

8<sup>th</sup> FIW Research Conference 'International Economics'

Friday, December 4, 2015

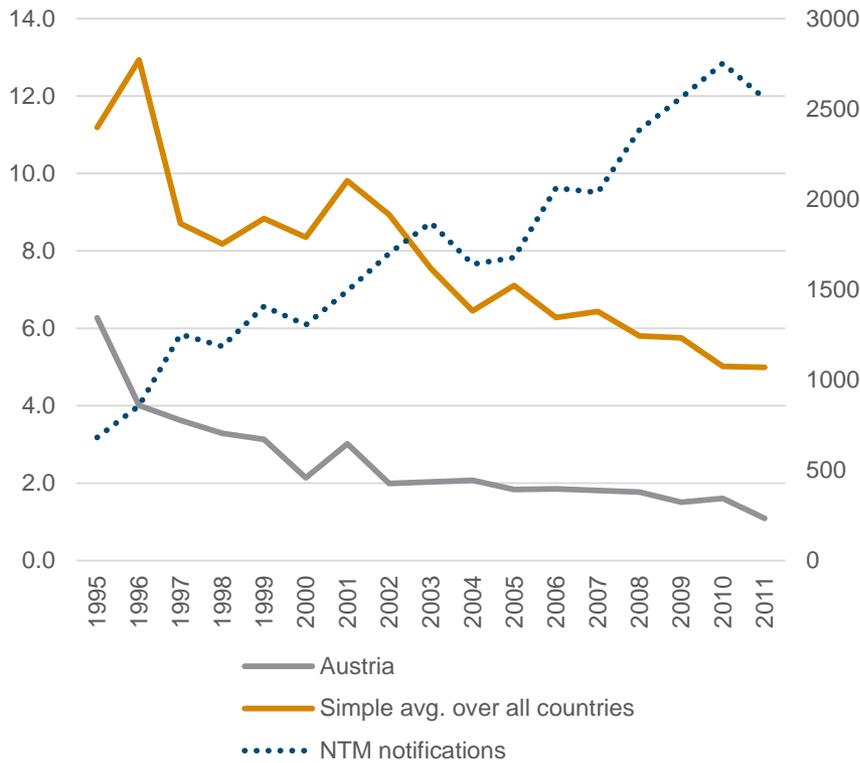
# The Impact of NTMs on Imports

Julia Grübler (with R. Stehrer and M. Ghodsi)

This paper was produced as part of the PRONTO (Productivity, Non-Tariff Measures and Openness) project funded by the European Commission under the 7<sup>th</sup> Framework Programme.

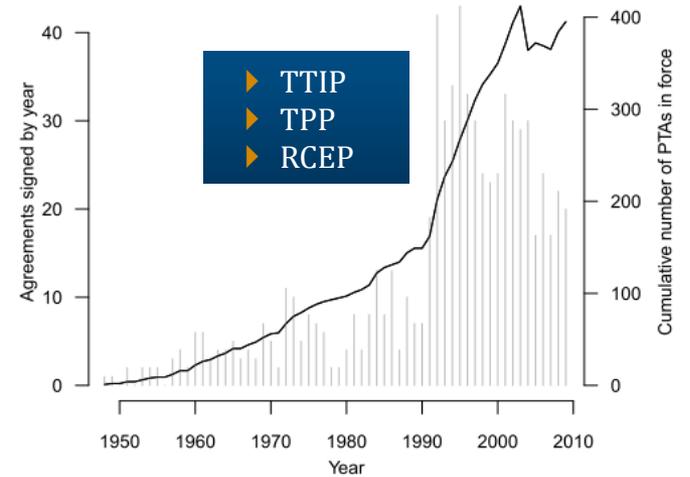
# The Political Economy of NTM use

Tariff rate applied, weighted mean, all products (%)

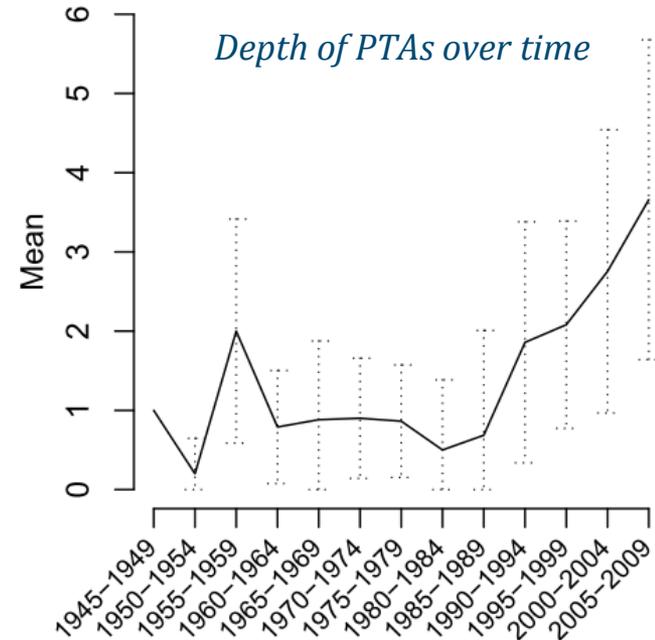


Source: WTO I-TIP (NTM data); World Bank (WITS tariff data); wiiw calculations

Number of PTAs over time



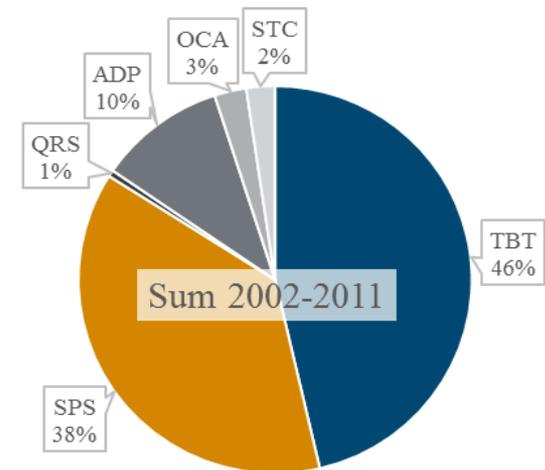
Depth of PTAs over time



Source: Dür et al, 2014

## Non-tariff measures (NTMs)

- 15 out of 16 classifications concern Imports
- thereof 3 are technical in nature:
  - SPS ... sanitary and phytosanitary measures
  - TBT... technical barriers to trade
  - Pre-shipment inspection and other formalities
- thereof 12 are non-technical measures:
  - antidumping (ADP)
  - countervailing Duties (CVD)
  - (special) safeguards (SG)
  - quantity control measures (e.g. quotas, licensing) (QRS)
  - ...



# Ad-valorem equivalents (AVEs) of NTMs

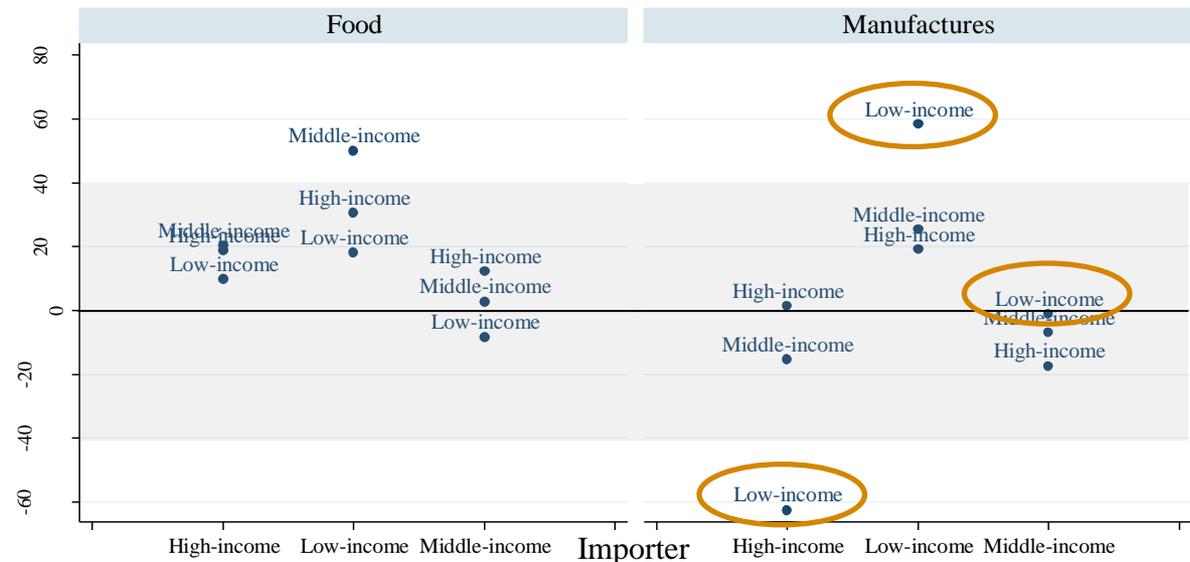
or: How to make NTMs comparable to tariffs

	Price gap method	Indirect Approach
What?	Deriving AVEs from an analysis of the price wedge due to the implementation of NTMs	Deriving AVEs with a Gravity estimation approach from the impact on import quantities and import demand elasticities
Who?	<ul style="list-style-type: none"> <li>• Dean et al., 2009</li> <li>• Nimenya et al., 2012</li> <li>• Cadot and Gourdon, 2015</li> </ul>	<ul style="list-style-type: none"> <li>• Kee et al., 2009</li> <li>• Bratt, 2014</li> <li>• Beghin et al, 2014</li> </ul>
Issues	<ul style="list-style-type: none"> <li>› Necessity to compare different prices along the production and supply chain</li> <li>› Neglect of product quality differences</li> <li>› <b>Data availability restricts to few countries for a small set of products</b></li> </ul>	<ul style="list-style-type: none"> <li>› Based on import demand elasticities, which are themselves estimates</li> <li>› Neglect of product quality differences</li> </ul> <p>✓</p>

## Key reference papers for the Indirect Approach

- Kee et al (2009): *non-tariff barrier*
  - ▶ Ø 27% for agricultural products  
(max: Ø 46% for dairy products + 29% tariffs = 75%)
  - ▶ Ø 10% for manufacturing goods  
(min: Ø 3% for tin and products thereof + 6% tariffs = 9%)
  - ▶ Highest AVEs of NTMs found for Low-Income Countries in Africa  
Highest AVEs of Subsidies found for the EU

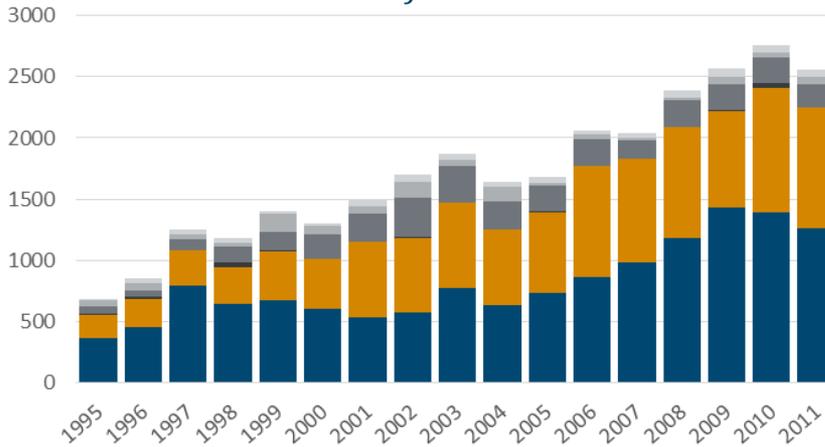
- Bratt (2014):  
*non-tariff measure*



# Evolution of NTMs

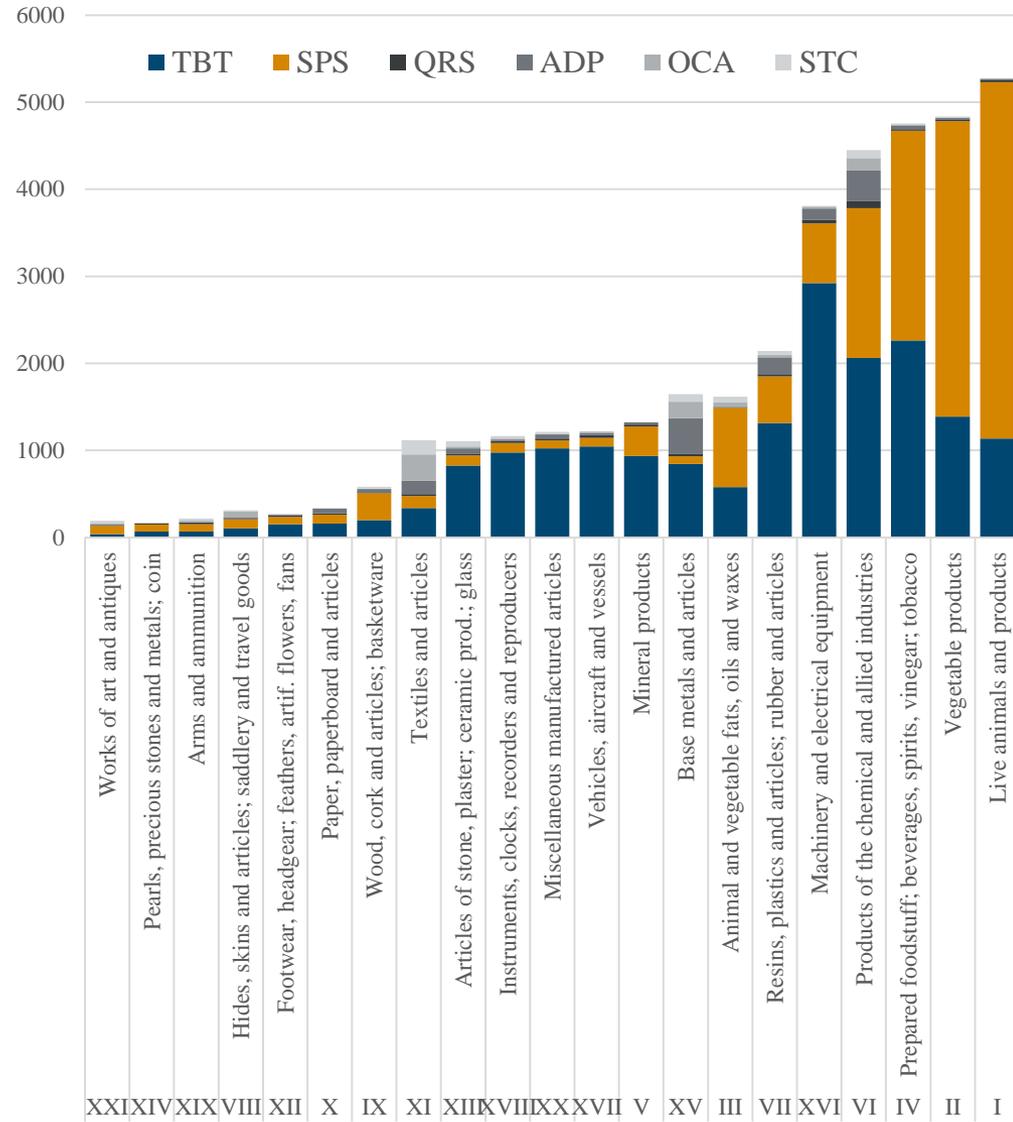
- New data set (WTO I-TIP complemented by Ghodsi et al, 2015)
- Types of NTMs
- Intensity Measure for NTMs
- Using a panel structure

*Annual NTM Notifications to the WTO*



Source: WTO I-TIP; wiiw calculations

*NTM stock in 2011, by NTM type and product group*



# Methodology

- Heckman two-stage estimation procedure

(1)

$$\text{Prob}[m_{ijht} > 0] = \alpha_0h + \alpha_1 \ln(1 + t_{ijht}) + \sum_{n=1}^N \alpha_{2n} NTM_{nijht}$$

$$+ \alpha_3 C_{ijt} + \omega_i + \omega_j + \omega_t + \epsilon_{ijht};$$

$$n \in \{ADP, CVD, SGM, SSG, SPS, STC_{SPS}, TBT, STC_{TBT}, QRS\}$$

(2)

$$\ln(m_{ijht} | m_{ijht} > 0) = \beta_0h + \beta_1 \ln(1 + t_{ijht}) + \sum_{n=1}^{N-1} \beta_{2n} NTM_{nijht} + \sum_{i=1}^I \omega_i * \beta_{2n'i} NTM_{n'ijht}$$

$$+ \beta_3 C_{ijt} + \omega_i + \omega_j + \omega_{ij} + \omega_t + \phi_{ijht} + \mu_{ijht}; \text{ with } n \neq n' \text{ and}$$

$$\forall n, n' \in \{ADP, CVD, SGM, SSG, SPS, STC_{SPS}, TBT, STC_{TBT}, QRS\}$$

- Transformation to AVEs

$$(3) \quad \frac{\partial \ln(m_{iht})}{\partial NTM_{niht}} = \frac{\partial \ln(m_{iht})}{\partial \ln(p_{iht})} \frac{\partial \ln(p_{iht})}{\partial NTM_{niht}} = \epsilon_{ih} AVE_{ih}^n$$

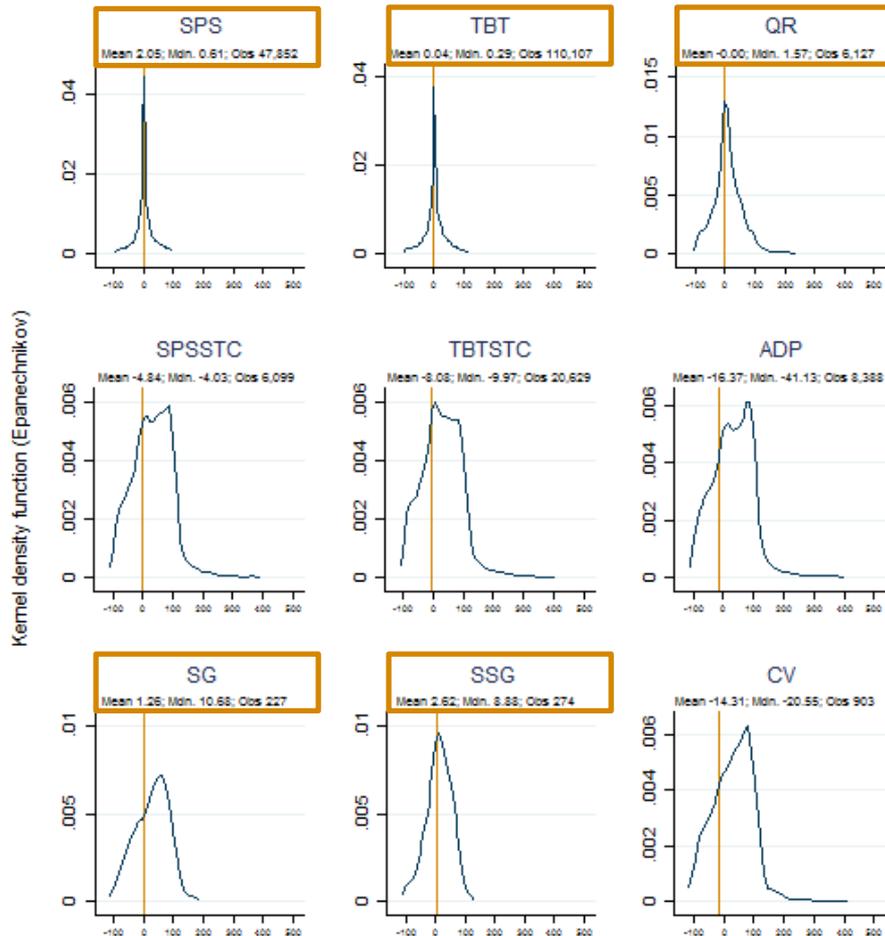
(4)

$$AVE_{ih}^n = \frac{e^{(\beta_{2n'i})} - 1}{\epsilon_{ih}}$$

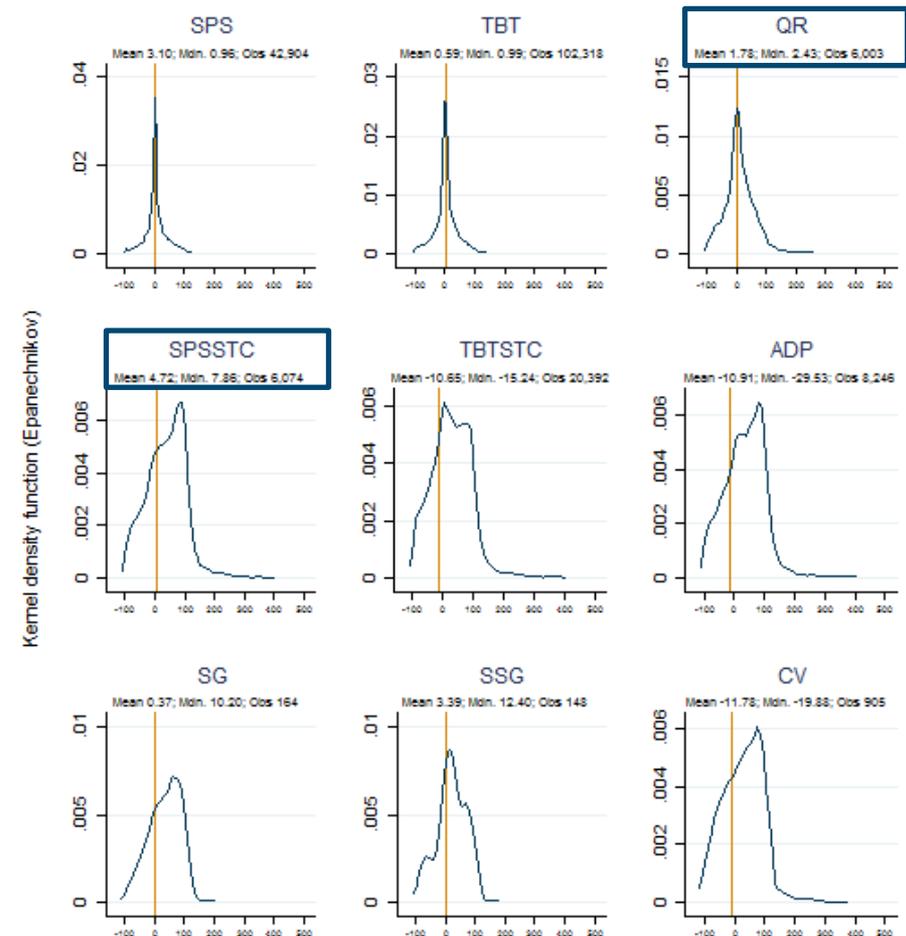
# Distribution of AVEs

over country product pairs, by NTM type

*Total WTO I-TIP sample*



*Excluding intra-EU trade*

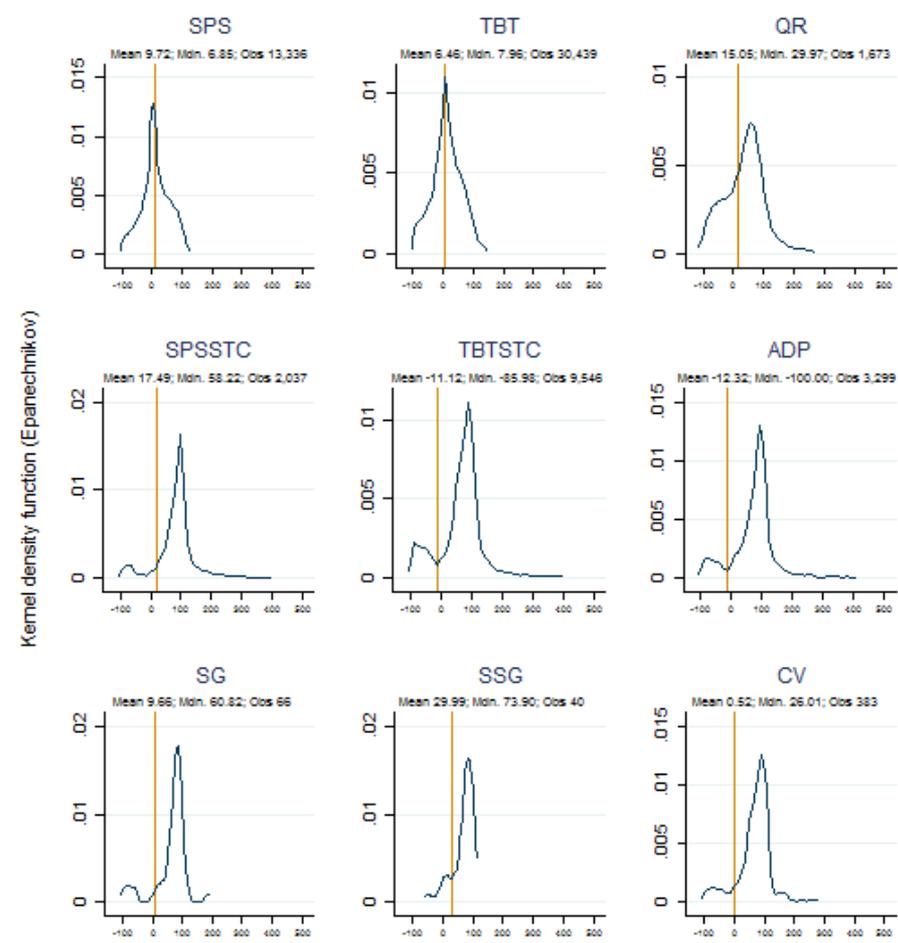
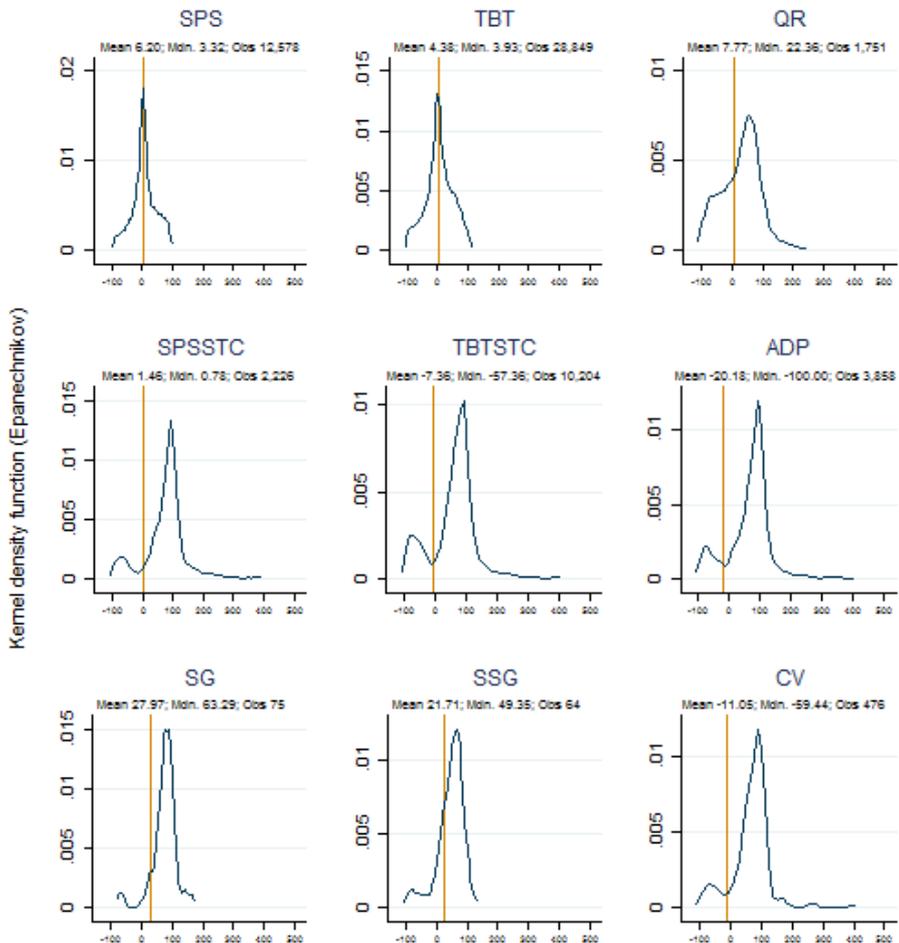


# Distribution of AVEs

over country product pairs, by NTM type, significantly different from zero at 10%

*Total WTO I-TIP sample*

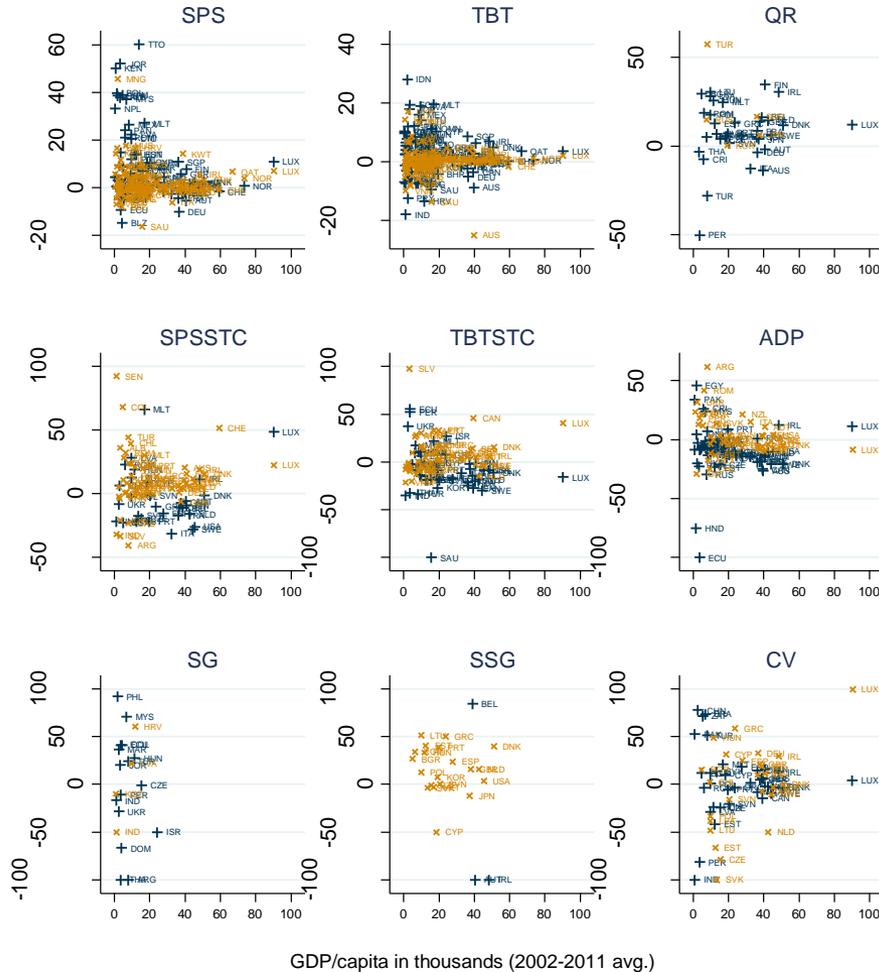
*Excluding intra-EU trade*





# Simple average AVEs

excluding intra-EU trade, **sign. at 10%**



simple averages for the *agri-food* sector and the *manufacturing* sector, plotted against GDP p.c.

Country	SPS	TBT	ADP	OCA	QRS
1 Lithuania	9.2	11.4	-3.1	57.3	30.5
2 Malaysia	5.8	4.6	24.0	70.8	
3 Philippines	2.8	-1.5		91.9	
4 Pakistan		3.5	34.0	52.6	
5 Bulgaria	4.8	6.1	3.6	39.3	29.6
6 Romania	12.7	7.5	10.7	30.5	18.6
7 Hungary	9.3	7.9	-2.4	36.1	25.7
8 South Africa	1.3	-0.1	0.3	71.5	
9 Malta	11.7	15.8	0.0	16.1	24.6
10 China	8.2	3.2	4.2	51.8	
11 Trinidad and Tobago	60.3	5.8	0.0	0.0	
12 Greece	2.8	3.8	-8.1	53.6	13.0
13 Croatia	16.6	-13.5		60.8	
14 Brazil	-1.9	-6.8	-1.2	73.5	
15 Turkey	-0.6	-1.0	7.4	75.7	-18.6
...	...	...	...	...	...
86 Australia	-0.2	-9.2	-3.7	5.6	-13.8
87 Russia			-29.6	0.0	5.8
88 Canada	0.7	-2.3	-10.9	-11.3	
89 Saudi Arabia	-16.3	-11.2		0.0	
90 Austria	-3.2	-0.4	-4.0	-18.6	-1.8
91 Czech Republic	4.6	1.4	-10.7	-31.4	4.0
92 Ukraine	3.6	7.6	-17.3	-28.6	0.0
93 Ecuador	-6.6	18.9	-100.0	41.2	
94 Israel	2.0	4.2	-12.8	-50.0	
95 Dominican Republic	-2.1	-0.8	0.0	-66.7	
96 Honduras	-0.7	2.9	-75.0	0.0	
97 Argentina	-4.5	-6.3	10.3	-100.0	
98 Peru	-0.8	-2.2	-4.0	-51.7	-50.3
99 Thailand	-1.1	-5.9	-22.5	-100.0	-3.3
100 India	-2.0	-13.4	-7.0	-125.0	

simple averages over all products, by country

## Simple average AVEs

excluding intra-EU trade

HS2	SPS	TBT	ADP	OCA	QRS	Product Description
66	1.1	79.3		0.0	59.8	Umbrellas, sun umbrellas, walking-sticks, seat-sti[...]
53	7.3	6.0	98.9	0.0	14.0	Other vegetable textile fibres; paper yarn and wov
40	12.2	0.7	4.3	74.2	1.6	Rubber and articles thereof[...]
90	8.5	0.9	0.0	88.1	-6.3	Optical, photographic, cinematographic, measuring, [...]
69	10.4	-0.1	-7.3	57.7	22.3	Ceramic products.
28	12.8	1.7	-2.0	73.8	-6.0	Inorganic chemicals; organic or inorganic compound
50	13.6	8.6	3.8	0.0	41.9	Silk.
4	1.0	-1.4	-8.2	80.5	-6.9	Dairy produce; birds' eggs; natural honey; edible
82	15.4	3.0	13.0	0.0	33.3	Tools, implements, cutlery, spoons and forks, of b
48	15.3	4.5	6.2	35.2	2.6	Paper and paperboard; articles of paper pulp, of p
...	...	...	...	...	...	...
60	6.7	7.4	-46.2	0.0	0.2	Knitted or crocheted fabrics.
42	3.2	-4.8	-49.8	0.0	17.7	Articles of leather; saddlery and harness; travel
64	11.5	-4.2	-55.4	0.0	5.0	Footwear, gaiters and the like; parts of such arti[...]
13	4.0	-0.4		-48.7	-0.2	Lac; gums, resins and other vegetable saps and ext
29	0.8	0.3	-2.5	-50.0	-4.5	Organic chemicals.
17	-0.5	-0.8	-27.7	-29.2	-3.7	Sugars and sugar confectionery.
54	10.4	7.3	-13.1	-59.2	-7.7	Man-made filaments.
70	17.2	-2.3	-19.2	-80.0	18.1	Glass and glassware.
97	-8.2	-100.0		0.0	0.0	Works of art, collectors' pieces and antiques.
87	5.6	-1.3	-19.3	-100.0	-12.0	Vehicles other than railway or tramway rolling-sto

8<sup>th</sup> FIW Research Conference 'International Economics'

Friday, December 4, 2015

**Thank you!**



## Literature

- Beghin, J., A.-C. Disdier, S. Marette (2014). “Trade Restrictiveness Indices in Presence of externalities: An Application to Non-tariff Measures”, CESifo Working Paper No. 4968, September 2014.
- Bratt, M. (2014). “Estimating the bilateral impact of non-tariff measures (NTMs)”, Working Paper WPS 14-01-1, Université de Genève
- Cadot, O. and J. Gourdon, 2015. "NTMs, Preferential Trade Agreements, and Prices: New evidence," Working Papers 2015-01, CEPII research center.
- Dean, J.M., J. Signoret, R.M. Feinberg, R.D. Ludema, and M.J. Ferrantino (2009). “Estimating the Price Effects of Non-Tariff Barriers”, The B.E. Journal of Economic Analysis & Policy, 9 (1), Art. 12.
- Dür, Andreas, Leonardo Baccini, and Manfred Elsig (2014), “The Design of International Trade Agreements: Introducing a New Database.” Review of International Organizations
- Ghodsi, M., S. Jokubauskaite, and R. Stehrer, (2015) “Non-Tariff Measures and the quality of imported products”, *mimeo*
- Kee, H.L, A. Nicita, und M. Olarreaga (2009). “Estimating Trade Restrictiveness Indices”, The Economic Journal, 119: 172-199
- Nimenya, N., P.-F. Ndimira and B. H. de Frahan (2012). “Tariff equivalents of nontariff measures: the case of European horticultural and fish imports from African countries”, Agricultural Economics, 43: 635-653.
- UNCTAD (2013), „Classification of non-tariff measures.“ February 2012 Version, New York and Geneva. URL: <http://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=299>