



## **Tariff vs non-tariff barriers in seafood trade**

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**CATPRN workshop,**

**Toronto, May 28, 2011**

# Objective

To explore the effect and the cause of non-tariff barriers

- I) Do non-tariff barriers affect trade?
- II) What is the relationship between tariff and non-tariff barriers?

*Are non-tariff barriers being used as a substitute for tariffs?*

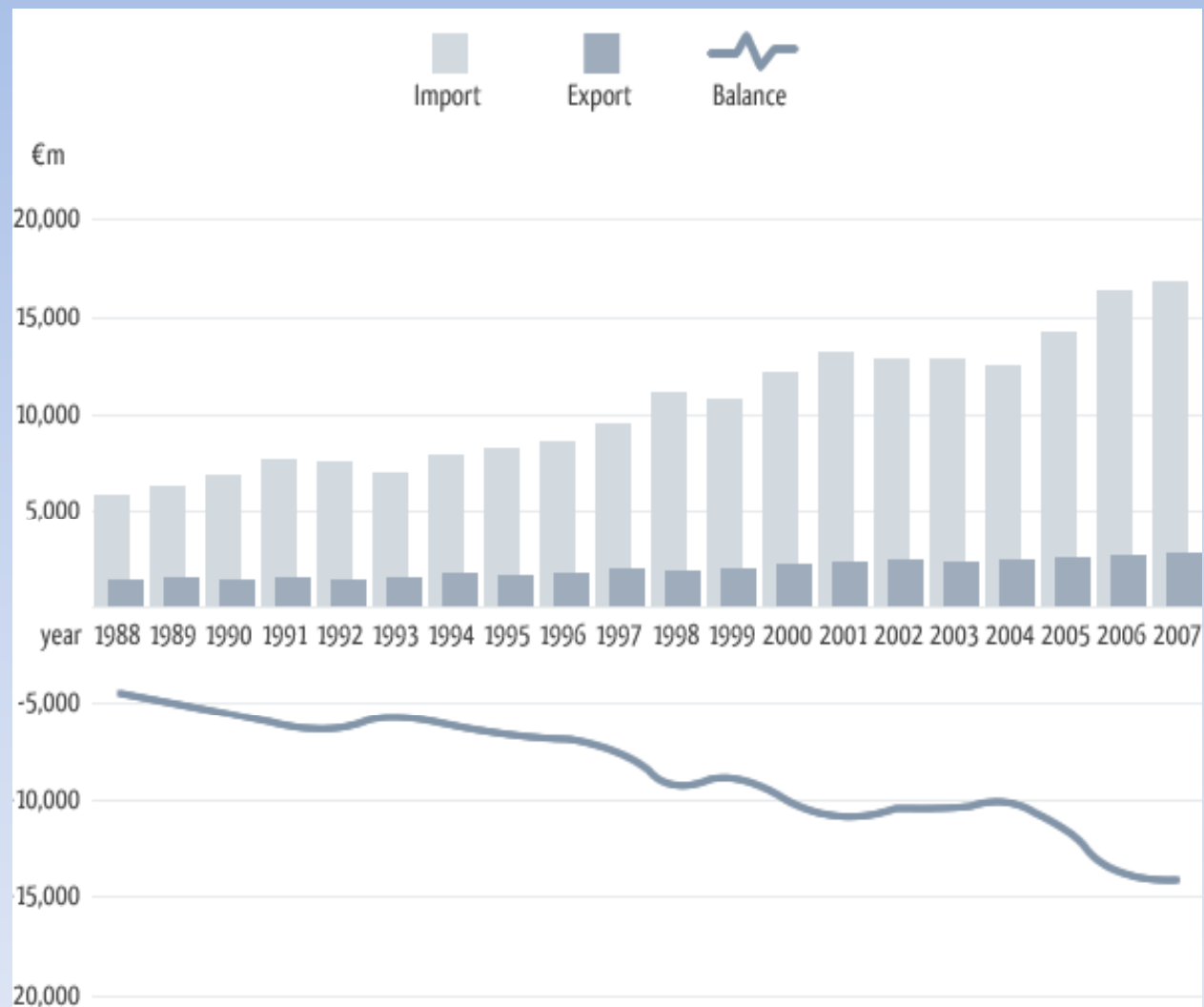


## Some past work on non-tariff barriers in ag

- Calculation and use of non-tariff barriers
  - Beghin and Bureau (2001)
- Standards as barriers versus catalysts
  - Blandford and Fulponi (1999)
  - Swann et al. (1996)
  - Anders and Caswell (2009)
  - Debaere (2005)
- Import refusals
  - Grant and Anders (2010); Baylis, Nogueira and Pace (2010)

***Few papers look at empirical interaction of tariff and non-tariff barriers***

# Why seafood?



- 1988: EU imported €5 billion of seafood
- Grew to €16 billion 10 years later
- The EU is currently one of the largest seafood importers in the world
- Seafood is the most rejected product in the EU

# Rapid Alert System for Food and Feed (RASFF)

- Two Types of Notifications:
  1. Market
  2. Rejection
- Two Types of Market Notifications
  1. Alert
  2. Information
- In 2008, product category with largest percentage of alerts was seafood

# Data

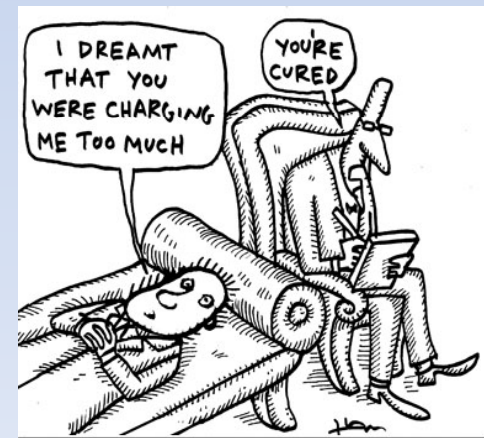
- Annual, 1998 to 2008
- Non-tariff barriers: EU seafood import notifications, coded at 6-digit HS level: (N=4,151) (*European Commission*)
- Global bilateral trade flows: 6-digit HS code (*United Nations COMTRADE database*)
- Tariff rates (WTO Tariff Analysis Online)

## **Data “issues”**

*No quantity of ‘notified’ shipments*

*Descriptions, not HS codes in RASFF*

*Tariff data is spotty*



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# Methods I: Modified Gravity Model

(aka a good time to refresh your coffee)

$$\text{InValue}_{ijt} = \alpha_0 + \alpha_1 \text{totEUref}_{jt} + \alpha_2 \text{InValue}_{ijt-1} + \alpha_3 \text{Tot Exports}_{ijt-1} + \alpha_4 \text{lnGDP}_{ijt} + \alpha_5 \text{ExRate}_{ijt} + \alpha_6 \text{ComLanguage}_{ij} + \alpha_7 \text{lnDistance}_{ij} + \alpha_8 \text{Border}_{ij} + \varepsilon_{ijt}$$

i=importer, j=exporter, t=year

- Estimation: random effects and country fixed effects GLS
- Refusals and lagged trade value may be **endogenous**:
  - Use number of refusals from other exporters in same geographic region of same product in same year.
  - Use second lag of value to instrument for lagged value.
- Only consider exporters x product that have at least one refusal during our period ( $N \cong 207,000$ )

## Results I: Trade Deflection – InValue of trade

Importer in EU		
Variable	Coefficient	St. Error
totEUref <sub>j</sub>	-42.49***	11.21
InValue <sub>ij,t-1</sub>	0.08***	0.003
Tot Exports <sub>ij,t-1</sub>	2.58***	0.73
InGDP <sub>ij</sub>	10.73***	1.62
ExRate <sub>ij</sub>	15.20	12.49
ComLanguage <sub>ij</sub>	2.93	2.20
InDistance <sub>ij</sub>	-4.68**	2.38
Border <sub>ij</sub>	3.96	4.84

Note: asterisks indicate levels of significance: \*\*\* = 1%, \*\*=5%, \*=10%

## Results I: Trade Deflection – InValue of trade

Variable	Importer in EU		Importer not in EU	
	Coefficient	St. Error	Coefficient	St. Error
totEUref <sub>j</sub>	-42.49***	11.21	3.11***	0.76
InValue <sub>ij,t-1</sub>	0.08***	0.003	0.11***	0.003
Tot Exports <sub>ij,t-1</sub>	2.58***	0.73	1.70***	0.37
lnGDP <sub>ij</sub>	10.73***	1.62	3.79***	1.34
ExRate <sub>ij</sub>	15.20	12.49	-0.09*	0.05
ComLanguage <sub>ij</sub>	2.93	2.20	2.20***	0.85
lnDistance <sub>ij</sub>	-4.68**	2.38	-1.75***	0.39
Border <sub>ij</sub>	3.96	4.84	3.40***	1.13

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# Results I Summary

- So EU seafood refusals:
    - Decrease exports to the EU
    - + Increase exports to third countries
  - Standard effect of Gravity Model Variables:
    - + Product of GDP, common language, shared border
    - Distance, devalued import currency
- ➔ NTBs clearly affect trade patterns.  
*Are they being used to protect domestic interests?*

## Methods II: Count model

Count of Notifications (HS6(h) x importer(i) x exporter(j) x year(t))

$$P(\text{EU notification}) = \beta_0 + \beta_1(\text{Risk}) + \beta_2(\text{TradeProtection})$$

$$\text{Risk} = f(X_{jht}, Z_{jt}, D_{ij})$$

$$\text{Trade Protection} = f(T_{ijht}, X_{jht}, Z_{it})$$

X are product characteristics

Z are country characteristics

D is distance

T are tariff rates: possibly **endogenous**. Instrument using trade agreements

- Only consider imports into countries that are or become EU member states ( $N \cong 470,368$ )

# Results II: Count of Notifications - Risk

(many slides with many small numbers)

Variables	Base Model		Importer FE	
	Coeff.	St. Error	Coeff.	St. Error
Lag ln(Quantity)	0.199***	0.00814	0.185***	0.00806
US Refusal	0.000133***	1.26e-05	0.000138***	1.26e-05
US Alert	0.00571***	.000782	0.00578***	0.000792
Export Experience	-3.13e-11***	1.17e-11	-1.70e-11	1.15e-11
New Exporter	0.281	0.188	0.243	0.188
Never Export Product	-0.27	0.169	-0.308*	0.170
Exporter Income	-6.88e-05***	3.72e-06	-7.01e-05***	3.78e-06
Distance	0.000128***	8.14e-06	0.000132***	8.10e-06
Fresh	1.062***	0.0935	1.159***	0.0955
Frozen	0.503***	0.0760	0.545***	0.0766

Note: asterisks indicate levels of significance: \*\*\* = 1%, \*\*=5%, \*=10%



## Results II: Count of Notifications - Protection

Variables	Base Model		Importer FE	
	Coeff.	St. Error	Coeff.	St. Error
Change Tariff (IV)	-0.0727***	0.0275	-0.111***	0.0280
Importer Fish Production	6.11e-06***	1.32e-06	7.38e-06***	1.51e-06
Importer Income	2.87e-06	3.66e-06	5.72e-05 ***	9.71e-06
Import Market Share	0.0439***	0.0112	0.0342***	0.0113
Lag Median Price	-0.00192	0.00929	-0.000522	0.00950
Relative Price	-0.120**	0.0470	-0.111**	0.0458

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# Marginal Effects

Variables	Base Model	Importer FE
Change Tariff (IV)	-0.018	-0.027
Importer Fish Production	0.078	0.095
Import Market Share	0.012	0.009
US Refusal	0.019	0.019
US Alert	0.021	0.021

Mean EU notification = 0.013

# Robustness Tests

- IV current quantity with lagged quantity
- Dynamic model
- Importer, Exporter and product fixed effects
- Average versus maximum tariff rates
- Poisson model

# Discussion

- Non-tariff barriers do deflect trade
- Evidence that notifications are associated with higher risk
- Evidence that notifications are correlated with higher demand for protection

# Implications

(something fishy going on...)

- EU member states may be using non-tariff barriers as a protectionist mechanism (at least as a substitute for tariff barriers)
- WTO requirements for non-tariff barriers are not working as intended
- Need for measures to ensure legitimate **implementation** of standards?

# Questions?

