

Assessment of technical and sanitary regulations upon poultry trade flows for the EU-27 and Brazil

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OUTLINE

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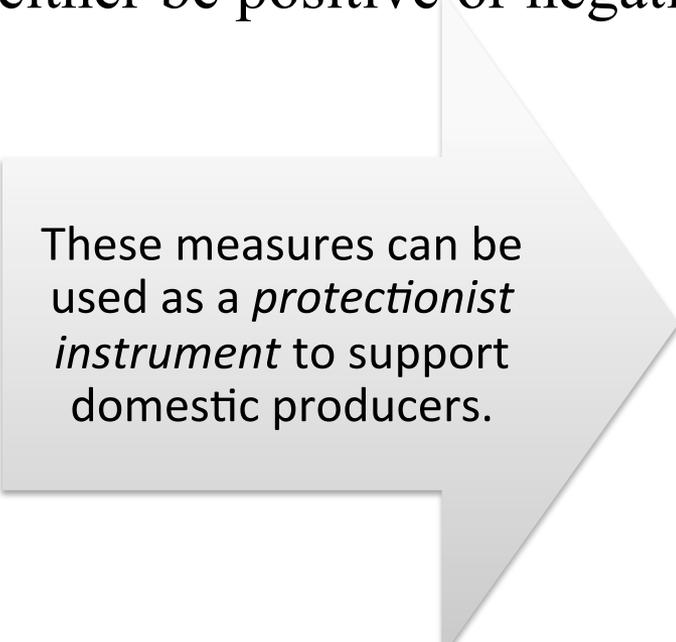
INTRODUCTION

- Exporters are increasingly confronting NTMs in the form of product standards, process and testing requirements, and other technical requirements as they seek to sell their products around the world.

Contrary to what can be expected for tariffs, the resulting **effects of these measures upon trade** can either be positive or negative.



Technical and sanitary measures can be introduced to ensure public goods



These measures can be used as a *protectionist instrument* to support domestic producers.

INTRODUCTION

Theoretical developments show that **net effects of regulatory measures upon trade are not easy to be established *a priori*.**

(Thilmany and Barrett, 1997; Roberts, Orden and Josling, 1999)

These effects **depend on the relative impact upon S&D.**

(Thilmany and Barrett, 1997; Roberts, Orden and Josling, 1999)

Empirical research is required to evaluate the nature of these impacts upon trade.

INTRODUCTION

Governments may impose requirements through technical and sanitary regulations that differ between countries even for similar or same objectives which can result in different impacts upon trade of a certain product (Schlueter, Wieck and Heckelei, 2009).

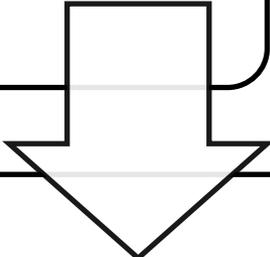
Trade effects vary according to the type of regulatory measures.



There should be advantages for taking these differences into account in an economic analysis of trade impacts.

OBJECTIVES

How do sanitary and technical measures affect access of Brazilian and EU poultry meat to relevant international markets?



The study tests the hypothesis that different types of regulatory measures imposed by a country have different impact on trade.

WHY POULTRY?

The poultry sector:

One of the most dynamic meat sectors through the last decade.

Presenting the largest growth of world consumption and production of all meat categories

Total poultry meat consumption and production increased from 66 million tons in 1999 to 85.6 million tons in 2009

Has been frequently subject to technical and sanitary norms and regulations introduced by governments of several developed and developing countries in economic contexts of market failures.

New requirements may be as diverse as:

Temperature Control;
Regulation for salt content;

Inspections,
Conformity Analysis,
Certifications

Issues related to contamination such
Salmonella spp,
Nitrofurans,
Nitrofurazone

MARKET REVIEW

Figure 1: Poultry exports in 2009, by country (1,000 tons)

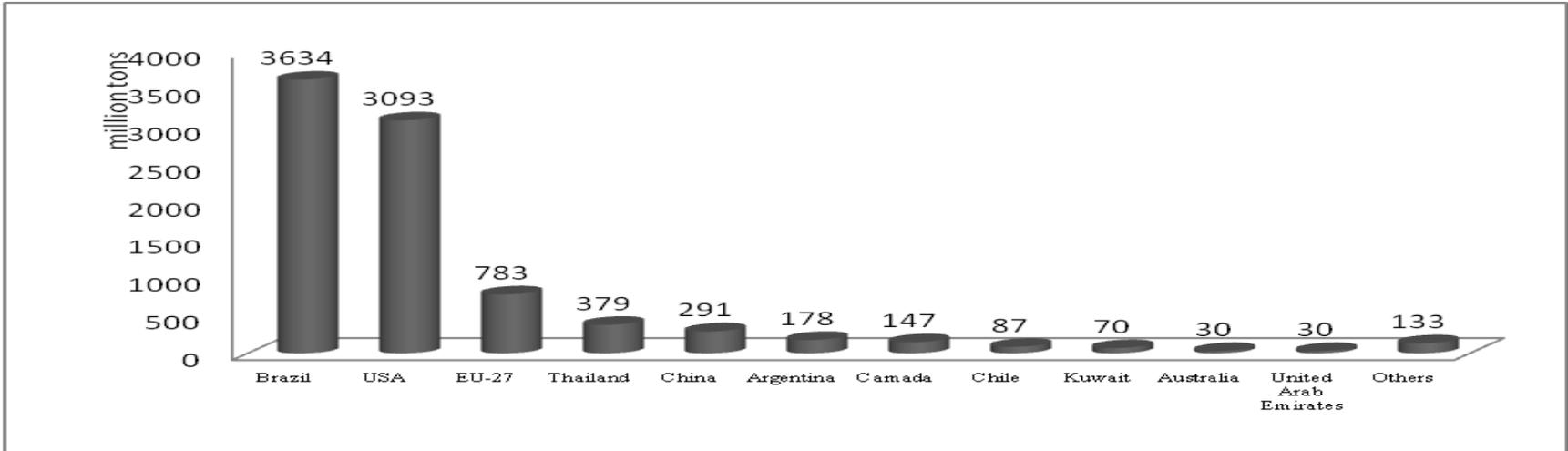
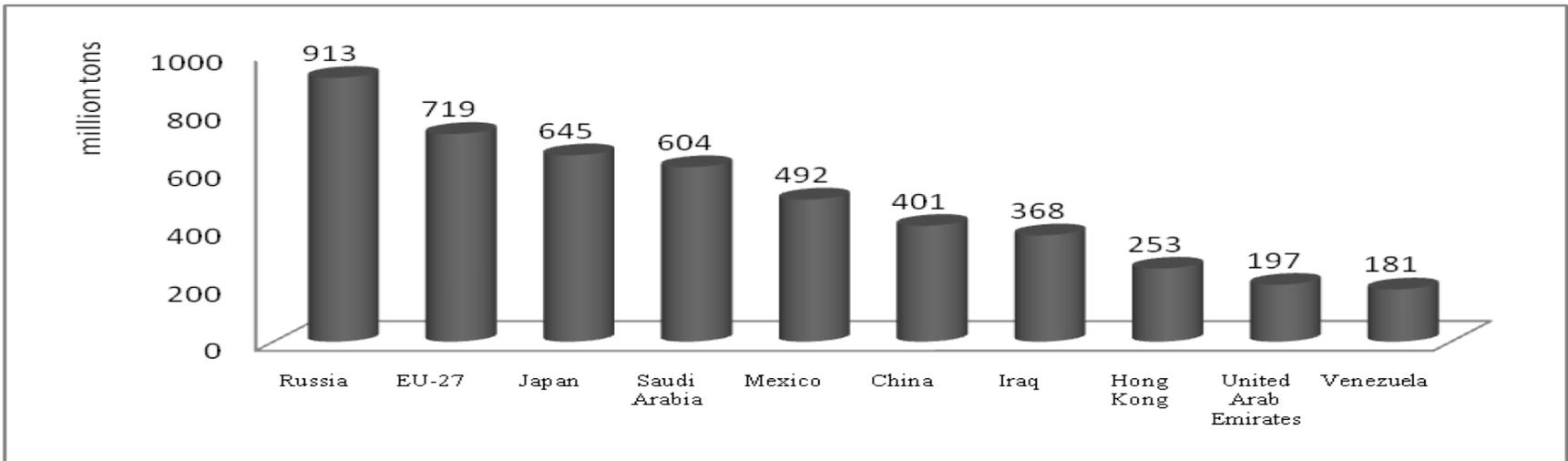


Figure 2: Poultry imports in 2009, by country (1,000 tons)



METHODOLOGY

Empirical approach:

- The methodological approach adopted for this study involves two basic steps:
- First, the sanitary and technical measures are classified and organized.
 - TBT and SPS notifications to the WTO through the period of 1996 to 2009 were classified into five categories: product, process, labeling, conformity assessment and prohibitions/restrictions (according to WITS).
 - These regulations were further organized by trading partner and year for each meat product (at a 6 digit Harmonized System – HS).
- Secondly, an extended form of a gravity model is used to include the sanitary and technical requirements.

METHODOLOGY

Table 5: WITS Classification of SPS and TBT measures, aggregation by Category and dummy variables introduced in the gravity estimation

Category	WITS (2009)	NTM Dummy variables
Business/Firm-level requirements		
Product	A200/B200 – Tolerance limits	Prod: dummy variable that represents specific product requirements
	A410 – Microbiological criteria	
	A700/B500 - GMO	
Process	A420 – Hygiene practices B410 - TBT regulations for process B420 - Transport and storing	Proc: dummy variable introduced to represent processes requirements
	A500 – Treatment to eliminate pests and diseases	
	A600 – Other requirements for products and process	
	A850/B850 – Traceability	
Presentation	A300/B300 Labeling, Marketing and Packaging	Label: dummy variable to represent labeling requirements (presentation)
Conformity Assessment		
Enforcement, controls, and monitoring Laboratories, sampling and analysis and limits	A800/B800 Conformity Assessment	Conf: dummy introduced to represent conformity assessment
Country Requirements		
Official controls in third countries	A100/B100 Prohibitions/Restriction: based on regional issues, eligibly, system approach A860 Quarantine	Prob: dummy introduced to represent country requirements

Codes A and B in WITS classification indicates a measure SPS and TBT, respectively

Source: WITS System; Rau, Shutes e Schlueter (2010)

METHODOLOGY

There are important modifications introduced in the gravity model framework:

1) There are only two sources of exports ($i = \text{Brazil or EU}$).

The set of 29 importer markets is the same for each exporter.

2) The gravity model is estimated using panel data disaggregated by different types of poultry (HS6- digit) – a comprehensive set of commodity fixed effects is specified.

3) Country-pair fixed effects are also included to capture unobserved country heterogeneity such as multilateral resistance (AvW, 2003).

4) To address the problem of “zeros” the model was also estimated by Poisson pseudo-maximum-likelihood (PPML) as introduced by Santos Silva and Tenreyro (2006).

METHODOLOGY

Two product-level gravity equations will be estimated within this framework:

Brazil as exporter

$$X_{BRj,t}^k = \exp\left(\alpha_{BRj} + \theta_k + \beta_1 \ln(Y_{BR,t}) + \beta_2 \ln(Y_{j,t}) + \beta_3 \ln(\tau_{jBR}^k) + \sum_{d=1}^5 \beta_d (NTM_{j,t,d}^k) + \ln \varepsilon_{ij,t}^k\right)$$

EU-27 as exporter

$$X_{EUj,t}^k = \exp\left(\alpha_{EUj} + \theta_k + \beta_1 \ln(Y_{EU,t}) + \beta_2 \ln(Y_{j,t}) + \beta_3 \ln(\tau_{jEU}^k) + \sum_{d=1}^5 \beta_d (NTM_{j,t,d}^k) + \ln \varepsilon_{ij,t}^k\right)$$

Model I includes dummy variables that assume value 1 if there were some regulation (NTMs) imposed by importing countries and 0 otherwise. Since the notifications are considered in an aggregate form, this model will also be referred to as “aggregated” model.

Model II includes five dummy variables ($d = 1$ to 5) defined to indicate the existence of notifications to the WTO (NTMs) related to the different categories chosen for classification.

RESULTS

Table 6 – Results of the Gravity Equation – Model I and Model II

Variables	Fixed effects (FE) PPML			
	EU		Brazil	
	Model I	Model II	Model I	Model II
$\ln Y_i$	1.227 ^{NS} (0.851)	1.552 ^{NS} (1.033)	1.090* (0.208)	0.739* (0.293)
$\ln Y_i$	0.159 ^{NS} (0.813)	-0.066 ^{NS} (0.880)	1.708*** (1.040)	1.910** (0.944)
$\ln \text{tarif}_i$	-0.882* (0.306)	-0.923* (0.320)	-2.046 ^{NS} (2.597)	-1.962 ^{NS} (2.679)
NTM	0.085 ^{NS} (0.270)		0.319* (0.110)	
Prod_i		-0.522 ^{NS} (0.597)		0.476* (0.156)
Proc_i		0.124 ^{NS} (0.530)		-0.157 ^{NS} (0.145)
Lab_i		0.873* (0.264)		0.419*** (0.260)
Conf_i		-0.709 ^{NS} (0.486)		-0.487** (0.207)
Prob_i		0.054 ^{NS} (0.305)		0.868* (0.197)
Control variables				
Groups	Yes	Yes	Yes	Yes
dummy-product (06)	Yes	Yes	Yes	Yes

* significant at a 1%; ** significant at 5%; *** significant at 10%.

Source: Research results

RESULTS

EU:

- Tariffs seem relevant in both specifications.
- NTMs: Positive and significant effects of **labeling (Lab)**.

Brazil:

- When NTMs are aggregated into categories, the adjustment is improved: 4 out of 5 NTM coefficients are statistically significant.
- The hypothesis that categories of regulations can present dissimilar impacts upon exports is confirmed.
 - Positive and significant effects: **product characteristics (Prod), labeling (Lab) and prohibitions/restrictions (Prob e.g. trade bans;)**
 - Negative and significant effects: Regulations for **conformity assessment (conf)**

RESULTS

Brazil:

- . Tariff measures were also non-significant.
- . Prohibitions/restrictions: unexpected positive sign – possible explanation: Brazil was not affected by some disease (e.g.: avian influenza) when these occurred in a worldwide context, → Brazilian's share in the poultry market actually increased.

CONCLUDING REMARKS

The quantitative analysis applied to poultry exports provides evidence to support the theoretical proposition that technical and sanitary regulations can either be positive, facilitating trade, or negative, when the requirement has potential to disrupt trade such as a trade barrier.

- These results show the importance of a detailed representation of the regulatory framework to generate understandable estimates of their potential impact upon trade;
- The estimated results suggest that for the period of the analysis, technical and sanitary requirements stimulated poultry meat exports from Brazil and extra-EU-bloc exports to major importing markets.
- However, the magnitude and significance of the estimated coefficients suggest that EU exports have been relatively more affected by tariffs than regulations while the opposite applies to Brazilian exports.

CONCLUDING REMARKS

The EU results suggest that the standards reached through harmonization efforts necessary to consolidate intra-EU poultry meat markets have been sufficiently high to comply with requirements introduced by the importing markets from outside the EU bloc.

The requirements associated with labeling seem to have a positive impact upon poultry meat trade, both for Brazilian and extra-EU exports. This result confirms the proposition that food labels are an essential source of information for consumers.



Thank you

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