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Global protectionist trade effect of rules of origin: assessment of input-output restrictions at HS6 level in 400 FTAs

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Abstract

FTA policymakers designate input-output relationships when formulating rules of origin (RoO). These relationships define restricted inputs that can only be sourced from FTA area. Conconi et al. (2018) found a strong trade diversion effect in such inputs in the case of NAFTA.

We construct a global dataset by extracting HS6 input-output restrictions from 400 FTAs a la Conconi et al. using Rules of Origin Facilitator/MacMap global database at HS6 level. We document that: (1) Input-output tables diverge across FTAs, driven by political economy of protected inputs; (2) FTAs show heterogeneity in precision of revealed HS6 input-output relationships. Precision is higher in "sensitive" products and in NAFTA-style FTAs (US FTAs, LatAm FTAs and CPTPP); (3) RoO globally divert trade by XX% in restricted inputs, thus the effect is less than in NAFTA (45%); (4) RoO that designate `allowed' inputs result in `trade creation' in such inputs by X%, somewhat compensating trade diversion in restricted inputs. For example, if fabrics are placed on restricted list, it can trigger imports of yarn instead.

Finally, we augment the NAFTA-based HS6 input-output matrix with 460 FTAs and publish a more complete, more granular research dataset which enables disaggregated value-chain impact modeling of trade policy changes.

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1 Introduction

In the last 30 years, global trade patterns have been governed by the spread of preferential trade agreements (PTA) which liberalize customs tariffs on trade flows among participating countries. As of 2022, more than 500 such PTAs are in force[1].

The condition to benefit from a preferential duty reduction is to perform a 'substantial transformation' according to rules of origin (ROO) specified in the text of PTA. Recent literature (Conconi et al. 2018) empirically found in the case of NAFTA-1994 that ROO are not trade-neutral and create trade diversion in affected intermediate inputs. In some sense, ROO that restrict use of certain inputs sourced from outside of PTA area approximate to a tax on those imports. In the sample of affected inputs, by construction mainly driven by textiles, the 'trade diversion' effect from NAFTA on outsider input suppliers to Mexico amounted to 45%.

In this paper we intend to extend the exercise of Conconi et al. 2018 to a global sample of 400 PTAs using 54,000 different product-specific ROO extracted and codified from texts of PTA and available in ITC-WCO-WTO Rules of Origin Facilitator (Gourdon et al. 2021). The research questions are the following:

- Does trade diversion in inputs also hold in other US FTAs?
- Does trade diversion in inputs hold in PTAs of other regions such as Europe, Asia and Latin America?
- Is there a trade creation effect in inputs placed on 'allowed' lists of ROO?

Due to the modelling complexity of value-added content percentage rules and intractability of 'specified process' rules, we focus solely on HS transformation rules, as in Conconi et al. 2018. The resulting dataset represents essentially an input-output (IO) matrix at a very detailed HS level of product disaggregation. It is constructed based on an assumption that restricted/allowed inputs explicitly mentioned in ROO are the crucial inputs defining 'substantial transformation'. This dataset is released for the benefit of GTAP research community and is described in Annex I.

The structure of the paper is as follows. Section 1 describes the data. Section 2 derives stylized facts on input treatment by ROO globally. Section 3 performs a triple diff-in-diff regression with synthetic controls (Archangelsky et al. 2021) to estimate the trade diversion of ROO on affected intermediate inputs.

[1] Based on trade agreements database in Rules of Origin Facilitator accessed on 15 April 2022: https://findrulesoforigin.org/en/home/agreements

2. Data

2.1 Product-specific rules of origin.

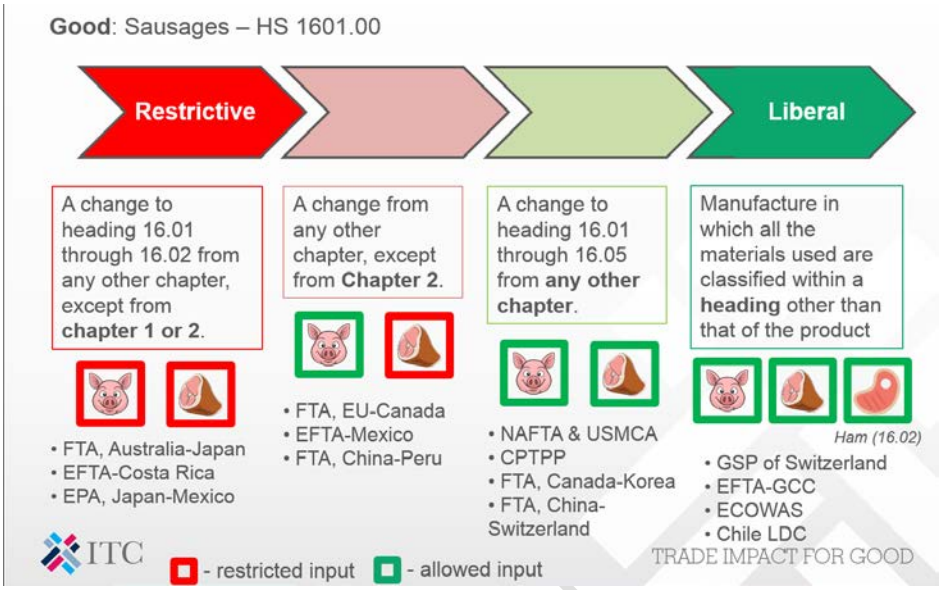
The dataset on ROO used has been constructed as part of ITC-WCO-WTO Rules of Origin Facilitator initiative. In this study, of particular interest are change in tariff classification (CTC) rules with HS qualifiers (exceptions and allowances). Figure 1 presents a screenshot example of how such HS qualifiers were extracted and presented for the case of apparel in USMCA (updated NAFTA).

Figure 1. Example of USMCA ROO for male cotton shirts

Source: From ROO Facilitator, https://findrulesoforigin.org/en/home/detail?reporter=842&partner=484&product=62052020&id=872&status=True&rank=4

PTAs have different allowance and exception lists implying different ROO restrictiveness. Table 1 presents an example of differences across PTAs for sausages (HS 160100).

Table 1: Examples of CTC rules and implications on restricted inputs and ROO restrictiveness



Source: Author's elaboration based on ROO Facilitator database

2.2 Tariff and trade data

Tariffs for the period of 2006-2021 are sourced from Market Access Map (MacMap). Trade flows for the period 2006-2021 are sourced from ITC Trade Map and UN COMTRADE. Because tariffs are defined at the national tariff line level (usually, 8 digits), the necessary mapping with trade flows at the national tariff line level was performed using ITC-WTO-UNCTAD World Tariff Profiles algorithm.

For the case of US and EU markets additionally data on preferential imports was used allowing to filter only on those trade flows that claimed preferences when passing the customs. For the US the source of preferential utilization data was USITC Data Web. For the EU the source was EUROSTAT.

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Annex I: I-O table derived from CTC-type ROO

[To elaborate].

Table A 1: Mapping of PSR criteria into 14 simplified PSR categories

14 key PSR	Detailed PSR criteria
1: CH	CTH
	ALW
2: CH and VC/SP	CTH + ALW 20% and RVC 50%
	CTH + ALW 50% and RVC 50%
	CTH + ALW and SP
	CTH and RQC 70%
	CTH and RQP 70%
	CTH and RQP 70% + WO
	CTH and RVC 30%
	CTH and RVC 50%
	CTH and RVC 60%
	CTH and RVC 60%*
	CTH and SP
5: CH or VC/SP	(CTH + ALW 20% and RVC 50%) or RVC 60%
	(CTH + ALW 20%) or RVC 30%
	(CTH + ALW 20%) or RVC 60%
	(CTH + ALW 50%) or RVC 30%
	(CTH + ECT) or RVC 30%
	(CTH + ECT) or RVC 50%
	(CTH + ECT) or RVC 60%
	(CTH + ECT) or RVC 70%
	(CTH + ECT) or SP or SP
	(CTH and RVC 50%) or RVC 75%
	(CTH and RVC 50%) or SP
	(CTH and RVC 60%) or RVC 40%
	(CTH and RVC 60%) or RVC 70%
	(CTH and RVC 60%) or RVC 75%
	(CTH and RVC 60%*) or RVC 70%

14 key PSR	Detailed PSR criteria
10: SP	SP
	SP or SP
	SP or SP or (SP and RVP 52.5%)
	SP or SP or SP
	SP or SP or SP or RVP 52.5%
	SP or SP or SP or SP
11: SP and VC	SP and RVC 40%
	SP and RVC 45%
	SP and RVC 50%
	SP and RVC 75%
	SP and RVC 85%
	SP and RVP 30%
	SP and RVP 60%
	SP and RVP 65%
12: SP or VC	SP or (SP and RVP 50%)
	SP or (SP and RVP 52.5%)
	SP or RVC 30%
	SP or RVC 60%
	SP or RVC 75%
	SP or RVP 52.5%
	SP or RVP 52.5% or (SP and RVP 52.5%)
	SP or RVP 60%
9: VC	(RVC 50% and ALW 20%) or RVC 75%
	(RVC 60% and ALW 10%) or RVC 40%
	(RVC 60% and ALW 10%) or RVC 70%
	(RVC 60% and ALW 10%) or RVC 75%
	(RVC 60% and ALW 10%) or SP or RVC 75%
	(RVC 60% and ALW 25%) or RVC 70%

	(CTH and RVC 60%*) or RVC 75%
	ALW or RVC 30%
	CTH or (SP and RVC 30%)
	CTH or (SP and RVC 50%)
	CTH or (SP and RVP 40%) or (SP and RV..
	CTH or (SP and RVP 50%)
	CTH or (SP and RVP 50%) or (SP and RV..
	CTH or ALW or RVC 30%
	CTH or RVC 30%
	CTH or RVC 40%
	CTH or RVC 40% or SP
	CTH or RVC 50%
	CTH or RVC 60%
	CTH or RVC 70%
	CTH or RVP 50%
	CTH or RVP 75% or RVC 60%
	CTH or SP
	CTH or SP or RVC 30%
	SP or (CTH + ALW 50%)
	SP or CTH
4: CH with ALW	CTH + ALW
	CTH + ALW 20%
	CTH + ALW 30%
	CTH + ALW 50%
3: CH with EXC	ALW + ECT
	ALW 50%
	CTH + ECT
	CTH + ECT + WO
	CTH + ECT 30%
	CTH + ECT 30% + WO
	CTH + WO
7: CS	CTSH
	NC

	(SP and RVC 45%) or (SP and RVC 40%)
	(SP and RVP 60%) or SP
	NC or RVC 30%
	NC or RVC 60%
	RQC 60%
	RQP 70%
	RVC 30%
	RVC 35%
	RVC 40%
	RVC 45%
	RVC 50%
	RVC 60%
	RVC 60% or RVC 70%
	RVC 60%*
	RVC 60%* or RVC 40%
	RVC 60%* or RVC 70%
	RVC 60%* or RVC 75%
	RVC 60%* or RVC 80%
14: WO	WO
	WO and RQP 70%
	WO and RVC 40%
	WO and RVC 50%
	WO*
13: WO or VC	WO or RVC 40%
	WO or RVC 40% or RVC 25% or RVC 35%
	WO or RVC 40% or RVC 25% or SP
	WO or RVC 40% or RVC 35% or Other
	WO or RVC 40% or RVC 35% or RVC 35%
	WO or RVC 40% or RVC 35% or SP
	WO or RVC 40% or RVC 35% or WO
	WO or RVC 40% or RVC 45%
6: CH or VC or WO	WO or RVC 40% or RVC 25% or (CTH + ECT)
	WO or RVC 40% or RVC 25% or (CTH and ..

	NC + ECT		WO or RVC 40% or RVC 25% or CTH
	NC + ECT + WO		WO or RVC 40% or RVC 35% or (CC + ECT)
	NC + ECT 15%		WO or RVC 40% or RVC 35% or (CTH + EC..
	NC + ECT 20%		WO or RVC 40% or RVC 35% or (CTH + ECT)
	NC + ECT 20% and RVP 80%		WO or RVC 40% or RVC 35% or (CTH + EC..
	NC + ECT 30%		WO or RVC 40% or RVC 35% or (CTH and ..
	NC + ECT 40%		WO or RVC 40% or RVC 35% or (CTH and ..
	NC + ECT 50%		WO or RVC 40% or RVC 35% or ALW
	NC + ECT 50% and RVP 50%		WO or RVC 40% or RVC 35% or CC
	NC + ECT and RQC 70%		WO or RVC 40% or RVC 35% or CTH
	NC + ECT and SP		
8: CS or VC/SP	(CTSH + ALW 20%) or RVC 30%		
	(NC + ECT 20%) or (NC + ECT) or RVC 30%		
	(NC + ECT 20%) or RVC 30%		
	(NC + ECT 20%) or RVC 60%		
	(NC + ECT 20%) or RVC 75%		
	(NC + ECT 30%) or RVC 60%		
	(NC + ECT 50%) or RVC 75%		