WORKING PAPER

**Pursuing Environmental and Social
Objectives through Trade Agreements**

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Abstract

Using a dataset covering more than 120 countries spanning several decades, we employ a SDID estimator to study whether non-trade provisions (NTPs) on labour standards, environmental protection and civil and human rights in trade agreements yield improvements in corresponding indicators. We distinguish between binding (enforceable) and non-binding provisions and investigate linkages between NTPs and official development assistance (ODA). We find no evidence that labour or civil rights-related provisions improved associated outcome indicators in the sample period, while evidence on environmental outcomes is mixed. ODA is significantly greater with non-binding environmental and civil rights provisions, but not with labour standards.

Keywords

JEL codes

Acknowledgements

1 Introduction

The number of preferential trade agreements (PTAs) has been increasing steadily since the 1980s, as has the number of signatories and coverage of non-trade policy areas in such agreements (Dür *et al.*, 2014; Lechner, 2018; Mattoo *et al.*, 2020). Non-trade provisions (NTPs) are a prominent feature of the more recent PTAs concluded by the EU and the US, as well as by many other OECD member countries. They pertain to such matters as environmental protection, labour standards and human rights and have become central to political support for PTA negotiations (Van den Putte, 2015; Lechner, 2016). The increasing prevalence of NTPs in PTAs in recent decades is accompanied by extensive heterogeneity in national non-trade outcome indicators. As discussed further in Section 2. The direction of change in some non-trade outcome indicators associated with NTPs has often been negative.

Given the prominence of non-trade issues in recent debates on globalisation in general and trade agreements in particular, whether the inclusion of NTPs in PTAs supports the realisation of underlying non-trade policy objectives, i.e. they actually work to promote climate and socioeconomic goals, is a fundamental policy issue. This is the primary research question analyzed in this paper – does inclusion of NTPs in PTAs improve associated non-trade outcomes? We address this question by exploiting new data on trade agreement coverage (Mattoo *et al.*, 2020) and the synthetic difference in difference (SDID) estimator recently proposed by Arkhangelsky *et al.* (2021) to address endogeneity concerns. We extend the literature by allowing for the potential effectiveness of NTPs to depend on the nature of the commitments made. Specifically, we distinguish between NTPs depending on whether they take the form of binding, legally enforceable commitments or non-binding (non-enforceable) soft law provisions that only provide a framework for policy dialogue on the matters covered.[1] In both cases, NTPs provide a potential focal point for technical and financial assistance to support cooperation to improve associated

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[1]The literature on the effectiveness of binding vs. non-binding provisions in treaties (and the associated institutional conflict resolution mechanisms) goes well beyond PTAs. For example, McLaughlin Mitchell and Hensel (2007) find that peaceful resolution of disputes between states is more likely if pertinent treaties establish binding conflict resolution mechanisms serviced by an international organisation.

non-trade outcome indicators.

By explicitly considering both the enforceability of NTPs and the relationship between NTPs and ODA, we contribute to the policy debate on the appropriate design of NTPs in PTAs. Some proponents of NTPs argue that to be effective, commitments should be binding and enforceable through dispute settlement procedures (Bronckers and Gruni, 2021). Others argue that soft law provisions that are not subject to dispute settlement are more likely to improve outcomes of interest insofar as they involve (support) a process of active engagement and cooperation between governments and concerned stakeholder groups, especially if accompanied by official development assistance (ODA) projects and programs targeting specific non-trade goals.[2]

Most studies in international economics do not consider non-trade outcomes, instead largely relying on structural gravity models to analyze the *trade* effects of PTAs in general or specific PTA provisions.[3] Robust empirical evidence on the effects of NTPs on associated non-trade outcomes that control for endogeneity is both relatively scarce and limited in scope. The extant empirical evidence is mixed, context- and indicator-specific, often failing to apply methods that permit identification of a causal relationship between PTAs and non-trade outcomes.[4] Research that seeks to identify causal relationships between NTPs and non-trade outcomes often focuses on a specific non-trade area. Examples include Baghdadi *et al.* (2013), Abman and Lundberg (2020), and Abman *et al.* (2022) on environmental and air quality; Van den Putte (2015), Aissi *et al.* (2018), and Lundberg *et al.* (2022) on labour and workers' rights and Zerk (2019) on civil and human rights. More recent studies focus on even more specific and narrowly defined non-trade outcome

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[2]See e.g., Yildirim *et al.* (2021). This debate was a core feature of the recent EU review of Trade and Sustainable Development chapters in EU PTAs (Velut *et al.*, 2022), which centred on the design of cooperation to achieve sustainable development, including in the area of labour standards and environment, in EU PTAs (Marx *et al.*, 2016; Hoekman and Rojas-Romagosa, 2022). One result of the review was a decision to put greater emphasis on compliance and enforcement of NTPs.

[3]For example, Breinlich *et al.* (2022) adopt a machine learning approach to study the effect of WTO-plus PTA provisions, finding positive effects for provisions on areas covered by the WTO, such as subsidies and product standards.

[4]There is a substantial literature built largely around case studies, focusing on specific countries or specific provisions of PTAs (e.g., Hafner-Burton (2009),Kim (2012), Spilker and Böhmelt (2013), and Postnikov (2014). Hafner-Burton (2009) argues that binding human rights clauses in trade agreements are more likely to induce compliance, but Spilker and Böhmelt (2013) have shown this finding is affected by potential selection bias.

or performance measures, such as geo-located tree coverage (Abman *et al.*, 2021).[5]

We break with the recent literature by adopting a broader perspective. We focus collectively on three non-trade policy domains: environmental protection, labour standards, and civil, social and human rights. We consider both the effects of enforceable vs. non-binding NTPs and the main potential complementary mechanism that may be used to pursue the non-trade policy objectives reflected in NTPs: development assistance projects targeting environmental improvement, labour rights protection, and civil and human rights in developing countries. ODA constitutes a potentially important instrument to support efforts by countries that sign PTAs with NTPs to implement provision-related policy changes. Insofar as NTPs drive changes in associated non-trade outcomes this may be conditional on cooperation, including financial and technical assistance targeting the areas of interest. In the case of soft law NTPs development aid may be an important channel for efforts to improve non-trade outcomes given the absence of binding commitments and legal enforcement mechanisms. In cases where NTPs are enforceable ODA can also support implementation, but a binding NTP might be regarded by a donor country as a substitute for ODA, inducing a reduction in assistance. Countries that accept binding NTPs may already have better underlying performance, so that ODA is not needed to attain a particular norm, and sustained implementation or compliance can be assured through dispute settlement procedures. These dimensions of NTP design figure prominently in policy debates but have been largely neglected in empirical research.

We seek to identify the causal relationships between NTPs and a range of non-trade outcome indicators associated with these three policy areas of interest. In doing so, we advance the literature by (i) applying a consistent framework across the different policy domains, as opposed to the issue-, country- or PTA-specific focus in much of the research in this area; (ii) differentiating between the effects of enforceable versus non-binding

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[5] Abman *et al.* (2021) explore the causal impact of environmental provisions in PTAs on forest coverage loss. Their estimates suggest that PTAs tend to increase pressure on the environment (especially, via deforestation in developing countries), but that this negative impact can be at least partially offset by the inclusion of binding environmental protection obligations. Similarly, Tian *et al.* (2022) estimate that increased global CO2 emissions accompanying growth in production and trade created by the Regional Comprehensive Economic Partnership (RCEP) will dominate any potential mitigation commitments by signatories.

provisions; and (iii) evaluating the relationship between NTPs and official development assistance (ODA) allocated to the respective policy areas of interest.

Our findings suggest an absence of consistent and statistically significant causal relationships between NTPs and labour and civil rights, and indicative evidence of ambiguous effects of environment-related NTPs and certain types of environmental outcomes. Average Treatment on the Treated (ATT) estimates indicate that NTPs dealing with labour, civil and human rights have no effect on associated outcome indicators, with the exception of enforceable labour-related NTPs in EU PTAs, where we actually find a significant reduction in a measure of worker protection. We find mixed evidence on whether NTPs improve environmental outcomes. ATT estimates for binding versus non-binding NTPs sometimes have opposite signs, suggesting the type of NTP − enforceable or soft − may matter for different types of activities and thus environmental outcomes.

In addition, we find that development assistance increases for countries that join PTAs with non-binding NTPs pertaining to the environment and civil and human rights. No such result obtains for NTPs on labour rights. The ODA results are consistent with the notion that soft law non-trade provisions need to be associated with other instruments if they are to be effective. As with the estimated null effect of labour-related NTPs on associated outcome indicators, agreeing to NTPs in this area also is not associated with greater aid. Labour rights are the only non-trade area where there is no evidence of improved performance or greater effort by donor countries to assist partner countries that sign NTPs to ameliorate outcomes.

In the rest of the paper we proceed as follows. In Section 2 we introduce our data on NTPs in PTAs and on indicators that measure different dimensions of the non-trade issues associated with those NTPs. In Section 3 we discuss our methodology and present empirical results. We first analyse non-binding NTPs, comparing signatory countries to other countries that did not sign any PTA with the NTP of interest, and then assess binding NTPs. This is followed by a SDID analysis focusing on the relationship between binding vs. non-binding provisions and development assistance. Section 4 concludes.

2   Data

We combine information from three sources. Data on NTPs come from the World Bank Deep Trade Agreement Database (Hofmann *et al.*, 2019; Mattoo *et al.*, 2020). This includes information on all non-trade related provisions contained in 279 agreements signed between 1958 and 2015. The database distinguishes 14 "core" provisions that reconfirm existing WTO disciplines or impose additional (WTO-plus) obligations in policy areas that are covered by the WTO, as well as 38 provisions in areas that go beyond extant multilateral commitments (WTO-extra provisions). The dataset documents the growth in the inclusion of provisions on civil rights, environmental protection, and labour rights in trade agreements (Figure 1). In addition to reporting on the existence of provisions on a given subject, the database also provides information on their legal nature, including their enforceability.[6]

We focus on three types of WTO-extra provisions in PTAs; those related to civil and human rights promotion, labour rights protection, and environmental protection. We reduce the original bilateral dataset to a panel defined at *country ∗ year* level. For each country, we consider the year it signs a PTA containing the provisions of interest, the partner country (whether the PTA includes the EU, the US, or other countries), and whether the obligations arising from the agreement can be considered as binding (i.e., if they can be enforced through a dispute settlement mechanism). In case a country signs more than one agreement, we consider the first one in which a provision of interest is signed and assume that it stays in force even when additional agreements (possibly with different sets of partners and different sets of obligations) are signed. We allow for changes in legal enforceability over time with subsequent agreements.

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[6]Information on legal enforceability is reported for 52 selected policy areas in total. An extended version of the dataset provides more detailed indicators for a subset (18) of these policy areas. We work with agreements signed in the period 1995-2010. See https://datatopics.worldbank.org/dta/about-the-project.html.

Figure 1: *Evolution of provisions on environment, labour, civil and political rights in PTAs*
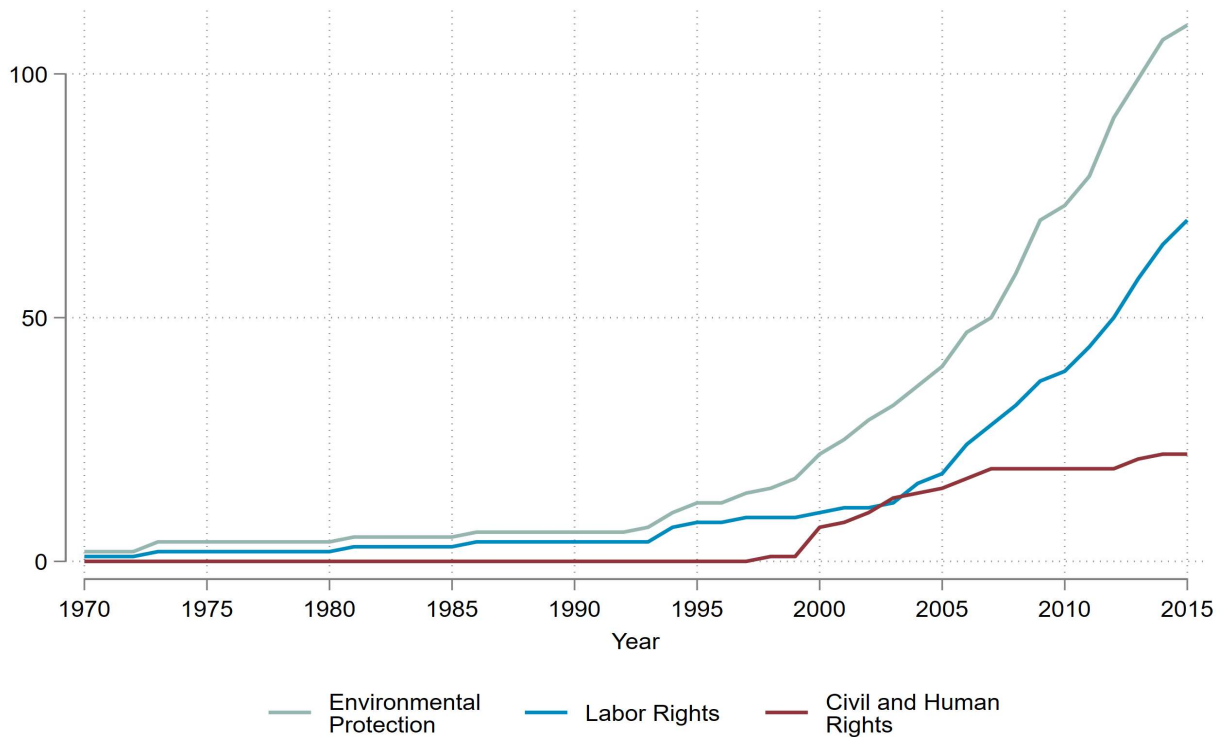
Notes: Number of issue specific provisions in PTAs signed by sample countries over time. Source: Hofmann *et al.* (2019).

We merge these data on country level PTA provisions with the NTPOID_v2 dataset (Manchin, 2021) characterizing non-trade related outcomes. This database includes information on a broad range of economic, political, environmental, and social indicators.[7] We integrate both datasets with the Environmental Performance Index (EPI) dataset (Wendling *et al.*, 2020) which provides indicators related to climate, environment, and ecosystem vitality. We map relevant outcome indicators on each of the three non-trade policy domains of interest that are available for a long enough time-span for a large number of countries. The conditions of continuity, country coverage and time span needed for estimation reduces the set of suitable indicators for labour, civil and human rights, as many are covered by indices characterised by limited variability, a short time span, or

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[7]The database was constructed by drawing on multiple sources including the Political Institutions 2017 Codebook (DPI) database, the International Political Economy Data Resource database - Version 3.0 (IPE), the Structural policy indicators database for economic research (SPIDER), the 2018 Quality of Government dataset (QoG)) and World Bank World Development Indicators.

periodic breaks. Table A-5 lists the resulting set of indicators and their sources.

We retain 14 distinct environmental indicators, covering different types of pollution, habitat preservation, and forest protection. Three come from the World Bank World Development Indicators: the ratio of CO_2 emissions in kg to GDP (in PPP $), forest area (% of land area) and SO_2 emissions. Eleven additional outcome measures are sourced from the EPI data. These include two measures related to Climate Change mitigation: black carbon intensity and greenhouse gas emissions (measured in terms of average annual rate of increase); three indicators related to Environmental Health (PM2.5 exposure, NOx Intensity, and Ozone Exposure, all measured using the number of age-standardised disability-adjusted life-years lost per 100,000 persons due to exposure to ground-level ozone pollution); and six measures of Ecosystem Vitality - a protected areas index (the proportion of biologically scaled environmental diversity included in a country's terrestrial protected areas, with higher values reflecting better performance), the species habitat index (the proportion of suitable habitat within a country that remains intact for each species in that country relative to a baseline set in the year 2001), the sustainable nitrogen management index measuring the efficiency in application of nitrogen fertiliser with maximum crop yields (higher values indicating worse performance), a species protection index measuring the species-level ecological representativeness of each country's protected area network, tree cover loss (five-year moving average of the percentage of forest lost relative to forest cover in 2000), and wetland loss (quantified using a five-year moving average of the percentage of gross losses in wetland areas relative to a 1992 baseline). For EPI indices, a higher value indicates (sometimes counter-intuitively) better performance with respect to the outcome of interest.[8]

For labour protection we use two outcome variables: the *Mosley-Uno labour rights* indicator, a measure of collective labour rights, and the *QOG worker rights* indicator, a composite index measuring freedom of association in the workplace, the right to bargain collectively and a prohibition on the use of any form of forced or compulsory labour; a minimum age for the employment of children; and conditions of work with respect to

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[8]See further details on the dataset at https://epi.yale.edu/.

minimum wages, hours of work, and occupational safety and health. This second measure of labor protection captures regulation of labor conditions more broadly.

For civil and human rights, we use an electoral democracy index − *polyarchy* − a measure of freedom of expression, obtained from the Variety of Democracy database, which ranges between zero and one, with higher values indicating better outcomes; a female political participation (*empowerment*) index; a *political liberties* index; and an index for *freedom of association* which measures the right of citizens to assemble freely and associate in political parties, unions, or cultural organisations.

Figure 2 provides a snapshot for the three areas of the average direction of change over time and across countries in the non-trade outcome indicators used in the empirical analysis.[9] They reveal that for several developing countries in Africa, Asia and Latin America there were improvements in environmental outcomes, while the trend appears to be less positive in terms of labor standards and civil rights protection. There is significant heterogeneity across indicators and countries during the period considered, with deterioration in non-trade outcomes observed in numerous instances.

Data on Official Development Assistance (ODA) flows are sourced from the OECD Creditor Reporting System.[10] This includes disaggregated data on aid allocated for environmental, labour protection and civil rights projects as well as total ODA received by a country. To improve the match between treated countries (those having signed NTPs in these areas) and their synthetic counterfactual, in the empirical analysis we include measures of country-level economic openness using trade data from UN COMTRADE (excluding gas and oil) and market and country size (population, GDP, per capita GDP).

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[9]Ferrari *et al.* (2021) use principal components analysis to construct outcome indicators for these three areas to analyze the role of NTPs in EU PTAs.

[10]https://stats.oecd.org/index.aspx/Index.aspx?DataSetCode=CRS1.
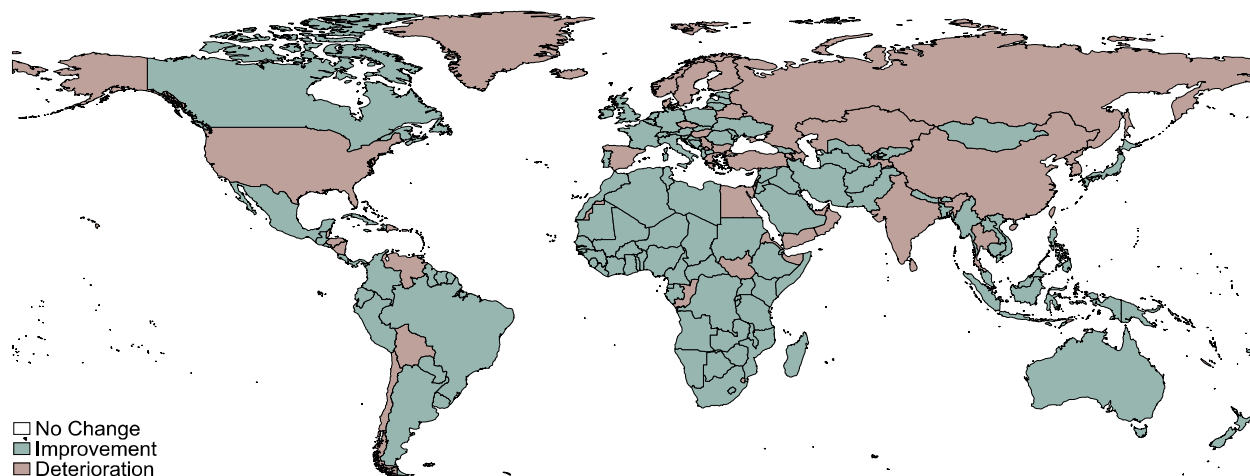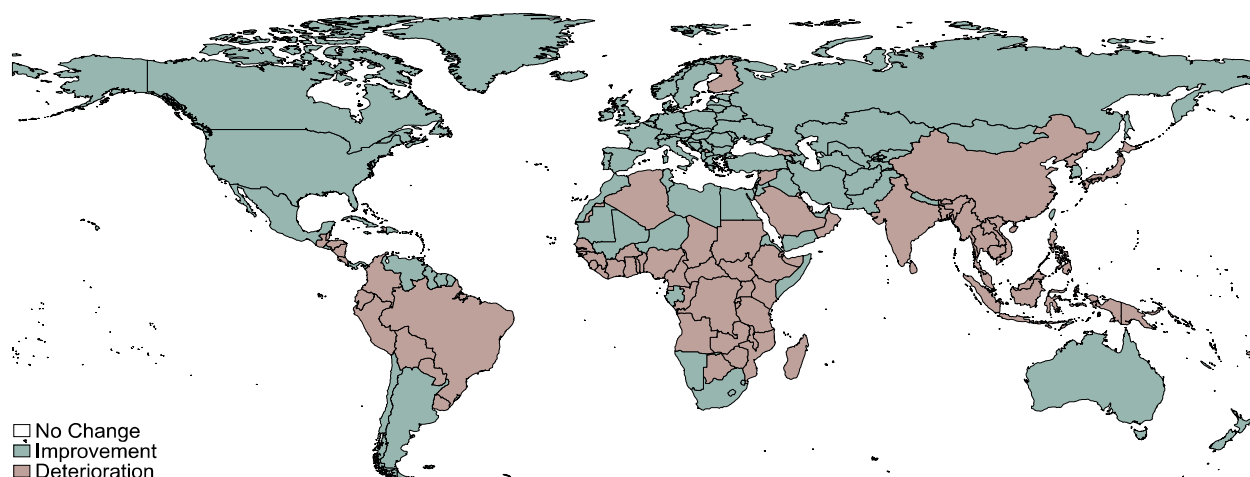
Civil Rights

Environmental Protection
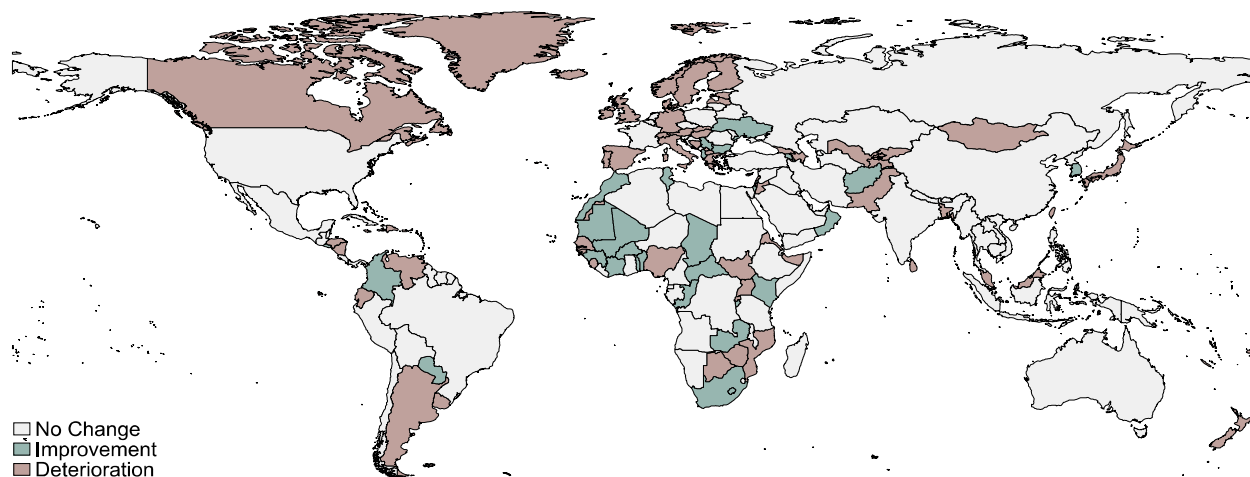
Labour Rights

Notes: Percentage variation in Civil Rights, Environmental, and Labour Rights Protection between 1990 and 2015. Simple averages of indicators described in the text for the three policy areas considered.

The resulting combined data covers more than 120 countries, for which we have an uninterrupted series for both the outcome and the explanatory variables. In order to guarantee a long enough stretch of pre-treatment and post-treatment observations, set to a minimum of 5 years respectively, we focus on all PTAs signed between 1995 and 2010.[11] We restrict the partner countries in PTAs that include the EU, US or other OECD countries to a set of low and middle income non-EU countries.[12]

When focusing on the EU, US, and rest-of-world (ROW) agreements, we further restrict the sample of potentially treated countries by excluding all those with socio-economic conditions comparable to the EU or the US.[13] The rationale for this additional restriction is that such countries might already apply high standards in the non-trade outcomes of interest. For instance, with respect to the EU or the US, we exclude high income countries such as Canada, New Zealand and Australia. The countries that are not considered in each exercise are listed in Annex Table A-1.

Table 1 summarises the number of PTAs with binding or non-binding NTPs in our sample, as well as the number of countries making such commitments. While EU PTAs have both binding and non-binding provisions (except in civil and human rights, where provisions are non-binding), the US only has binding NTPs in its PTAs, and does not include provisions on civil and human rights. Most provisions entail environmental commitments, with some 80 countries signing binding or non-binding environmental provisions. Annex Table A-2 provides further information on signatories of PTAs with NTPs, including the number of "overlapping provisions" – instances where a country has accepted NTPs in more than one PTA.

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[11]In a few cases we partially impute some covariates and outcome indicators to preserve a minimum sample size.

[12]We exclude EU accession countries from the sample, given the special nature of their agreements with the EU, which included extensive financial transfers and much deeper cooperation than observed in other trade agreements.

[13]ROW refers to all agreements signed with all possible non-EU, non-US partners. This list includes but is not limited to other OECD countries such as Australia, Japan, Switzerland and Korea, and all partners in South-South PTAs involving non-OECD countries.

Table 1: *Agreements and Number of Signatories by Type of Provision*

	Panel A: Agreements with active provision							
	ALL		EU		USA		ROW	
	Not Binding	Binding	Not Binding	Binding	Not Binding	Binding	Not Binding	Binding
Environment	57	54	18	16	0	12	39	26
Labor	20	50	4	15	0	12	16	23
CHR	21	2	16	0	0	0	5	2
	Panel B: Countries with active provision							
	ALL		EU		USA		ROW	
	Not Binding	Binding	Not Binding	Binding	Not Binding	Binding	Not Binding	Binding
Environment	78	77	17	26	0	18	73	63
Labor	30	66	2	26	0	18	35	52
CHR	53	8	18	0	0	0	38	8

Notes: Panel A reports the number of agreements including either an Environmental, Labor, or Civil and Human Rights related provision. Panel B lists instead the number of signatories. The notation "Binding" refers to all provisions that also establish some form of legal enforcement mechanism.

3 Empirical specification and results

3.1 Synthetic difference in difference estimation

Evaluating the existence, sign and magnitude of the causal effect of NTPs on corresponding non-trade outcomes in partner countries is a major challenge. Countries that commit to a given NTP might differ from those who do not, violating the parallel trends assumption that is necessary in most causal inference analysis. This implies that identifying a suitable counterfactual scenario (what would have happened if a country did not sign a PTA with the NTP of interest?) is challenging. Matters are further complicated by the staggered adoption of PTAs by countries over time, which makes it difficult to create control units across time needed for counterfactual analysis (i.e., how to estimate the effect of signing a given NTP, when countries may do so at different points in time and possibly, accept the same type of provision with different partners?).

To address both of these issues, we apply the Synthetic Difference-in-Differences (SDID) estimator proposed by Arkhangelsky *et al.* (2021). The SDID estimator combines the desirable features of difference in difference (DID) estimators and the flexibility of the synthetic control methodology. In effect the SDID can be regarded as a "doubly-weighted" two-way fixed effects (TWFE)-DID estimator, where unit- and time-specific

weights are computed from the data to (a) *align* pre-exposure trends in outcomes for treated (in our case, countries signing a PTA with a given type of NTP) and non-treated countries; and (b) *balance* pre-exposure and post-exposure time periods to reduce the influence of the staggered nature of signing PTAs. These two forms of "weighting" turn the TWFE estimator from being "global" to "local" in constructing a suitable control group, giving greater weight to countries that are more similar to the "treated" ones, and to time periods that are proximate to the treatment.

The constructed comparability that derives from the double-weighting procedure allows the SDID estimator to potentially compensate for a lack of parallel pre-trends between treated and untreated units in the raw data, an issue that might affect the robustness of traditional DID estimators. At the same time, because of the inclusion of two-way fixed effects and a different weighting algorithm, it does not require an exact match of pre-treatment trends of treated and non-treated units, a rarely satisfied requirement of the synthetic control method (Hollingsworth and Wing, 2020; McClelland and Mucciolo, 2022).

Equation 1 presents the optimisation process implemented by the SDID estimator to identify the average causal effect of the treatment on the treated countries (referred to as τ)

$$(\hat{\tau}, \hat{\mu}, \hat{\alpha}, \hat{\beta}) = \underset{\tau, \mu, \alpha, \beta}{\arg\min} \left\{ \sum_{i=1}^{N} \sum_{t=1}^{T} (Y_{i,t} - \mu - \alpha_i - \beta_t - W_{i,t}\tau)^2 \hat{\omega}^{sdid} \hat{\lambda}_t^{sdid} \right\} \qquad (1)$$

The part of equation 1 in parentheses comprises the TWFE component of the SDID estimator, where the term $Y_{i,t}$ refers to the pre-exposure trend in the performance of a PTA signatory country with respect to a given non-trade outcome indicator); α_i is the equivalent of the Abadie *et al.* (2010) term for the effect of the intervention for country i, while β_t controls for the difference between exposed and unexposed countries (i.e. between those countries who signed a given PTA provision and those that did not) at time t; and $W_{i,t}\tau$ denotes the exposure to a (binary) treatment, taking value 1 in the post-PTA/NTP signing period. The first term outside of the parentheses ($\hat{\omega}^{sdid}$) is similar to the unit weights in Abadie and Gardeazabal (2003) used to construct the synthetic counterfactual. Finally, $\hat{\lambda}_t^{sdid}$ represents the time weight used to discount the

distance in time across different treatment periods across countries. The latter term is a new addition compared to estimators used previously in the literature. The two parameters allow weighting the difference between treated and control units (from the TWFE component) by how much the two are comparable.[14]

We use the SDID estimator to identify the Average Treatment effect on the Treated (hereafter, the ATT) of signing a PTA containing at least one NTP addressing one of the three policy domains of interest: environmental protection, labour market regulation, and civil and human rights promotion. We consider a country as "treated" if it signs an agreement that includes the provision of interest in a given year.[15] Following the synthetic control and DID literature, we include a set of additional country characteristics to improve the matching between PTA signatories and control units. Annex Table A-3 A reports the basic summary statistics for the covariates included in the matching algorithm of the SDID. We include three measures of market size and wealth (GDP, population and GDP per capita), a measure of government accountability as a proxy for the likelihood a government will comply with international agreements (from the WDI database), the value of total exports and the share of total exports accounted for by the EU and the US, respectively. All else equal, greater trade dependence is likely to increase implementation of NTPs. Similarly, greater reliance on trade with the EU and the US (the two major proponents of NTPs globally) is also more likely to improve compliance.

3.2   Results: Non-binding provisions

We first investigate the impact of non-binding NTPs on related non-trade outcome indicators. We compare outcomes in countries signing non-binding NTPs to those observed in countries that do not sign any agreements including the relevant NTPs (i.e., we exclude those countries that, at some point before or during the sample period sign a PTA with

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[14]Most of the tests showing the consistency of SDID under different weighting schemes performed by Arkhangelsky *et al.* (2021) are based on a single treated unit. We exploit the foundation for the staggered treatment scenario in their Appendix A, where they allow for multiple treated units and multiple treatment periods. Pailañir and Clarke (2022) implement both procedures in STATA, allowing for the inclusion of additional covariates to improve the matching in the pre-treatment period.

[15]If a country has signed more than one agreement containing the same provision in the period of interest, the earlier one is chosen.

a binding NTP). Table 2 reports estimates of the ATT of signing a non-binding NTP, distinguishing between environmental protection, labour market regulation, and civil and human rights.

The first two columns report the ATT from non-binding NTPs for all agreements signed during the period of interest, as well as the estimated average percentage changes that the ATT translates into, compared to the sample average. The second two columns do the same for non-binding provisions included in EU PTAs (with no subsequent signature of an agreement with the US.) Finally, the last two columns report results for PTAs with countries other than the EU or the US, again limiting the sample to countries that have not committed to NTPs in PTAs with the EU or the US.[16]

The results for environmental performance indicators are heterogeneous. When considering all PTAs, only 6 of the 14 indicators considered point to a positive association with environmental NTPs. A statistically significant improvement (at the 10% confidence level) is only observed for greenhouse gases. Conversely, we find that signing a PTA with non-binding environmental provisions leads, on average, to a significant deterioration in four indicators of environmental quality; CO_2 emissions, ozone exposure, protected areas (the share of biological environmental diversity included in a country's terrestrial protected areas) and sustainable nitrogen management in agricultural production.[17] Figure 3 plots the standardised coefficients and their statistical significance for the sample of all PTAs. The standardised coefficients highlight that among environmental outcomes, the largest estimated change is the increase in CO_2 emissions. Other estimated changes are smaller both in magnitude and in relative terms.

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[16]We do not consider US agreements separately as the US only has binding NTPs in its PTAs. The full Synthetic DID output tables are reported in Annex B.

[17]The $(+)/(-)$n sign next to each measure in Tables 2 and 3 indicates to the direction of change that is associated with an improvement in the related outcome indicator. A negative sign reflects an improvement in the case of CO_2 and SO_2 emissions.

Table 2: *Average Treatment Effect on Signatories - Non-Binding Provisions*

	Variable		All agreements ATT	δ pct.	EU ATT	δ pct.	Rest of the World ATT	δ pct.
Environment	CO2	(-)	**0.141**	**48.17%**	-0.007	-2.33%	**0.116**	**39.84%**
	Forests	(+)	-0.766	-2.35%	0.314	0.96%	**-0.878**	**-2.70%**
	SO2	(-)	3.870	0.80%	10.261	-2.13%	3.695	0.77%
	Black Carbon	(+)	-2.350	-4.56%	-5.995	11.65%	-1.083	-2.10%
	Greenhouse Gases	(+)	**2.315**	**3.93%**	-1.059	1.80%	**2.408**	**4.09%**
	Nox	(+)	-2.809	-5.98%	6.296	13.42%	-3.340	-7.12%
	Ozone Exposure	(+)	**-4.556**	**-9.10%**	1.467	2.93%	**-3.807**	**-7.61%**
	Protected Areas	(+)	**-1.779**	**-6.64%**	0.823	3.07%	**-1.523**	**-5.68%**
	PM2.5	(+)	-1.105	-2.72%	1.264	3.11%	-1.212	-2.98%
	Species Habitat	(+)	-0.557	-0.60%	2.334	2.51%	1.813	1.95%
	Nitrogen Management	(+)	**-2.563**	**-7.68%**	4.698	14.08%	**-3.393**	**-10.17%**
	Species Protection	(+)	0.487	0.74%	-0.583	-0.89%	-0.282	-0.43%
	Tree coverage loss	(+)	-3.854	-9.68%	**-4.321**	**-10.86%**	-2.336	-5.87%
	Wetland loss	(+)	-3.985	-6.96%	5.184	9.06%	**-7.130**	**-12.45%**
Labour Market Regulation	Labour Rights	(+)	-0.770	-3.35%			-1.172	-5.10%
	Workers Protection	(+)	0.094	9.86%			-0.0668	-6.98%
Civil and Human rights	Polyarchy	(+)	0.020	4.29%				
	Freedom of Expression	(+)	0.001	0.15%				
	Women Political Participation	(+)	0.000	0.07%				
	Political Liberties	(+)	-0.004	-0.65%				
	Freedom of Association	(+)	0.096	8.55%				

_Notes: Average Treatment effect on the Treated (ATT) of non-binding provisions in PTAs on signatories. Percentage change refers to the relative change compared to the outcomes' sample averages. Bold changes signal statistically significant effects. Boldface font indicates a statistically significant effect. The sign in brackets indicates the direction of change denoting an improvement in the related outcome. Table A-5 reports the sources and summarises the sign indicating an improvement for each outcome variable considered. Data constraints preclude estimation of the ATT for EU NTPs addressing labor and civil and human rights. US agreements do not include non-binding provisions on Civil and Human Rights.

Figure 3: *Average Treatment Effect on the Treated - Non-Binding Provisions, All Agreements*
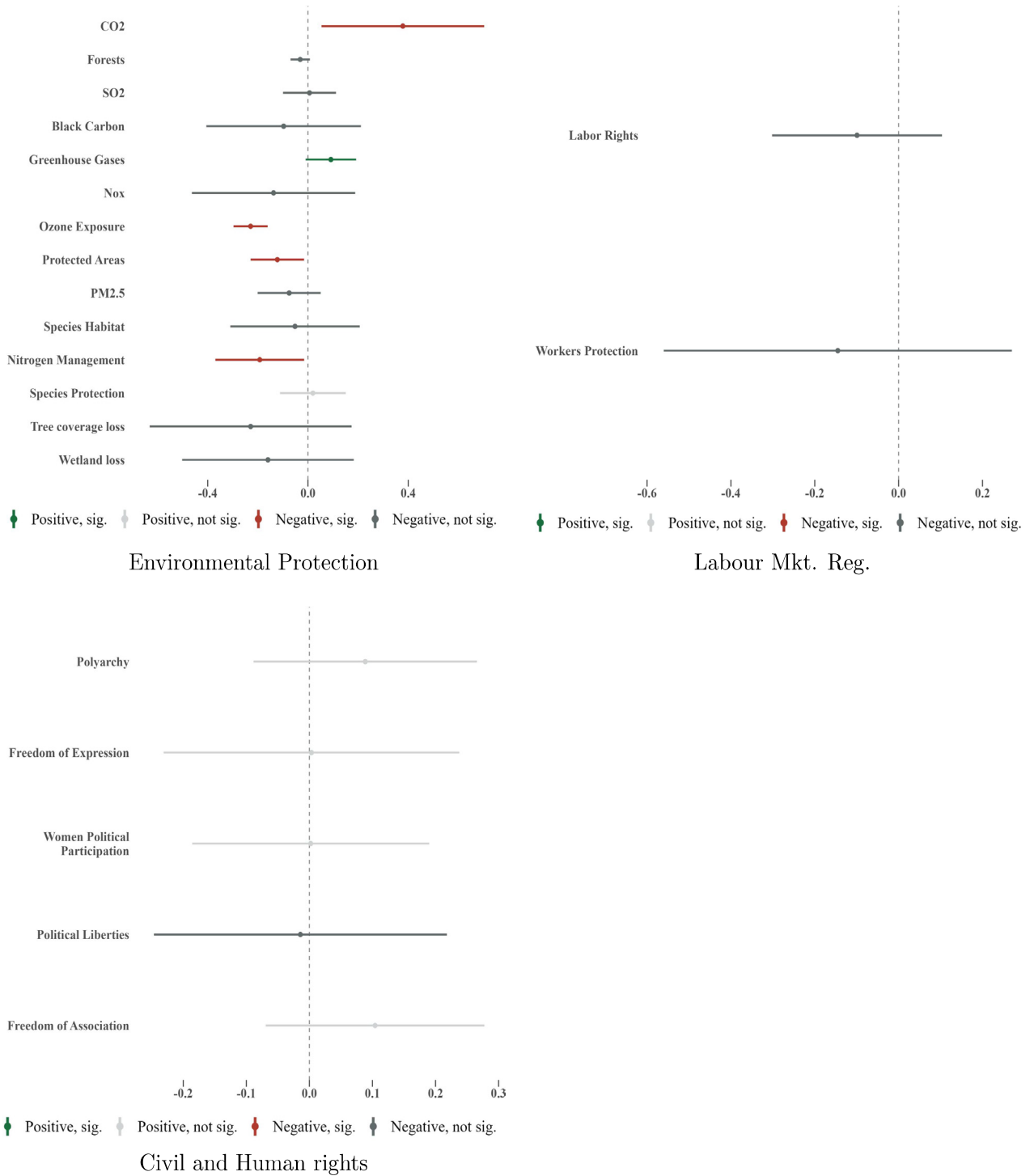
Environmental Protection

Labour Mkt. Reg.

Civil and Human rights

Notes: Standardised ATT effect. Plotted coefficients refer to the column "*All Agreements*" in Table 2.

In the case of EU PTAs with non-binding NTPs, none of the outcome indicators are affected by NTPs, with the exception of tree coverage, for which there is a significant deterioration, equivalent to an 11% decrease compared to the mean (Table 2). Results for rest of the world PTAs are more similar to those for all PTAs, in that the estimates suggest a significant increase in CO2 emissions, deterioration in ozone exposure, protected areas, and nitrogen management, coupled with a smaller improvement in the greenhouse gases emissions (of about 40% and 4.09% respectively). In addition, there is an estimated reduction in forests, equivalent to about 2.7% of the average in the sample and an increase in wetland loss. These overall negative findings are consistent with the literature, and point to the pressure put on the environment by the increase in production and trade associated with the signing of a PTA. We take this to mean that while the core commitments of the trade agreements studied led to pressure for environmental degradation, the flanking features of those agreements, in the form of non-binding NTPs, failed to ameliorate those pressures. No significant effects are found for the other two issue areas, labour and worker rights and civil and human rights.

3.3   Results: Enforceable non-trade provisions

Table 3 replicates the exercise focusing on enforceable NTPs, distinguishing between all PTAs, EU agreements without US, US agreements without EU, and ROW agreements that do not include the EU or the US. For the sample as a whole, binding NTPs are associated with a small but significant increase in forest coverage, as well as improvement in both PM2.5 emissions and ozone exposure index. Figure 4 plots the standardised coefficients for the sample of all agreements. The results again mask heterogeneity across provisions. In the case of EU agreements we find a large and significant improvement in SO_2 emissions, equivalent to an 85% change relative to the sample average. We also find a significant improvement in NOx emissions and ozone exposure, as well as in species habitat protection. In the case of US PTAs, binding provisions lead to a significant increase in CO_2 emissions (similar to what was found for non-binding provisions), amounting to a 32% increase compared to countries that did not sign an agreement with the US. Fur-

thermore, PM2.5 emissions, species protection and habitat improve significantly. Finally, looking at non-EU, non-US PTAs, the only significant impact found is a 4% improvement in PM2.5 emissions. Unlike in the case of non-binding provisions, there is no other significant change, despite the direction and large magnitude of the non-significant coefficients.

We find no significant relationships between NTPs and civil and human rights outcome indicators. Binding labour-related provisions in EU agreements have a small but significant impact in terms of improving the indicator of collective labour rights, but are associated with a large deterioration in the broader measure of labour standards, which includes occupational safety and health, hours of work, and minimum age for employment of children. This index includes more measures associated with actual work conditions. The estimated impact is a 27% decrease in the indicator.

3.4 Discussion

Overall we find that NTPs do not have a clearly identifiable impact on labour or civil rights, whether binding or non-binding, with the exception of binding labour provisions in EU PTAs, which are associated with a deterioration in the broad measure of labour standards. There is some evidence that NTPs may affect certain environmental indicators, but no consistent impact across the range of environmental outcome indicators. Many estimated changes in outcomes are not significant. Those that are significant are heterogeneous, with a mix of positive and negative estimates for some indicators, and with differences across EU, US and ROW agreements. Some of the statistically significant estimates imply that inclusion of NTPs is associated with a worsening of outcomes. A comparison of the estimates for non-binding and binding NTPs suggests that non-binding NTPs may lead to improved performance in some areas where binding provisions do not do so. Conversely, binding provisions may help improve performance in an area where non-binding NTPs do not. This suggests that insofar as the two types of NTPs are effective, this is issue-specific.

Table 3: *Average Treatment Effect on signatories - Binding Provisions*

		All Agreements		EU		USA		Rest of the World	
Variable		**ATT**	δ **pct.**	**ATT**	δ **pct.**	**ATT**	δ **pct.**	**ATT**	δ **pct.**
Environment									
CO2	(-)	-0.018	-6.08%	-0.018	-6.23%	**0.094**	**32.17%**	-0.006	-2.18%
Forests	(+)	**0.549**	**1.69%**	0.104	0.32%	0.025	0.08%	0.162	0.50%
SO2	(-)	-403.147	-83.81%	**-411.207**	**-85.49%**	96.687	20.10%	-787.828	-163.78%
Black Carbon	(+)	-3.929	-7.63%	7.013	13.62%	-8.570	-16.65%	-6.579	-12.78%
Greenhouse Gases	(+)	-0.395	-0.67%	0.305	0.52%	0.565	0.96%	-1.943	-3.30%
Nox	(+)	2.341	4.99%	**14.782**	**31.49%**	-0.371	-0.79%	-5.692	-12.13%
Ozone Exposure	(+)	**3.147**	**6.29%**	5.081	10.15%	0.064	0.13%	0.999	2.00%
Protected Areas	(+)	0.179	0.67%	2.119	7.90%	0.107	0.40%	-0.064	-0.24%
PM2.5	(+)	**1.720**	**4.23%**	-0.865	-2.13%	**4.119**	**10.13%**	**1.553**	**3.82%**
Species Habitat	(+)	-2.679	-2.89%	**2.978**	**3.21%**	**2.164**	**2.33%**	-2.664	-2.87%
Nitrogen Management	(+)	-1.092	-3.27%	0.589	1.77%	0.418	1.25%	-0.268	-0.80%
Species Protection	(+)	0.511	0.78%	-0.517	-0.79%	**1.483**	**2.26%**	-1.155	-1.76%
Tree coverage loss	(+)	-0.159	-0.40%	-0.593	-1.49%	-1.793	-4.51%	-0.758	-1.91%
Wetland loss	(+)	-0.077	-0.13%	1.941	3.39%	-5.545	-9.68%	-5.718	-9.99%
Labor Market Regulation									
Labor Rights	(+)	0.489	2.13%	**0.212**	**0.93%**	-0.125	-0.54%	0.333	1.45%
Workers Protection	(+)	-0.050	-5.23%	**-0.264**	**-27.53%**	0.152	15.78%	-0.125	-13.08%
Civil and Human rights									
Polyarchy	(+)	0.017	3.78%					-0.004	-0.81%
Freedom of Expression	(+)	-0.002	-0.31%					-0.009	-1.65%
Women Political Participation	(+)	-0.013	-2.02%					-0.111	-17.77%
Political Liberties	(+)	-0.002	-0.42%					0.003	0.46%
Freedom of Association	(+)	0.130	11.59%					0.338	30.21%

_Notes: Average Treatment effect on the Treated (ATT) of binding provision signatories. Percentage change refers to the relative change compared to the outcomes' sample averages. Boldface font indicates a statistically significant effects. The sign in brackets refers the direction denoting an improvement in the related outcome. Table A-5 in the annex reports data sources and summarises the sign indicating an improvement for each outcome variable considered.

Figure 4: *Average Treatment Effect on the Treated - Binding Provisions, All Agreements*
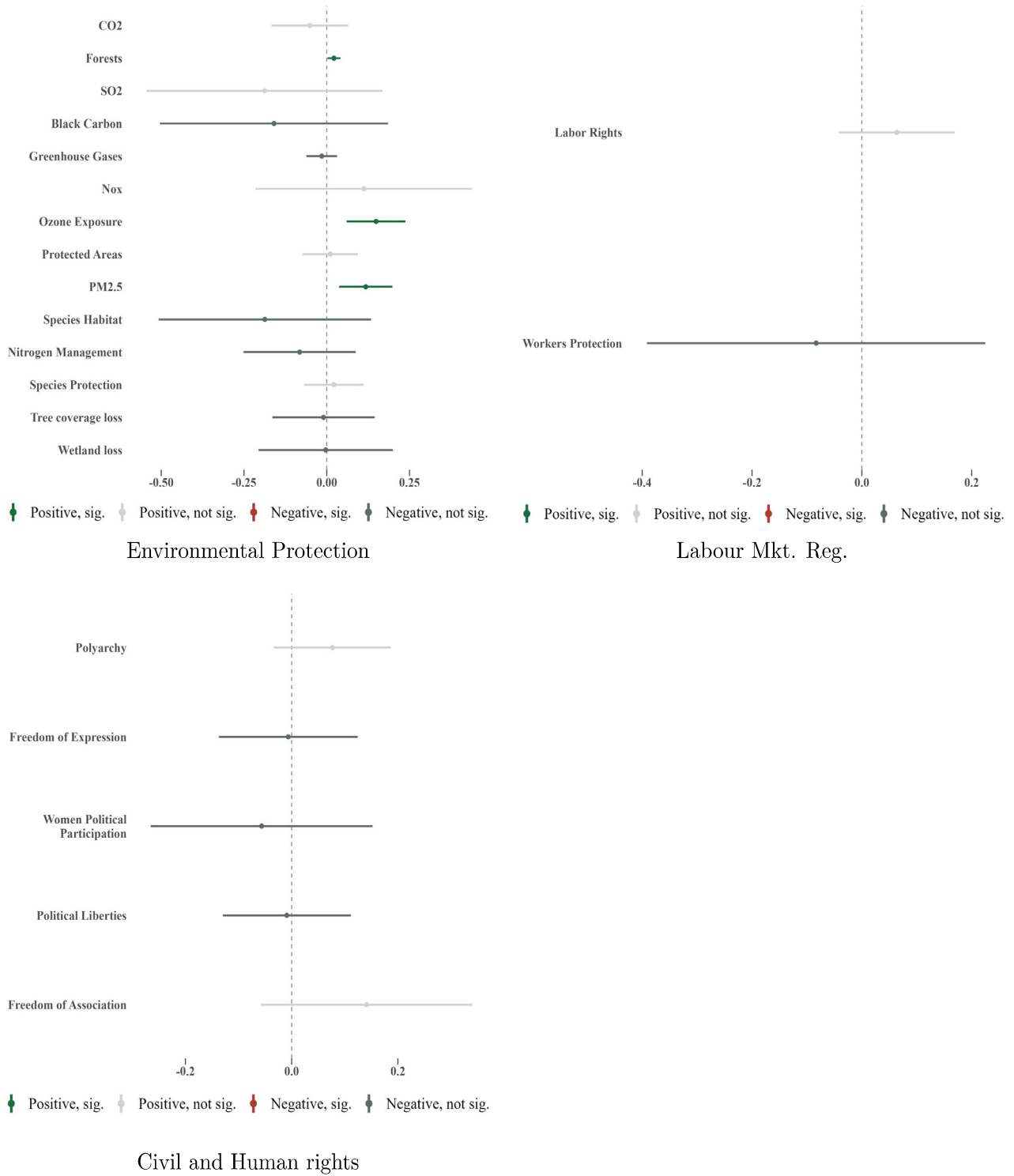
Environmental Protection

Labour Mkt. Reg.

Civil and Human rights

Notes: Standardised ATT effect. Plotted coefficients refer to the column "*All Agreements*" in Table 3.

The results highlight a need for better understanding the incentive effects and effectiveness of binding NTPs that are accompanied by legal enforcement mechanisms as compared to cooperation motivated by soft law types of NTPs. In the next sub-section we undertake an exploratory analysis of one such instrument that may play a role in influencing whether NTPs are implemented: official development assistance. The underlying hypothesis is that the impact of NTPs may be influenced by the use of complementary instruments that seek to improve non-trade outcomes.

3.5 Development assistance and NTPs

Development assistance-funded projects and programs targeting issue areas addressed in NTPs may influence outcome performance. While there is an extensive literature investigating the effects of development assistance on trade, including so-called aid for trade projects and programs that seek to enhance trade capacity and facilitate trade,[18] little attention has been given to the role of ODA targeting the non-trade issue areas that are the focus of this paper. Aid recipients may or may not have a PTA with the donor, and these may or may not include NTPs, which may be binding or non-binding. Of interest is not only whether ODA varies with (type of) NTPs but whether overall ODA flows are affected by signing an NTP or a change in the type of NTP that a partner country signs.[19]

Figure 5 plots the average amount of ODA (in USD million) received by countries that have not signed PTAs that include NTPs, those that have agreed to non-binding NTPs and those accepting binding provisions.[20] Countries that have accepted binding environmental provisions receive more ODA than signatories of PTAs that only include non-binding provisions. There is little difference between the latter set of countries and those that have not agreed to any NTPs. The opposite is true for aid for civil and human rights-related activities, where countries that have joined PTAs that include non-binding

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[18]See e.g., Younas (2008); Pettersson and Johansson (2013); Hoekman and Shingal (2020).

[19]Hoekman *et al.* (2023) find that (lagged) bilateral aid is positively and significantly associated with the propensity of developing countries to accept PTAs that include NTPs, including legally-enforceable provisions.

[20]Table A-6 reports the t-tests for significance in mean differences.

NTPs receive substantially more aid than those that have not done so. The substantial difference between the amount of additional aid allocated for civil and human rights-related projects to countries that sign non-binding NTPs and those that make binding commitments in this area is not a function of the type of NTP but a reflection of the fact that the EU and the US do not include enforceable NTPs dealing with civil and human rights in their PTAs.[21] Nonetheless, the difference between the pattern of aid and NTPs for environment and civil rights is noteworthy. Finally, in the case of labour rights, there is little difference in the average amount of ODA received by countries that have agreed to NTPs in this area and those that have not, nor does the type of NTP appear to matter much in terms of average dollar values disbursed.

To assess whether and to what extent signing a PTA affects official development assistance flows, we again use the SDID estimator (see Eq. 1). We are interested in determining whether signing an agreement affects the amount of development assistance received, and whether there are differences in this respect between signing binding provisions vs. non-binding ones.

Table 4 presents the SDID estimates for this second exercise. We report the ATT estimates of signing a PTA that includes a NTP of interest (covering environmental, labour, or civil rights protection) on aid flows targeting the associated policy domain, as well as on total aggregate ODA received. Given the focus on ODA, we restrict our sample to the set of countries that were eligible for receiving financial support during the period 1990-2015. To improve matching, we include per capita GDP, population, total trade, and share of trade with the US and the EU.[22]

The results for binding (non-binding) provisions are reported in the upper (lower) panel of Table 4. The first three rows of each panel focus on the relationship between the amount of issue specific ODA received and acceptance of a NTP in the corresponding area. The last three rows of each panel report the impact of having accepted an issue

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[21]There are other donor countries with PTAs that do have binding provisions in this area that are captured in the regressions.

[22]We consider all countries that received ODA at least once from at least one donor, and that did not lose the status of potential beneficiaries during the period considered. Country and year fixed effects included in the SDID estimator control for both time- and country-specific invariant factors that could also explain the allocation of ODA.

Figure 5: *Development Assistance and NTPs*

Environmental Protection

Labour Mkt. Reg.

Civil and Human rights
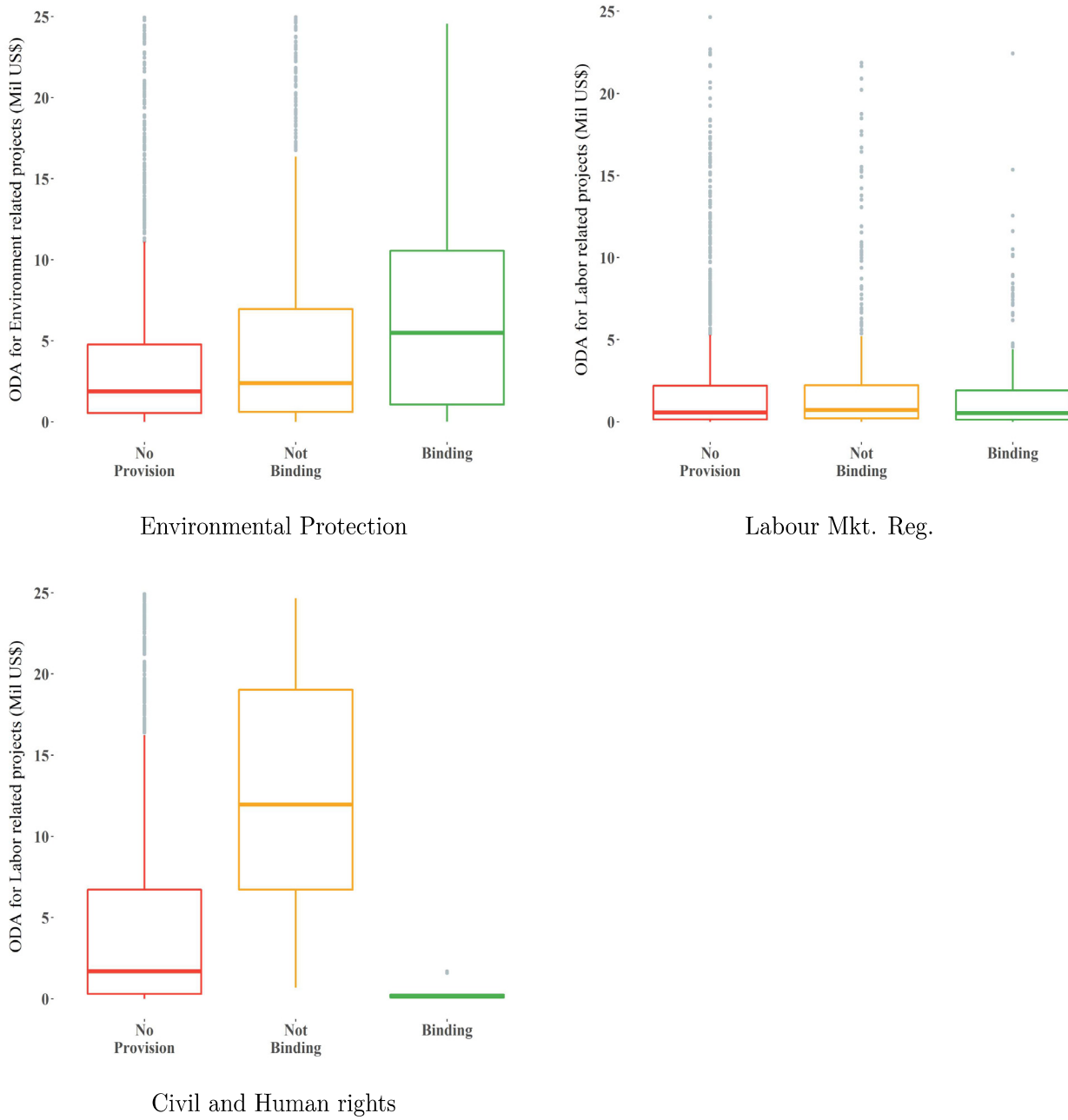
Notes: ODA in constant values, received by beneficiaries before and after signing an agreement. The category *No Provision* includes ODA received by countries before signing an agreement with the provision of interest and aid beneficiaries that never sign a PTA with such a provision. The remaining two box plots report the average amount of ODA received after signing an agreement including a non-binding or a binding provision, respectively. As noted, the EU and US do not have PTAs with binding civil and human rights-related NTPs.

23

specific NTP and total ODA received.

Accepting binding environmental and labour NTPs has no statistically significant impact on ODA. For those countries that have signed enforceable NTPs addressing civil and human rights we observe a large reduction in average ODA received, both issue-specific aid and overall ODA. While statistically significant, it is important to note that this result is driven by the small number of countries that are members of PTAs that have binding civil rights provisions. As mentioned, these do not include US or EU PTAs.

Non-binding NTPs dealing with environment and civil rights are associated with large, statistically significant, increases in the average value of overall ODA allocated to recipient countries. The positive effect on aid for civil and human rights is largely driven by EU agreements as the US does not include such NTPs in its PTAs. The absence of any relationship between ODA and labour-related NTPs suggested by the descriptive analysis in Figure 5 is confirmed by the SDID regression results.

These results are consistent with the idea that non-binding NTPs may act as focal points for cooperation on an issue area, and that when assessing their effects account should be taken of complementary policy instruments such as technical cooperation and financial assistance. The estimates indicate that high-income PTA members – the major proponents of NTPs – allocate more aid to countries that agree to non-binding provisions in the area of environment and civil rights. The large additional amount of aid received by signatories of such NTPs suggests an apparent link between committing to soft NTPs and obtaining complementary support for measures to improve outcomes. This said, the absence of such a relationship for labour-related NTPs and aid is striking, and may help to explain the lack of evidence that NTPs in this area drive better labour standards in partner countries.

Table 4: *Average Treatment Effect on the Treated (ODA recipients)*

	ATT	Std. Error	δ Pct.
Binding Provisions			
ODA: Environment Protection	2.35	11.10	70.28%
ODA: Labor Rights Protection	2.41	2.20	271.61%
ODA: Civil and Human Rights	**-23.06**	**11.59**	**-256.68%**
Total ODA - Environment Provision	119.51	119.71	63.66%
Total ODA - Labor Mkt. Provision	-13.97	99.95	-7.44%
Total ODA - Civil, Human Rights Provision	**-229.28**	**58.18**	**-122.13%**
Non-Binding provisions			
ODA: Environment Protection	0.96	3.50	28.48%
ODA: Labor Rights Protection	-0.28	1.12	-31.70%
ODA: Civil and Human Rights	26.81	21.49	298.44%
Total ODA - Environment Provision	**192.53**	**82.49**	**102.56%**
Total ODA - Labor Mkt. Provision	10.02	180.76	5.34%
Total ODA - Civil, Human Rights Provision	**236.10**	**133.22**	**125.76%**

Notes: Average Treatment effect on the Treated (ATT) on ODA received by signatories of binding provision. The sample is limited to countries that are eligible to receive ODA from the DAC donors. The first 3 rows (ODA) refer to sector specific disbursements. Percentage change refers to the relative change compared to the received ODA sample averages. Statistically significant effects are reported in bold.

4   Conclusion

Non-trade policy objectives are increasingly incorporated in developed countries' trade policies. The Treaty on the Functioning of the European Union for example requires that external trade policy supports and promotes EU values relating to human rights, environment, and sustainable development.[23] An implication is a need to balance the pursuit of material interests through trade with measures to ensure minimum standards are met regarding the conditions under which goods are produced. Conditioning preferential access to markets on non-trade provisions that relate to values and processes used to produce traded goods is a prominent instrument through which this balance is operationalized in the trade policy of high-income nations.

The inclusion of NTPs in PTAs is not simply a reflection of a desire to promote improvement in labour and environmental standards and civil rights in partner countries. Commercial considerations may also play a role, including concerns of domestic firms to ensure a "level playing field" when confronting competition from imports. From the perspective of firms in partner countries, implementation of NTPs by their governments may increase production costs and reduce their competitiveness. Whatever the underlying

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[23]http://data.europa.eu/eli/treaty/tfeu_2012/oj

political economy and trade effects of NTPs (and PTAs more broadly) our focus in this paper is on the question whether the inclusion of NTPs leads to better non-trade outcomes as reflected in a range of performance indicators for which sufficient data are available. Whether or not NTPs are motivated primarily by a desire to safeguard and promote values, they should at the very least be associated with (gradual) improvement in outcomes. If this is not the case, not only is the values argument undercut, but so are concerns that NTPs are in fact (at least partly) driven by commercial concerns. For NTPs to have effects on competitiveness (e.g., by raising production costs in developing partner countries) they must be accompanied by attainment of higher standards in the areas covered.

The results of our empirical analysis suggest that inclusion of NTPs in trade agreements does not have consistent, clear (i.e. significant) effects on non-trade outcomes in partner countries in the area of labour and civil rights, with the exception of EU agreements where we actually find a significant deterioration in the case of binding provisions. We find some evidence that NTPs are associated with specific environmental outcomes, though many of the estimates are not statistically significant, while those which are significant are heterogeneous, with some indicators improving and others deteriorating. There is no generally consistent pattern.

Our results also suggest non-binding NTPs may do more to improve performance in some areas than binding provisions, and vice versa. An implication is that the efficacy of these two types of NTPs is issue-specific, with one type of NTP potentially being "better" than the other. We also find evidence that development assistance increases for recipient countries that are members of PTAs that include non-binding NTPs, whereas this is not the case for countries that have accepted binding NTPs. This is consistent with the idea that that non-binding NTPs can act as a focal point for cooperation between PTA partners in the policy areas covered, utilizing non-trade policy instruments to pursue shared non-trade policy objectives.

References

Abadie, A., Diamond, A. and Hainmueller, J. (2010). 'Synthetic control methods for comparative case studies: Estimating the effect of california tobacco control program', *Journal of the American Statistical Association*, vol. 105(490), pp. 493–505.

Abadie, A. and Gardeazabal, J. (2003). 'The economic costs of conflict: A case study of the Basque country', *American Economic Review*, vol. 93(1), pp. 113–132.

Abman, R. and Lundberg, C. (2020). 'Does free trade increase deforestation? the effects of regional trade agreements', *Journal of the Association of Environmental and Resource Economists*, vol. 7(1), pp. 35–72.

Abman, R., Lundberg, C. and Ruta, M. (2021). 'The effectiveness of environmental provisions in regional trade agreements', World Bank, Washington, DC.

Abman, R., Lundberg, C. and Szmurlo, D. (2022). 'Trade, emissions, and environmental spillovers: Issue linkages in regional trade agreements', The World Bank, forthcoming.

Aissi, J., Peels, R. and Samaan, D. (2018). 'Evaluating the effectiveness of labour provisions in trade agreements: An analytical and methodological framework', *International Labour Review*, vol. 157(4), pp. 671–698.

Arkhangelsky, D., Athey, S., Hirshberg, D.A., Imbens, G.W. and Wager, S. (2021). 'Synthetic difference-in-differences', *American Economic Review*, vol. 111(12), pp. 4088–4118.

Baghdadi, L., Martinez-Zarzoso, I. and Zitouna, H. (2013). 'Are RTA agreements with environmental provisions reducing emissions?', *Journal of International Economics*, vol. 90(2), pp. 378–390.

Breinlich, H., Corradi, V., Rocha, N., Ruta, M., Santos Silva, J. and Zylkin, T. (2022). 'Machine learning in international trade research-evaluating the impact of trade agreements', CEPR Discussion Paper No. DP17325.

Bronckers, M. and Gruni, G. (2021). 'Retooling the sustainability standards in EU free trade agreements', *Journal of International Economic Law*, vol. 24(1), pp. 25–51.

Dür, A., Baccini, L. and Elsig, M. (2014). 'The design of international trade agreements: Introducing a new dataset', *The Review of International Organizations*, vol. 9(3), pp. 353–375.

Ferrari, A., Fiorini, M., Francois, J., Hoekman, B., Lechner, L.M., Manchin, M. and Santi, F. (2021). 'EU trade agreements and non-trade policy objectives', The European University Institute, Robert Schuman Centre for Advanced Studies Research Paper No. RSC 2021/48.

Hafner-Burton, E.M. (2009). *Forced to be good : why trade agreements boost human rights*, Ithaca: Cornell University Press.

Hoekman, B. and Rojas-Romagosa, H. (2022). 'EU trade sustainability impact assessments: Revisiting the consultation process', *Journal of International Economic Law*, vol. 25(1), pp. 45–60.

Hoekman, B., Santi, F. and Shingal, A. (2023). 'Trade effects of non-economic provisions in trade agreements', European University Institute.

Hoekman, B. and Shingal, A. (2020). 'Aid for trade and international transactions in goods and services', *Review of International Economics*, vol. 28(2), pp. 320–340.

Hofmann, C., Osnago, A. and Ruta, M. (2019). 'The content of preferential trade agreements', *World Trade Review*, vol. 18(3), p. 365–398.

Hollingsworth, A. and Wing, C. (2020). 'Tactics for design and inference in synthetic control studies: An applied example using high-dimensional data', *SSRN*.

Kim, M. (2012). 'Ex Ante Due Diligence: Formation of PTAs and Protection of Labor Rights', *International Studies Quarterly*, vol. 56(4), pp. 704–719, ISSN 0020-8833.

Lechner, L. (2016). 'The domestic battle over the design of non-trade issues in preferential trade agreements', *Review of International Political Economy*, vol. 23, pp. 840 – 71.

Lechner, L.M. (2018). 'The European Union's inclusion of Non-Trade Issues in Preferential Trade Agreements', RESPECT mimeo.

Lundberg, C., McLaren, J., Abman, R. and Ruta, M. (2022). 'Child labor standards in regional trade agreements: theory and evidence', The World Bank.

Manchin, M. (2021). 'Description of version 2 of the panel dataset on non-trade policy outcome indicators', *EUI RSCAS Working Paper*.

Marx, A., Lein, B. and Brando, N. (2016). 'The protection of labour rights in EU bilateral trade agreements. a case study of the EU-Colombia agreement', *EU Trade Policy at the Crossroads: between Economic Liberalism and Democratic Challenges*.

Mattoo, A., Rocha, N. and Ruta, M. (2020). *Handbook of deep trade agreements*, World Bank Publications.

McClelland, R. and Mucciolo, L. (2022). 'An update on the synthetic control method as a tool to understand state policy', Tax Policy Center.

McLaughlin Mitchell, S. and Hensel, P.R. (2007). 'International Institutions and Compliance with Agreements', *American Journal of Political Science*, vol. 51(4), pp. 721–737.

Pailañir, D. and Clarke, D. (2022). 'Sdid: Stata module to perform synthetic difference-in-differences estimation, inference, and visualization', Boston College Department of Economics.

Pettersson, J. and Johansson, L. (2013). 'Aid, aid for trade, and bilateral trade: An empirical study', *The Journal of International Trade & Economic Development*, vol. 22(6), pp. 866–894.

Postnikov, E. (2014). 'The design of social standards in EU and US preferential trade agreements', in (D. Deese, ed.), *Handbook of the International Political Economy of Trade*, pp. 531–549, chap. 22, Edward Elgar Publishing.

Spilker, G. and Böhmelt, T. (2013). 'The impact of preferential trade agreements on governmental repression revisited', *The Review of International Organizations*, vol. 8(3), pp. 343–361.

Tian, K., Zhang, Y., Li, Y., Ming, X., Jiang, S., Duan, H., Yang, C. and Wang, S. (2022). 'Regional trade agreement burdens global carbon emissions mitigation', *Nature Communications*, vol. 13(1), pp. 1–12.

Van den Putte, L. (2015). 'EU bilateral trade agreements and the surprising rise of labour provisions', *International Journal of Comparative Labour Law and Industrial Relations*, vol. 31(3).

Velut, J., Baeza-Breinbauer, D., De Bruijne, M., Garnizova, E., Jones, M., Kolben, K., Oules, L., Rouas, V., Tigere Pittet, F. and Zamparutti, T. (2022). 'Comparative analysis of trade and sustainable development provisions in free trade agreements', London School of Economics.

Wendling, Z.A., Emerson, J.W., de Sherbinin, A., Esty, D.C., Hoving, K., Ospina, C., Murray, J., Gunn, L., Ferrato, M., Schreck, M. *et al.* (2020). 'Environmental performance index', *New Haven, CT: Yale Center for Environmental Law And Policy. epi. yale. edu.*

Yildirim, A., Basedow, R., Fiorini, M. and Hoekman, B. (2021). 'EU trade and non-trade objectives: New survey evidence on policy design and effectiveness', *Journal of Common Market Studies*, vol. 59(3), pp. 556–568.

Younas, J. (2008). 'Motivation for bilateral aid allocation: Altruism or trade benefits', *European Journal of Political Economy*, vol. 24(3), pp. 661–674.

Zerk, J. (2019). 'Human rights impact assessment of trade agreements', *London, England: Royal Institute of International Affairs, Chatham House.*

Annex

A   Additional data description

Table A-1: *Countries Considered*

Countries	
Partners in PTA	**Countries Excluded**
BDI,BEN,BFA,BLR,BRB,CHL,CHN,CIV,COL, CRI,DOM,DZA,EGY,GNB,GTM,GUY,HND,IDN, IND,JAM,JOR,KAZ,KEN,KGZ,KWT,LAO,LBN, MEX,MMR,MYS,MLI,NER,NIC,OMN,PAN,PER, PHL,QAT,RUS,RWA,SAU,SGP,SEN,SLV,SUR, THA,TJK,TTO,VNM,TGO,TUN,TZA,UGA,ZAF	Other EU countries (Including accession) USA, JPN,NZL,NOR,LIE,KOR,ISL,CHE,CAN, AUS

Notes: The countries considered as potentially treated, reported in the first columns, signed an agreement including at least one of the non-trade provisions of interest with either the EU, the US, or either other OECD or high income countries as a partner. No country belonging to the latter group (listed in the column *Countries Excluded*) is considered in the "treated" or in the donor pool. Potentially treated countries are included as potential control units in the donor pool, which also include countries that never signed a PTA (overall, with the EU, or with the US).

Table A-2: *Countries with active agreement with both EU and USA*

| Country | Environmental Protection | | | | Labor Market Regulation | | | | Human and Civil Rights | | | |
| | EU | | USA | | EU | | USA | | EU | | USA | |
	Not Bind.	Bind.	Not Bind.	Bind.	Not Bind.	Bind.	Not Bind.	Bind.	Not Bind.	Bind.	Not Bind.	Bind.
Chile	1	0	0	1	0	0	0	1	1	0	0	0
Colombia	1	0	0	1	1	0	0	1	1	0	0	0
Costa Rica	0	1	0	1	0	1	0	1	1	0	0	0
Guatemala	0	1	0	1	0	1	0	1	1	0	0	0
Honduras	0	1	0	1	0	1	0	1	1	0	0	0
Israel	1	0	0	0	0	0	0	0	1	0	0	0
Jordan	1	0	0	1	0	0	0	1	1	0	0	0
Republic of Korea	0	1	0	1	0	1	0	1	0	0	0	0
Morocco	1	0	0	1	0	0	0	1	1	0	0	0
Mexico	1	0	0	1	0	0	0	1	1	0	0	0
Nicaragua	0	1	0	1	0	1	0	1	1	0	0	0
Peru	1	0	0	1	1	0	0	1	1	0	0	0
Salvador	0	1	0	1	0	1	0	1	1	0	0	0

_Notes: The 13 countries reported here signed an agreement with both the EU, EU member states, and the US.

Table A-3: *Matching covariates used in Synthetic Diff-in-Diff*

Variable	Mean	Std. Deviation	Min	Max	Obs
Export Share to EU	0.239152	0.176254	0.005185	0.871214	3422
Export Share to USA	0.076059	0.095722	0	0.671639	3422
Environmental Law Provision L.E.	0.463808	0.829501	0	2	3422
Labor Mkt. Provision L.E.	0.440085	0.824812	0	2	3422
CHR Provision L.E.	0.029805	0.241105	0	2	3422
GDP current (Log)	24.02366	2.292423	18.42872	30.49477	3422
Governance	0.905488	1.409029	-2.46429	4.270286	3422
GDPcap	9320.000	15000.000	22.700	103000.000	3422
Population	44.607	150.674	0.071	1397.029	3422
GDPc (Log)	21.70597	1.661391	16.93909	25.35765	3422
Population (Log)	2.317693	1.691523	-2.65039	7.237138	3422
Total ODA (US$ mil.)	618.000	1280.000	0.000	21700.000	3179
Total Trade (US$ mil.)	48600.000	24600.000	17800.000	88900.000	3422
ODA: Environment Protection (US$ mil.)	11.600	47.900	0.000	853.000	3179
ODA: Labor Market Regulation (US$ mil.)	2.978	18.600	-5.051	507.000	3179
ODA: Civil and Human Rights (US$ mil.)	28.8000	96.400	0.017	2050.000	3179
ODA to GDP: Total ODA	0.0411	0.075	0.000	1.126	3179
ODA to GDP: Environment Protection	0.0006	0.001	0.000	0.038	3179
ODA to GDP: Labor Market Regulation	0.0001	0.000	0.000	0.008	3179
ODA to GDP: Civil and Human Rights	0.0016944	0.0051576	-0.00005	0.0988238	3179

Table A-4: *Summary statistics: Non-trade outcome indicators*

Variable	Mean	SD	Min	Max	N
Environmental Protection					
CO2	0.292338	0.19624	-1.35997	2.638186	7774
Forests	32.53986	18.44064	0	98.98526	7774
SO2	505.4478	2132.555	-2040.19	29989.1	7774
Black Carbon	51.47063	21.04038	0	100	7774
Greenhouse Gases	58.84966	26.44156	0	129.1304	7774
NOx	46.93604	21.01648	0	100	7774
Ozone Exposure	50.04097	15.96843	0	100	7774
Protected Areas	26.80994	14.3315	0	100	7774
PM2.5	40.65553	13.92697	0	100	7774
SO2 Trend	58.32562	21.90723	0	100	7774
Species Habitat	92.82481	8.956446	0	100	7774
Nitrogen Management	33.35488	14.12421	0	99.47662	7774
Species Protection	65.63925	16.71921	0	100	7774
Tree Coverage loss	39.79158	11.6473	0	100	7774
Wetland loss	57.25232	19.01902	0	100	7774
Labor-standards indicators					
Labor Rights	22.96748	6.242013	0	36.81034	7774
Worker Protection	0.95846	0.586932	0	2	7774
Civil and Human Rights Promotion NTPOs					
Polyarchy	0.462098	0.268917	0.013789	0.94937	7774
Freedom of Expression	0.570917	0.29947	0.014093	0.988696	7774
Women Political Participation	0.627106	0.228782	0.047552	0.999952	7774
Political Liberties	0.588804	0.302271	0.01185	0.993807	7774
Freedom of Association	1.146401	0.665681	0	2.040891	7774

Table A-5: *Non-Trade Outcomes*

Environmental Protection Law

Outcome	Source	Sign for Improvement
CO2	*World Development Indicators*	−
Forests	*World Development Indicators*	+
SO2	*World Development Indicators*	−
Black Carbon	*Environmental Protection Index*	+
Greenhouse Gases	*Environmental Protection Index*	+
Nox	*Environmental Protection Index*	+
Ozone Exposure	*Environmental Protection Index*	+
Protected Areas	*Environmental Protection Index*	+
PM2.5	*Environmental Protection Index*	+
Species Habitat	*Environmental Protection Index*	+
Nitrogen Management	*Environmental Protection Index*	+
Species Protection	*Environmental Protection Index*	+
Tree coverage loss	*Environmental Protection Index*	+
Wetland loss	*Environmental Protection Index*	+

Labor Market Regulation

Outcome	Source	Sign for Improvement
Labor Rights	*QOG Institute*	+
Workers Protection	*QOG Institute*	+

Human Rights Protection

Outcome	Source	Sign for Improvement
Polyarchy	*International Political Economy Data Resource V3*	+
Freedom of Expression	*International Political Economy Data Resource V3*	+
Women Political Participation	*International Political Economy Data Resource V3*	+
Political Liberties	*International Political Economy Data Resource V3*	+
Freedom of Association	*QOG Institute*	+

Table A-6: *Differences in Mean - T-test*

	No Provision vs Non Binding		No Provision vs Binding		Non Binding vs Binding	
	t-crit	p-val	t-crit	p-val	t-crit	P-val
Environment	-4.34	0.00	-6.43	0.00	-4.15	0.00
Labor Market	-1.09	0.28	1.62	0.11	2.06	0.04
CSHR	-13.97	0.00	21.06	0.00	21.26	0.00

Notes: T-test on ODA averages by type of provisions.

B Additional Results

All Agreements

Table B-1: *ATT from Non-Binding Provisions*

Environment	ATT	Std. Error	t-crit	P–Value	Lower CI	Upper CI
CO2	**0.141**	0.062	2.29	0.02	0.02	0.26
Forests	-0.766	0.488	1.57	0.12	-1.72	0.19
SO2	3.870	33.670	0.11	0.92	-62.12	69.86
Black Carbon	-2.350	3.806	0.62	0.55	-9.81	5.11
Greenhouse Gases	**2.315**	1.300	1.78	0.08	-0.23	4.86
Nox	-2.809	3.399	0.83	0.41	-9.47	3.85
Ozone Exposure	**-4.556**	0.691	6.59	0.00	-5.91	-3.20
Protected Areas	**-1.779**	0.792	2.25	0.02	-3.33	-0.23
PM2.5	-1.105	0.945	1.17	0.25	-2.96	0.75
SO2 trend	-5.649	3.740	1.51	0.13	-12.98	1.68
Species Habitat	-0.557	1.418	0.39	0.71	-3.34	2.22
Nitrogen Management	**-2.563**	1.204	2.13	0.03	-4.92	-0.20
Species Protection	0.487	1.653	0.29	0.78	-2.75	3.73
Tree coverage loss	-3.854	3.456	1.12	0.27	-10.63	2.92
Wetland loss	-3.985	4.361	0.91	0.37	-12.53	4.56

Labor Market	ATT	Std. Error	t-crit	P–Value	Lower CI	Upper CI
Labor Rights	-0.76991	0.802418	0.96	0.342	-2.34264	0.802834
Workers Protection	0.094497	0.125805	0.75	0.462	-0.15208	0.341076

Civil and Human Rights	ATT	Std. Error	t-crit	P–Value	Lower CI	Upper CI
Polyarchy	0.019821	0.020212	0.98	0.332	-0.01979	0.059436
Freedom of Expression	0.000869	0.032032	0.03	0.978	-0.06191	0.063652
Women Political Participation	0.000443	0.020196	0.02	0.986	-0.03914	0.040027
Political Liberties	-0.00381	0.031723	0.12	0.912	-0.06599	0.058365
Freedom of Association	0.095609	0.081169	1.18	0.24	-0.06348	0.2547

Notes: Average Treatment effect on the Treated (ATT) in response to signing a non-binding non-trade provision. Bold-face font indicates statistically significant effects.

Table B-2: *ATT from Binding Provisions*

Environment	ATT	Std. Error	t-crit	P-Value	Lower CI	Upper CI
CO2	-0.01776	0.0206022	0.86	0.397	-0.05814	0.022621
Forests	**0.549063**	0.2512702	2.19	0.028	0.056574	1.041553
SO2	-403.147	390.4396	1.03	0.307	-1168.41	362.1147
Black Carbon	-3.92905	4.336667	0.91	0.369	-12.4289	4.570819
Greenhouse Gases	-0.39533	0.6239059	0.63	0.54	-1.61819	0.827526
Nox	2.34134	3.491818	0.67	0.513	-4.50262	9.185303
Ozone Exposure	**3.147339**	0.9559039	3.29	0.001	1.273767	5.020911
Protected Areas	0.17913	0.7075864	0.25	0.814	-1.20774	1.565999
PM2.5	**1.719509**	0.5980004	2.88	0.004	0.547428	2.89159
SO2 trend	**8.15026**	4.315405	1.89	0.058	-0.30793	16.60845
Species Habitat	-2.67891	2.344744	1.14	0.257	-7.27461	1.916786
Nitrogen Management	-1.0918	1.154168	0.95	0.348	-3.35396	1.170374
Species Protection	0.510788	1.093949	0.47	0.651	-1.63335	2.654928
Tree coverage loss	-0.15936	1.286582	0.12	0.912	-2.68106	2.362341
Wetland loss	-0.07688	2.586414	0.03	0.978	-5.14625	4.992489

Labor Market	ATT	Std. Error	t-crit	P-Value	Lower CI	Upper CI
Labor Rights	0.489115	0.4133784	1.18	0.24	-0.32111	1.299337
Workers Protection	-0.05014	0.094709	0.53	0.608	-0.23577	0.135492

Civil and Human Rights	ATT	Std. Error	t-crit	P-Value	Lower CI	Upper CI
Polyarchy	0.017481	0.0128477	1.36	0.175	-0.0077	0.042663
Freedom of Expression	-0.00177	0.0183558	0.1	0.927	-0.03775	0.034203
Women Political Participation	-0.01264	0.0237998	0.53	0.608	-0.05929	0.034006
Political Liberties	-0.00249	0.0168085	0.15	0.89	-0.03544	0.030452
Freedom of Association	0.129613	0.0932787	1.39	0.165	-0.05321	0.312439

_Notes: Average Treatment effect on the Treated (ATT) in response to signing a binding provision. Boldface indicates a statistically significant effect.

Agreements With the EU as signing partner

Table B-3: *ATT from Non-Binding Provisions - PTAs with EU as a signatory*

Environment	ATT	Std. Error	t-crit	P-Value	Lower CI	Upper CI
CO2	-0.007	0.045	0.15	0.89	-0.095	0.081
Forests	0.314	0.366	0.86	0.40	-0.403	1.031
SO2	-10.261	99.813	0.1	0.93	-205.894	185.371
Black Carbon	-5.995	7.984	0.75	0.46	-21.644	9.655
Greenhouse Gases	-1.059	0.862	1.23	0.22	-2.748	0.630
Nox	6.296	5.907	1.07	0.29	-5.281	17.874
Ozone Exposure	1.467	1.151	1.27	0.21	-0.789	3.723
Protected Areas	0.823	0.892	0.92	0.36	-0.926	2.572
PM2.5	1.264	1.009	1.25	0.21	-0.713	3.241
SO2 trend	5.532	7.050	0.78	0.44	-8.287	19.351
Species Habitat	2.334	2.382	0.98	0.33	-2.335	7.003
Nitrogen Management	4.698	3.613	1.3	0.20	-2.384	11.779
Species Protection	-0.583	0.848	0.69	0.50	-2.245	1.079
Tree coverage loss	**-4.321**	2.311	1.87	0.06	-8.850	0.207
Wetland loss	5.184	7.762	0.67	0.51	-10.030	20.398

Civil and Human Rights	ATT	Std. Error	t-crit	P-Value	Lower CI	Upper CI
Polyarchy	0.020	0.031	0.66	0.52	-0.040	0.080
Freedom of Expression	-0.001	0.062	0.02	0.99	-0.123	0.121
Women Political Participation	-0.003	0.039	0.09	0.93	-0.080	0.073
Political Liberties	-0.002	0.064	0.03	0.98	-0.127	0.124
Freedom of Association	0.129	0.100	1.29	0.20	-0.067	0.326

Notes: Average Treatment effect on the Treated (ATT) in response to signing a non-binding provision. Boldface indicates statistically significant effects. It was not possible to estimate the ATT for non-binding Labor Market related provisions.

Table B-4: *ATT from Binding Provisions - EU*

Environment	ATT	Std. Error	t-crit	P-Value	Lower CI	Upper CI
CO2	-0.014	0.017	0.81	0.426	-0.047	0.019
Forests	0.114	0.156	0.73	0.475	-0.191	0.419
SO2	**-322.757**	155.133	2.08	0.037	-626.819	-18.696
Black Carbon	6.214	8.367	0.74	0.468	-10.185	22.614
Greenhouse Gases	-0.017	1.607	0.01	0.993	-3.168	3.133
Nox	**12.445**	5.105	2.44	0.015	2.438	22.451
Ozone Exposure	**4.344**	1.020	4.26	0	2.345	6.343
Protected Areas	1.582	1.387	1.14	0.257	-1.136	4.300
PM2.5	-0.803	0.524	1.53	0.126	-1.830	0.225
SO2 trend	9.131	10.633	0.86	0.397	-11.710	29.972
Species Habitat	**2.676**	1.529	1.75	0.08	-0.321	5.674
Nitrogen Management	0.283	1.599	0.18	0.867	-2.852	3.417
Species Protection	-0.444	0.434	1.02	0.312	-1.295	0.406
Tree coverage loss	-0.195	1.527	0.13	0.905	-3.187	2.798
Wetland loss	1.942	4.504	0.43	0.68	-6.887	10.771
Labor Market	**ATT**	**Std. Error**	**t-crit**	**P-Value**	**Lower CI**	**Upper CI**
Labor Rights	**0.163**	0.068	2.4	0.016	0.030	0.297
Workers Protection	**-0.212**	0.100	2.11	0.035	-0.408	-0.015

_Notes: Average Treatment effect on the Treated (ATT) in response to signing a binding provision. Boldface indicates statistically significant effects. It was not possible to estimate the ATT for binding, Civil and Human rights protection-related provisions.

Agreements With the US as signing partner

Table B-5: *ATT from Binding Provisions - USA*

Environment	ATT	Std. Error	t-crit	P-Value	Lower CI	Upper CI
CO2	0.028399	0.036708	0.77	0.45	-0.04355	0.100346
Forests	0.24378	0.68086	0.36	0.732	-1.09071	1.578265
SO2	275.5559	236.2318	1.17	0.245	-187.458	738.5702
Black Carbon	-1.85771	5.702112	0.33	0.754	-13.0338	9.318433
Greenhouse Gases	0.941502	1.01159	0.93	0.358	-1.04121	2.924219
Nox	1.602137	5.402121	0.3	0.777	-8.98602	12.19029
Ozone Exposure	**3.324542**	1.183079	2.81	0.005	1.005707	5.643377
Protected Areas	0.003143	0.913218	0	1	-1.78676	1.79305
PM2.5	**2.5335**	1.142401	2.22	0.026	0.294394	4.772606
SO2 trend	**12.45017**	3.300849	3.77	0	5.980506	18.91983
Species Habitat	0.568695	2.591109	0.22	0.837	-4.50988	5.647268
Nitrogen Management	-1.39872	1.350941	1.04	0.303	-4.04657	1.249123
Species Protection	3.640571	2.473755	1.47	0.142	-1.20799	8.489131
Tree coverage loss	-1.272	2.894777	0.44	0.673	-6.94576	4.401768
Wetland loss	1.996312	3.001094	0.67	0.513	-3.88583	7.878456

Labor Market	ATT	Std. Error	t-crit	P-Value	Lower CI	Upper CI
Labor Rights	-0.2938	0.829378	0.35	0.739	-1.91938	1.331779
Workers Protection	0.060735	0.140436	0.43	0.68	-0.21452	0.33599

Notes: Average Treatment effect on the Treated (ATT) in response to signing a binding provision. Boldface indicates statistically significant effects. It was not possible to estimate the ATT for binding, Civil and Human rights protection-related provisions.

Agreements With all countries excluded the EU, the US as signing partners

Table B-6: *ATT from Non Binding Provisions - PTAs among non-EU, non-US countries*

Environment	ATT	Std. Error	t-crit	P-Value	Lower CI	Upper CI
CO2	**0.129245**	0.041899	3.08	0.002	0.047123	0.211368
Forests	**-0.93871**	0.488261	1.92	0.054	-1.8957	0.018286
SO2	7.3654	24.42961	0.3	0.777	-40.5166	55.24744
Black Carbon	**-4.99189**	2.774301	1.8	0.071	-10.4295	0.445738
Greenhouse Gases	**2.681199**	1.132112	2.37	0.018	0.462259	4.900139
Nox	-3.1096	2.784895	1.12	0.266	-8.56799	2.348798
Ozone Exposure	**-4.17789**	0.54844	7.62	0	-5.25283	-3.10294
Protected Areas	**-1.68004**	0.749064	2.24	0.025	-3.14821	-0.21187
PM2.5	-1.02904	0.99164	1.04	0.303	-2.97265	0.914577
SO2 trend	**-5.70608**	2.923449	1.95	0.051	-11.436	0.023877
Species Habitat	-0.2494	1.44293	0.17	0.875	-3.07754	2.578747
Nitrogen Management	**-3.03963**	1.014901	2.99	0.003	-5.02883	-1.05042
Species Protection	0.780171	1.554832	0.5	0.63	-2.2673	3.827642
Tree coverage loss	-2.6246	2.780202	0.94	0.353	-8.07379	2.8246
Wetland loss	-7.14907	4.996949	1.43	0.153	-16.9431	2.644955

Labor Market	ATT	Std. Error	t-crit	P-Value	Lower CI	Upper CI
Labor Rights	-0.78825	0.804666	0.98	0.332	-2.36539	0.788899
Workers Protection	-0.09021	0.124893	0.72	0.481	-0.335	0.154585

Civil and Human Rights	ATT	Std. Error	t-crit	P-Value	Lower CI	Upper CI
Polyarchy	0.016847	0.01657	1.02	0.312	-0.01563	0.049323
Freedom of Expression	0.008372	0.021726	0.39	0.71	-0.03421	0.050955
Women Political Participation	-0.00038	0.017686	0.02	0.986	-0.03505	0.034281
Political Liberties	0.003367	0.017361	0.19	0.86	-0.03066	0.037394
Freedom of Association	0.051205	0.11223	0.46	0.658	-0.16877	0.271176

Notes: Average Treatment effect on the Treated (ATT) in response to signing a non-binding provision. Boldface ATT indicates statistically significant effects.

Table B-7: *ATT from Binding Provisions - Agreements among non-EU, non-US countries*

Environment	ATT	Std. Error	t-crit	P-Value	Lower CI	Upper CI
CO2	-0.01389	0.017878	0.78	0.444	-0.04893	0.021146
Forests	**0.571814**	0.318321	1.8	0.071	-0.0521	1.195723
SO2	-465.032	477.7811	0.97	0.337	-1401.48	471.4189
Black Carbon	-4.39428	4.813709	0.91	0.369	-13.8291	5.040594
Greenhouse Gases	-0.73606	0.752863	0.98	0.332	-2.21167	0.739552
Nox	-4.36918	3.594744	1.22	0.224	-11.4149	2.676514
Ozone Exposure	**2.279647**	1.069882	2.13	0.033	0.182678	4.376616
Protected Areas	-0.6553	0.771309	0.85	0.403	-2.16706	0.856467
PM2.5	**1.477123**	0.560081	2.64	0.008	0.379363	2.574883
SO2 trend	5.895188	4.333213	1.36	0.175	-2.59791	14.38829
Species Habitat	-3.95925	2.81741	1.41	0.159	-9.48137	1.562875
Nitrogen Management	**-1.45454**	1.647489	0.88	0.386	-4.68362	1.774541
Species Protection	0.594122	1.326157	0.45	0.666	-2.00515	3.19339
Tree coverage loss	-1.20712	1.060469	1.14	0.257	-3.28564	0.871395
Wetland loss	-2.8613	3.082695	0.93	0.358	-8.90338	3.180787

Labor Market	ATT	Std. Error	t-crit	P-Value	Lower CI	Upper CI
Labor Rights	0.322519	0.389044	0.83	0.414	-0.44001	1.085045
Workers Protection	-0.07003	0.095573	0.73	0.475	-0.25735	0.117292

Civil and Human Rights	ATT	Std. Error	t-crit	P-Value	Lower CI	Upper CI
Polyarchy	-0.00373	0.02158	0.17	0.875	-0.04603	0.038566
Freedom of Expression	-0.00945	0.014175	0.67	0.513	-0.03723	0.018337
Women Political Participation	-0.11143	0.089539	1.24	0.217	-0.28693	0.064061
Political Liberties	0.002686	0.012681	0.21	0.845	-0.02217	0.027541
Freedom of Association	0.337724	0.303473	1.11	0.27	-0.25708	0.93253

_Notes: Average Treatment effect on the Treated (ATT) in response to signing a non-binding provision. Boldface indicates refer to statistically significant effects.

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