

A (more) systematic exploration of the trade effect of product-specific rules of origin

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What are Rules of Origin (RoO)?

"[...] are the criteria needed to determine the national source of a product.", WTO.

- Preferential RoO: Regional Trade Agreements (reciprocal); Preferential Trade Agreements (unilateral)
- Non-preferential RoO: Labelling; Anti-Dumping measures → Uruguay Round Agreement.

Purpose of preferential RoO?

Preferential market access → Trade deflection (\neq Felbermayr et al. [2019], Head et al. [2022]).

What's the matter?

Complexity; compliance costs → underutilisation.

Utilisation of preferences¹

- Tariff preference margin [Candau et al., 2004, Carrère and de Melo, 2015, Hakobyan, 2015, Lendle et al., 2016, Ayele et al., 2022].
→ Non-parametric revealed preference approach [Herin, 1986].
- Shipment size [Bureau et al., 2006, Nilsson, 2016, Brunelin et al., 2019].
- Restrictiveness indices of RoO [Estevadeordal, 2000, Harris, 2007] based on observation rule.
→ RoO revisions (simplifications) on export growth [de Melo and Portugal-Perez, 2014, Sytsma, 2021, 2022].

Trade flows

- Cadot and Ing [2016], Kelleher [2012].

¹Australia, Canada, the European Union, Japan and the United States report customs data on preference utilisation by HS category under different PTAs.

Sourcing behaviour of firms

- Laffer curve: expansion vs contraction of regional part sourcing [Head et al., 2022].
- Reduction in imports of intermediates from 3rd countries (Conconi et al. [2018] for NAFTA; Cadestin et al. [2016] for Latin America).

Our research: what do we do?

- Effect on bilateral trade (CEPII BACI).
- Classification of product-specific RoO (PSR) at the HS6 tariff level of 128 RTAs over 1990-2015.
- Exploring heterogeneity in variable compliance costs across PSR categories through preference margins.
- Simulating the trade effect of a simplification of PSR.

- **World Bank's Deep Trade Agreement Database**

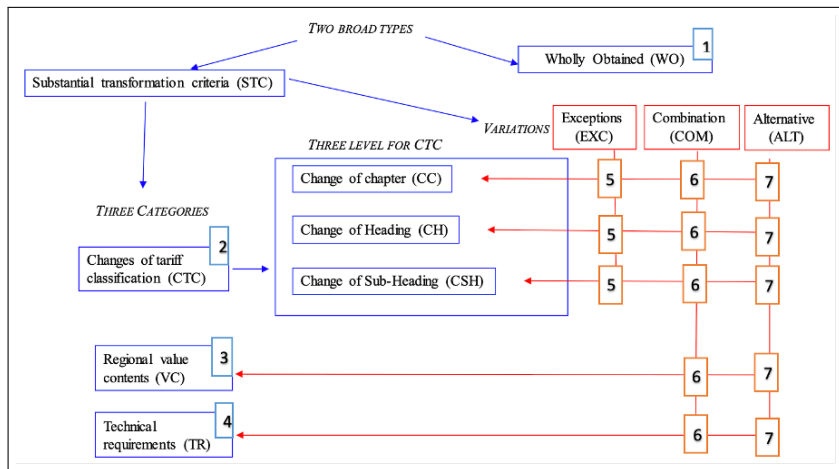
- Based on joint work OECD and World Trade Institute [Angeli et al., 2020].
- All WTO notified Free-Trade Agreements until 2015.
- Only reciprocal RTAs.
- 159 RTAs for product-specific RoO and 280 for regime-wide RoO.
- Publicly available.
- Database for this paper.

- **International Trade Center's Rule of Origin Facilitator (ROF)**

- 370 Preferential Trade Agreements (reciprocal and non-reciprocal).
- Not publicly available.

Classification of product-specific rules of origin

Figure: Mapping of product-specific rules of origin



Source: Authors based on Cadot and Ing [2016], Gourdon et al. [2021].

Examples of PSR (1/2): stand-alone rules

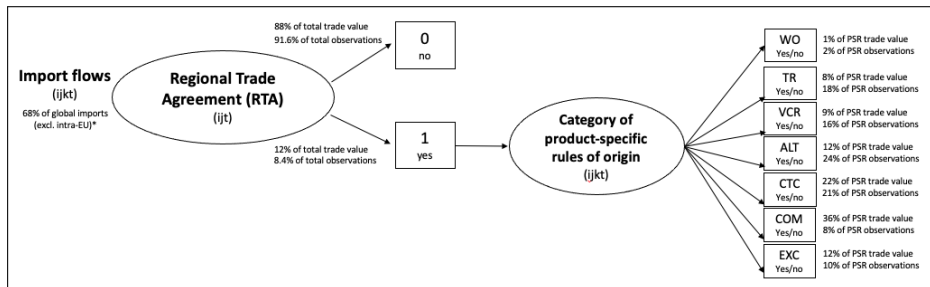
- Wholly Obtained (WO): "A product shall be considered as originating in a Party if: (a) it has been wholly obtained in a Party, in accordance with Article 3² [...]", EFTA-Central America (2014) FTA.
- Change in Tariff Classification (CTC) through Chapter (CC): "A change to a good of heading 05.01 through 05.11 from any other chapter.", Transpacific Partnership (TPP).
- Value Content Requirement (VCR): "No change in tariff classification required for a good of heading 87.07, provided there is a regional value content of not less than:
 - 35 per cent under the build-up method; or
 - 35 per cent under the net cost method; or
 - 45 per cent under the build-down method.", TPP.
- Technical Requirement (TR): "[...]a good of chapter 27 that is the product of a chemical reaction is an originating good if the chemical reaction occurred in the territory of one or more of the Parties.", TPP.

²Lists wholly obtained products.

Examples of PSR (2/2) from TPP: variations

- Exceptions (EXC): "A change to a good of subheading 1102.90 from any other chapter, **except from** heading 10.06."
- Combination (COM): "A change to a good of subheading 1901.20 containing more than 30 per cent by dry weight of rice flour from any other chapter, **provided that** the value of non-originating rice flour of subheading 1102.90 does not exceed 30 percent of the value of the good."
- Alternative (ALT): "[...] A change to a good of subheading 1515.19 from any other chapter; **or** No change in tariff classification required for a good of subheading 1515.19, provided there is a regional value content of not less than 40 percent under the build-down method."

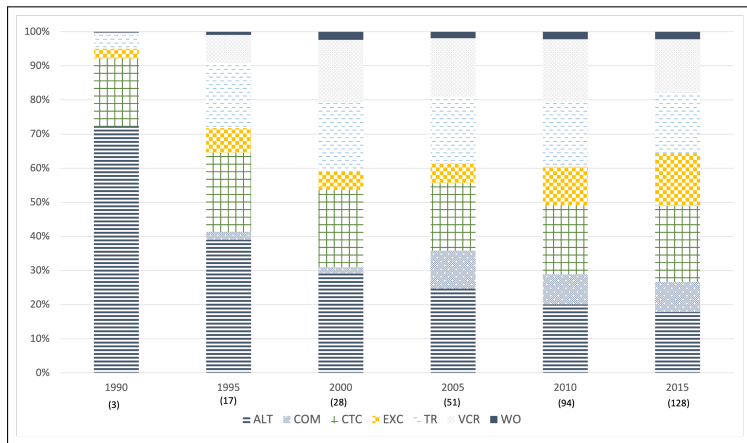
Final data structure



Notes: In $ijkt$, i stands for exporter, j importer, k HS6-product, t panel year. *indicates the average across all sample years. PSR categories: WO = wholly obtained; TR = technical requirement; VCR = value content requirement; ALT = alternative ('or'); CTC = change in tariff classification; COM = combination ('and'); EXC = exception.

Descriptives on PSR categories

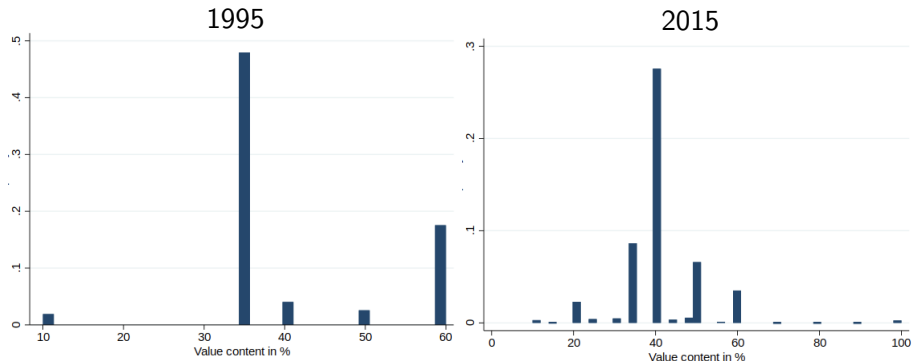
Figure: Frequency distribution of PSR categories over the sample period



Notes: Number of RTAs in parenthesis below year.

Source: Authors.

Percentage of value content in VCR category

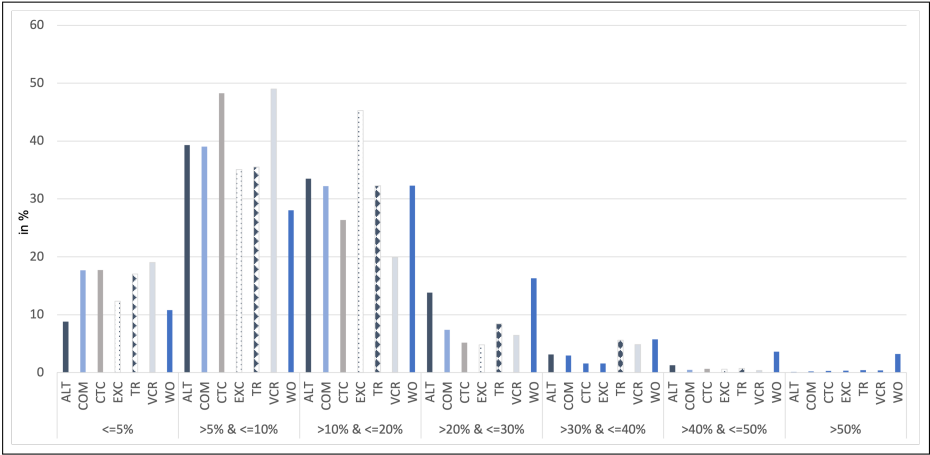


	count	mean	sd	min	max
1995: value content %	5646	41.1	11.7	10.0	60.0
2015: value content %	43499	41.0	9.5	10.0	100.0

Notes: 1995: missing 5,109/10,755 (48%); 2015: missing 19,475/62,974 (30%).

MFN tariffs

Figure: Frequency distribution of MFN tariffs across PSR categories by bins, 2015



Estimation strategy

- Gravity model (demand-side by Anderson and van Wincoop [2003]); Poisson-Pseudo Maximum Likelihood (PPML) estimator.
- Empirical specification based on Cadot and Ing [2016]:

$$X_{ijkt} = \exp[\beta_0 + \beta_1 \ln(1 + \text{tar}_{jkt}^{\text{MFN}}) + \beta_2 I_{ijt}^{\text{RTA}} + \beta_3 (I_{ijt}^{\text{RTA}} \times \ln(1 + \text{tar}_{jkt}^{\text{MFN}})) + \sigma_{ijs} + \eta_{it} + \theta_{jt}] + \epsilon_{ijkt} \quad (1)$$

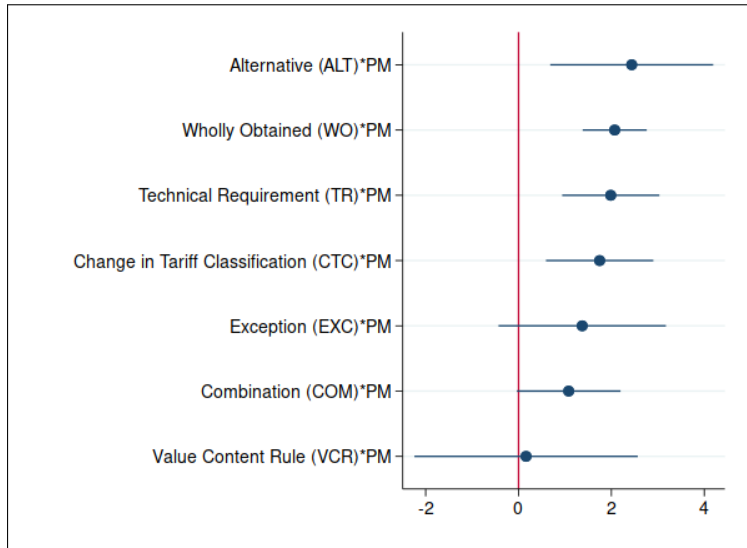
- $i=135$, $j=181$, $k=5018$, $t=1995(5)2015$, obs. 15 million.
- **Identification:** Variation in trade flows over time within same origin-destination-HS2 (section) product combinations.

Results

Dependent variable X_{ijt}	(1) All	(2) All	(3) All	(4) w/o unilateral PTAs
β_1 : MFN tariff (log)	-2.216*** (0.299)	-2.216*** (0.299)	-2.214*** (0.299)	-2.326*** (0.314)
β_2 : if RTA=1	-0.073 (0.068)			
β_3 : RTA * MFN tariff (log)	1.457*** (0.340)	1.396*** (0.338)		
ALT dummy		-0.088 (0.112)	-0.185 (0.129)	-0.195* (0.116)
CTC dummy		-0.390*** (0.118)	-0.404*** (0.137)	-0.411*** (0.146)
CUM dummy		0.180 (0.258)	0.207 (0.265)	0.188 (0.262)
EXC dummy		-0.207 (0.185)	-0.193 (0.232)	-0.212 (0.239)
TR dummy		0.088 (0.128)	0.049 (0.139)	0.033 (0.140)
VCR dummy		0.291 (0.267)	0.420 (0.319)	0.364 (0.321)
WO dummy		0.187 (0.296)	0.116 (0.325)	0.003 (0.264)
ALT dummy * MFN tariff (log)			2.394*** (0.876)	2.438*** (0.895)
CTC dummy * MFN tariff (log)			1.584*** (0.601)	1.747*** (0.590)
COM dummy * MFN tariff (log)			0.963* (0.556)	1.080* (0.570)
EXC dummy * MFN tariff (log)			1.199 (0.924)	1.371 (0.920)
TR dummy * MFN tariff (log)			1.804*** (0.526)	1.986*** (0.534)
VCR dummy * MFN tariff (log)			-0.068 (1.245)	0.162 (1.227)
WO dummy * MFN tariff (log)			1.905*** (0.361)	2.071*** (0.352)
Constant	9.697*** (0.018)	9.692*** (0.019)	9.692*** (0.019)	9.714*** (0.020)
Fixed-effects:	it, jt, ijs	it, jt, ijs	it, jt, ijs	it, jt, ijs
No. of observations	15,086,003	15,086,003	15,086,003	14,590,914
Pseudo R^2	0.551	0.551	0.551	0.557

Notes: PPML estimates. Standard errors are clustered at the treatment level (*ijs*). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Results: Coefficients plot



Notes: The figure reports the coefficients with confidence interval at the 95%-level on the interaction term β_{4I} in column 4.

Avenues for future work

- Availability of preference utilization rates and preferential tariffs.
- Regime-wide rules of origin.
- RoO of individual RTAs or comparisons between multiple RTAs.

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Back-up: Reduction steps

Table: Data coverage resulting from sample selection

Steps	Sample period	Nbr of countries	Nbr of products	Change in nbr of observations	Nbr of observations	Change in trade value	Trade value (in billion USD)
Raw data	1990-2015	181	5,018		121,224,927		156,580
exclude small exporters (<25 percentile)				-1.2%	119,820,171	-0.2%	156,324
exclude if <=5 years of observed trade				-18.7%	97,435,976	-1.7%	153,721
data at 5 years intervals	1990, 1995, 2000, 2005, 2010, 2015	135 exporters, 181 importers		-77.6%	21,803,233	-77.7%	34,280
exclude trade flows < 1000 USD				-13.5%	18,854,670	-0.003%	34,279
exclude if MFN=0 & PSR=1				-2.4%	18,393,110	-6.1%	32,171
exclude products in RTA without PSR*				-5.0%	17,480,272	-9.7%	29,061
Final data	1990, 1995, 2000, 2005, 2010, 2015	135 exporters, 181 importers	5,018		17,480,272		29,061

Notes: *22.8% of those products (207,790 observations) are in an RTA with a zero applied MFN tariff. Changes in number of observations and in trade value are from each step.

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