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# **Transaction costs and trade liberalization: An empirical perspective from the MERCOSUR agreement**

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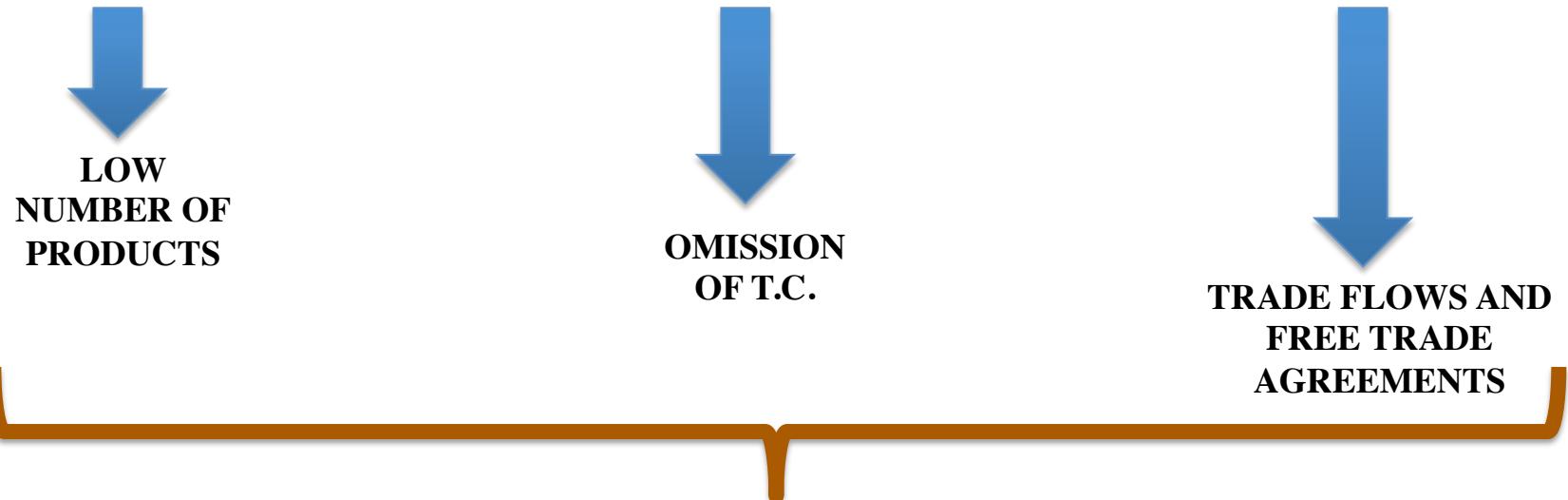
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# T.C. on Agricultural Sector

- Higher Agricultural GDP due to increases on trade flows (Stephens et al., 2012)
- Positive impacts on producer's welfare (Listorti, 2009)
- Increase the tax collection due to a more efficient implementation of trade liberalization policies (Singh, 2008)
- Limits arbitrage between markets (Balcombe, 2007)
- Impact attraction of investments (Gotz, 2012)
- Affects the competitiveness and food security (Cudjoe et al., 2010)

# Literature Gaps on Market Integration



- ✓ BRAZIL HAS BEEN CONSIDERED THE MOST IMPORTANT AGRICULTURAL MARKET IN LATIN AMERICA (FRANCESCHI ET AL., 2009)
- ✓ MAIN TRADE PARTNERS OF BRAZIL BEFORE AND AFTER MERCOSUR (USA AND ARGENTINA RESPECTIVELY)
- ✓ THE PRICE RELATIONSHIP MAINTAINS INDEPENDENTLY THE PAST AND CURRENT TRADING BEHAVIOUR BETWEEN COUNTRIES (KOESTLER, 2001)

# Objectives and Hypotheses

**OBJ.1** To estimate the degree of market integration between Brazil and its most relevant agricultural trade counterparts during the pre- and post-MERCOSUR periods (United States and Argentina, respectively)

**HYP.1** Free trade agreements results in higher market integration

**OBJ.2** To determine the transaction cost level after and before the introduction of MERCOSUR

**HYP.2** Trade liberalization policies reduced transaction costs

**OBJ.3** To analyze whether transaction cost are product specific

**HYP.3** High levels of differentiation decreases transaction cost

# Estimation Strategy 1

## → VARIABLES

- ✧ Top-9 agricultural products imported by Brazil from Argentina and the USA
- ✧ January 1980 to December 2012 → 6244 monthly observations
- ✧ Pre- / Post- MERCOSUR breakpoint → nonparametric method called regularized Bayesian estimator (Greb et al., 2012)

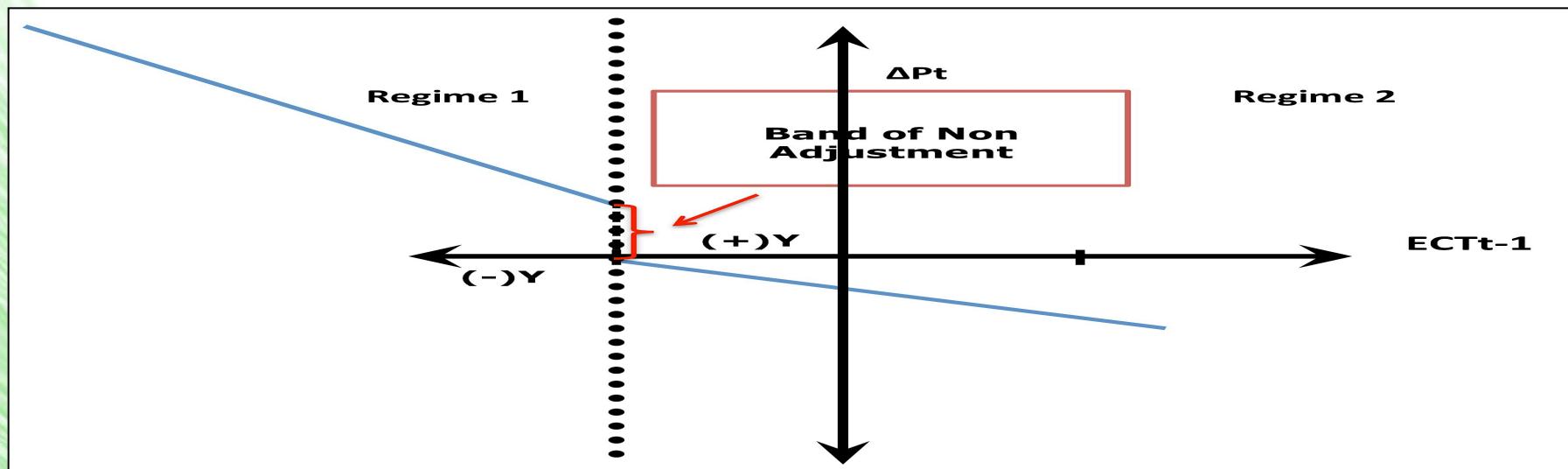
# Estimation Strategy 2

TRADE PARTNERS	DESCRIPTION	VARIABLE	1980-2012 % Share Total Agricultural Imports
ARGENTINA	PAN 10% protein	Pan10	41,5
ARGENTINA	PAN 12 % protein	Pan12	
ARGENTINA	Wheat Flour	Whf	8,5
ARGENTINA	Malt	Mlt	6,1
ARGENTINA	Beans (Kidney and White)	Kwb	3,1
ARGENTINA	Pears Fresh	Pef	2,9
ARGENTINA	Olives	Oli	2,5
ARGENTINA	Barley	Bar	2,2
ARGENTINA	Milk Powders	Mlp	1,9
USA	HRW 11% protein	Hrw11	41,5
USA	SRW 15% protein	Srw13	
USA	Food Preparations	Fop	6,2
USA	Cotton	Cot	4,9
USA	Animal Feed	Anf	3,3
USA	Vegetable Juices	Vgj	2,0
USA	Industrial Alcohols	Ina	1,7
USA	Potatoes	Pot	1,5
USA	Barleys	Bar	2,2

# Estimation Strategy 3

## THRESHOLD VECTOR ERROR CORRECTION MODEL (TVECM)

$$\Delta p_t = \begin{cases} \rho_1 \gamma' p_{t-1} + \theta_1 + \sum_{m=1}^M \theta_{1m} p_{t-m} + \varepsilon_t, & \gamma' p_{t-1} \leq \psi_1, \quad (\text{Regime 1}) \\ \rho_2 \gamma' p_{t-1} + \theta_2 + \sum_{m=1}^M \theta_{2m} p_{t-m} + \varepsilon_t, & \psi_2 < \gamma' p_{t-1} \quad (\text{Regime 2}) \end{cases}$$



# Results 1

## TVECM Parameters: Brazil-Argentina (Breakpoint: 12/96)

Variables	Pre-MERCOSUR			Post-MERCOSUR			<u>% DIFFERENCE</u>
	Threshold Value	P. T.E. (i)	P. T.E. (o)	Threshold Value	P. T.E. (i)	P. T.E. (o)	
	(k1)	( $\Theta_k$ )	( $\Theta_k$ )	(k2)	( $\Theta_k$ )	( $\Theta_k$ )	<u>k1 / k2</u>
Pan10	<b>0.654</b>	<b>0.211</b>	<b>0.221</b>	0.445	<b>0.386</b>	<b>0.441</b>	-32%
Pan 11	<b>0.813</b>	<b>0.311</b>	<b>0.337</b>	0.168	<b>0.247</b>	<b>0.422</b>	-79%
Whf	<b>0.191</b>	<b>0.182</b>	<b>0.265</b>	0.142	<b>0.336</b>	<b>0.572</b>	-26%
Mlt	<b>0.341</b>	<b>0.113</b>	<b>0.252</b>	0.188	<b>0.221</b>	<b>0.327</b>	-45%
Kdb	<b>0.276</b>	<b>0.153</b>	<b>0.353</b>	0.279	<b>0.285</b>	<b>0.339</b>	1%
Pef	<b>0.186</b>	<b>0.174</b>	<b>0.221</b>	0.110	<b>0.215</b>	<b>0.243</b>	-41%
Oli	<b>0.110</b>	<b>0.109</b>	<b>0.231</b>	0.082	<b>0.191</b>	<b>0.854</b>	-25%
Bar	<b>0.223</b>	<b>0.181</b>	<b>0.251</b>	0.215	<b>0.205</b>	<b>0.331</b>	-4%
Mlp	<b>0.196</b>	<b>0.234</b>	<b>0.344</b>	0.221	<b>0.331</b>	<b>0.551</b>	13%

# Results 2

## TVECM Parameters: Brazil-United States (Breakpoint: October/97)

### Pre-MERCOSUR

### Post-MERCOSUR

Variables	Threshold Value	P. T.E. (i) P. T.E. (o)		Threshold Value	P. T.E. (i) P. T.E. (o)		<u>% DIFFERENCE</u>
	(k1)	( $\Theta_k$ )	( $\Theta_k$ )	(k2)	( $\Theta_k$ )	( $\Theta_k$ )	
Hrw12	0.165	0.149	0.388	0.141	0.345	0.523	-15%
Srw15	0.415	0.301	0.167	0.141	0.345	0.523	-61%
Fop	0.310	0.115	0.181	0.295	0.224	0.291	-5%
Cot	0.171	0.122	0.172	0.150	0.286	0.311	-12%
Anf	0.229	0.131	0.228	0.213	0.218	0.211	-7%
Vgj	0.137	0.111	0.146	0.137	0.195	0.773	0%
Ina	0.218	0.086	0.072	0.190	0.092	0.187	-13%
Pot	0.110	0.118	0.297	0.122	0.188	0.299	11%
Bar	0.287	0.222	0.283	0.311	0.311	0.498	8%

# Discussion

- Evidence of an important MERCOSUR effect was found for both country pairs. Threshold values are significantly reduced after the introduction of MERCOSUR. It is clear that there is a wide variation across products
- Overall, threshold value reductions were larger for the Brazil-Argentina than Brazil-USA pair. For the first, the percentual reduction range from (-) 79% for Pan 11 to (-) 4% for Bar, while for the second, its range from (-) 61% for Srw 15 to (-) 15% for Ina
- At individual level, for the case of wheat, for both the reduction of the threshold band was larger for high protein products. This finding suggest that product differentiation effectively plays a role on the transaction cost formation
- MERCOSUR implementation allowed Argentina to more efficiently exploit the potentials the advantages in distance, tariff/non tariffs barriers and cost when compared with USA

# Implications

- ❖ Trade policies negotiations might consider the domestic market structure and products differentiation in order to increase the efficiency of free trade agreements



## Gains from trade

- ❖ Brazil has considerable room to reduce transaction cost thought improvements in infrastructure and market regulations
- ❖ Such actions include developing logistics, transportation and distribution mechanism, enhancing the competition among domestic producers and reducing remaining barriers to external trade

*Thanks for your attention!*