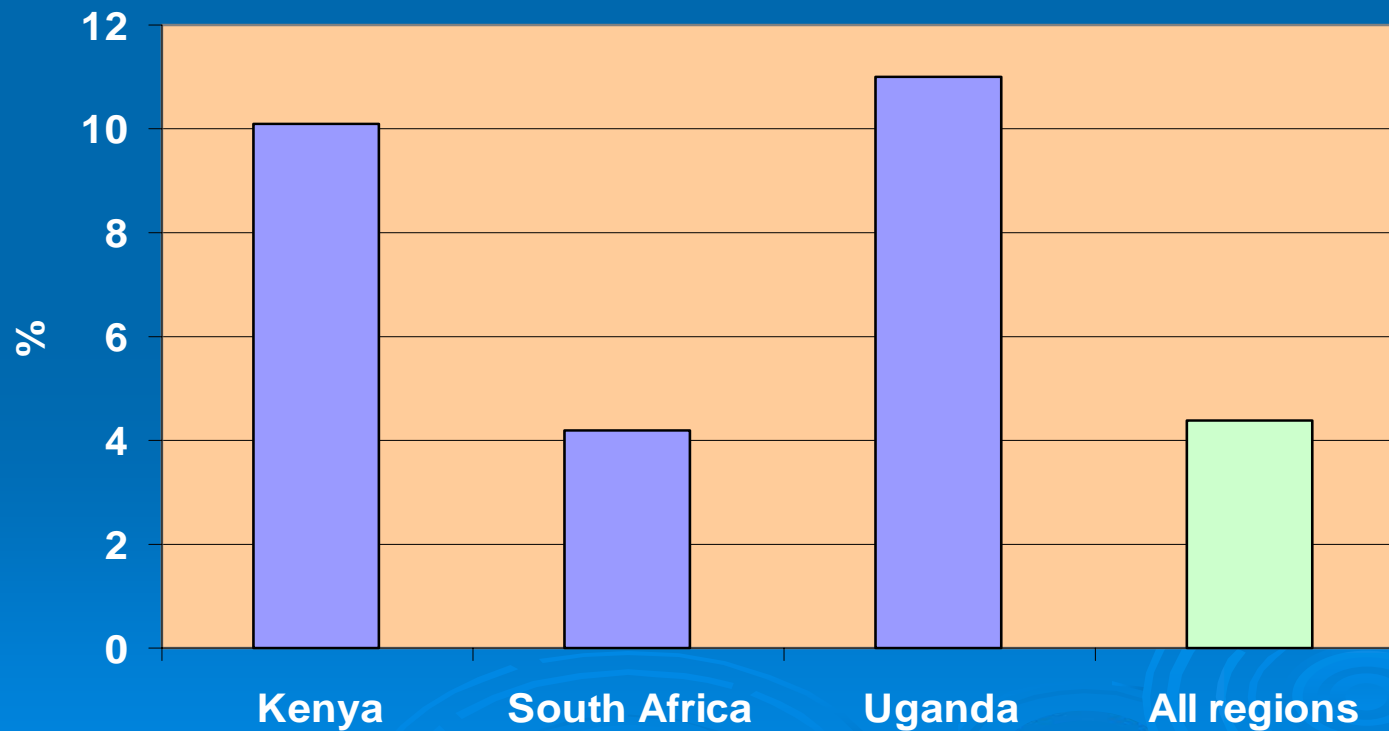
World Bank TBT Database – Factors Important for Export Success in Africa

Share of Firms Reporting the Following Factors Important in Africa



World Bank TBT Database – Compliance Costs in Africa

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



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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www.econ.worldbank.org/projects/trade_costs