

# GREENING UP: THE EFFECTS OF ENVIRONMENTAL STANDARDS IN EU AND US TRADE AGREEMENTS

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## **Abstract**

We examine the effectiveness of environmental provisions in North-South preferential trade agreements (PTAs) focusing on their important design feature – different enforcement mechanisms. These mechanisms vary significantly across PTAs signed by the European Union (EU) and the United States (US). We argue that both US and EU PTAs with environmental provisions will be effective in instigating environmental policy change in partner countries, although the timing of the effect will vary significantly. We predict that environmental reform in US PTA partner countries will occur during the negotiation process due to a fear of sanctions, while similar reform in EU PTA partners will happen during agreement implementation as a result of the EU's approach emphasizing policy dialogue. However, we also argue that the success of these provisions in North-South PTAs across developing countries will depend on the strength of civil society. Specifically, we expect that EU PTAs will be effective only in countries with strong institutional structures supporting civil society learning, while the sanctions approach in US PTAs ensures effective environmental reform even in partners with weak civil societies. We test our hypotheses using statistical estimations of EU and US PTAs with environmental provisions on countries' environmental policy reform measured by Yale University's index of environmental protection and the signing of multilateral environmental treaties.

## 1. Introduction

Preferential trade agreements (PTAs) have become a major feature of today's global economy, as countries rush to liberalize trade on the bilateral basis, following the deadlocks in the World Trade Organization (WTO). The European Union (EU)<sup>1</sup> and the United States (US), as the two leading economies, have signed up to date the highest number of PTAs, especially with developing countries, competing with each other for access to new markets (see Manger 2009). These North-South PTAs increasingly tackle not only trade liberalization matters but also address many trade-related aspects, such as intellectual property rights, investment, and labor standards to name a few, providing the bargaining leverage for developed countries negotiating bilateral agreements with their counterparts in the developing world. Among these provisions, environmental standards have become a regular feature of PTAs signed by both the EU and the US who require trading partners to maintain an adequate level of environmental protection (see below) when they enter into preferential trading relations with them. Despite the ubiquity of such provisions and their potential importance for improving environmental protection and achieving sustainable development, the vast literature on PTAs remains silent about possible effects of environmental standards.

In this paper, we try to address this gap by investigating the extent to which environmental standards in EU and US PTAs are effective in terms of improving environmental policies in partner countries and through what mechanisms. We examine the effect of the design of environmental standards on policy outcomes, as this design varies widely between PTAs signed by the EU and the US. While largely demanding similar things from developing countries in terms of maintaining and enforcing the existing levels of environmental protection and, increasingly, complying with multilateral environmental agreements (MEAs) they signed, the EU and the US pursue different enforcement strategies

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<sup>1</sup> The EU signs trade agreements on behalf of its member states.

with regard to environmental standards in their PTAs. US PTAs envision sanctions in the form of withholding trade privileges from their trading partners or a fine in the case of non-compliance with environmental provisions, while EU PTAs rely on policy dialogue between civil society actors and governments in both the EU and its partners to address the issues of non-implementation and non-compliance. Previous literature has shown that this variation in PTA design matters, especially with regard to labor standards (Postnikov and Bastiaens 2014), and we expect that the implementation dynamic of environmental standards will also be greatly affected by it.

Our paper adds to the emerging literature on PTA design, their implementation and their non-trade effects (e.g. Gray 2014; Kim 2012; Kucik 2012; Postnikov and Bastiaens 2014; Rudra 2011). Furthermore, our study is the first one, to the best of our knowledge, to analyze the effects of PTAs on actual environmental policy outcomes in a large-N fashion. Finally, scholars have long argued about the links between international trade and the environment (Cole and Elliot 2003; Copeland and Taylor 1995; Birdsall and Wheeler 1993; Levinson and Taylor 2008) but failed to acknowledge the potential effects of institutional characteristics of trade agreements on environmental policy reform across states, so our paper tries to ameliorate this understanding.

The paper is structured as follows. The second section examines the inclusion of environmental provisions in PTAs and focuses on their design. The third section outlines our theory and hypotheses. The fourth section provides an empirical test of the hypotheses and the last section concludes with theoretical and policy implications.

## **2. Environmental Standards in EU and US PTAs**

Environmental standards have become thoroughly integrated in EU and US PTAs as a result of the failure to address them through the WTO in the 1990s. Developing countries have

perceived any attempts by developed countries to link the environment and trade at the multilateral level as disguised protectionism and vetoed them at a number of ministerial conferences alongside other regulatory issues (also known as the Singapore issues). Ever since then, the EU and the US have pursued different approaches towards environmental standards, reflecting their respective domestic trade policy-making arrangements.<sup>2</sup>

North American Free Trade Agreement (NAFTA) concluded in 1994 is the first US PTA to include a separate legally binding environmental chapter known as the North American Agreement on Environmental Cooperation (NAAEC) as a result of the pressure from American environmental groups on the Clinton administration and the US Congress. NAAEC requires the parties to maintain the existing levels of environmental protection and not to derogate from it in order to facilitate trade. All later US PTAs incorporate environmental chapters within the main body of the agreement, reflecting the demands of environmental lobbyists to treat environmental issues on par with other trade-related aspects (and not in a NAFTA-style side chapter). Furthermore, the Trade Policy Act of 2002 that extends the Trade Promotion Authority (TPA), granted to the US President for speedy negotiation and signing of trade deals, requires all US PTAs to include enforceable environmental provisions for their successful ratification by the US Congress. This means that countries can be sanctioned in the form of losing trade privileges for not upholding their environmental commitments.

A major change to the scope of environmental provisions in US PTAs came from the Bipartisan Trade Deal signed in 2007, signifying further success of American environmental lobbyists and their alliance with labor unions. The deal mandates US trade negotiators to demand that trading partners not only enforce their domestic environmental laws but also comply with signed MEAs for successful passage through Congress. Thus, all US PTAs now

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<sup>2</sup> Please note that this paper is concerned with the effects of environmental provisions. For the systematic analysis of the determinants of different EU and US approaches see Postnikov 2014.

have fully enforceable, legally binding environmental provisions that include both domestic and international standards.

The EU has followed a similar trajectory with regard to the inclusion of environmental standards, incorporating them in all of its PTAs. The EU-South Africa Free Trade Agreement (FTA) is the first EU PTA to include the environmental chapter that requires parties to maintain an adequate level of environmental protection and not to lower it for trade purposes. A new generation of EU PTAs concluded after the publication of the European Commission's communication "Global Europe: Competing in the World" in 2006 is modeled after the 2010 EU-South Korea PTA that contains one legally binding sustainable development chapter covering both environmental and labor standards. These chapters also demand parties to comply with MEAs, similar to the requirements made in US PTAs.

One crucial distinction remains constant between the EU and the US approaches. While environmental standards in US PTAs are enforceable through sanctions, the EU chooses to eschew a coercive approach and relies on soft mechanisms of enforcement. Thus, even if environmental standards are legally binding, which means that cases of non-compliance can be brought to the expert panel, failing to comply with the rulings of such a panel will not result in any real penalty. Instead, the EU solely relies on a mechanism known as the Civil Society Dialogue where governments and civil society actors from both the EU and its trading partners meet on a regular basis to work together on implementation. The fact that the EU relies on a purely dialogical approach with regard to environmental standards in its PTAs puts it in a striking contrast with the US' coercive approach based on sanctions and fines. Yet, it is, perhaps, a testimony to the idea of Normative Power Europe that projects EU norms and values through persuasion and not coercion (Manners 2002).

Can environmental standards in PTAs achieve their goals and instigate domestic environmental reform in agreement partners in the developing world and do these two

approaches also influence agreement outcomes differently? The next section theorizes how the design of environmental standards in EU and US PTAs will yield different environmental policy outcomes in partner states.

### **3. Environmental Standards in PTAs as the Mechanisms of Regulatory Change**

Our starting point in theorizing the effects of environmental standards is a long-held contention in international relations (IR) literature that the design of international agreements is an important factor that can influence agreement effectiveness (e.g. Rosendorff and Milner 2001), including various social provisions in PTAs, such as human rights and labor standards (Hafner-Burton 2009; Kim 2012; Postnikov and Bastiaens 2014). Building on Postnikov and Bastiaens (2014), we argue that, indeed, environmental standards in EU and US PTAs do achieve their goals but the agreement design matters for how this process occurs. As EU and US standards differ in terms of their enforcement, this difference should affect the incentive structure of agreement partners in distinct ways. US partners will be motivated to improve environmental policies before an agreement enters into force in order to avoid sanctions for non-compliance. EU partners, on the other hand, might not be incentivized to reform environmental policies urgently, but will do it gradually, as a result of the learning dynamic generated by the dialogical approach during the agreement implementation stage. Hence, the timing of effects will be different – US PTAs will produce a positive *ex ante* effect, while EU PTAs will produce a positive *ex post* effect.

As mentioned above, the US threatens sanctions for non-compliance with its environmental standards and their enforceability is an important factor that guarantees agreement ratification by the US Congress, as required by both the Trade Policy Act of 2002 and the Bipartisan Trade Deal of 2007. In fact, the Office of United States Trade Representative (USTR), who is responsible for negotiating trade agreements, issues a report

and regular updates to the US Congress on environmental policy in *future* PTA partners during the negotiation process. Furthermore, the US reserves the right to conduct a periodical review of environmental policies of its PTA partners in order to monitor the implementation of and compliance with agreement provisions. The legally binding nature of all US PTAs ensures that an independent panel of experts rules on the issues of compliance. Importantly, non-compliance is punished by sanctions that involve eliminating trade privileges or, more rarely, a large fine, holding agreement partners accountable to the commitments they made with regard to environmental policy.

While sanctions as such have not been applied yet to punish US trading partners for failing to implement PTA provisions, Kim (2012) demonstrated that US PTAs' labor provisions are effective and Postnikov and Bastiaens (2014) convincingly argued that this effectiveness can be attributed to a fear generated by sanctions that motivates trading partners to improve their labor standards prior to signing an agreement with the US in order not to be punished in the future, i.e. *ex ante*. We claim that such a fear of sanctions should also be associated with environmental provisions in US PTAs, acting as a credible commitment device and motivating domestic policy reform. The cases of Chile and Peru illustrate our logic.

The Chilean environmental movement had been weakened by the years of dictatorship and a lack of a proper environmental institutional regime during the neoliberal Pinochet reign (Carruthers 2001). With democratization, the first *Concertación* governments of the 1990s strove to institute environmental reform and succeeded with the establishment of the National Environmental Framework law in 1994, which also created a new institution for executing it, the National Environmental Commission (CONAMA). Soon afterwards, proposals for the environmental reform began to emerge. These proposed reforms were further legitimized by the new international norms emanating from the Earth Summit in 1992.

Yet, there had to be a critical driver to put those proposals in action, ameliorating the continued weakness of the Chilean environmental movement.

In the mid-1990s, Chile was preparing to become the fourth member of NAFTA. Tecklin *et al.* (2011) argue that NAFTA negotiations and the environmental provisions of the NAAEC created the sense of urgency needed to put dormant Chilean legislative proposals into law, opening the window of opportunity for needed reforms. The US government and trade negotiators expected Chile to have environmental protections similar to Mexico's to be able to join NAFTA. In fact, one trade minister even remarked, "Lately, discussions of the environment tend to begin and end with the issue of NAFTA. If we begin with NAFTA we end up talking about national environmental policies and vice versa" (Tecklin *et al.* 2011: 885-886). Thus, the pressure from the enforceable environmental side chapter of NAFTA proved to be critical to build support for the environmental reform in Chile. Later, when the US-Chile PTA negotiations resumed in the early 2000s, the USTR reviewed the existing Chilean environmental law, as was mandated by the US Congress, and was satisfied with it, noticing the reforms conducted in the 1990s (USTR 2003).

In a similar fashion, more recent negotiations between the US and Peru led to an *ex ante* improvement of Peru's environmental policy, as seen in the establishment of the Ministry of Environment in 2008 prior to agreement ratification by the US Congress. This major institutional reform came as a result of urgency to meet the requirements of the US-Peru PTA. And while the leading business groups did not welcome this decision, it invited praise from Peruvian environmentalists. In the words of the then President Alan García, "the free trade agreement has brought a fundamental call to attention, that we owe to our Democrat friends in the US Congress, to strengthen labor rights and the defense of the environment. [...] I'll propose to Congress, or perhaps using the authority that was given



kindly and democratically by Congress to the Executive, the creation of an Environment Ministry” (Peruvian Times 2007).

Thus, both Chilean and Peruvian cases demonstrate that environmental provisions in US PTAs can, indeed, motivate domestic environmental policy reform even in developing countries with weak environmental constituencies and even, possibly, in contradiction with the interests of organized businesses. Importantly, the effect of these provisions will be exhibited *ex ante* as US trading partners will fear potential sanctions in the future if they fail to meet the expectations put upon them.

*Hypothesis 1: US PTAs with environmental provisions will be most effective ex-ante in promoting environmentally sustainable policies in developing countries.*

As mentioned above, contrary to the US’ sticks approach, the EU largely pursues a carrots approach when dealing with environmental provisions in its PTAs. It relies on mechanisms, such as the Civil Society Dialogue (or Forum), to bring together governmental officials and civil society members from both the EU and its trading partners to collectively work on the effective implementation of trade agreements and their various provisions, including environmental standards. The participants are expected to meet on a regular basis, typically at least once a year, and the EU also demands that such dialogues are representative of all key stakeholders and not just those organizations that are close to government. Such dialogues were shown to be effective with regard to the implementation of labor standards by establishing a transnational communication channel for civil society activists from the EU and its partners and generating a positive learning environment (Postnikov and Bastiaens 2014). This policy learning better equips underrepresented civil society groups in the developing world when pressing their governments to implement needed domestic reforms.

Furthermore, by participating in the dialogue, governments themselves can learn more about the demands of civil society groups and the EU's own legislation, to use later as a template when designing proposed policy reforms.

Ultimately, the policy dialogue established by the EU creates an institutionalized channel for transnational communication among various stakeholders and spurs information sharing and learning among them, including regulatory frameworks, as argued by various scholars (e.g. Holzinger *et al.* 2008; Rudra 2011). Thus, various domestic actors, including governments and environmental officials, in EU partner countries can exchange information about environmental issues and policy deficiencies in their countries and become more aware about various ways to bring them to the forefront of the political agenda. This, in turn, can lead to improvements in environmental policy design. However, it is likely that such a learning process will take time as socialization in international institutions is a lengthy, and also a cumulative, process requiring various actors to internalize new cognitive and normative frames. Thus, the effect of this learning on domestic policy reform will be noticeable after an agreement enters into force, i.e. during the implementation stage.

*Hypothesis 2: EU PTAs with environmental provisions will be most effective ex-post in promoting environmentally sustainable policies in developing countries.*

Yet, we argue that the success of environmental policy reform happening as a result of policy learning mechanism postulated here will hinge on the capacity of civil society in EU PTA partners. Strong and well-organized civil society is a necessary component of reform, as governments themselves might not be motivated to instigate any significant change in the absence of coercion and negative consequences in the future. Governments in the developing world might also lack administrative capacity (for example, not have

environmental ministries) needed for domestic reform. Additionally, state officials might be captured by the interests of organized businesses whose preferences would dictate maintaining the status quo, as investing in environmental protection is bound to incur significant costs for them. Moreover, a weak civil society could further undermine the lobbying effectiveness of environmental organizations, already a notoriously loose constituency in developing countries comprised of diverse actors driven by their value agendas. Thus, any positive *ex post* effect of environmental provisions in EU PTAs is likely to occur only in the countries with relatively strong and well-organized civil societies.

*Hypothesis 3: EU PTAs with environmental provisions will be effective in promoting environmentally sustainable policies in developing countries with strong civil societies.*

The case of implementation of the EU-Chile Association Agreement illustrates the logic of previous two hypotheses. Despite the fact that the agreement was concluded in 2002, it had only few positive effects on environmental policy in Chile. The change could be seen only at the level of attitudes among the relevant Chilean officials and did not lead to any real policy adjustment. An interviewed high-level Chilean diplomat involved in the EU-Chile relations mentioned that there has been certain legitimization of environmental issues within the government bureaucracy stemming from the general obligations created by the agreement and the dialogue established with the EU (author's interview June 5, 2013). This legitimization has elevated the level of environmental concerns, especially in the south of Chile, where the cellulose plants are hurting the native flora, which has been increasingly brought to the attention of the Chilean public and policy-makers and which has also received a lot of attention in the EU.

There have also been several exchanges of views between officials from the EU and the Ministry of Environment in Chile that did not lead to any substantive changes, beyond establishing a new informational channel, due to the lack of interest from Ministry officials, (author's interview May 31, 2013). Additionally, the Ministry of Environment was established only in 2010, which occurred largely due to the pressure from the Organization for Economic Development and Cooperation (OECD). Despite this positive change, the new Ministry experiences administrative problems and has only limited enforcement capacity over the environmental regulations it inherited from its predecessor CONAMA (Government Accountability Office 2009).

Furthermore, despite the environment being discussed at the Civil Society Dialogue meetings, little progress has been made in terms of improving environmental policy, as environmental provisions were treated as marginal by the agreement parties at those meetings (author's interview June 5, 2013). Importantly, the lack of organizational capacity of Chilean civil society coupled with the unwilling government resulted in only two Civil Society Dialogue meetings in more than a decade, despite the stipulation that they need to be held annually.

The Chilean environmental movement exhibits certain pathologies it inherited from the Pinochet era (Carruthers 2001). It is quite eclectic and lacks institutional capacity, as well as crucial material resources. Its lobbying efforts are weak and virtually non-existent with few small NGOs mostly relying on personal ties with policy-makers (author's interviews June 10, 2013b; June 17, 2013). This difficulty is compounded by the fact that the Chilean political system has very few formal lobbying channels for societal actors that can be largely attributed to the absence of law on lobbying. In addition to this organizational weakness, the Chilean society is not well mobilized when it comes to environmental protection, as evidenced by the tolerance of high levels of air pollution in Santiago (author's interview June

10, 2013b). Thus, the weakness of the Chilean environmental movement resulted in the lack of fulfillment of the agreement obligations and many “missed opportunities” (Reyes-Mendy 2009).

This case clearly demonstrates that well-organized civil society is a necessary condition for the policy dialogue envisioned by EU PTAs to begin and incentivize domestic reform. Yet, the US might also deal with weak civil society in its trading partners. However, we argue that the threat of US sanctions will be sufficient to mobilize governments to engage in action even without strong pressure from civil society, as possible sanctions will mainly hurt government officials and business groups they respond to who would lose a significant share of the attractive American market due to losing trade privileges.

*Hypothesis 4: US PTAs with environmental provisions will be effective in promoting environmentally sustainable policies in developing countries regardless of civil society strength.*

#### **4. Empirical Analysis**

In this section, we empirically test our hypotheses concerning the *ex ante* and *ex post* effects of EU and US PTAs with environmental provisions in all partner states and then partner states with varying strengths of civil society. We hypothesize that EU PTAs will be most effective *ex post* due to learning by governments and civil society actors. In particular, EU PTAs will be effective in partner states with strong civil societies, where the domestic institutional environment is most conducive to the learning process. We expect US PTAs to be most effective *ex ante* because of the fear of sanctions by governments in trading partners. Thus, in states with either strong or weak civil societies, US PTAs are predicted to be effective. Our sample consists of 79 developing countries between 1980 and 2010, including

all US and EU PTA trading partners. For further information on US and EU PTAs please see Appendix B.1 and B.2.

Our dependent variable of interest is commitment to *environmentally sustainable policies* in EU and US PTA partners. Using a policy oriented measure as our dependent variable is critical because maintaining and enforcing adequate levels of environmental protection and committing to MEAs is expected of PTA partners and will involve changing existing environmental policies if a policy gap exists. Additionally, this operationalization distinguishes our analysis from previous research on the impact of free trade and free trade agreements on the environment, which focuses primarily on (air) pollution as the dependent variable (e.g. Antweiler, Copeland, and Taylor 1998; Birdsall and Wheeler 1993; Frankel and Rose 2005; Strutt and Anderson 2000). Pollution is only one component of the measurement of a country's overall environmental quality. Here, we prefer a measure that captures the environmental policy commitments made in PTAs beyond pollution.

Specifically, we operationalize environmental sustainability using Yale University and Columbia University's Environmental Performance Index (EPI) (Yale University *et al.* 2014). The EPI is an aggregation of both environmental health and ecosystem vitality measures including air quality, water and sanitation, health, water resources, agriculture, forests, fisheries, biodiversity and habitat, and climate and energy. Importantly, the EPI uses a "proximity to target" methodology, which assesses how close a particular country is to an identified policy target... defined primarily by international or national policy goals or established scientific thresholds" (Yale University *et al.* 2014).<sup>3</sup> This definition echoes the scope of environmental standards in both EU and US PTAs.<sup>4</sup> This variable is scaled from 0 to

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<sup>3</sup> Please see details on methodology on the EPI website: <http://epi.yale.edu/our-methods>.

<sup>4</sup> For example, Chapter 18 of the US-Peru PTA dedicated to the environment defines environmental law as (a) the prevention, abatement, or control of the release, discharge, or emission of pollutants or environmental contaminants; (b) the control of environmentally hazardous or toxic chemicals, substances, materials, and wastes, and the dissemination of information related thereto; (c) the protection or conservation of wild flora or fauna, including endangered species, their habitat, and specially protected natural areas; or

100 with higher values indicating higher environmental health and sustainability performance.<sup>5</sup>

Our independent variables of interest are EU and US PTAs with environmental provisions. We examined the text of all EU and US PTAs to determine (1) if the agreements included environmental provisions and (2) the enforcement mechanism specified in the agreement. As discussed previously, the United States relies on coercive enforcement mechanisms and the overwhelming majority (18/21) of US PTAs with environmental provisions include sanctions for non-compliance. The EU, on the other hand, uses “soft” mechanisms of enforcement in the form of government consultations and Civil Society Dialogue; no EU PTA with environmental provisions envisions sanctions. Instead, the EU relies on policy dialogue for implementation of PTA provisions in partner states. Please see Appendix B.1 and B.2 for details on EU and US PTAs.

Ultimately, we have four key independent variables of interest: a dummy variable indicating a country is negotiating a US PTA with environmental provisions and sanctions, a dummy variable indicating a country has a signed US PTA with environmental provisions and sanctions, a dummy variable indicating a country is negotiating an EU PTA with environmental provisions, and a dummy variable indicating a country has a signed EU PTA with environmental provisions. The negotiation period is operationalized as three years before signing the PTA, in accordance with Kim (2012) and Postnikov and Bastiaens (2014) studies of labor standards. In the sample of all developing countries, we expect the US PTA negotiation dummy to be positively associated with environmentally sustainable policies, while the EU PTA signed dummy variable is predicted to be positive and statistically significant, reflecting hypotheses 1 and 2.

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(d) for Peru, the management of forest resources. The EU’s list of thirteen areas of cooperation established in its sustainable development chapters emphasizes similar measures (e.g. Chapter 13 of the EU-South Korea PTA).

<sup>5</sup> Please note that alternative measures of environmentally sustainable policies, such as the World Bank’s Country Policy and Institutional Assessment: Environmental Sustainability, are not used due to data availability concerns.

Building on Postnikov and Bastiaens (2014), we control for key economic and political factors. In particular, we include GDP growth, GDP (logged), GDP per capita, and trade (as a percent of GDP) to capture the overall economic development and economic growth that might affect environmental policy commitments (World Bank 2013). Democracy and the number of veto players capture the political environment (Henisz 2000; Marshall and Gurr 2010). Freedom of association, scaled from zero to two with higher values indicating greater freedoms for citizens to assemble and associate, captures the strength of civil society (CIRI 2010). We also control for environmental factors: land area (logged), carbon dioxide emissions per capita, and fossil fuel consumption as a percentage of total energy consumption (World Bank 2013). Finally, we include a time trend and year fixed effects.<sup>6</sup> See Appendix B.3 for details on all variables. We test our hypotheses 1 and 2 using fixed effects estimations.<sup>7</sup> See Table 1 below for base and full model results.

As expected, US PTAs with environmental provisions are positive and statistically significant in predicting environmental sustainability in developing countries *ex ante* (i.e. during the negotiations period). In fact, the greatest improvement in environmentally sustainable policies for US PTA partner states occurs during the negotiations period, compared to the period after the agreement is signed (*ex post*). Importantly, EU PTAs are positive and statistically significant in predicting environmental sustainability in developing country partner states *ex post* (i.e. after the agreement is signed).

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<sup>6</sup> We include a dummy variable for a country that has signed either an EU or US PTA, however the US PTA is dropped during the de-meaning process of the fixed effects regression. Results including a dummy variable for countries that have signed both an EU and US PTA is robust, see Appendix A.1.

<sup>7</sup> Please note that the models are robust when lagging the economic independent variables (Postnikov and Bastiaens (2014)).



**Table 1: Determinants of Environmental Protection Index in Developing Countries**

	(1)	(2)	(3)	(4)
<i>US Negotiations Dummy</i>	<b>0.349*</b> (0.203)			
<i>EU Negotiations Dummy</i>		<b>-0.0459</b> (0.204)		
<i>US Sign Dummy</i>			<b>-0.0604</b> (0.203)	
<i>EU Sign Dummy</i>				<b>0.427*</b> (0.226)
Trade (% GDP)	-0.00861*** (0.00321)	-0.00840*** (0.00321)	-0.00842*** (0.00321)	-0.00843*** (0.00320)
Polity	0.0351 (0.0236)	0.0381 (0.0235)	0.0368 (0.0236)	0.0342 (0.0236)
GDP per capita (log)	-0.111 (0.199)	-0.101 (0.198)	-0.0894 (0.202)	-0.0542 (0.198)
GDP growth	0.0137 (0.00965)	0.0134 (0.00966)	0.0133 (0.00967)	0.0130 (0.00964)
Carbon Dioxide per capita	-0.0439 (0.0291)	-0.0403 (0.0288)	-0.0427 (0.0291)	-0.0495* (0.0292)
Fossil Fuel Consumption (%)	-0.0618*** (0.0127)	-0.0614*** (0.0126)	-0.0612*** (0.0127)	-0.0614*** (0.0126)
Veto Players	-0.254 (0.316)	-0.285 (0.316)	-0.287 (0.316)	-0.276 (0.315)
Freedom of Assembly	0.0417 (0.0740)	0.0410 (0.0742)	0.0412 (0.0742)	0.0331 (0.0741)
Time Trend	0.307*** (0.0252)	0.308*** (0.0244)	0.305*** (0.0259)	0.297*** (0.0249)
Land Area (log)	13.40 (18.33)	6.741 (17.95)	7.868 (18.34)	6.140 (17.91)
Observations	972	972	972	972
R-squared	0.502	0.500	0.500	0.502
Number of Countries	92	92	92	92

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

We also conduct robustness checks using alternative measures of the dependent and independent variables and a different estimation technique. First, we estimate a panel regression including a dummy variable for countries that have signed both EU and US PTAs (Appendix A.1). Results are robust. Second, we employ the number of MEAs ratified each

year as the dependent variable of interest (Mitchell 2014). This operationalization of the dependent variable is critical, as both EU and US specify complying with MEAs within the environmental provisions of their PTAs. More broadly, MEAs capture each country's commitment to environmental reform on the international stage, thus, signing MEAs will signify governments' overall determination to improve its environmental policies. In this model, we include WTO membership (WTO 2013) and the environmental performance index (Yale University *et al.* 2014) as additional controls.<sup>8</sup> See Appendix A.2 for the negative binomial estimation results. Hypothesis 1 and 2 are further supported. Furthermore, negative result for US sign dummy indicates that the fear of sanctions is highest while an agreement is negotiated and gradually dissipates afterwards, as US trading partners make improvements they deem necessary to satisfy the concerns of American negotiators and might even backslide if the US takes a lackadaisical approach to monitoring during the implementation stage.<sup>9</sup>

Next, we measure the independent variable of interest as a scale. This variable is coded zero to two to represent the pre-negotiations period, the negotiations period, and the post-negotiations period of the EU or US PTA (with environmental provisions) respectively. The negotiations phase ends with the signing of the PTA. As we expect an inverted-U shape of the US PTA's effect on environmental protections (with the greatest positive effect occurring during negotiations), we include a squared term of the US PTA scale variable. Ultimately, we expect the EU PTA scale to be positive and statistically significant, the linear term of the US PTA scale to be positive and statistically significant, and the quadratic term of the US PTA scale to be negative and statistically significant in predicting environmental sustainability. Appendix A.3 confirms these expectations highlighting how the greatest

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<sup>8</sup> This follows Egger *et al.* (2011) who control for free trade agreement membership and environmental conditions in determining MEA membership.

<sup>9</sup> This finding echoes the GAO report (2009) assessing the agreement implementation that finds that US partners become more sluggish in continuing reforms in the *ex post* stage.

positive effect of EU PTAs occurs after signing, while US PTAs have a curvilinear relationship with environmental sustainability (with the greatest positive effect occurring during negotiations).

Finally, we estimate a Heckman selection model to address potential non-random participation in EU and US free trade agreements. In particular, this model accounts for the possibility that the conditions associated with entering into an EU or US PTA may also be associated with environmental policies and protections. In the Heckman selection model, the dependent variable in the first stage is a dummy variable for countries that have entered into EU and US PTAs, while the second stage's dependent variable is the index of environmental sustainability. Following Postnikov and Bastiaens (2014), we control for the following factors in the first stage estimation: exports of goods and services (% GDP), trade (% GDP), GDP (logged), democracy, veto players, distance from Brussels and DC, railways and air carriers (logged), carbon dioxide emissions per capita and fossil fuel energy consumption (Haveman 2013; Henisz 2000; Marshall and Gurr 2010; World Bank 2013). Table A.4 in the Appendix highlights the robust results.

To assess the validity of hypotheses 3 and 4 on the effectiveness of EU and US PTAs in countries with varying degrees of civil society strength, we employ fixed effects regressions on a split sample of countries based on their degree of freedom of assembly and association (CIRI 2010). Countries with strong civil societies have a freedom of assembly equaling two, rights to assemble and associate are “virtually unrestricted and freely enjoyed”, while countries with weak civil societies have a freedom of assembly equaling one or zero, indicating rights are “severely restricted or denied” to all citizens or select groups (CIRI 2010). We expect both EU and US PTAs with environmental provisions to be effective (*ex post* and *ex ante* respectively) in countries with strong civil societies and only US PTAs to be

effective in countries with relatively weak civil societies. Table 2 and 3 present the regression results.

**Table 2: Determinants of Environmental Protection Index in Developing Countries with Strong Civil Societies**

	(1)	(2)	(3)	(4)
<i>US Negotiations Dummy</i>	<b>0.563</b> (0.368)			
<i>EU Negotiations Dummy</i>		<b>0.222</b> (0.353)		
<i>US Sign Dummy</i>			<b>-0.293</b> (0.362)	
<i>EU Sign Dummy</i>				<b>0.723*</b> (0.374)
Trade (% GDP)	-0.0302*** (0.0109)	-0.0288*** (0.0108)	-0.0294*** (0.0110)	-0.0343*** (0.0110)
Polity	0.207** (0.0976)	0.198** (0.0981)	0.200** (0.0980)	0.182* (0.0974)
GDP per capita (log)	-1.032** (0.514)	-0.925* (0.511)	-1.010* (0.522)	-0.964* (0.507)
GDP growth	-0.0165 (0.0275)	-0.0165 (0.0273)	-0.0157 (0.0276)	-0.00562 (0.0276)
Carbon Dioxide per capita	-0.00830 (0.0513)	0.00276 (0.0496)	-0.00551 (0.0517)	-0.0218 (0.0510)
Fossil Fuel Consumption (%)	-0.0933*** (0.0268)	-0.0863*** (0.0263)	-0.0903*** (0.0270)	-0.0833*** (0.0261)
Veto Players	1.059 (0.811)	1.071 (0.811)	1.113 (0.815)	1.081 (0.804)
Time Trend	0.411*** (0.0526)	0.405*** (0.0517)	0.416*** (0.0561)	0.390*** (0.0516)
Land Area (log)	124.9 (101.1)	117.7 (101.2)	130.1 (102.7)	88.44 (101.3)
Observations	266	266	266	266
R-squared	0.564	0.559	0.560	0.567
Number of Countries	50	50	50	50

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 3: Determinants of Environmental Protection Index in Developing Countries with Weak Civil Societies**

	(1)	(2)	(3)	(4)
<i>US Negotiations Dummy</i>	<b>0.557**</b> (0.265)			
<i>EU Negotiations Dummy</i>		<b>-0.117</b> (0.247)		
<i>US Sign Dummy</i>			<b>-0.191</b> (0.268)	
<i>EU Sign Dummy</i>				<b>-0.174</b> (0.305)
Trade (% GDP)	-0.00673** (0.00306)	-0.00652** (0.00307)	-0.00655** (0.00307)	-0.00665** (0.00307)
Polity	0.00424 (0.0228)	0.00735 (0.0228)	0.00615 (0.0228)	0.00835 (0.0228)
GDP per capita (log)	0.213 (0.212)	0.208 (0.209)	0.216 (0.214)	0.195 (0.212)
GDP growth	0.0205** (0.00948)	0.0196** (0.00945)	0.0196** (0.00951)	0.0206** (0.00952)
Carbon Dioxide per capita	-0.0902*** (0.0336)	-0.0898*** (0.0337)	-0.0881*** (0.0339)	-0.0892*** (0.0337)
Fossil Fuel Consumption (%)	-0.0411*** (0.0136)	-0.0416*** (0.0136)	-0.0417*** (0.0136)	-0.0413*** (0.0136)
Veto Players	0.379 (0.345)	0.325 (0.345)	0.337 (0.346)	0.335 (0.345)
Time Trend	0.255*** (0.0273)	0.257*** (0.0264)	0.256*** (0.0278)	0.260*** (0.0272)
Land Area (log)	9.718 (17.75)	-3.560 (16.72)	1.044 (17.71)	-3.300 (16.70)
Observations	713	713	713	713
R-squared	0.522	0.519	0.519	0.519
Number of Countries	85	85	85	85

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

While EU PTAs with environmental provisions are effective in improving environmental conditions in countries with strong civil societies (and this effect is strongest *ex post*), US PTAs are not statistically significant. We attribute this result to the fact that countries negotiating a PTA with the US should already have relatively high levels of

environmental protection and the gap between US expectations and existing policies is relatively small, as confirmed by the data, indicating that many of US PTA partners are middle-income countries with already existing environmental laws. Hypothesis 4 is supported by the regression results, as US PTAs are effective during the negotiation period in improving the environmental policy environment in countries even with low levels of freedom of assembly, as sanctions provide the necessary stick for the government to improve environmental policies. EU PTAs with environmental provisions are not effective, as the channels for learning are weak due to the absence of necessary platform in the form of Civil Society Dialogue and the incentive provided by sanctions is non-existent.

As a robustness check we interact freedom of assembly with the PTA stage variable (coded zero to two to represent the pre-negotiations period, the negotiations period, and the post-negotiations period of the EU or US PTA with environmental protections) and run a fixed effects regression on the full sample of developing countries. Appendix Table A.5 and Figures A.6 and A.7 provide the robust estimation results for EU PTAs, i.e. they are most effective in countries with robust civil societies as indicated by the high levels of freedom of association. The US PTA-civil society interaction is not statistically significant, indicating that the major driver of policy change for US trading partners is the fear of future sanctions by governments and not the civil society involvement.

## **5. Conclusion**

In this paper we argued that North-South PTAs with environmental provisions can serve as the vehicles of environmental policy change in the developing world. However, their effect will be conditioned by the design of an agreement. US PTAs employ sanctions to punish countries for non-compliance with environmental commitments, while EU PTAs envision dialogue between civil society actors and governments. We hypothesized that these

approaches should result in two mechanisms of policy change – a fear of possible sanctions manifested by *ex ante* environmental policy improvements in US PTA partners or policy learning as a result of the dialogue established by EU PTAs manifested *ex post*.

By refining the understanding of these mechanisms and their effects, our paper further contributes to the literature on PTAs as a source of domestic reform and the timing of PTA effects (Baccini and Urpelainen 2014a; Baccini and Urpelainen 2014b), as well as the vast literature on trade policy and development more broadly. Additionally, our paper has important policy implications for future trade agreements negotiated by the developed countries. While sanctions can clearly lead to the improvement of environmental protection, the softer approach can also be effective when linked with stronger civil society in partner states. Thus, policy dialogue can be used as a policy instrument but it needs to be supplanted by various initiatives to strengthen civil society participation. Properly implementing environmental provisions will ensure that PTAs can serve not only commercial but also developmental purposes.

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## Appendix A

### A.1 Determinants of Environmental Protection Index in Developing Countries: Robustness Check

	(1)	(2)	(3)	(4)
<i>US Negotiations Dummy</i>	<b>0.340*</b> (0.203)			
<i>EU Negotiations Dummy</i>		<b>-0.0459</b> (0.204)		
<i>US Sign Dummy</i>			<b>-0.0570</b> (0.203)	
<i>EU Sign Dummy</i>				<b>0.427*</b> (0.226)
Trade (% GDP)	-0.00858*** (0.00321)	-0.00840*** (0.00321)	-0.00840*** (0.00321)	-0.00843*** (0.00320)
Polity	0.0364 (0.0235)	0.0381 (0.0235)	0.0379 (0.0236)	0.0342 (0.0236)
GDP per capita (log)	-0.131 (0.198)	-0.101 (0.198)	-0.108 (0.200)	-0.0542 (0.198)
GDP growth	0.0139 (0.00964)	0.0134 (0.00966)	0.0135 (0.00966)	0.0130 (0.00964)
Carbon Dioxide per capita	-0.0407 (0.0288)	-0.0403 (0.0288)	-0.0400 (0.0289)	-0.0495* (0.0292)
Fossil Fuel Consumption (%)	-0.0625*** (0.0126)	-0.0614*** (0.0126)	-0.0618*** (0.0127)	-0.0614*** (0.0126)
Veto Players	-0.248 (0.316)	-0.285 (0.316)	-0.280 (0.316)	-0.276 (0.315)
Freedom of Assembly	0.0416 (0.0740)	0.0410 (0.0742)	0.0412 (0.0741)	0.0331 (0.0741)
Time Trend	0.312*** (0.0245)	0.308*** (0.0244)	0.309*** (0.0252)	0.297*** (0.0249)
Land Area (log)	13.23 (18.33)	6.741 (17.95)	7.814 (18.33)	6.140 (17.91)
Both EU and US PTA	50.21 (48.52)	32.95 (47.49)	35.81 (48.53)	31.23 (47.40)
Observations	972	972	972	972
R-squared	0.502	0.500	0.500	0.502
Number of Countries	92	92	92	92

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## A.2 Determinants of Multilateral Environmental Agreements in Force in Developing Countries

	(1)	(2)	(3)	(4)
<i>US Negotiations Dummy</i>	<b>0.368**</b> (0.153)			
<i>EU Negotiations Dummy</i>		<b>-0.234</b> (0.161)		
<i>US Sign Dummy</i>			<b>-0.267*</b> (0.153)	
<i>EU Sign Dummy</i>				<b>0.509***</b> (0.170)
Trade (% GDP)	0.00411 (0.00270)	0.00408 (0.00272)	0.00416 (0.00270)	0.00396 (0.00271)
Polity	-0.00160 (0.0195)	0.00457 (0.0196)	-0.00107 (0.0195)	0.000251 (0.0196)
GDP per capita (log)	0.0456 (0.154)	-0.00781 (0.154)	0.0337 (0.156)	0.0487 (0.154)
GDP growth	0.00168 (0.00814)	0.00213 (0.00822)	0.00179 (0.00815)	0.00209 (0.00818)
EPI	-0.0541** (0.0265)	-0.0503* (0.0267)	-0.0514* (0.0264)	-0.0559** (0.0266)
Carbon Dioxide per capita	-0.0395* (0.0226)	-0.0242 (0.0224)	-0.0361 (0.0225)	-0.0355 (0.0227)
Fossil Fuel Consumption (%)	-0.00782 (0.00995)	-0.00614 (0.0100)	-0.00778 (0.00999)	-0.00806 (0.0100)
Veto Players	0.106 (0.257)	0.0871 (0.259)	0.0874 (0.258)	0.0990 (0.258)
Freedom of Assembly	0.0551 (0.0593)	0.0413 (0.0598)	0.0516 (0.0594)	0.0424 (0.0596)
Time Trend	-0.0599*** (0.0216)	-0.0497** (0.0212)	-0.0571*** (0.0221)	-0.0596*** (0.0214)
WTO	0.329 (0.210)	0.303 (0.211)	0.321 (0.211)	0.339 (0.211)
Observations	972	972	972	972

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### A.3 Determinants of Environmental Protection Index in Developing Countries: Alternative Measurement of PTA

	(1)	(2)
<i>US PTA Scale</i>	<b>1.078**</b> <b>(0.493)</b>	
<i>US PTA Scale Squared</i>	<b>-0.439**</b> <b>(0.214)</b>	
<i>EU PTA Scale</i>		<b>0.285**</b> <b>(0.135)</b>
Trade (% GDP)	-0.00862*** (0.00321)	-0.00829*** (0.00320)
Polity	0.0353 (0.0236)	0.0331 (0.0236)
GDP per capita (log)	-0.0668 (0.202)	-0.0179 (0.200)
GDP growth	0.0135 (0.00965)	0.0132 (0.00963)
Carbon Dioxide per capita	-0.0471 (0.0291)	-0.0527* (0.0294)
Fossil Fuel Consumption (%)	-0.0608*** (0.0127)	-0.0618*** (0.0126)
Veto Players	-0.256 (0.316)	-0.269 (0.315)
Freedom of Assembly	0.0438 (0.0740)	0.0330 (0.0741)
Time Trend	0.297*** (0.0261)	0.293*** (0.0252)
Land Area (log)	11.54 (18.38)	6.060 (17.90)
Observations	972	972
R-squared	0.503	0.503
Number of Countries	92	92
Robust standard errors in parentheses	*** p<0.01, ** p<0.05, * p<0.1	

#### A.4 Determinants of Environmental Protection Index in Developing Countries: Selection Model

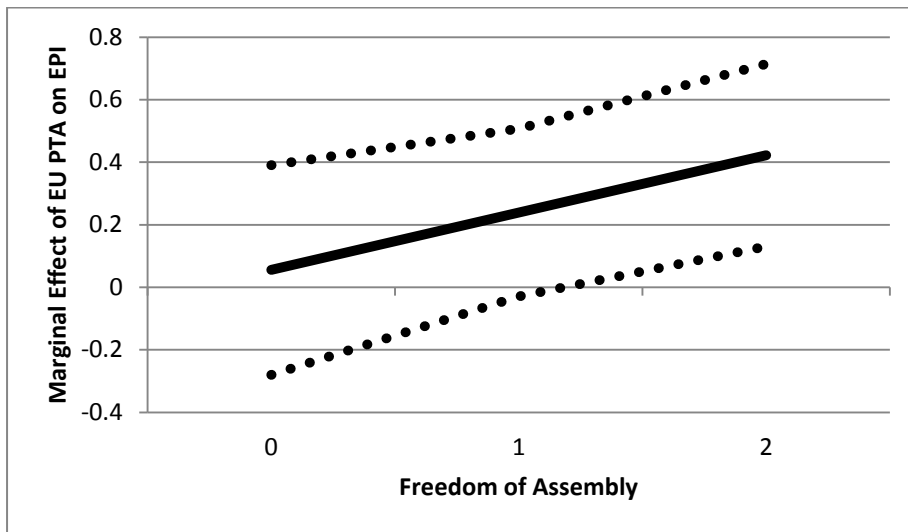
	(1)	(2)	(3)	(4)
<i>US Negotiations Dummy</i>	<b>1.529*</b> (0.894)			
<i>EU Negotiations Dummy</i>		<b>1.189</b> (1.438)		
<i>US Sign Dummy</i>			<b>0.262</b> (1.038)	
<i>EU Sign Dummy</i>				<b>4.488*</b> (2.445)
Trade (% GDP)	-0.0778*** (0.0225)	-0.0834*** (0.0225)	-0.0822*** (0.0253)	-0.123*** (0.0423)
Polity	0.0386 (0.239)	0.0702 (0.230)	0.0667 (0.235)	-0.0264 (0.360)
GDP per capita (log)	3.300 (2.820)	2.595 (2.661)	2.389 (2.742)	0.628 (4.076)
GDP growth	-0.0598 (0.136)	-0.0515 (0.136)	-0.0703 (0.135)	-0.0460 (0.202)
Carbon Dioxide per capita	-1.424*** (0.516)	-1.312*** (0.492)	-1.229** (0.511)	-0.796 (0.779)
Fossil Fuel Consumption (%)	-0.590*** (0.102)	-0.589*** (0.102)	-0.612*** (0.102)	-0.898*** (0.220)
Veto Players	7.499** (3.164)	7.713** (3.088)	8.043** (3.170)	6.763 (4.751)
Land Area (logged)	-4.056*** (0.850)	-4.031*** (0.828)	-4.044*** (0.886)	-5.022*** (1.389)
Freedom of Assembly	0.218 (0.625)	0.129 (0.614)	-0.00303 (0.621)	-0.0648 (0.910)
Time Trend	-0.146 (0.247)	-0.123 (0.239)	-0.128 (0.244)	-0.120 (0.365)
<b>Selection Equation</b>				
Railways (logged)	-0.429*** (0.0976)	-0.429*** (0.0976)	-0.429*** (0.0976)	-0.429*** (0.0976)
Exports of Goods and Services (% GDP)	-0.104*** (0.0205)	-0.104*** (0.0205)	-0.104*** (0.0205)	-0.104*** (0.0205)
GDP (logged)	0.801*** (0.0958)	0.801*** (0.0958)	0.801*** (0.0958)	0.801*** (0.0958)
Distance from Brussels (logged)	-0.0882 (0.168)	-0.0882 (0.168)	-0.0882 (0.168)	-0.0882 (0.168)

Distance from DC (logged)	-2.215*** (0.337)	-2.215*** (0.337)	-2.215*** (0.337)	-2.215*** (0.337)
Workers' Rights	0.364** (0.182)	0.364** (0.182)	0.364** (0.182)	0.364** (0.182)
Women's Economic Rights	-0.271 (0.186)	-0.271 (0.186)	-0.271 (0.186)	-0.271 (0.186)
Trade (% GDP)	0.0692*** (0.0114)	0.0692*** (0.0114)	0.0692*** (0.0114)	0.0692*** (0.0114)
Polity	0.0400* (0.0206)	0.0400* (0.0206)	0.0400* (0.0206)	0.0400* (0.0206)
Observations	895	895	895	895
Robust standard errors in parentheses		*** p<0.01, ** p<0.05, * p<0.1		

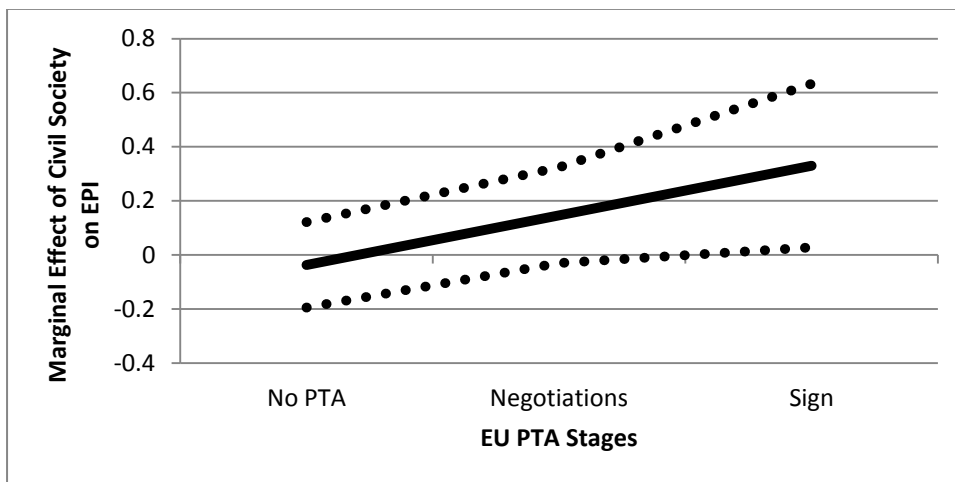
**A.5 Determinants of Environmental Protection Index in Developing Countries:  
Controlling for Civil Society**

	(1)	(2)
<i>Freedom of Assembly</i>	<i>0.0884</i> <i>(0.0812)</i>	<i>-0.0367</i> <i>(0.0804)</i>
<i>US PTA Scale</i>	<i>1.891**</i> <i>(0.912)</i>	
<i>US PTA Scale Squared</i>	<i>-0.794*</i> <i>(0.446)</i>	
<i>US PTA Scale*Freedom of Assembly</i>	<i>-0.614</i> <i>(0.580)</i>	
<i>US PTA Scale Squared*Freedom of Assembly</i>	<i>0.260</i> <i>(0.291)</i>	
<i>EU PTA Scale</i>		<i>0.0552</i> <i>(0.171)</i>
<i>EU PTA Scale*Freedom of Assembly</i>		<i>0.184**</i> <i>(0.0836)</i>
Trade (% GDP)	-0.00849*** (0.00321)	-0.00883*** (0.00320)
Polity	0.0336 (0.0236)	0.0326 (0.0236)
GDP per capita (log)	-0.0426 (0.203)	-0.0789 (0.202)
GDP growth	0.0133 (0.00965)	0.0151 (0.00965)
Carbon Dioxide per capita	-0.0487* (0.0292)	-0.0566* (0.0294)
Fossil Fuel Consumption (%)	-0.0607*** (0.0127)	-0.0605*** (0.0126)
Veto Players	-0.241 (0.316)	-0.232 (0.315)
Time Trend	0.296*** (0.0261)	0.298*** (0.0253)
Land Area (log)	16.75 (19.38)	6.914 (17.87)
Observations	972	972
R-squared	0.504	0.505
Number of Countries	92	92
Robust standard errors in parentheses	*** p<0.01, ** p<0.05, * p<0.1	

### A.6 Marginal Effect of EU PTAs on Environmental Protection Index at Various Levels of Freedom of Assembly



### A.7 Marginal Effect of Civil Society on Environmental Protection Index at Various Stages of EU PTA Negotiations





## Appendix B

### B.1 List of US PTAs

<b>Partner Country</b>	<b>Signed</b>	<b>In force</b>	<b>Enviro Provisions</b>	<b>Sanctions</b>
Albania	1995	1998	no	no
Australia	2004	2005	yes	yes
Bahrain	2005	2006	yes	yes
Canada	1992	1994	yes	yes
Chile	2003	2004	yes	yes
Colombia	2006	2012	yes	yes
Dominican Republic	2004	2007	yes	yes
Israel	1985	1985	no	no
Jordan	2000	2001	yes	yes
Mexico	1992	1994	yes	yes
Morocco	2004	2006	yes	yes
Oman	2006	2009	yes	yes
Peru	2006	2009	yes	yes
Nicaragua	2004	2007	yes	yes
Singapore	2003	2004	yes	yes
South Korea	2010	2012	yes	yes
Vietnam	2000	2001	no	no
Costa Rica	2004	2009	yes	yes
El Salvador	2004	2007	yes	yes
Guatemala	2004	2007	yes	yes
Honduras	2004	2007	yes	yes

## B.2 List of EU PTAs

Partner Country	Signed	In Force	Enviro Provision	Sanctions
Albania	2006	2009	yes	no
Algeria	2002	2005	yes	no
Bosnia and Herzegovina	2008	2008	yes	no
Botswana	2009	--	yes	no
Cameroon	2009	--	yes	no
Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, St Lucia, St Vincent and the Grenadines, St Kitts and Nevis, Suriname, Trinidad and Tobago	2008	--	yes	no
Chile	2002	2003	yes	no
Columbia	2011	2013	yes	no
Côte d'Ivoire	2008	--	no	no
Croatia	2001	2005	yes	no
Egypt	2001	2004	yes	no
Fiji	2009	2009	no	no
Israel	1995	2000	yes	no
Jordan	1997	2002	yes	no
Lebanon	2002	2003	yes	no
Lesotho	2009	--	yes	no
Macedonia	2001	2004	yes	no
Madagascar	2009	2012	yes	no
Mauritius	2009	2012	yes	no
Mexico	2000	2000	yes	no
Montenegro	2007	2010	yes	no
Morocco	1996	2000	yes	no
Mozambique	2009	--	yes	no
Palestine	1997	1997	yes	no
Papua New Guinea	2009	2011	no	no
Peru	2011	2013	yes	no
Serbia	2008	2010	yes	no
Seychelles	2009	2012	yes	no
South Africa	1999	2000	yes	no
South Korea	2010	2011	yes	no
Swaziland	2009	--	yes	no
Tunisia	1995	1998	yes	no
Turkey	1995	1995	yes	no
Zimbabwe	2009	2012	yes	no

### B.3 Data Descriptions and Sources (All Developing Countries)

Variable	Mean	Standard Deviation	Minimum	Maximum	Source
Empowerment index	7.29	4.01	0	14	CIRI. 2010.
Environmental Performance Index	48.27	8.00	25.2	69.3	Yale University et al. 2014.
EU PTA with Environmental Provisions (Signed)	0.04	0.20	0	1	
Freedom of Assembly	0.94	0.84	0	2	CIRI. 2010.
GDP Growth	3.61	6.69	-51.03	106.28	World Bank. 2014.
GDP per capita (logged)	7.38	1.44	4.16	12.13	World Bank. 2014.
Multilateral Environmental Agreement	4.12	6.58	0	93	Mitchell. 2014.
Polity	-0.19	6.77	-10	10	Marshall and Gurr. 2010.
Trade (% GDP)	83.57	51.57	0.31	460.47	World Bank. 2014.
US PTA with Environmental Provisions and Sanctions (Signed)	0.02	0.14	0	1	
US PTA with Environmental Provisions and Sanctions (negotiations)	0.01	0.09	0	1	
EU PTA with Environmental Provisions and Sanctions (negotiations)	0.02	0.15	0	1	
Veto Players	0.25	0.29	0	0.89	Henisz. 2000.
Carbon Dioxide per capita	40.46	2363.91	0.00	161316.1	World Bank. 2014.
Land area (logged)	10.70	3.12	0.69	16.61	World Bank. 2014.