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Do Environmental Provisions in Trade Agreements Make Exports from Developing Countries Greener?

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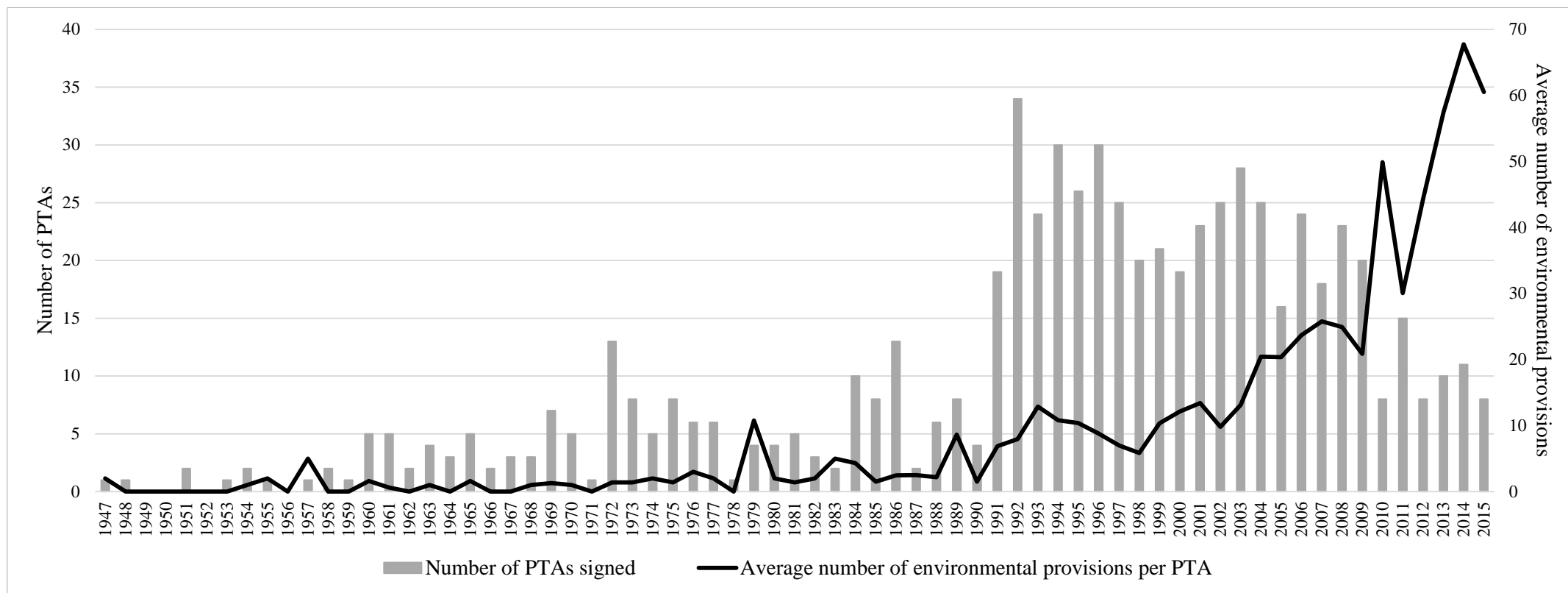


- One of the key impediments for the promotion of a green transformation is the alleged trade-off between growing vs. greening the economy
- This alleged trade-off is also evident in debates about trade policy, in particular between developed and developing countries
- Some studies show that both goals can be pursued simultaneously but there are many sceptics, esp. among developing countries
- Developing countries sign trade agreements predominantly with the aim of enhancing trade flows and fear that the inclusion of non-trade issues such as environmental provisions may be used for “green protectionism”
- **Research question: What are the effects of environmental provisions in PTAs on (the composition of) trade flows between the contracting parties?**

Environmental provisions in PTAs



Preferential Trade Agreements (PTAs) include ever more environmental provisions...

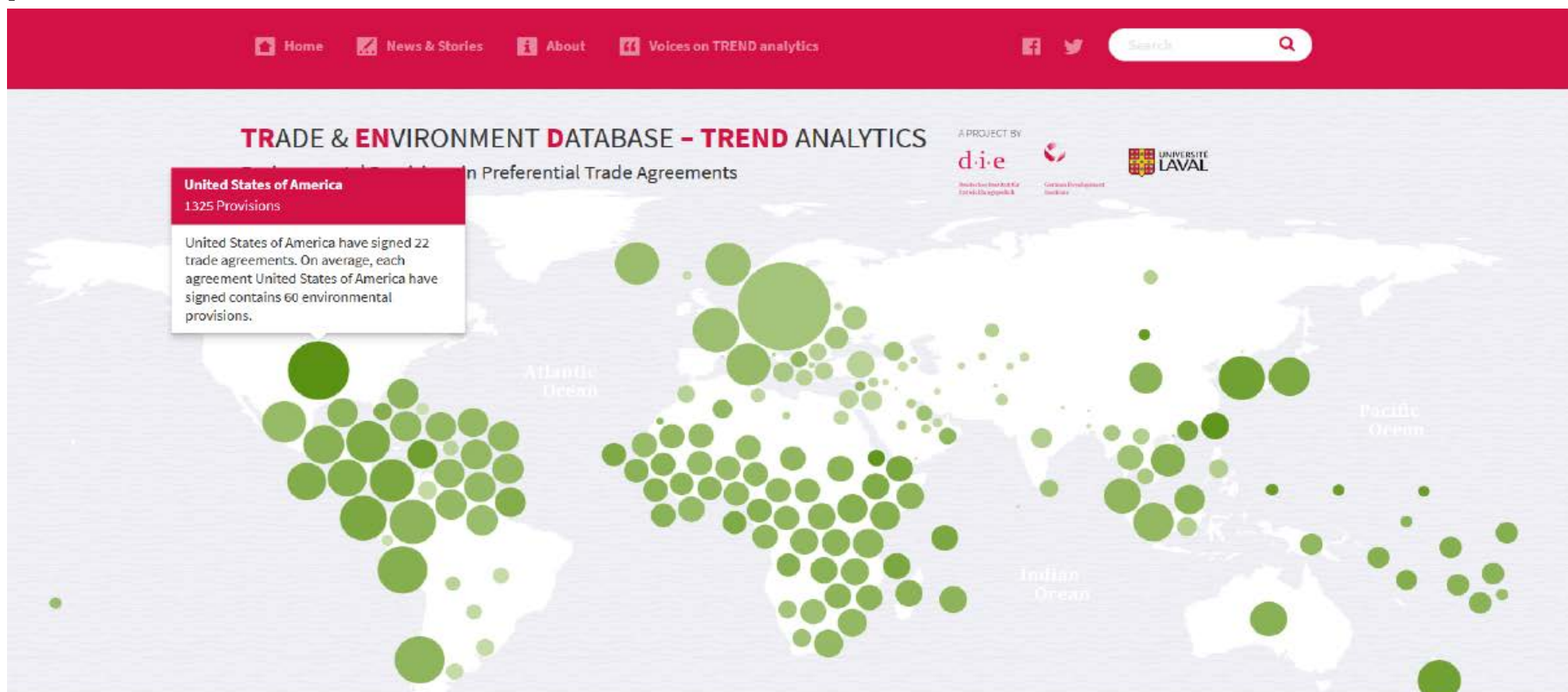


... but their trade effects remain unknown

Environmental provisions in PTAs



In particular, developed countries are driving the inclusion of environmental provisions in PTAs



See: www.TRENDanalytics.info



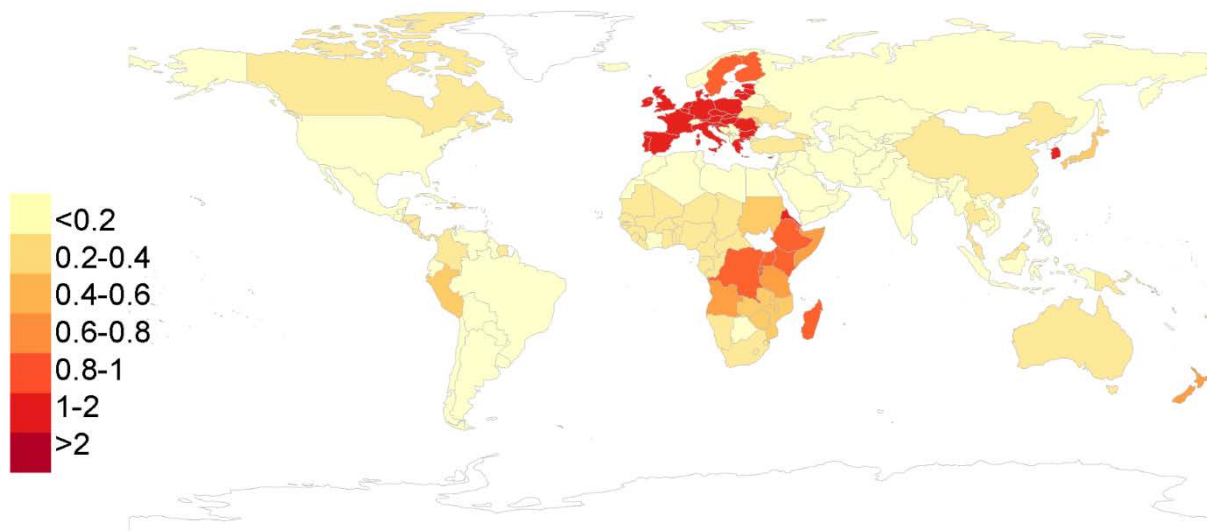
There are more than 300 types of environmental provisions in PTAs

- Reaffirming environmental law principles
- Ensuring a high level of environmental protection
- Favoring transparency and public participation in policymaking
- Safeguarding regulatory space
- Developing environmental cooperation
- Detailing specific environmental commitments
- Ensuring policy coherence
- Promoting development and capacity building
- Reinforcing MEAs
- Dispute resolution

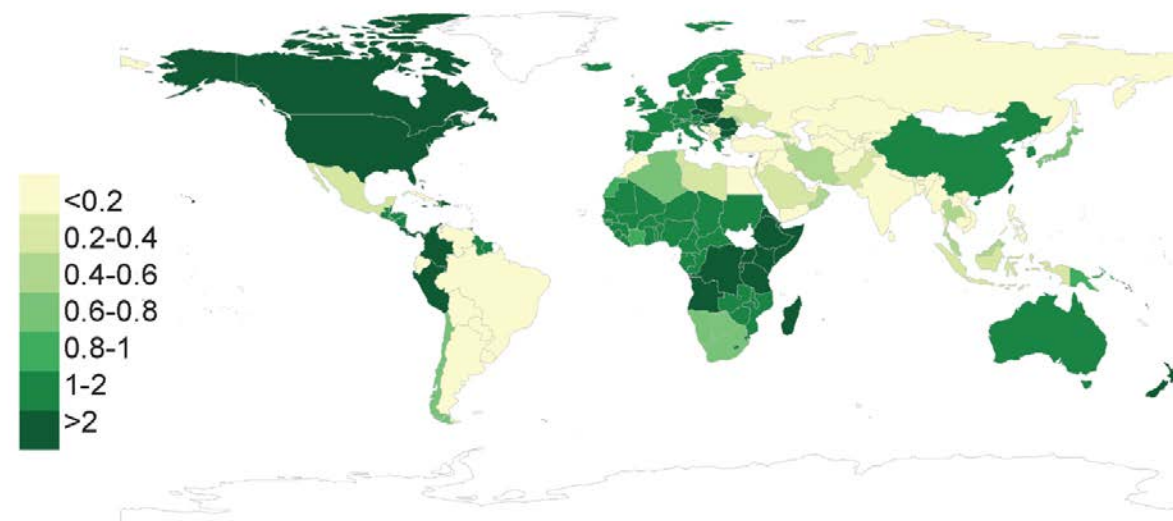
Environmental provisions in PTAs: Examples...



**Average number of
climate-related provisions**



**Average number of
biodiversity-related provisions**



Morin, Jean-Frédéric and Sikina Jinnah (2018) "The Emergence of Climate Change Norms in the International Trade Complex" *Environmental Politics*, 27(3): 541-565.

Trade-restrictive vs. facilitating environmental provisions



Environmental provisions can be categorised as:

- **Trade-liberalizing:** trade-facilitating provisions, for example, demand PTA partner countries to reduce trade barriers for environmental goods and services or increase the transparency of domestic legal systems.
- **Trade-restrictive:** Restrictive provisions, on the other hand, explicitly seek to limit trade flows. They include, for example, environmental exceptions, which allow countries to restrict trade in order to protect human, animal or plant life or health or conserve exhaustible natural resources (e.g. GATT Art. XX); or provisions allowing export restrictions on hazardous waste, which can benefit less competitive waste management firms and reduce the pertinent trade flows.



Economic effects of PTAs:

- PTAs tend to increase trade between their members (Baier and Bergstrand 2007, 2009; Egger et al. 2008, 2011; Freund and Ornelas 2010; Fugazza and Nicita 2013; Magee 2008).
- “Deep” PTAs additionally increase trade between their members (Dür/Baccini/Elsig 2014; Orifice/Rocha 2013)

Rationale for inclusion of environmental provisions in PTAs:

- One prominent explanation for the inclusion of non-trade issues in PTAs is protectionism (Bhagwati and Hudec 1996, Krugman 1997, Bechtel et al. 2012).
- A number of studies provide evidence for the link between protectionist interests and environmental provisions in PTAs (Runge 1990; Subramanian 1992; Bhagwati 1995; Ederington and Minier 2003; Lechner 2016).



Implications of non-trade issues, in particular environmental provisions, in PTAs:

- Environment provisions have positive implications for the environment (Baghdadi, Martinez-Zarzoso and Habib Zitouna 2013; Bastiaens and Postnikov, 2017; Kolcava, Nguyen and Bernauer, 2019) and environmental policy-making (Brandi, Bruhn and Morin 2018).
- While non-trade issues in ever deeper PTAs are more prominent than ever, there is hardly any research on their economic consequences (Lechner, 2018, studies US FDI).

Research gap: The trade effects of environmental provisions in PTAs have not been studied yet.



Pollution Haven Hypothesis:

- Trade may lead to a relocation of “dirty” production from developed to developing countries.
- Including environmental provisions in PTAs may counter this tendency.

H1a: Environmental provisions reduce exports in dirty goods (from developing countries).



Porter Hypothesis:

- Environmental regulation leads to innovation and can thus increase competitiveness
- Environmental provisions in PTAs can be viewed as environmental regulation for exports

H1b: Environmental provisions increase exports in green goods (from developing countries).



- We need to account for the fact that environmental provisions in PTAs are diverse and can thus have different effects on trade.
- We expect the effect of the inclusion of environmental provisions to vary across different types of provisions.
- The inclusion of trade-restrictive provisions in PTAs is likely to impede trade flows in dirty sectors, while trade-liberalizing provisions are likely to foster trade in green sectors

H2a: Trade-restrictive environmental provisions in PTAs reduce exports in dirty goods (in developing countries).

H2b: Liberal environmental provisions in PTAs promote exports in environmental goods (in developing countries).



- Dependent variable: **Share of dirty/green goods** in merchandise exports, bilateral trade data on the sectoral level from UN COMTRADE, Low and Yeats' (1992) list of environmentally polluting sectors, OECD list of green goods
- Explanatory variables: Count variable on **environmental provisions in PTA**, based on Trade and Environment Database (TREND) (Morin et al. 2018)
Number of (overall, liberal, and restrictive) provisions per PTA, max per country pair
- Estimation strategy: **Panel** with ≈ 150 countries and >30 years (1984-2016)
Control for: PTA in place, Depth of PTAs (max per country pair), country-pair fixed effects for selection into characteristic PTAs, exporter- and importer-year fixed effects for multilateral resistance

$$TRADESHARE_{eit} = \beta * EnvProvs_{eit} + \gamma * PTA_{eit} + \delta * DEPTH_{eit} + \alpha_{ei} + \alpha_{et} + \alpha_{it} + \varepsilon_{eit} \quad (1)$$

Effects on overall exports



- Overall trade creation of PTAs affected by inclusion of EPs?
- **No**
- (if anything, a slight decrease/moderation by inclusion of EPs)

	(1)	(2)	(3)
	All countries	Developing country exporters	Developing country exporters
	EXPORTS	EXPORTS	EXPORTS
ENVPROVS	-0.000	-0.000	-0.001
	(0.001)	(0.001)	(0.001)
RESTRICTIVE			0.008
			(0.009)
LIBERAL			-0.007
			(0.032)
PTA	0.181***	0.148***	0.148***
	(0.041)	(0.052)	(0.052)
DEPTH	-0.044**	-0.051**	-0.048*
	(0.019)	(0.025)	(0.027)
Observations	476,152	348,844	348,844
Share of Exports under PTA	0.29	0.3	0.3
Average ENVPROVS for exports under PTA	27.6	24.5	24.5
Average RESTRICTIVE for exports under PTA			0.78
Average LIBERAL for exports under PTA			0.84
R²	0.884	0.861	0.861

Effects on dirty exports



- In line with H1a, we find that **EPs decrease the share of dirty exports** (of developing countries)
- We also find support for H2a, that it is particularly explicitly **trade-restrictive EPs that reduce dirty exports** between partner countries

	(1)	(2)	(3)
	All countries	Developing country exporters	Developing country exporters
	DIRTSHARE	DIRTSHARE	DIRTSHARE
ENVPROVS	-0.037*** (0.011)	-0.049*** (0.015)	-0.026* (0.016)
RESTRICTIVE			-0.403*** (0.135)
LIBERAL			0.538 (0.496)
PTA	0.278 (0.567)	0.830 (0.700)	0.877 (0.699)
DEPTH	0.559** (0.279)	0.588 (0.371)	0.366 (0.381)
Observations	476,152	348,844	348,844
Share of export flows under PTA	0.29	0.3	0.3
Average ENVPROVS for exports under PTA	27.6	24.5	24.5
Average RESTRICTIVE for exports under PTA			0.78
Average LIBERAL for exports under PTA			0.84
R²	0.452	0.454	0.454

Effects on green exports



- We do not find support for H1b: Aggregate number of EPs does not foster trade in green sectors.
- However, in line with H2b, **exports of green goods** (of developing countries) are **increased by** the inclusion of **trade-liberalizing EPs**

	(1)	(2)	(3)
	All countries	Developing country exporters	Developing country exporters
	GREENSHARE	GREENSHARE	GREENSHARE
ENVPROVS	-0.000 (0.004)	0.000 (0.006)	0.002 (0.006)
RESTRICTIVE			-0.114* (0.060)
LIBERAL			0.411** (0.184)
PTA	0.032 (0.176)	0.112 (0.205)	0.156 (0.204)
DEPTH	-0.007 (0.092)	-0.059 (0.112)	-0.143 (0.111)
Observations	476,152	348,844	348,844
Share of export flows under PTA	0.29	0.3	0.3
Average ENVPROVS for exports under PTA	27.6	24.5	24.5
Average RESTRICTIVE for exports under PTA			0.78
Average LIBERAL for exports under PTA			0.84
R²	0.225	0.213	0.213



Do initial conditions matter?

- We do not find support for H1b: Aggregate number of EPs does not foster trade in green sectors.
- However, in line with H2b, **exports of green goods** (of developing countries) are **increased by** the inclusion of **trade-liberalizing EPs**

	(1)	(2)	(3)
	Developing country exporters	Developing country exporters	Developing country exporters
	EXPORTS	DIRTSHARE	GREENSHARE
ENVPROVS			
--- Green exporters	-0.001 (0.002)	-0.050** (0.021)	0.001 (0.008)
--- Brown exporters	-0.002 (0.002)	-0.006 (0.017)	-0.001 (0.007)
RESTRICTIVE			
--- Green exporters	0.001 (0.010)	-0.300** (0.143)	-0.123* (0.069)
--- Brown exporters	0.079** (0.031)	-0.702 (0.491)	-0.015 (0.088)
LIBERAL			
--- Green exporters	-0.014 (0.034)	0.570 (0.532)	0.470** (0.209)
--- Brown exporters	0.062 (0.092)	0.933 (1.296)	0.177 (0.200)



- EPs in PTAs constitute environmental regulation of international trade
- We analyze the steering effects on (the composition of) exports, particularly in developing countries
- Can counter pollution haven effects -> (Restrictive) EPs indeed reduce exports of dirty goods
- Can lead to expansion of green production/exports -> Liberalizing EPs increase exports of green goods
- Inclusion of EPs in PTAs can reconcile economic and ecological ends
- However, some precondition of green economy/regulation needs to be in place in an exporting developing country



Thank you!



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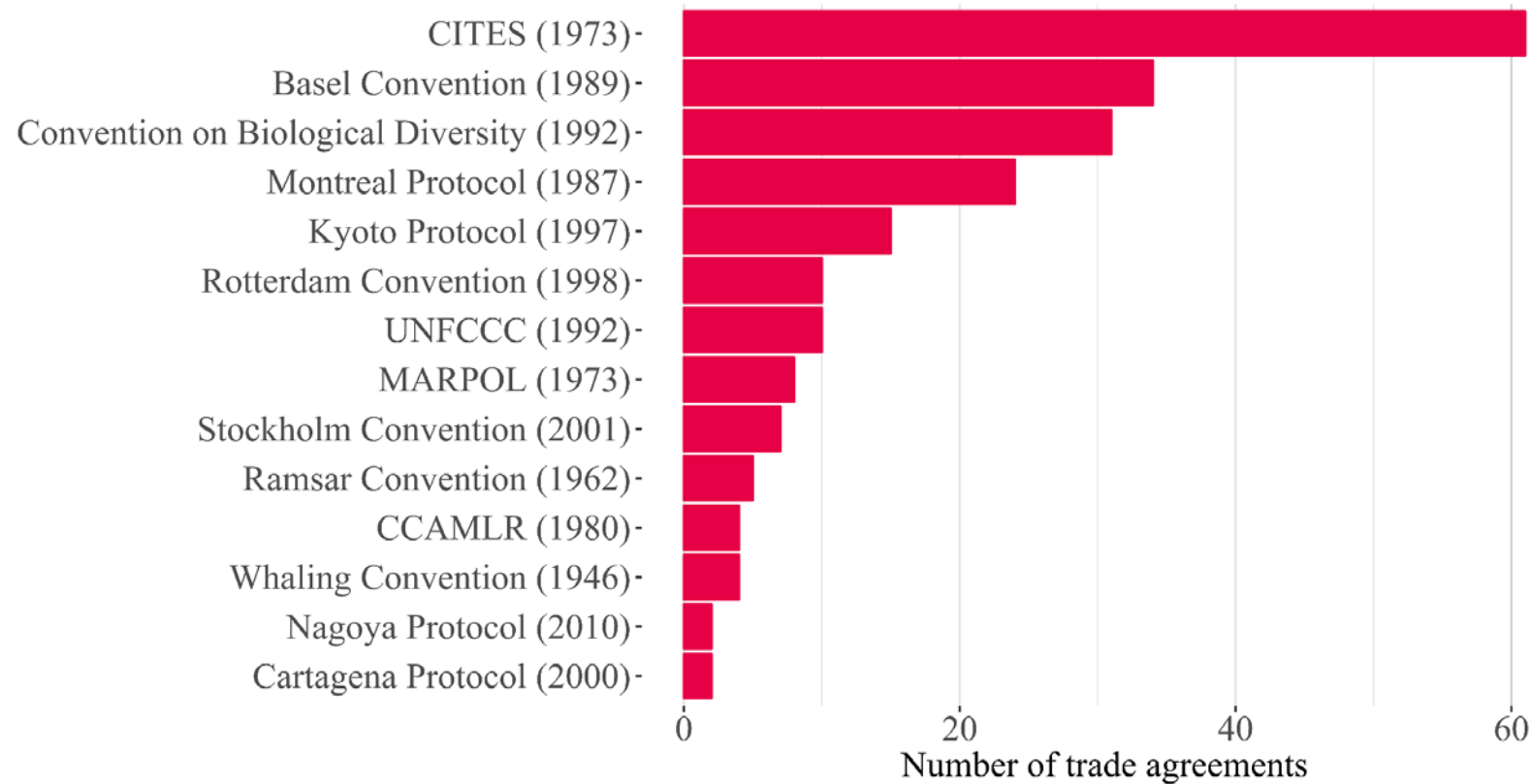


Appendix

Environmental provisions in PTAs: Examples...



References to MEAs



Morin, Jean-Frédéric and Corentin Bialais (2018) “Strengthening Multilateral Environmental Governance Through Bilateral Trade Deals”. *CIGI Policy Brief*.

Summary Statistics: PTA Level



All PTAs					
Variable	Obs	Mean	Std. Dev.	Min	Max
ENVPROVS	567	14.44444	21.61901	0	120
RESTRICTIVE	567	1.583774	3.481341	0	21
LIBERAL	567	0.4091711	0.9813385	0	6
DEPTH	567	1.582936	1.02003	0	3.687593
PTAs including Developing Countries					
Variable	Obs	Mean	Std. Dev.	Min	Max
ENVPROVS	505	14.73267	21.97604	0	120
RESTRICTIVE	505	1.653465	3.578029	0	21
LIBERAL	505	0.4178218	0.992871	0	6
DEPTH	505	1.585889	1.023272	0	3.687593

Summary Statistics: Trade Flow Level



All Country Pairs					
Variable	Obs	Mean	Std. Dev.	Min	Max
EXPORTS	476,152	14.29924	4.236119	0	26.9459
DIRTSHARE	476,152	15.5249	25.51327	0	100
GREENSHARE	476,152	2.822848	10.06015	0	100
ENVPROVS	476,152	8.424083	20.08451	0	120
RESTRICTIVE	476,152	0.6717162	2.607578	0	29
LIBERAL	476,152	0.1453086	0.6126786	0	6
PTA	476,152	0.2949835	0.4560358	0	1
#PTAs	476,152	0.6305465	1.295037	0	9
DEPTH	476,152	0.37225	0.8414226	0	3.687593
Brown Exporter	439,566	0.5010101	0.4999995	0	1
Developing Country Exporters					
Variable	Obs	Mean	Std. Dev.	Min	Max
EXPORTS	348,844	13.72279	4.106227	0	26.9459
DIRTSHARE	348,844	14.88556	26.50783	0	100
GREENSHARE	348,844	2.362553	10.28965	0	100
ENVPROVS	348,844	7.238579	18.52078	0	120
RESTRICTIVE	348,844	0.2291626	1.352832	0	29
LIBERAL	348,844	0.0638968	0.3887953	0	6
PTA	348,844	0.2951434	0.4561078	0	1
#PTAs	348,844	0.5872711	1.210724	0	8
DEPTH	348,844	0.2936409	0.7509712	0	3.687593
Brown Exporter	333,507	0.6466311	0.4780167	0	1

PPML Regressions



	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All Countries	Developing Country Exporters	Developing Country Exporters	All Countries	Developing Country Exporters	Developing Country Exporters	All Countries	Developing Country Exporters	Developing Country Exporters
	EXPORTS	EXPORTS	EXPORTS	DIRTSHARE	DIRTSHARE	DIRTSHARE	GREENSHARE	GREENSHARE	GREENSHARE
ENVPROVS	0.000	0.000	0.000	-0.002***	-0.002**	-0.000	-0.000	-0.001	-0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
RESTRICTIVE			-0.000			-0.018***			-0.033***
			(0.001)			(0.006)			(0.012)
LIBERAL			0.002			0.007			0.170***
			(0.002)			(0.023)			(0.045)
PTA	0.011***	0.009**	0.009**	0.035	0.053	0.058	0.016	0.044	0.086
	(0.003)	(0.003)	(0.003)	(0.029)	(0.036)	(0.036)	(0.062)	(0.089)	(0.090)
DEPTH	-0.006***	-0.007***	-0.008***	0.009	0.005	-0.007	-0.006	-0.017	-0.078
	(0.001)	(0.002)	(0.002)	(0.014)	(0.018)	(0.019)	(0.028)	(0.044)	(0.049)
Observations	476,152	348,844	348,844	455,087	330,616	330,616	425,000	304,472	304,472

Control for # of PTAs



	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All Countries	Developing Country Exporters	Developing Country Exporters	All Countries	Developing Country Exporters	Developing Country Exporters	All Countries	Developing Country Exporters	Developing Country Exporters
	EXPORTS	EXPORTS	EXPORTS	DIRTSHARE	DIRTSHARE	DIRTSHARE	GREENSHARE	GREENSHARE	GREENSHARE
ENVPROVS	-0.000 (0.001)	-0.000 (0.001)	-0.001 (0.001)	-0.037*** (0.011)	-0.049*** (0.015)	-0.026 (0.016)	-0.000 (0.004)	0.000 (0.006)	0.002 (0.006)
RESTRICTIVE			0.006 (0.009)			-0.400*** (0.135)			-0.099* (0.060)
LIBERAL			-0.004 (0.032)			0.520 (0.492)			0.363** (0.183)
# of PTAs	0.056*** (0.016)	0.059*** (0.023)	0.059** (0.023)	0.001 (0.217)	0.019 (0.316)	0.093 (0.315)	-0.272*** (0.064)	-0.334*** (0.088)	-0.304*** (0.087)
DEPTH	-0.010 (0.015)	-0.033 (0.022)	-0.029 (0.023)	0.646*** (0.223)	0.841*** (0.326)	0.600* (0.337)	0.119 (0.073)	0.133 (0.099)	0.059 (0.098)