

Product Standards and Margins of Trade: Firm Level Evidence

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Motivation

Research questions:



Motivation

- NTMs may represent a fixed cost (e.g. product adaptation)
 - Increases cost of entry
 - Less productive firms may be driven out of the export market
 - Large firms may see their market share increased ceteris paribus.
- Or a variable costs (e.g. systematic inspection of shipments)
 - Affect domestic and foreign producers differently.
 - Affect equally exporters of different size.
 - Affect less exporters of high-quality products.
- Heterogeneous exporters face shock to NTM-related fixed and variable costs differently

Motivation

- Limited empirical evidence on firm level effect of NTMs

Motivation

- Direct measures of NTMs:
 - **Comprehensive list of measures** (de jure) imposed by countries at product level.
 - TRAINS (notifications)
 - Perinorm
 - **Surveys** on the *perception* by exporters of obstacles on foreign markets (ITC).
- But
- Comprehensive list of all measures in force mixes up trade affecting and un-affecting measures. Subject to non-notification or irregular update.
- Surveys are very informative but cannot be considered a systematic record of all binding measures. Subject to the perception of the interviewees.

STCs as proxy for NTMs

- Former problems can be solved by restricting the analysis to the **subset of regulatory measures that are considered as sizeable barriers by exporters**
- So we focus on Specific Trade Concerns (STC)
 - Affected exporters manage to incentive their origin country to bring the case to Geneva.
 - Country raises a concern in SPS committee of the WTO.
 - Forum to discuss issues related to an SPS measure taken by other memb

STCs as proxy for NTMs: examples

- EU - USA concern: discrimination across firms
Raised in 1998 by the EU against USA requirements on refrigeration and labeling only for production units of more than 3000 hens.
- Not only Agri-food: EU - China case on cosmetics
Concern raised in June 2002 by the EU against China.
EU noticed that China had imposed (in March 2002) import restrictions on cosmetics (containing ingredients of bovine or ovine origin) from 18 exporting countries.
Justification: to prevent introducing BSE (Bovine Spongiform Encephalopathy) into China.
Discriminatory: did not apply in the same manner to all countries where identical sanitary conditions prevailed.

What we do

- Address trade effect of restrictive product standards on the

What we find

- SPS concerns have a negative effect on the extensive *and* intensive margins of trade.
 - ! cost to entry the foreign market.
 - Exporters upgrade their products (and/or increase their prices)
- Magnitude of effects is policy relevant:
 - At the extensive margin:
 - SPS concern decreases the probability of exporting by 4%.
 - A 10 % increase in the tariff reduces the probability of exporting by 2%.
 - ! SPS concern is equivalent to a 20% increase in the tariff .
 - At the intensive margin:
 - SPS concern reduces export value (for firms staying in the market) by 18%
 - Mean tariff imposed to French exports is 6.4%: a 1 pp increase in tariffs reduces on average exports by 2%
 - ! SPS concern is equivalent to 9 pp increase in the tariff .
- Heterogeneous effect across firms: big players less affected.

Data

- **STCs dataset** concerns raised in the SPS committee at the WTO between 1995-2010. Information covers:
 - Country raising a concern, and country imposing the measure.
 - Product (HS 4-digit) for which the concern is raised.
 - Year in which the concern has been raised at the WTO.
 - Whether and when the concern has been resolved
- 312 concerns related to SPS measures.
- Involving 203 HS 4-digit product lines.
- 89 claiming countries; 58 countries imposing at least one SPS measure.
- 21% of the measures challenged were imposed by the EU (US + Canada 13%; Japan 7.5%).
- Most sensitive industry is Meat and Edible Meat sector. Fresh fruit and vegetables also important.

Data

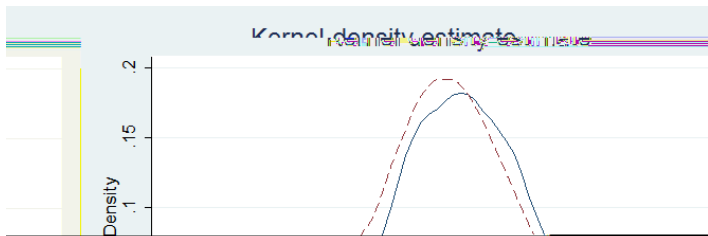
Figure: Number of HS4 lines under STCs by imposing country. Period 1996-2010



Data

Firms' size distribution has a larger mean value for firms exporting in markets subject to SPS concerns

Figure: Firm size distribution in presence/absence of SPS



Empirical Strategy

- A set of dependent variables describing exporters' behaviour.
- Explanatory variables: SPS dummy, firm's characteristics and their interactions, FE.

$$y_{i,s,j,t} = \alpha + \beta_1 SPS_{s,j,t} + \beta_2 X_{i,s,j,t} + \beta_3 (SPS_{s,j,t} \ln(size)_{i,t-1}) + \beta_4 (SPS_{s,j,t} \ln(visibility)_{i,HS2,j,t-1}) + \gamma_{HS2,j,t} + \mu_i + \nu_{i,s,j,t}$$

- where i , s , j and t indicate firm, (HS4) sector, destination country and year.
- SPS: a dummy equal to one if (when) there is an ongoing concern between the EU and country j in sector HS4.

Empirical Strategy: Dependent variable

Dependent variable y is in turn:

- =1 for positive trade flow into a certain product/market combination (extensive margin of trade, or participation);
- =1 if the firm does not export in the current year but exported the year before (market exit);
- Export value (in log) by exporting firm (intensive margin of trade);
- Trade Unit Value (in log) by firm as a proxy for quality or price (pricing strategy)

Empirical Strategy: dealing with omitted variable bias

- Firms0 g6b3(Ft g 0 G0 g 0 G1 0 0 rg 1 0 0 RG0 g 0 G0.0 RGBT/F3t g 0

Empirical Strategy: dealing with endogeneity

Endogeneity

- Omitted variable problem: 3-way FE control for any

Table: Intensive margin estimations

	(1)	(2)	(3)	(4)	(5)
SPS concern	-0.165*** (0.047)	-0.206*** (0.050)	-0.170*** (0.047)	-0.190*** (0.049)	-0.170*** (0.049)
Firm Size *SPS		0.033* (0.017)		0.016 (0.017)	0.015 (0.018)
Firm Size		0.374*** (0.005)		0.257*** (0.004)	0.257*** (0.004)
Firm Visibility *SPS			0.365 (0.413)	0.243 (0.424)	1.178** (0.459)
Firm Visibility			9.960*** (0.040)	9.713*** (0.040)	9.713*** (0.040)

Table: Trade unit value estimations

	(1)	(2)	(3)	(4)	(5)
SPS concern	0.055** (0.026)	0.083*** (0.028)	0.066** (0.026)	0.083*** (0.028)	0.087*** (0.028)
Firm Size *SPS		-0.025*** (0.010)		-0.021** (0.010)	-0.023** (0.010)
Firm Size		-0.008*** (0.003)		-0.003 (0.003)	-0.003 (0.003)
Firm Visibility *SPS			-0.510** (0.233)	-0.389 (0.240)	-0.240 (0.260)
Firm Visibility			-0.375*** (0.023)	-0.372*** (0.023)	-0.373*** (0.023)
Ln(Tari + 1)	-0.404*** (0.023)	-0.403*** (0.023)	-0.405*** (0.023)	-0.405*** (0.023)	-0.406*** (0.023)
Firm FE	yes	yes	yes	yes	yes
HS2-Year-Country FE	yes	yes	yes	yes	yes
Sample	Full	Full	Full	Full	Excluding SPS bans
Observations	1246603	1142191	1142191	1142191	1142065
R-squared	0.804	0.805	0.805	0.805	0.805

Firm Size and Visibility always in lag. Robust standard errors in parentheses.

*** $p < 0,01$; ** $p < 0,05$; * $p < 0,1$.

Table: Robustness check - IV regression (Second stage)

Instrument: concerns within an HS2				
	Intensive margin		Trade unit value	
	(1)	(2)	(3)	(4)
SPS	-0.105 (0.104)	-0.192* (0.102)	0.157** (0.076)	0.175** (0.076)
Size *SPS	0.454*** (0.090)	0.532*** (0.081)	-0.012 (0.049)	-0.02 (0.049)
Size	0.284*** (0.003)	0.214*** (0.003)	0.062*** (0.002)	0.075** (0.002)
Visibility		9.916*** (0.131)		-1.784** (0.072)
Mkt Share		2.538*** (0.050)		-0.492** (0.042)
Ln(Tari + 1)	-0.054 -0.049	-0.058 (0.047)	-0.475*** (0.035)	-0.474** (0.035)
Fixed E ffects:				
Country-Year	yes	yes	yes	yes
HS2-Year	yes	yes	yes	yes
Observations	1142191	1142191	1142191	114219
R-squared	0.107	0.162	0.448	0.40

Firm size and visibility lagged. Robust standard errors in parentheses.

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$;

Thank you !

Results - IV 1st stage

Instrument: connects within an HS?

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Destination Non-EE								
yes	HS2-Non-EE	yes	yes	yes	yes	yes	yes	yes
1.152366	0.2820006	0.2818167	0.2816327	0.2814487	0.2812647	0.2810807	0.2808967	0.2807127