Argentina's import patterns: a first approximation to measure the MERCOSUR effect

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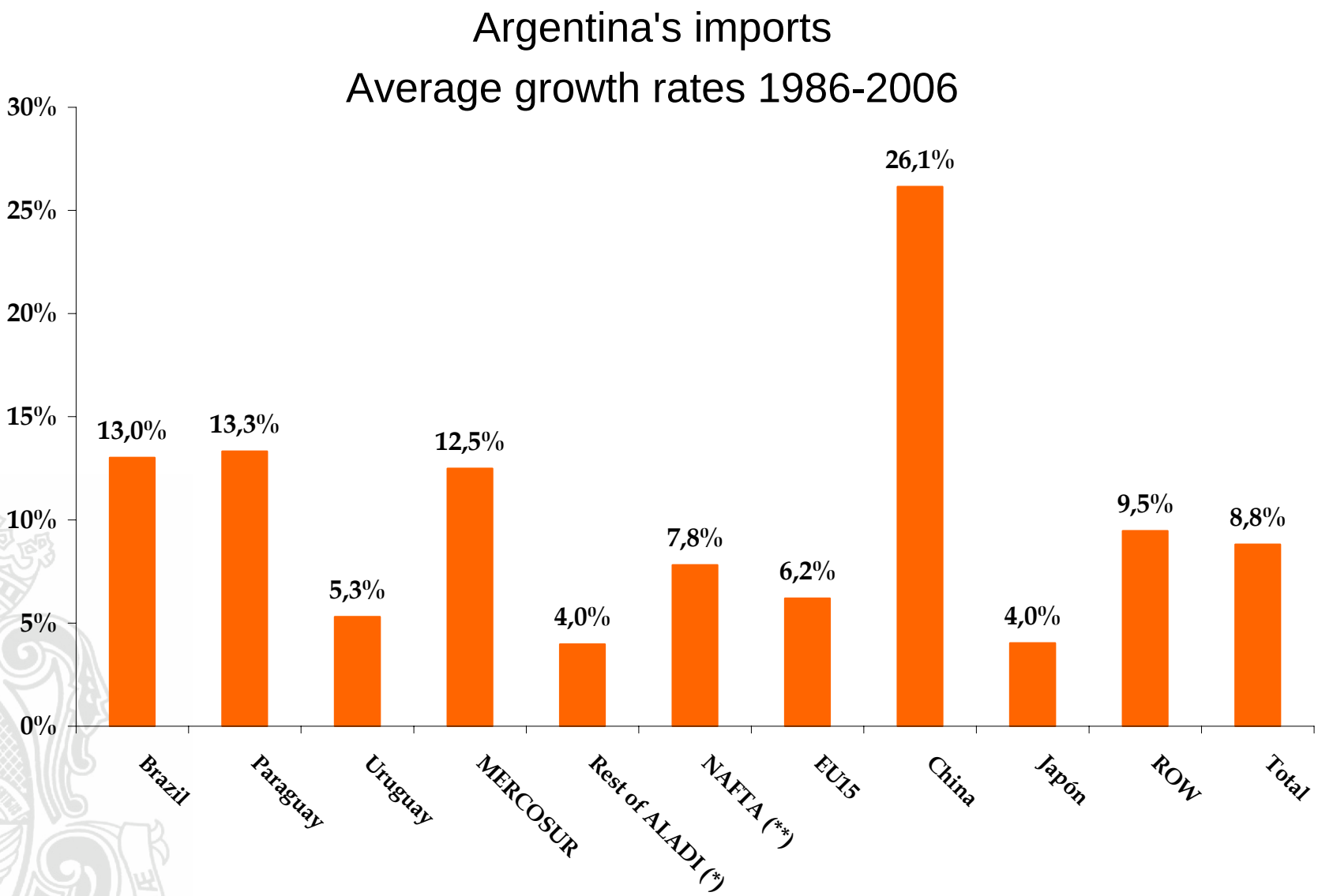
Argentina's imports evolution

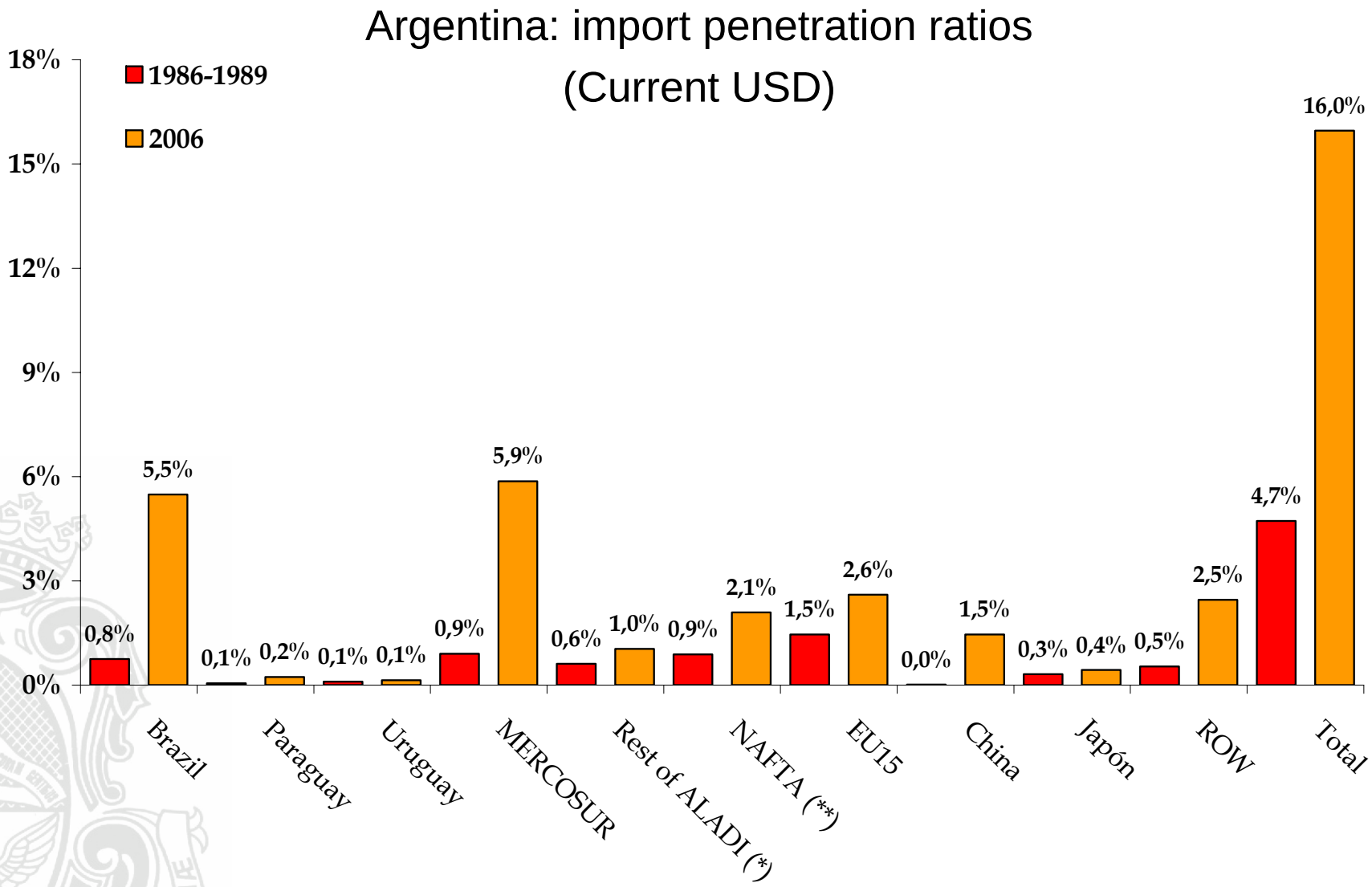
- Since the late 80s Argentina's imports have grown considerably: 8.8% average growth rate between 1986-and 2006

- Intra-MERCOSUR imports have become increasingly more important:
  - Brazil: 13.0% average growth rate
  - Paraguay: 13.3% average growth rate
  - Uruguay: 5.3% average growth rate
  - ROW: 7.9% average growth rate

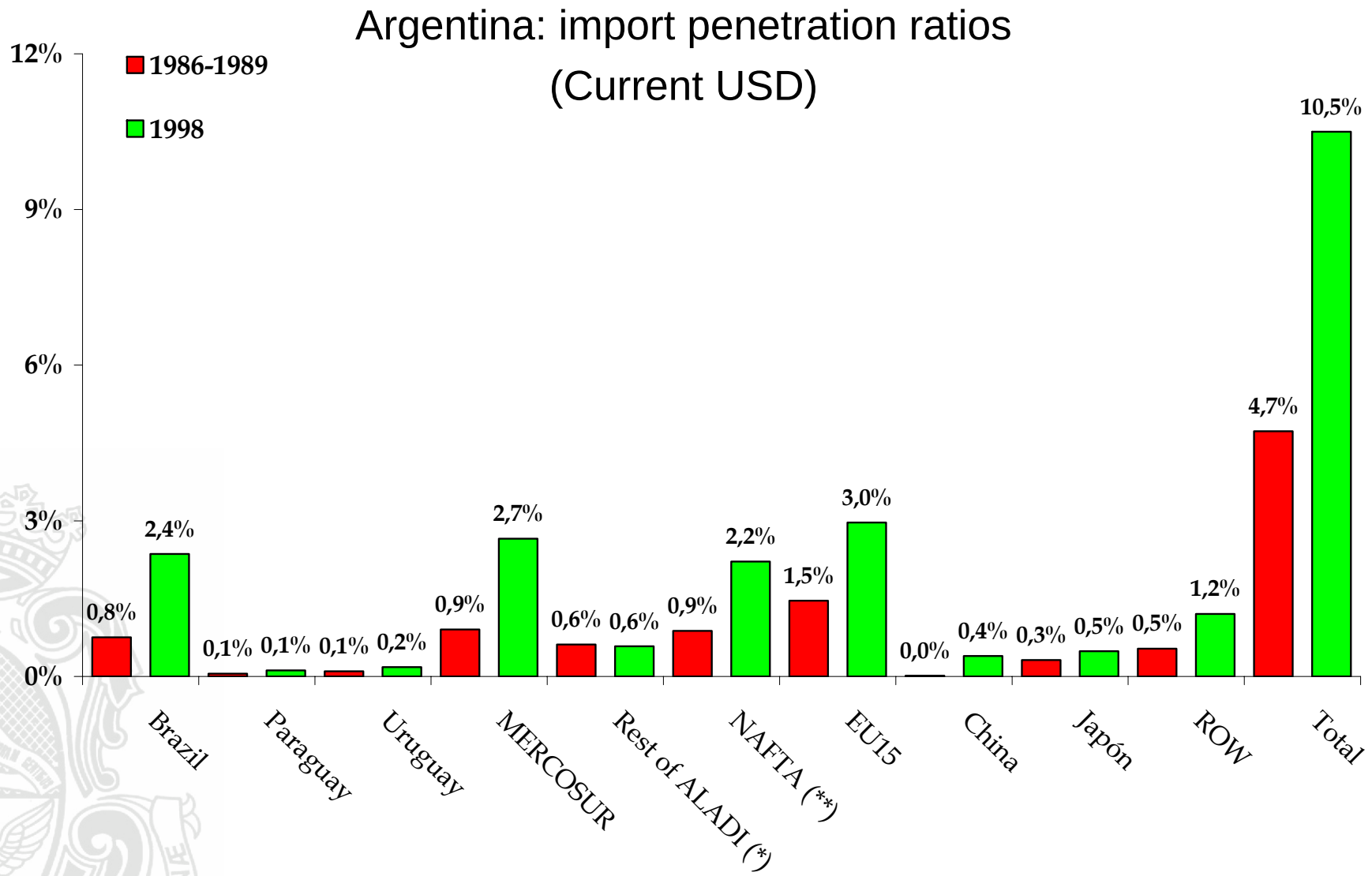
Argentina’s imports evolution



Argentina's imports evolution



Argentina's imports evolution



Are the concerns about trade diversion justified?

- Growth of imports from a given country could be, in part, explained by an increase in this country's share in world trade, and not necessarily the result of trade diversion because of the existence of a preferential treatment (Yeats, 1997)

- Import Intensity Ratios:

$$I_{A,j} = \frac{M_{A,j} / M_{A}}{X_{j} / X_{W}}$$

Are the concerns about trade diversion justified?

Import Intensity Ratios

	1986-1989	1995	2000	2006
Brazil	12.68	21.64	29.04	28.52
Paraguay	51.23	36.66	83.62	88.71
Uruguay	36.00	32.83	45.78	25.49
R. of ALADI (*)	6.13	2.23	1.49	1.73
NAFTA (**)	0.80	1.15	0.84	0.66
EU_15	0.66	0.76	0.64	0.45
China	0.13	1.11	1.27	1.32
Japan	0.92	0.51	0.65	0.54
ROW	0.68	0.44	0.56	0.58

(*) Excludes Cuba; includes México. (**) Excludes México

Are the concerns about trade diversion justified?

- Yeats (1997)
  - Regional Orientation of Exports (ROX)

$$ROX_i^A = \frac{X_i^{A,B} / X^{A,B}}{X_i^{A,0} / X^{A,0}}$$

  - Revealed Comparative Advantages (RCA)

$$RCA_i^A = \frac{X_i^{A,0} / X^{A,0}}{X_i^W / X^W}$$

Are the concerns about trade diversion justified?

- Yeats (1997) (cont.)

> "*… .The implication is that if the MERCOSUR countries had achieved an equivalent degree of liberalization on a non-discriminatory basis they would have maintained a more efficient import structure, paying less and/or obtaining better goods, and they would have purchased more from their trading partners outside the block*".

Are the concerns about trade diversion justified?

- Nagarajan (1998)
  - By focusing only on exports trends one fails to capture the important growth in imports from third-countries that MERCOSUR countries experienced during the same period.
  - Regional Orientation of Imports (ROM)

$$ROM_i^B = \frac{M_i^{B,A} / M^{B,A}}{M_i^{B,0} / M^{B,0}}$$

Are the concerns about trade diversion justified?

- Nagarajan (1998) (cont)
  - "*Empirical researchers who have studied how the direction of trade can affect the pattern of trade have found that, in general, developing countries' exports to other developing countries are more capital-intensive than their exports to industrial countries", whilst their imports from other developing countries tend to be less capital-intensive than their imports from developed countries*".
  - Products showing the largest increases in their regional orientation towards MERCOSUR are goods with high value-added as well as more "traditional" developing countries exports

Are the concerns about trade diversion justified?

- Nagarajan (1998) (cont)
  - In both cases many of these goods were already traded relatively intensively before the countries applied a discriminatory trade liberalisation under the MERCOSUR umbrella.
  - Most products MERCOSUR countries did not show a RCA, the shift of imports towards MERCOSUR was accompanied by a strong growth in imports from third countries, such that the concerns about trade diversion may be exaggerated

The shifting in the regional orientation of Argentina's imports and Brazil's exports

$$ROM_i^{ARG} = \frac{M_i^{ARG,BRA} \Big/ M^{ARG,BRA}}{M_i^{ARG,ROW} \Big/ M^{ARG,ROW}}$$

$$ROX_i^{BRA} = \frac{X_i^{BRA,ARG} \Big/ X^{BRA,ARG}}{X_i^{BRA,ROW} \Big/ X^{BRA,ROW}}$$

$$RCA_i^A = \frac{X_i^{A,0} \Big/ X^{A,0}}{X_i^W \Big/ X^W}$$

$$RCA_i^A = \frac{X_i^A \Big/ X^A}{X_i^W \Big/ X^W}$$

The shifting in the regional orientation of Argentina's imports and Brazil's exports

Sample (*)	Total Imports		Imports from Brazil		Imports from ROW	
	1992	2006	1992	2006	1992	2006
1. All sectors	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2. Most imported between 1992 and 2006 (150)	65.5%	75.4%	70.0%	77.1%	64.5%	73.8%
3. Most imported from Brazil between 1992 and 2006 (150)	55.4%	65.5%	79.7%	85.7%	48.1%	55.1%
4. Most Imported from ROW between 1992 and 2006 (150)	63.6%	70.3%	59.2%	65.1%	68.5%	76.7%
5. Total imports at least 5 millions USD in 1992 and 2005 (372)	88.3%	89.2%	88.2%	91.5%	89.3%	90.2%
6. Imports from Brazil at least 2 millions USD in 1992 and 2006 (1986)	57.0%	59.9%	85.5%	77.2%	48.7%	53.1%
Total imports (thousand USD)	14,861,498	33,915,415	3,337,300	11,750,074	9,882,310	19,119,071

(*) Number of 4-digits sectors inside brackets.

The shifting in the regional orientation of Argentina's imports and Brazil's exports

Changes between 1992 and 2006 in Imports and Regional Orientation Indices

	Sample	Imports from Brazil	Imports from ROW	Argentina: ROM (*)	Brazil: ROX (**)
$\Delta > 0$ (# of 4-digit HS sectors)	1	698	736	463	469
	2	125	119	69	68
	3	135	114	79	79
	4	125	125	62	67
	5	287	261	166	174
	6	161	138	75	85
$\Delta < 0$ (# of 4-digit HS sectors)	1	373	465	553	539
	2	25	30	80	80
	3	15	36	71	71
	4	24	25	87	81
	5	82	111	203	192
	6	25	48	111	101

The shifting in the regional orientation of Argentina's imports and Brazil's exports

Changes between 1992 and 2006 in Imports and Regional Orientation Indices

	Sample	Imports from Brazil	Imports from ROW	Argentina: ROM (*)		Brazil: ROX (**)	
		(1)	(2)	(3)	(4)	(3)	(4)
Δ > 0 (% of samples' imports)	1	77.2%	63.3%	46.7%	69.7%	30.6%	50.1%
	2	85.5%	75.2%	51.0%	71.6%	28.1%	46.4%
	3	84.7%	77.3%	52.1%	71.6%	29.6%	49.1%
	4	86.1%	73.8%	45.5%	68.1%	22.4%	42.1%
	5	83.6%	66.5%	48.4%	70.3%	31.3%	49.0%
	6	83.7%	74.8%	49.9%	66.0%	30.3%	41.7%
Δ < 0 (% of samples' imports)	1	22.6%	36.6%	52.8%	29.4%	68.9%	48.9%
	2	14.5%	24.8%	49.0%	28.1%	71.9%	53.3%
	3	15.3%	22.7%	47.9%	28.4%	70.4%	50.9%
	4	13.9%	26.2%	54.5%	31.9%	77.6%	57.9%
	5	16.4%	33.5%	51.6%	29.7%	68.7%	50.9%
	6	16.3%	25.2%	50.1%	34.0%	69.7%	58.3%

(*) Argentina's ROM towards Brazil. (**) Brazil's ROX towards Argentina. (1) Imports from Brazil in 1992; (2) Imports from ROW in 1992; (3) Imports from Brazil in 1992; (4) Imports from Brazil in 2006.

The shifting in the regional orientation of Argentina's imports and Brazil's exports

Argentina's import and Brazil's exports Regional Orientation

Sample	Δ(ROM)>0 Δ(ROX)>0		Δ(ROM)>0 Δ(ROX)<0		Δ(ROM)>0 Δ(ROX)>0		Δ(ROM)>0 Δ(ROX)<0	
	1992	2006	1992	2006	1992	2006	1992	2006
	Percentage of samples' imports							
	Argentina's imports from Brazil				**Argentina's imports from ROW**			
1	16.8%	39.7%	29.8%	29.7%	29.9%	27.2%	19.9%	12.6%
2	17.7%	39.1%	33.3%	32.5%	32.1%	28.4%	19.6%	13.1%
3	17.6%	39.9%	34.6%	31.8%	37.5%	30.3%	19.6%	10.5%
4	10.6%	33.4%	34.8%	34.6%	31.0%	27.8%	19.2%	12.1%
5	17.5%	39.0%	30.9%	31.1%	30.8%	27.9%	19.9%	12.8%
6	17.1%	30.7%	32.8%	35.3%	22.6%	19.1%	21.4%	12.1%
	Samples' imports: percentage change							
	Argentina's imports from Brazil				**Argentina's imports from ROW**			
1	731%		251%		76%		22%	
2	756%		279%		96%		48%	
3	760%		248%		79%		19%	
4	1118%		286%		94%		37%	
5	716%		267%		77%		25%	
6	470%		242%		79%		19%	

The shifting in the regional orientation of Argentina's imports and Brazil's exports

Argentina's import Regional Orientation and Brazil's Revealed Comparative Advantages

Sample	Δ(ROM)>0, RCA_1992<1 RCA_2006<1		Δ(ROM)>0 RCA_1992>1 RCA_2006>1		Δ(ROM)>0 RCA_1992>1 RCA_2006<1		Δ(ROM)>0 RCA_1992<1 RCA_2006>1	
	1992	2006	1992	2006	1992	2006	1992	2006
				Argentina's imports from Brazil				
				Percentage of samples' imports				
1	18.7%	26.1%	23.1%	28.1%	1.1%	1.0%	3.8%	14.5%
2	21.9%	27.5%	24.5%	29.7%	0.3%	0.7%	4.3%	13.7%
3	19.5%	24.8%	27.7%	30.4%	0.5%	0.8%	4.4%	15.7%
4	24.9%	32.6%	17.8%	20.1%	0.0%	0.4%	2.8%	14.9%
5	19.5%	26.4%	23.9%	28.1%	0.8%	0.9%	4.2%	14.7%
6	18.9%	26.6%	26.0%	32.2%	1.0%	0.7%	4.0%	6.4%
				Samples' imports percentage change				
1		392%		329%		224%		1239%
2		388%		370%		642%		1135%
3		382%		316%		426%		1253%
4		408%		338%		39754%		1969%
5		394%		330%		306%		1195%
6		348%		294%		124%		408%

The shifting in the regional orientation of Argentina's imports and Brazil's exports

Argentina's import Regional Orientation and Brazil's Revealed Comparative Advantages

Sample	Δ(ROM)>0, RCA_1992<1 RCA_2006<1		Δ(ROM)>0 RCA_1992>1 RCA_2006>1		Δ(ROM)>0 RCA_1992>1 RCA_2006<1		Δ(ROM)>0 RCA_1992<1 RCA_2006>1	
	1992	2006	1992	2006	1992	2006	1992	2006
				Argentina's imports from Brazil				
				Percentage of samples' imports				
1	23.9%	44.8%	16.2%	12.2%	1.6%	2.9%	4.9%	9.8%
2	28.7%	48.3%	15.3%	10.4%	0.9%	2.4%	6.2%	10.5%
3	25.9%	45.7%	19.5%	12.7%	1.2%	2.8%	5.6%	10.5%
4	32.5%	54.8%	8.6%	1.5%	0.3%	1.7%	4.1%	10.0%
5	25.4%	45.9%	16.3%	11.3%	1.4%	2.8%	5.3%	10.2%
6	24.7%	40.4%	18.2%	13.3%	1.6%	2.0%	5.3%	10.2%
				Samples' imports percentage change				
1		560%		165%		520%		606%
2		554%		162%		999%		562%
3		570%		146%		775%		611%
4		553%		-32%		2373%		853%
5		560%		154%		628%		600%
6		420%		132%		290%		507%

Tariff preferences and the extensive margin

- For a long time, world trade has grown faster than world product.
- The reduction of tariff barriers has been rather small.
- A suggested hypotheses points out to changes in the set of goods that are traded: Helpman, Meltiz and Rubinstein (2004), Hummels and Klenow (2005), Evenett and Venables (2002), Kang (2004), Yi (2003), Ruhl (2003), Kehoe and Ruhl (2002), Ruhl (2002).

Tariff preferences and the extensive margin

$$Y_{i,2004} = \beta_1 Y_{i,1992} + \beta_2 \Delta \ln(\tau_i) + \beta_3 \Delta \ln(Pref_i) + \eta' C + u_i$$

where:

- *i:* defined at 8 digits of Argentina's Customs Code
- $Y_{i,2004}$: dummy variable equal to 1 if good *i* was imported from Brazil in 2004;
- $Y_{i,1992}$: dummy variable equal to 1 if good *i* was imported from Brazil in 1992;
- τ_i: tariff rate on imports of good *i* from Brazil (defined at 6 digits of the HS);
- $Pref_i$: tariff preference on imports of good *i* from Brazil (defined at 6 digits of the HS);
- C: group of sector dummies (defined at 4 digits of the HS)

Tariff preferences and the extensive margin

- $\tau_i = (1+t_i)$; t_i is the ad-valorem rate for good i on imports from Brazil.
- $Pref_i = (1+t_i)/(1+MFN_i)$; MFN_i is the Most Favoured Nation rate on imports of good i.
- β_2 and β_3 are expected to be negative.
- Because of the dichotomy nature of the dependent variable, the model is estimated with a Probit → probability of good i being imported from Brazil is:

$$\Pr\left(Y_i = 1 \middle| X\right) = \Phi\left(X' \frac{B}{\sigma}\right)$$

  - where: X is the vector of explanatory variables, B=[β_1,β_2,β_3,η] is the vector of coefficients to be estimated, σ is the standard deviation of the error term u, $\Phi(.)$ is the cumulative standard normal distribution.

Tariff preferences and the extensive margin

Estimates of Probit Model (&)

	Mg. Effect	Mg. Effect	Mg. Effect	Mg. Effect
$Y_{i,1992}$ (β_1)	0.2710***	0.2708***	0.2708***	0.1695**
	(0.0197)	(0.0197)	(0.0197)	(0.0823)
Δln(Own tariff) (β_2)	-0.1477***	-0.1442***	-0.1437***	-0.1280***
	(0.0349)	(0.0350)	(0.0350)	(0.0374)
Δln(Tariff Preference) (β_3)	-0.0688***	-0.0597***	-0.0599***	-0.0776***
	(0.0183)	(0.0203)	(0.0196)	(0.0199)
Δln(Tariff Preference) * Balassa $RCA_{i,1992}$ (a)		-0.047		
		(0.0464)		
Δln(Tariff Preference) * Yeats $RCA_{i,1992}$ (b)			-0.0665	
			(0.0536)	
Δln(Own tariff) * $Y_{i,1992}$				-0.0771
				(0.0512)
Δln(Tariff Preference) * $Y_{i,1992}$				0.0309
				(0.0252)
Observations	4474	4474	4474	4474
Pseudo R^2	0.224	0.224	0.224	0.225
Sector dummies (x)	Yes	Yes	Yes	Yes
Correctly classified (%) (#)	72.24	72.15	72.13	72.04
Hosmer-Lemeshow Test [chi2´(8)] (+)	4.46	6.51	4.32	4.23
Hosmer-Lemeshow Test - P-Value	0.813	0.59	0.827	0.836

(&) Sample includes only observations for which total imports in 2004 were at least 2,000 US dollars. (a) Equal to 1 if the Balassa RCA index is larger than one in 1992. (b) Equal to 1 if the Yeats RCA index is larger than one in 1992. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. (x) 4-digit HS. (#) An observation for which $Y_{i,2004} = 1$ ($Y_{i,2004} = 0$) is considered to be correctly classified if the predicted probability is at least 0.5 (less than 0.5). (+) H_0: the model is well fitted.

Tariff preferences and the extensive margin

Predicted probabilities of imports from Brazil

	Full model	**$\Delta\ln(Pref_i) = 0$**	**$\Delta\ln(\tau_i) = 0$**	**$\Delta\ln(Pref_i) = 0$ $\Delta\ln(\tau_i) = 0$**
Simple Average	0.5325	0.4780	0.3169	0.2704
Minimum	0.0231	0.0236	0.0041	0.0023
Maximum	0.9933	0.9888	0.9345	0.9137
Standard deviation	0.2624	0.2621	0.2258	0.2151

Conclusions

- Imports from Brazil have become increasingly important

- Sectors for which ROM have increased are mostly sectors Brazil might have not improved its competitiveness in world markets

- Most of the increase in the probability of importing from Brazil is due to the reduction of intra-MERCOSUR tariff rates than to increasing tariff preferences