Preferential Trade Agreements As Public Goods: How Regulatory Provisions Slow the Competition for New Trade Deals

By

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Abstract

Traditional models of the spread of preferential trade agreements emphasize the theory of competitive liberalization, asserting that the ratification of a trade agreement would naturally incentivize other states to negotiate their own deals. This paper challenges this theory, arguing that the inclusion of provisions which enhance regulatory standards effectively provides a public good in the world economy, diminishing demand for new agreements. By tracing the ratification of agreements that include regulatory provisions in three issue areas—intellectual property rights, environmental protections, and labor standards—this project demonstrates that hegemonic actors are the key providers of such provisions, and that ratifying an agreement with regulatory provisions leads states to push for similar changes in their trading partners. This project develops a novel theory regarding the spread of trade agreements, highlighting the crucial role of regulatory provisions which have become commonplace over the past 15 years, yet remain largely neglected in models of agreement proliferation.

Chapter 1: Theory

Preamble

As the global economy has become more integrated and competitive since the turn of the 21st century, states have embraced preferential trade agreements as a means to deepen economic ties with trading partners, access untapped markets for exporters, and drive down the cost of consumer goods. While trade agreements have taken center stage in the global economic theater, the study of trade agreements has focused primarily on provisions which affect the movement of goods. However, the past decade has seen a significant shift in the types of provisions included in these agreements, as states have taken to negotiating for changes in their partners' domestic regulatory environments. This paper seeks to shed light on this growing yet largely unstudied aspect of economic relations, and answer the question: how have behind-the-border provisions affected the proliferation of trade agreements and the calculus of trade agreement negotiation?

A key observation provides the theoretical foundation for this paper. Only the countries signing an agreement benefit from provisions that affect the movement of goods between signatories, and countries not party to the agreement are harmed due to the agreement making trade artificially more efficient between the signatories. This, in turn, makes trade from all other states into those party to the agreement comparatively less competitive, as their exports are still subjected to the tariffs the signatories mutually agreed to lift. However, changes in domestic regulatory environments cannot help but impact all firms which do business in the country in question, regardless of the firms' countries of origin. The benefits of the regulatory change positively externalize upon the rest of the world; they pay no cost to attain the benefit, but receive it nonetheless. By negotiating to achieve this regulatory change, the negotiator provides what essentially amounts to a global public good.

Which countries should be willing to provide a public good to the rest of the world? I contend that, much like with the provision of domestic public goods, global public goods fall victim to a collective action problem, as all countries benefit but none want to pay the requisite cost to attain the benefit. In alignment with the contemporary understanding of public goods provision, it follows that only countries which stand to absorb a significant portion of the

benefits from the regulatory change will be willing to pay the cost of negotiating for the provision and providing it for the rest of the world.

How do behind-the-border provisions affect the spread of trade agreements? The bulk of research into trade agreements supports the idea that trade agreements are "contagious" – two countries signing an agreement incentivizes other countries to negotiate agreements with those two countries so that their export industries can stay competitive. This contagion effect, however, only derives from at-border provisions which affect the flow of goods. I assert that the rise of behind-the-border provisions should, in certain circumstances, slow the spread of trade agreements. By providing a "good" at no cost to uninvolved parties, any uninvolved parties who would have otherwise been interested in negotiating to achieve strengthened regulations have now lost a crucial incentive for hammering out a trade agreement. Moreover, if a country has had its regulatory standards raised through a trade agreement, that country will likely demand that its future negotiating partners accept the same standards, as they would prefer their industries not be outcompeted by foreign firms which gain advantage from more lax rules. The state with raised standards likely lacks the necessary bargaining power to see this demand met, as they cannot provide improved access to a large and wealthy market, which is what drove them to accept the raised standards in the first place.

This paper makes three valuable contributions. This work challenges the orthodox understanding that trade agreements are, by nature, contagious. While the widely-accepted models of the proliferation of trade agreements posit that agreements naturally incentivize the negotiation of future agreements to counteract trade diversion, this paper demonstrates that the inclusion of behind-the-border provisions in trade agreements would have the effect of slowing the demand for new agreements, in direct contrast to the contemporary models of supply and demand. Additionally, this project situates behind-the-border provisions within the framework of global public goods provision. By treating regulatory provisions as public goods in the global economy from which all states derive benefits, this project links the provision of domestic regulatory changes to models of public goods provision which emphasize the crucial role of hegemonic states in providing such benefits. Finally, this paper sketches out expectations for when bilateralism and multilateralism would take priority in the global economic order. While bilateralism would precede multilateralism with regards to at-border provisions, the inclusion of

regulatory changes would see multilateral agreements precede bilateral deals, due to the way at-border benefits are exclusive and regulatory changes are inclusive.

The WTO, PTAs, and 21st Century Global Economic Order

The first great leap towards postwar global economic integration came in 1947, in the form of the General Agreement on Tariffs and Trade (GATT), which slashed tariff barriers between its twenty-three signatories. Through successive rounds of negotiation, GATT deepened global economic integration by consistently reducing acceptable tariff levels and increasing membership fivefold within a fifty-year span. The establishment of the World Trade Organization (WTO) in 1995, at the end of the Uruguay Round of the GATT, cemented the structure of an open global economic order by, for the first time, developing a global framework of rules governing non-tariff aspects of economic integration (Barton *et al*., 2006). Importantly, the WTO—unlike earlier iterations of GATT—provides a method of recourse for countries whose trading partners violate agreed-upon terms, adjudicating disputes and handing down decisions with which member states must comply. Membership in the WTO effectively guarantees a baseline level of integration into the global economy through the requirement of adherence to global trading guidelines. However, when states see an opportunity for mutual benefit by further opening their economies beyond WTO standards, they often deepen integration by signing a preferential trade agreement (PTA).

Preferential trade agreements provide states with the ability to negotiate specialized rules governing economic activity between states party to the agreement. One of the central operating principles of the WTO is to prevent discrimination in trade amongst its members. This principle manifests through the extension of "most-favored nation" status to all member-states. If a state unilaterally lowers barriers to trade for one of its trading partners, the WTO requires those barriers to be lowered for all other most-favored nations, effectively nullifying the discriminatory potential of the diminished barriers. The benefits provided by ratifying a preferential trade agreement, however, are deliberately discriminatory in nature. The agreement's signatories are negotiating for preferential access to each other's markets -- the signatories receive access to the benefits of the negotiated terms, while non-signatories are denied such access. PTAs constitute one of the few exemptions from the WTO's rules governing trade discrimination, as the benefits stem from a multiparty negotiation, rather than a one-sided declaration. With that said, the WTO

will not simply exempt any agreement from its non-discriminatory standards. To receive the WTO's exemption, a PTA must be deemed in compliance with the WTO's guidelines regarding the nature of discrimination. These guidelines are grounded in the principle that states may reciprocally lower barriers to trade—implicitly discriminating against non-signatories—but may not raise barriers to trade for non-signatories, which would constitute explicit discrimination.

Recently adopted WTO regulations require states, when ratifying a PTA, to give notice of their agreement to the WTO's Secretariat. The Committee on Regional Trade Agreements and Committee on Trade and Development will then verify that the agreement complies with the WTO's requirements. Signatories are required to supply the Secretariat with complete information regarding the terms of the agreement so that the Secretariat may, in accordance with the WTO's Principle of Transparency, educate all non-signatory WTO members on the agreement's provisions.

The nature of negotiation requires countries to be open to making concessions in various areas in order to achieve favorable terms in others. The negotiation of a PTA is a high-stakes affair, as agreements have the ability to alter domestic law to ensure compliance with the treaty. Still, the opportunity to develop a more efficient economic relationship with trading partners has without question proved enticing for countries around the globe. When the WTO was established, the world saw 124 PTAs in force; by 2018, that number had ballooned to 455.[1]

PTAs: Negotiation Process and Agreement Structure

As states recognize the potentially harmful implications of altering the foundational rules upon which their economies are structured, they do not charge headlong into signing every agreement possible. Rather, the evaluation process is far more calculated. Before even agreeing to negotiate the treaty, both states will have had to identify key negotiating objectives—that which they set out to achieve with ratification. Such objectives are often industry- or sector-specific, in that they would liberalize trade in a fashion that makes key domestic export industries more competitive—and by extension, likely more profitable—than before. States oftentimes reach out to these industries for consultation, and to hopefully receive future support

[1] "Regional Trade Agreements: Facts and Figures," World Trade Organization, accessed September 8th, 2017. https://www.wto.org/english/tratop_e/region_e/regfac_e.htm

for the final agreement. Both states go through that same process of identifying key negotiating objectives, and both enter the negotiations with those objectives in mind (Aghion, Antras, and Helpman 2007).

Once negotiations have begun, the states engage in a careful balancing act, swapping concessions in exchange for benefits, both sides determined to leverage their bargaining power into a mutually beneficial agreement that satisfies the relevant parties and deepens the relationship between the states. The negotiators must determine to what degree they value certain objectives, and weigh that value against the expected cost of a concession. Striking a balance in one country still does not guarantee a successful negotiation, as the states may value certain industries differently and therefore see them weigh down the scales of negotiation. To achieve a successful agreement, both parties must strike the sweet spot for benefits-minus-concessions.

The opening chapter of a preferential trade agreement almost universally consists of general definitions, a discussion of objectives, and both nations' formal accession to the treaty as a whole. Another early chapter is nearly always dedicated to trade in goods. This chapter will detail which goods and industries will experience reductions in import tariffs, and the schedule with which such tariff reductions will be implemented. Additionally, this chapter often includes an elimination of import quotas for certain goods within the various states, allowing for significant increases in bilateral trade flow and a general reduction in the price of such goods due to increased supply. These chapters tend to include anti-dumping provisions as well, to prevent unfair pricing. Following the chapters dealing with trade in goods are often chapters outlining rules of origin, for the purposes of tariff assessment and value-added taxation.

In recent years, chapters detailing rules for trade in services have become more common throughout PTAs. The same is true for chapters regarding cross-border investment by firms. Investment chapters generally guarantee that investments made by foreign firms will be protected from nationalization, making long-term investments notably less risky. Chapters regarding the protection of intellectual property rights have become more common as IP-producing states seek to codify their standards across borders to protect their firms' intellectual property from theft, or simply guarantee ownership on a longer time-scale. In addition to chapters regarding IP protection, recent PTAs have seen an uptick in chapters establishing heightened standards for environmental protection, generally in the less-developed trading

partner. A similar trend is found in chapters which require raised standards and strengthened rights for labor.

Concluding chapters deal with dispute settlement and methods of recourse for firms which perceive wrongdoing by states or other firms, as well as general exceptions to provisions laid out in previous chapters. While some agreements have many more chapters than those listed above, the aforementioned chapters make up the bulk of those found consistently across agreements.

Border Measures and Negative Externalities

The traditional understanding of PTAs focuses on provisions which manifest at the border, known as border measures. Border measures take many forms, the most common of which throughout history being a tariff, also known as a customs duty. A tariff is, in essence, an import tax. The company importing the foreign good pays a one-time fee when the good crosses the border into the country where the good will eventually be sold. To offset the cost of the entry-fee, companies selling the imported good raise its final sale price, effectively passing the cost of the tariff onto the consumer. As a result of this cost being passed onto consumers, imported goods are generally more expensive vis-à-vis their domestic counterparts, as the consumer is forced to pay more than the market price for the good, while a domestic good is spared of this price markup (Kreinin, 1961).

While tariffs have been the most widely adopted form of border measure throughout human history, they are not the only type of border measure states employ. Any border measure that does not levy a toll upon a good in exchange for entry into a country is known as a nontariff barrier (NTB). Import quotas constitute a key type of NTBs. Import quotas can generally be divided into two types: absolute quotas, and tariff-rate quotas. An absolute quota limits the quantity of a specific good allowed entrance into the country. Tariff rate quotas are less restrictive, as they allow a set quantity of a specific good to enter the country at a reduced-tariff rate, but subject all additional imports of that good to the standard tariff rate.

Minimum import price limits constitute another key type of NTB. A minimum import price limit sets a floor for the price at which a specified imported good can be sold in a country. While the firms which make and export that good may be able to produce it for cheaper—and

therefore still turn a profit at a lower price point—than domestic firms, they are prevented from doing so by the price limit. Domestic firms benefit from this artificial boost in competitiveness.

Tariffs and NTBs have been widely embraced by states throughout history as a means to protect domestic firms and raise valuable revenue.[2] Most states have the infrastructure in place to engage in tariff and NTB discrimination at their borders. Imported goods enter the country through centralized locations—at seaports, airports, or border towns—where customs officials assess a duty based on country of origin. As the good is in the process of entering the country when its duty is assessed, its country of origin is clear to officials. The ease of applying a tariff to goods going through customs, as well as the revenue raised through tariffs, makes maintaining a discriminatory system based on country of origin a relatively low-cost proposition for states.

While tariffs come with the added benefit of contributing to government coffers, both tariffs and NTBs operate as protectionist measures, shielding domestic firms from outside competition in the domestic economy. When a state's tariff levels are applied equally to imports from all nations, domestic firms compete primarily with the most efficient exporter. However, when a state grants a partner preferential access through lower tariffs, the partner's exports gain a notable advantage on exports from the rest of the world. Even if that partner's firms are less efficient at producing a good than a non-signatory country's firms, the state which provided preferential access will import more from the less efficient state, as the lower tariff rate makes the less efficient producer's goods artificially cheaper than more efficient producers. Viner (2014) first articulated this effect of granting preferential access as "trade diversion" in 1950. Trade is diverted away from more efficient producers and towards less efficient producers that benefit from their tariff-related advantage.[3]

When states negotiate a PTA, they do not have the legal ability to raise tariffs on goods coming from other countries. Such a provision would be at odds with the WTO's core objective of non-discrimination, as the agreement would explicitly discriminate against the countries

[2] Hoogvelt (1997) and Asakura (2003) both provide histories of tariffs.

[3] Bilateral preferential liberalization comes with two potential inefficiencies. Trade diversion stemming from preferential access reduces overall efficiency in the world economy by favoring less efficient producers and harming more efficient producers. In addition, it denies the importing country whatever tariff revenue is associated with importing the specific good. Because the flow of trade is diverted from a more efficient producer to a less efficient producer, more expensive imports replace less expensive imports, while also costing the importing state tariff revenue. For more on this dual inefficiency caused by trade diversion, see Lipsey (1970), Richardson (1993), and Dai et. al (2014).

affected by the tariff. However, the states can instead reciprocally lift or relax their preexisting border barriers. While the states party to the agreement are not explicitly discriminating against non-signatories, they are however doing so implicitly.

In a bilateral PTA, the benefits of lower border barriers are only reaped by the signatories; no other countries experience that same benefit. In fact, the PTA hurts the non-signatories by affording the signatories preferential access to each other's markets. A previously competitive firm from a non-signatory state could become uncompetitive in the signatories' markets overnight, as competitor firms from a signatory country now have the advantage of lower prices due to the removal of the custom duty (Koo et. al, 2006).

By making firms from non-signatory countries less competitive when exporting to the signatories, the trade agreement creates a negative externality, in the form of lost export sales, for countries that are not party to the agreement. Despite not playing a role in the process of negotiation, the non-signatories are harmed by the agreement.

A desire by countries to avoid the negative externalities stemming from their peers reciprocally removing border barriers rests at the heart of the theory of "competitive liberalization" (Bergsten, 1996). Competitive liberalization constitutes the theoretical foundation for the widespread proliferation of bilateral PTAs since the establishment of the WTO. The theory holds that, as the global network of bilateral PTAs grows, states feel an intense pressure to dodge the diverting effects of implicit discrimination against their firms, and seek reciprocal liberalization in turn. Baldwin (1993) refers to this response as a "domino effect." As Baldwin argues, diversion creates new political economy forces in excluded nations, which in turn ratify their own PTAs, further diverting trade and spurring future PTAs by excluded parties. Baldwin and Jaimovich (2012) support the domino effect of competitive liberalization, finding that defensive PTAs—those signed to reduce discrimination caused by the PTAs of their trading partners—have a contagious effect. Baccini and Dür (2012) identify a causal source of the contagion, demonstrating that export industries lobby their governments to negotiate a PTA intensely when they face trade-diverting discrimination due to PTA signed by a primary export market. Interestingly, Baccini and Dür find that exporters are far more likely to lobby for a PTA when they are currently losing out due to a PTA than when they have the potential to open a

country's market to their exports.[4] This finding is supported by Solis *et. al* (2009) and Manger (2009), who attribute Japan's ratification of PTAs with Mexico in 2004 and Chile in 2007 to pressure from export-oriented firms facing implicit discrimination in those two countries. Chen and Joshi (2005) reach a finding consistent with the competitive liberalization model, as they demonstrate that two countries that share a mutual trading partner with whom they both have signed PTAs are likely to complete the triangle and ratify an agreement themselves. Importantly, Baccini and Dür (2012) find that the likelihood of PTA ratification is "not simply a function of the number of agreements that these countries have signed with third countries" but rather the "cumulative discriminatory effect" of the agreements in force.

Behind-the-Border Measures and Positive Externalities

The second way in which PTAs can impact economic relations is through a behind-the-border (BTB) measure. Behind-the-border measures are fundamentally different from their border-barrier counterparts, as they affect all firms that operate within the country – both foreign and domestic. An environmental regulation capping the emission of carbon, for example, acts as a behind-the-border measure, as it requires all firms within the country to comply with the requirement, regardless of their nation of origin. Heavy protections for intellectual property rights within a country maintain those same BTB characteristics, impacting all firms within the country's borders. The same is true for strengthened labor standards—a foreign firm which opens a factory in a country cannot simply shirk local labor laws due to foreign origin.

While signatories seek to reciprocally slash the border barriers of their trading partners, the objective is the opposite with BTBs. Developed states in the global North often leverage their wealthy consumer markets to push stronger domestic regulations upon their trading partners in the global South. By offering preferential access to their consumer markets as a concession in negotiations, these developed states essentially exchange greater competitiveness for the exporting state for the imposition of heightened regulatory standards, in accordance with the interests of the developed state. It is important to note that the leverage rests predominantly with

[4] Srinivasan and Bhagwati (2001) posit that exporters are unable to accurately estimate the potential benefits of better market access due to a dearth of information, leading to a lack of lobbying. Additionally, Vernon (1966) argued that "threat in general is a more reliable stimulus to action than opportunity is likely to be."

the developed country in this negotiation, as preferential market access can give firms from the developing country a significant leg up on their competitors.

These behind-the-border measures also provide a unique function in that they provide positive externalities—benefits enjoyed by third parties—for essentially all states outside the agreement. For instance, when the United States negotiated and ratified its preferential trade agreement with Peru in 2009, the agreement included a provision requiring Peru to substantially improve its protections for intellectual property. While American firms, which generate a great deal of intellectual property, stood to benefit from these strengthened protections, so too did European, Canadian, Japanese, Korean, and Israeli firms, which also generate a significant amount of IP. Those firms' countries, however, did not participate in the negotiations and had to put no skin in the game in order to reap the benefits of Peru's new standards – the benefits simply externalized onto them without any cost. In addition, Peru's developing counterparts stood to gain from Peru's newly-codified standards, as they gained a source of comparative advantage. Whereas Peruvian firms once had the ability to undercut American firms by seizing less-protected intellectual property—in the form of schematics or other imitable IP—they lost that capacity under their country's new standards. However, while Peruvian firms now lack the ability to utilize American intellectual property, other nations with more lax standards, like Bolivia or Venezuela, still maintain that ability and therefore have gained comparative advantage vis-à-vis Peru.

Herein lies an important distinction between border and BTB provisions. In a border provision, the benefits received by the negotiating parties are excludable—outside parties are excluded from the benefit. In a BTB provision, however, such benefits are non-excludable, as uninvolved actors still access the benefit, be it in the form of heightened IP standards, strengthened environmental protections, or improved labor rights.

At the core of the non-excludable nature of BTBs is the unfeasibility of targeting country-specific regulations. For centuries countries have employed border tariffs to discriminate against goods from specific countries abroad. A national system of country-specific and even goods-specific tariff barriers has proven both feasible and lucrative. Operating such a system is rather simple – all goods entering the country are assessed at the border by customs officials, and the accompanying entry fee is levied immediately, before the good can reach market. The income generated by customs enforcement often justifies the cost of enforcement.

However, while it would be theoretically possible for a state to develop a system with competing sets of regulations for goods based on country of origin, such a system has yet to manifest. Why is that the case? For one, intellectual property rights are not simply assessed at the border in an "onto the next one" manner. They instead require the state to carefully catalogue the good's country of origin, the owner of the IP, the IP-rights relationship between the importer and exporter, the year the goods received a patent, the duration of IP ownership—differing by country—the year of expiration, etc. This theoretical system would also require patent officers to have constant access to that carefully maintained database for the purposes of settling disputes, or to simply commit to memory where every good originated and which standards apply to which goods. Moreover, the national patent office would be required to employ an asymmetrical, country-specific methodology in assessing patent and trademark applications, which could prove time-consuming, confusing, and costly. The theoretical country-specific system of regulation also lacks a crucial pillar supporting customs enforcement—a tangible source of revenue for the government. While feasible in theory, a system of competing sets of country-specific regulations regarding intellectual property rights has remained absent in practice, likely due to its expensive and byzantine nature.

It is important to note that these positive externalities are not perfectly provided to outside actors. For instance, when the United States raises a country's intellectual property rights via a PTA, the agreement always includes a subsection in the IP chapter detailing a method of recourse and venue for arbitration. If an American firm feels its intellectual property rights have been infringed by a Peruvian firm, both parties have already agreed upon the standard in question and the court which will try their case. The circumstances would be different for a Canadian firm facing the same problem. It is true that Canadian IP-producing firms benefit from the heightened standards, given adherence to such standards by local firms. In the event that a local firm seeks to undermine the Canadian firm's IP rights and pilfer Canadian IP for its own benefit, however, the absence of a formal agreement between Canada and Peru which codifies mutually-accepted standards and provides a mechanism for adjudication would restrict access to recourse for the aggrieved firm. While Canada may be incentivized to plug this gap through a future trade agreement, the bulk of the benefit is supplied for Canadian firms without them paying a price in exchange. While the positive externalities experienced by outside actors are substantial, they are not entirely complete.

The question of who is most affected provides an additional distinction between at-border provisions and BTBs. At-border provisions most heavily impact domestic consumers—whose consumption habits are altered by changes to tariff rates or quota levels—and foreign exporters, who have either gained or lost advantage in this specific market. BTBs, however, are changes in domestic regulatory environments. As a result, all domestic firms must conform to the new standards; only foreign firms which operate in that country must comply. That all domestic producers are affected by the new standards—which are applied universally within the country—is rather important. Most states lack the legal and bureaucratic infrastructure necessary to develop and enforce parallel sets of regulations for firms which export their products to different markets. For example, in the PTA ratified by the United States and Peru, the US pushed Peru to improve the working conditions of its agricultural workers. It would be quite challenging and unrealistic for the Peruvian government to monitor its domestic coffee plantations and enforce the standard of improved working conditions *only* for workers who harvest beans that will be exported to the US. In addition, firms pay fixed costs for complying with raised regulatory standards. If a Peruvian clothing manufacturer exports to the US, it has paid the cost of creating a factory that meets the working-condition regulations negotiated by the United States. It is unlikely that the manufacturer would not comply with the regulation it paid the cost to provide when manufacturing goods which will also be shipped to non-American markets. As a result, regulatory changes lead to changes in practice across firms, regardless of which markets they are serving.

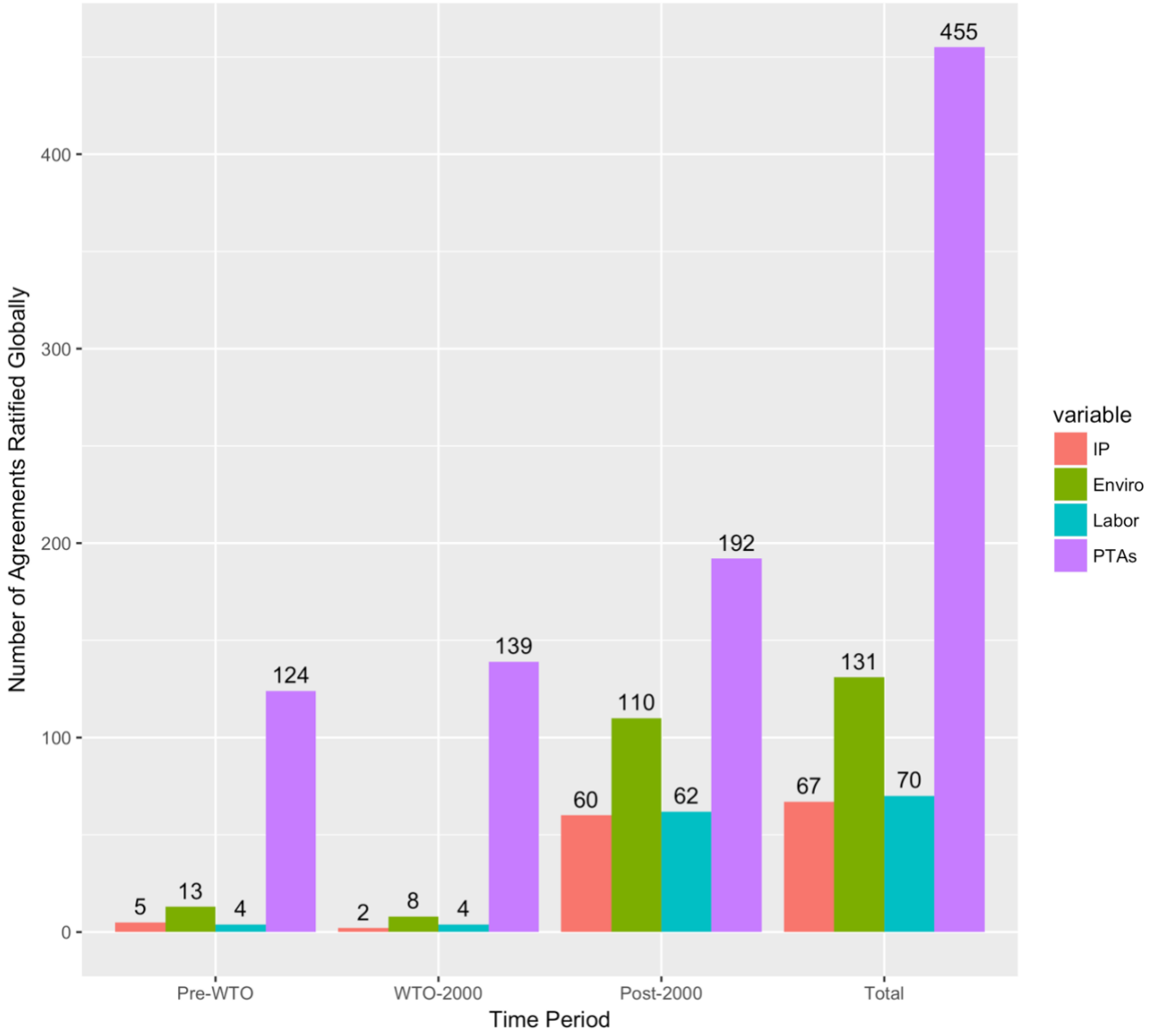
How commonplace have BTB provisions become in PTAs? Figure 1, displayed below, traces the rise of PTAs—both with and without regulatory provisions—since the ratification of the GATT in 1947. The section labeled "Pre-WTO" accounts for PTAs ratified between 1947 and 1995. "WTO-2000" includes those ratified between 1995 and 2000. "Post-2000" details those ratified between 2000 and 2018. "Total" depicts all PTAs ratified between 1947 and 2018.

The majority of agreements prior to 2000 lacked BTB provisions, instead focusing entirely on at-border provisions which lubricate bilateral trade. The few agreements which included BTB provisions in the 20th century were overwhelmingly multilateral. The Economic and Monetary Community of Central Africa, the South African Development Community, and the Group of Three all included provisions that enhanced either environmental protections or labor standards. The North American Free Trade Agreement (NAFTA) between the United

States, Canada, and Mexico was the first agreement to include regulatory provisions in multiple issue areas, strengthening intellectual property rights and environmental protections amongst the three signatories. While a handful of multilateral trade agreements in this period contained BTB provisions, the 20th century should be thought of as no more than the nascent stage of the growing trend.

The turn of the 21st century, however, ushered in a new chapter in the story of BTB provisions. Following five years of rapid proliferation—139 new PTAs signed between January 1995 and December 1999—the competition for new trade agreements has slowed dramatically, with 192 new PTAs ratified over an 18 year period. The world saw an average of 27.8 new agreements per year between the establishment of the WTO and the turn of the century; that rate has since dipped to 10.7 per year. The relative stagnation in PTA proliferation has coincided with a significant increase in the rate at which BTB provisions are included in new PTAs. Nearly 60% of agreements ratified since 2000 has included a chapter enhancing environmental protections. Chapters strengthening intellectual property rights and labor standards have been included in just under 1/3 of new PTAs. These trends are visualized in (Figure 1).

(Figure 1: Number of PTAs ratified since 1947, by time period)[5]



[5] Pre-WTO is between 1947 and 1995. WTO-2000 is between 1995 and 2000. Post-2000 is between 2000 and 2018. Total is from 1947 to 2018. "PTAs" accounts for all PTAs ratified during those respective periods. "IP," "Enviro," and "Labor" count all intellectual property, substantive environmental protection, and labor chapters, respectively, included during the above periods. Data regarding total PTAs and IP chapters is courtesy of the Design of Trade Agreements (DESTA) Dataset. Environmental protection data courtesy of Trade in the Environment Database (TREND). Labor standards data courtesy of WTO's Regional Trade Agreement Information System (RTA-IS).

Terminology: High-, Low-, and Raised-Standard States.

In the context of domestic regulatory provisions, it is most fruitful to divide the countries of the world into three distinct groups: high-standard states, low-standard states, and raised-standard states. "Standards," in this framework, refers to the strength of a state's regulatory provisions relative to those employed by the rest of the world. This project focuses on three regulatory areas: intellectual property rights, environmental protections, and labor standards.

High-standard states are those which maintain the most stringent domestic regulatory policies in the issue area under examination. High-standard states are concentrated in the global North, and are significantly wealthier and more developed than low- and raised-standard states. Ordinarily, we would expect high-standard states to be those where the government—or those whose interests translate into government policy—benefits from high standards.

Low-standard states are those whose regulatory provisions are substantially less rigorous than those of high-standard states, and are far closer to the accepted global baselines for regulation in the issue area under examination. Low-standard states are generally located in the global South, and would often be deemed developing countries.

Raised-standards states are states whose regulatory environment has been altered by a preferential trade agreement, raising their standards from what would have been considered low-standard far closer to that of a high-standard state. As they were all once low-standard states, raised-standard states are also generally concentrated in the global South, and most would be considered developing countries.

It is important to note that a state's status as a high-standard, low-standard, or raised-standard state is not constant over time, nor across issue areas. If a state sees its standards raised through a PTA in one of those regulatory realms, it would be deemed a raised-standard state, but only with regards to that issue area. It is common for states to be raised-standard in one area, and low-standard in others. High-standard states are, however, generally high-standard across the board.

Hypothesis 1: Positive externalities provided by key beneficiaries

If the benefits of a behind-the-border provision do indeed positively externalize upon non-signatory states, then states should be incentivized to shirk BTB provisions in favor of border measures, whose benefits can be entirely captured by the signatory state. However, BTBs are becoming more common in PTAs. This action—going against pure national interest to provide a benefit to the rest of the world—begs the question: what would make a state willing to do so?

It is perhaps most fruitful to think of the provision of these positive externalities through the lens of collective action. Collective action problems arise when a group of individuals all stand to benefit from an action, but the cost associated with engaging in the action incentivizes the individual actors to stand pat. Collective action problems are often associated with the provision of public goods, and are considered central to their general undersupply, as all actors stand to benefit from the public good, but the costs of providing the good are too heavy for a single actor to bear (Olson, 1965).

The positive externalities associated with BTB provisions can be thought of, in a way, as public goods which are supplied globally and impact every country, regardless of their presence at the negotiating table. While many if not all states stand to gain from the provision of these BTB regulations, few states—even those who stand to gain a good deal—are willing to step up to the plate and secure the provision. The costs of providing the public good via a BTB provision are paid during the process of negotiation, as the high-standard state must give up enough in concessions to incentivize the low-standard state to accept new standards which make its firms inherently less competitive. These costs are high, as it takes a significant concession to convince low-standard states to embrace new regulatory standards. For most states, the benefits of providing the public good are, while present, meagerly internalized at best. However, if a state stands to internalize a significant portion of the benefits from the public good, the cost of providing it becomes less prohibitive, and the benefit more closely resembles a private good. This treatment of a public good like a private good effectively solves the collective action problem—the unaffiliated actors receive a benefit without paying a cost, and the provider still stands to benefit despite the presence of free-riders.

There exists a substantial literature tracing the role of hegemonic states in the provision of public goods in the global economy (Kindelberger, 1973, 1981 1986a, 1986b; Lake, 1993; Bhagwati and Panagariya, 1996). Kindelberger (1981) posits that stability in the global economy derives from a large, powerful, and wealthy state capable of providing, most notably, a currency against which the exchange rates of others can be regulated. Lake (1988) redefines Kindelberger's concept of "stability," instead referring to this hegemonic contribution as "international economic infrastructure." Lake asserts that the infrastructure constructed by hegemons in the global economy is, if provided, nonexcludible, noting that all states benefit from the infrastructure of a stable, predictable global economic order. "Free trade," as Conybeare (1984) and Snidal (1985) point out, is both rival and excludible, and therefore does not meet the definition of a public good. However, as Gilpin and Gilpin (1987), Gowa (1988), and Axelrod (1986) argue, the enforcement of global rules does constitute a public good due to its nonexcludibility.

Why would a state provide the necessary inputs to maintain a stable global economic infrastructure? The hegemony theory of global economic order postulates that hegemons act in a manner which satisfies their own rational self-interest, and use their leverage—be it through coercion or incentives—to structure the global economy to bests suit them (Lake, 1988). A hegemonic state which sees providing a public good as no different from gaining a private good therefore has incentive to resolve the collective action problem.

With this in mind, I hypothesize that…

Hypothesis 1: Only states that can expect to internalize a large proportion of the gains from positively-externalizing BTB measures should be willing to pay the costs of including such provisions in trade agreements.

For the purpose of testing this hypothesis, I will use the United States and the European Union as a proxy for states which can expect to internalize a large proportion of gains provided by positive-externality BTB measures. The US and EU are the world's two largest unified markets, and maintain high domestic standards with regard to intellectual property rights, labor standards, and environmental protections relative to the rest of the world, giving them the greatest incentive to pay the cost of negotiating for BTB provisions.

The United States is positioned uniquely, as it is an enormous actor relative to its peers—both in terms of vested interest in such provisions and also in pure scale—and stands to

internalize a substantial portion of the benefits provided in the form of this "public good." Moreover, the enormity of the United States comes into play on the other side of the coin as well. In any high-level negotiation between states, those at the table attempt to leverage their bargaining power to provide a deal that maximizes benefits and minimizes losses. Naturally, a massive, diversified economy is better built to absorb the losses that come with concessions than a smaller, more narrowly-structured economy that is more open to possible disruption or disturbance. It follows that large, diversified economies are better positioned than their peers to negotiate many trade deals over a relatively shorter period of time, as officials recognize that a heavily-diversified and capital-rich economy can move quickly to maximize comparative advantage more effectively and efficiently than smaller peers. While negotiating any trade deal will require arduous planning, the odds of crippling a crucial domestic industry are far lower in a steady, diversified economy, affording the US or other states in equivalent negotiating position a greater ability to take on the burden of an extra trade agreement.

It is also possible this willingness to pony up and pay the price of providing public goods to the world is more US-specific than one might initially think. Given the thoroughly ingrained nature of political lobbying as a means to influence the government in the United States, one could argue that the advocacy of American pharmaceutical companies, Hollywood production studios, and various other IP-intensive industries for the proliferation of American-level IP rights across the world drives American demand for BTB provisions, with specific regard to IP. After all, heads of state must navigate the perils of both foreign and domestic policy. However, this proposition is strained by the prospect of European Union negotiation in favor of BTB provisions, as the EU more aptly complies with the theoretical underpinnings of this collective action problem, rather than the lobbying-centric argument which applies best to the United States.

To test this hypothesis, I will calculate the frequency with which a low-standard state's first standard-raising PTA is with the United States or European Union, as those two actors serve as my proxy for states which stand to internalize a large proportion of gains from such a PTA.

Hypothesis 2: Negotiation between high-standard and raised-standard states

What changes in the calculus of negotiation once a low-standard state has seen its standards in one issue area raised via PTA negotiation with a high-standard state? I contend that high-standard states will not seek to build upon the already-provided high standards—those positive externalities from which they benefitted—as they have already received a free concession in an issue area that would incentivize them to negotiate a trade agreement in the first place. As a result, they are less likely to initiate trade agreement negotiations with the raised-standard state in question, as they have less to gain and would pay a fixed cost in negotiation.

However, I posit that if a high-standard state does negotiate and ratify a PTA with a raised-standard state, that agreement is more likely to include a chapter dealing with the already-raised regulatory area than the average agreement. While this may seem counterintuitive, it is important to note that countries oftentimes reaffirm their commitment to past agreements and common standards when ratifying trade agreements. The raised-standard state has essentially nothing to lose by reaffirming its commitment to its raised standards, as it has already paid the cost—the domestic economic dislocation—of raising that standard once, and reaffirming doesn't change anything. The high-standard partner in this negotiation would likely seek that reaffirmation, as it would formalize a method of recourse for the high-standard state's firms with regard to IP rights, and allow the state to signal to the world that it values labor rights or protecting the environment at little-to-no cost in negotiation. This, of course, presupposes that the states have enough mutual incentive to negotiate a PTA despite the disincentive for the high-standard state to do so.

Raised-standard states that have signed agreements with the US or EU which significantly raise regulatory standards will…

Hypothesis 2a: Be less likely to sign PTAs with other high-standard states that are interested in those regulatory areas

Hypothesis 2b: Be more likely to include provisions regarding those regulatory areas if they do sign a PTA with other high-standard states.

For the purposes of testing this hypothesis, I define "interest" in a specific regulatory area as simply being a high-standard state in that issue area, as any high-standard state stands to gain

to at least some degree from its trading partners playing by the same rules as the high-standard state.

To test the validity of hypothesis 2a, I will calculate the frequency with which the United States signs trade agreements with countries which have had their standards raised by the European Union, and vice versa, as they serve as a proxy for high-standard states with interest in all three areas to be tested. To test 2b, I will assess the frequency with which raised-standard states include a chapter on the issue of interest in trade agreements with high-standard states.

Hypothesis 3: Negotiation between raised-standard and low-standard states

If a state sees its standards raised via a trade agreement with the US or EU, it has inherently lost out on a key source of comparative advantage vis-à-vis states whose standards remain low, as those low-standard states maintain the ability to produce goods at a cheaper price due to lower input costs. If the raised-standard state is to engage in trade negotiations with a low-standard trading partner, it would likely be unwilling to accept a deal in which IP rights and labor standards remain low in the partner state, as domestic industries would risk being outcompeted by foreign firms that can still drive down cost through lax labor standards and the weak IP protections. However, they likely lack the bargaining power—as they are high-standard but still low-to-middle-income, and developed countries use their wealthy markets as a bargaining chip—to pressure their peers into accepting higher standards.

I posit that states that have seen their standards raised via a PTA are…

Hypothesis 3: More likely to push for similar raises in standards when negotiating future trade agreements with low-standard states, and less likely to accept an agreement with a low-standard state if it does not include heightened standards.

To test this assertion, I will assess the frequency with which raised-standard states include BTB provisions in their future PTAs, and evaluate that proportion against the rate at which low-standard states sign agreements with BTB provisions. If this hypothesis is supported by the test, the raised-standard states' PTAs will include significantly more BTB provisions than those of low-standard states.

Bilateralism vs. Multilateralism

The observation that behind-the-border provisions positively externalize upon outside parties, in contrast to negatively-externalizing border measures, serves as the theoretical foundation for this project. What distinctions can we draw between bilateral PTAs and multilateral PTAs—those involving more than two states—as a result of this theory?

Under the model of competitive liberalization, the ratification of one PTA pressures other states to negotiate their own agreements, due to their newly-weakened competitiveness in global trade. However, while this model holds with regards to border measures which negatively externalize, the inclusion of regulatory provisions which positively externalize upon non-signatories should lessen the pressure felt by the rest of the world to negotiate new agreements.

How does this observation affect the demand for bilateral and multilateral agreements? If states feel the pressure of trade diversion and seek out new PTAs, we should anticipate that bilateralism would precede multilateralism. Under an agreement comprised of border measures, the benefits are internalized simply by the states party to the agreement. This incentivizes the states to keep the agreement bilateral in order to maximize internalization by restricting the benefits to just two states. However, if every dyad eventually negotiates their own agreement to attain preferential market access, then no dyad actually has preferential access. Once the majority states have the same access to each other's markets—as is the logical endgame for competitive liberalization—we would expect a largescale multilateral agreement to codify that degree of access as the new norm. States would then gain incentive to ratify future bilateral PTAs to improve upon the access standardized in the multilateral pact. While multilateralism would once again give way to bilateralism, the original impetus for liberalization was bilateral agreements. As a result, we can conclude that bilateralism would precede multilateralism with regards to border measures.

What about BTB provisions? I contend that multilateralism would precede bilateralism with regards to the provision of externally-imposed regulatory changes. The provision of BTB measures suffers from a collective action problem—many states benefit from their provision, but the upfront cost of providing the regulatory change dissuades most states from negotiating for the change themselves. Hegemonic actors, like the United States and European Union, are capable of internalizing the benefits of the provision to the point at which it essentially qualifies as a private

good, and they can justify paying the cost to provide it. For the rest of the world, however, the benefits are simply outweighed by the negotiating costs.

A multilateral approach, however, would make it far easier to provide heightened regulatory standards through trade agreements. By incorporating multiple high-standard states and multiple low-standard states into the negotiating equation through a multilateral agreement, the high-standard states would all likely stand to gain significantly from raising the standards of multiple states all at once, rather than waiting for a powerful state to raise their standards one at a time. The cost paid by the high-standard states of achieving higher standards in the agreement's signatories would be comparatively lower than in a bilateral agreement, as they can share the burden of opening their markets with each other.

Conversely, the ability to attain preferential access to a handful of high-standard states, rather than just one state, would likely lower the threshold for accepting heightened regulations by the low-standard states in question. In addition, the creation of a multilateral bloc operating with the same standards would also likely lower the threshold of acceptance for low-standard states. Rather than having their standards raised individually and losing trade efficiency vis-à-vis low-standard states, the creation of the bloc provides raised-standard states with the security of common standards and a level playing field. The establishment of a multilateral bloc would also amplify the amount of trade within the agreement, further insulating the signatories from what would normally constitute a loss of comparative advantage.

As the hurdles to achieving BTB provisions are more easily cleared through a multilateral approach, we would expect multilateralism to precede bilateralism with respect to regulatory provisions.

Contributions of the Project

This project seeks to make three key contributions to our understanding of preferential trade agreements and the calculus of negotiation. First, this project proposes a contrasting theory to the traditionally accepted notion of competitive liberalization as a driving force behind bilateral PTAs. Second, this project situates behind-the-border provisions within the framework of public goods provision in global economic relations. Third, this sketches out the implications of behind-the-border provisions for bilateral agreements and multilateral pacts.

The contemporary arguments regarding the proliferation of PTAs are grounded in the concept of competitive liberalization. The theory I've proposed in this project, however, runs

counter to the conventional wisdom. The recent swing towards BTB provisions throws a wrench in the positive feedback loop central to the competitive liberalization model. Rather than always incentivizing non-signatory states to push for future PTAs, agreements which include BTB provisions can instead dissuade states from negotiating agreements. This dissuasion can manifest in two ways. If a high-standard state was particularly interested in raising low-standard state's regulatory standards in a specific issue area, and third party raises the low-standard state's standards via BTB provisions of a PTA, the high-standard state has lost a significant incentive to negotiate a future PTA. Moreover, if a raised-standard state wishes to negotiate a PTA with a low-standard peer, its likely demand for similarly-raised-standards in the low-standard state would provide an impediment to ratification. As a result, BTB provisions should undercut the theory of competitive liberalization, and slow competition for new PTAs.

This project also seeks to reorient the discussion of BTBs to view them through the lens of public goods provision. The benefits of BTB measures positives externalize onto uninvolved parties; as a result, BTBs can be thought of as public goods. By demonstrating that the United States and European Union play a unique and central role in the proliferation of BTB measures—building off of Horn, et. al (2010)—this project links positively-externalizing PTAs with a long-running literature regarding the crucial role of hegemons in providing otherwise undersupplied public goods in the global economy.

Finally, this work points out a key distinction between bilateral agreements and multilateral agreements. The negative externalization of at-border provisions pushes states to ratify new bilateral agreements, maximizing domestic benefit while impeding their competitors from abroad. Once an overwhelming majority of states have negotiated for preferential access to each other's markets, we should expect a multilateral pact to codify that degree of access as a global standard, in turn facilitating future bilateral agreements to improve upon the now universal level of access. As a result, bilateralism should precede multilateralism for agreements that emphasize border measures. However, the inclusion of BTB measures should see multilateralism take precedent over bilateralism, as a multilateral agreement solves the collective action problem preventing non-hegemonic high-standard states from pushing for stronger regulations. Moreover, the problem of diminished competitiveness vis-à-vis their peers for low-standard states which accept higher standards is also solved by multilateral agreements, as

agreeing to collectively accept stronger regulations prevents any state from gaining artificial advantage, making higher standards an easier pill to swallow.

The past two decades have seen BTB measures come to the fore in the negotiation of PTAs. While there exists a growing literature regarding the scope and depth of contemporary PTAs,[6] little work has been done to document the effects of BTBs on the calculus of negotiation. This project develops a novel theory for how BTB measures blunt the spread of PTAs by removing incentives for ratification and adding new barriers to agreement in negotiations between raised-standard and low-standard states. By raising the question of how BTBs affect negotiating strategies and ratification outcomes, this piece provides a launching pad for future study.

[6] See Estevadeordal et. al (2009), Haftel (2010), Hicks and Kim (2012), Kucik (2012), and Mansfield and Milner (2012).

Chapter 2: Intellectual Property Rights

Chapter Introduction

This chapter tests the validity of my three hypotheses while treating intellectual property rights as the behind-the-border provision of interest. My hypotheses stem from the assertion that BTBs can be treated as public goods due to their nonexcludibility, as they positively externalize upon non-signatory states. I relied on the Design of Trade Agreements (DESTA) Database (Dür, Baccini, and Elsig, 2014) to assemble a dataset of all bilateral and multilateral trade agreements.

Intellectual property rights govern the protection of one's unique creations, which by definition derive from a novel idea. The measures which protect these ideas take the form of patents, trademarks, and copyrights. Patents protect the schematic design of a good, or a novel aspect of a good. To attain intellectual ownership of the product, one must apply to receive a patent, demonstrating originality in the product's design. Copyrights protect one's creative or artistic contributions—television shows, films, books, poems, songs, drawings, paintings, photographs, sculptures, and even computer software are subject to copyright protection. Copyrights are bestowed upon the creator without the requirement of application. Trademarks deal with unique images which represent a company or product. Trademarks protect those who own the mark from competitors adding it to their own products to benefit from the trademarked product or service's reputation. To receive a trademark, one must apply, and demonstrate that the mark can distinguish the good or service from competitors or companies that own a similar logo.

The provision of stronger Intellectual Property Rights (IPRs) in a preferential trade agreement effectively serves as a public good. The benefits from the provision are not exclusively received by the negotiating party, as they positively externalize upon the rest of the world. When one state changes its laws regarding intellectual property rights, the rules laid out in the new intellectual property regime are applied equally, regardless of the IP owner's nation of origin. As a result, firms and individuals the world over experience the benefit of stronger intellectual property rights, even if their home nation paid no cost to extract stronger IPRs in a PTA.

In Hypothesis 1, I posit that states which stand to internalize a substantial portion of the gains from a BTB provision will be more likely pay the cost in negotiations necessary to

convince the low-standard state to accept the BTB provision. The logic of this theory derives from the hegemonic theory of public goods provision in the global economy. Hegemonic states provide public goods when they stand to internalize the benefits of the good so much so that they can essentially see the public good as a private good. I theorize that the United States and European Union play the role of hegemon with regards to providing the public good of heightened intellectual property rights in their trading partners. Both the US and EU generate substantial quantities of intellectual property, and therefore stand to gain significantly from raised IP standards.

In Hypothesis 2, I assert that high-standard states are less likely to negotiate a PTA with a raised-standard state, as they have already received the benefits from a concession they would have sought from the raised-standard state, and therefore have less incentive to engage in negotiations. I also hypothesize that, if a high-standard and raised-standard state do negotiate and ratify a PTA, it is highly likely to include a chapter regarding the issue area of interest, as the cost of reaffirming commitment to previously accepted standards—as well as the cost of negotiating to achieve that reaffirmation through concessions—are exceedingly low for both parties. In testing this hypothesis, I use the United States and European Union as the high-standard state negotiating with a raised-standard state whose IP rights were raised by the other. Both the US and EU are, under my framework, considered high-standard states with regards to intellectual property, as they both maintain some of the world's strongest IP rights.

In Hypothesis 3, I contend that raised-standard states are likely to, in a PTA negotiation with a low-standard state, demand that the low-standard state raise its IP rights to the level of the raised-standard state. It follows that the raised-standard state will be unlikely to ratify a PTA with a low-standard state without gaining the concession of heightened IP rights. I use states whose IP rights were raised by the US or EU as the population of raised-standard states, and their post-raised-standards PTA partners as the population of low-standard states.

The results of my tests all support my hypotheses to varying degrees of statistical significance. My results strongly supported Hypothesis 1 and Hypothesis 3, but only somewhat supported Hypothesis 2.

Intellectual Property Rights as a BTB Provision

Raised intellectual property rights constitute a BTB provision, rather than a border-measure, as they are a nonexcludible change to a domestic regulatory environment. When the

United States pushes a trading partner to accept higher IP rights via a PTA, all people—not just Americans—gain access to those stronger IP rights in the country at hand. While American firms benefit from stronger IP rights in America's trading partners, firms which generate IP the world over reap that same benefit. As a result, the US provides what amounts to a public good for the rest of the world by negotiating for stronger IP rights in a single country.

Why do heightened IP rights apply to citizens of all countries, and not simply the one which negotiated for higher standards? At-border provisions like tariffs and import quotas, for instance, are applied by nation of origin for the imported good. What makes IPRs different? The logistical issue looms large. When a physical good enters a country, it does so at a predetermined location, known as customs. Custom houses allow for easy application of tariff duties by country of origin, as all goods have both a record of entry aboard a specific ship from a specific port, and also contain some sort of marking indicating origin.

However, there exists no established apparatus for administering discriminatory protection of intellectual property. A customs official can easily look up the tariff rate for the good and the country of origin. The protection of intellectual property is far more complicated, as the state would be forced to develop a database and track each movie, song, book, professional photo, and computer program in the world by country, and apply different standards of protection by country of origin should the copyrights be infringed. The state would also be required to track every patent and trademark registered in the country, and grant them different protections—by length and by strength—based on the owner's country of origin. Such a process would be tedious and undoubtedly expensive.

To achieve compliance with an IPR provision of a PTA, the country accepting the heightened standards simply changes the terms of its domestic IPR regime to match the requirements laid out by the trade agreement. Doing so raises the standards to a level that can be easily and universally applied to all copyrights, trademarks, and patents.

A key difference between the General Agreement on Tariffs and Trade and the World Trade Organization is the Agreement on Trade-Related Aspects of Intellectual Property Rights, abbreviated as "TRIPS." TRIPS went into effect in January of 1995, when GATT became formally institutionalized as the WTO. The agreement established a global baseline for intellectual property rights, and 162 countries have embraced the IP rights laid out in TRIPS. While TRIPS provides a universal requirement for IP rights amongst WTO members—sans a

handful of developing countries which have received an exemption from the agreement—not all TRIPS signatories employ the TRIPS standard as their national IP doctrine. Countries which generate significant quantities of intellectual property, like the United States and members of the European Union, maintain notably higher national standards for protecting IP. Ginarte and Park (1997) and Park (2008) rank the United States first out of the world's countries using a metric that accounts for domestic legal provisions, international commitments, and enforcement measures to determine strength of patent systems. The global mean in 2005, per this measure, was 3.34 out of 5. The US scored 4.88, followed by Canada, Japan, and the bulk of the European Union at 4.67.

What types of IPR provisions are included in PTAs? It is easiest to think of PTA IPR provisions as two key groups: those that raise standards, and those which strengthen enforcement.

TRIPS was designed to serve as the global baseline for IP rights. Though acceding to its standards led many countries—particularly those in the global South—to substantially strengthen their IP rights, the TRIPS requirements are notably weaker than the IP rights protected by many states in the global North. TRIPS mandates that copyrights protect the IP of the creator for the remainder of their life, plus an additional 50 years. However, the United States' IP regime maintains copyright protection for the remainder of the creator's life, plus an additional 70 years. The US' PTA with Peru, for example, included a provision raising the length of their copyright protection from 50 to 70 years. Lengthening the life of copyright protection has become a key IPR provision included in PTAs in recent years.

In addition, states which maintain high standards for IP rights have devised a set of IP standards, which have come to be referred to as "TRIPS+", or "TRIPS Plus." Though not formally related to TRIPS, TRIPS+ was designed to go further than the minimum standards laid out in TRIPS. TRIPS+ has yet to be accepted by the WTO's membership as a whole, and does not constitute a formal agreement—rather a set of standards more closely aligned with those of high-standard states. States which advocate for stronger IP rights around the globe often seek the acceptance of TRIPS+ by their trading partners through their PTAs. Jordan, for instance, accepted many TRIPS+ standards when they ratified their PTA with the US in 2001.

A key TRIPS+ provision included in many PTAs with strong IPR provisions involves becoming a signatory to the Patent Cooperation Treaty (PCT). The PCT provides owners of

patents with a streamlined way to apply for a patent in many countries at once using a single application. Applying through the PCT drives down costs for firms applying for patents, as they pay a upfront single cost to apply, rather than the cost of applying for individual patents and tailoring their application to national guidelines. Another key TRIPS+ provision is known as "pipeline protection," which protects pharmaceutical drugs which were released prior to the new IP regime, by declaring them in compliance with the requirement of novelty. If a drug was released prior to a country allowing for pharmaceutical patents, it could still be eligible for patent protection in that country due to pipeline protection. TRIPS+ provisions also make it illegal for domestic firms and individuals to challenge patent applications, where TRIPS left the door open for domestic challenge. Moreover, TRIPS+ requires states to grant patents for new uses of previously patented IP.[7] The pharmaceutical industry benefits heavily from this provision as well, as the discovery of a novel use for a previously patented drug extends the life of the patent and prevents the development and sale of generics.

IPR provisions of PTAs not only raise standards, but also strengthen enforcement. While TRIPS was revolutionary in that it established a global baseline for IP rights and provided a method for recourse if a firm felt its IP rights were infringed, the requirements for domestic enforcement were rather lax. The disparity between the requirements of international norms and the domestic enforcement of the norms is known as the "compliance gap."[8] It is costly and time-consuming for a firm to litigate a suit at the WTO, providing incentive for domestic firms infringe protected foreign IP if they think they can get away with it. In addition, TRIPS made no requirement for local law enforcement to preserve evidence if domestic firms or individuals pilfer protected IP, making it difficult for the firm to win its suit at the WTO. American firms actively complain that Chinese[9] companies—with the blessing of their government—pillage American IP, costing American companies nearly $600 billion per year.[10] As a result, IPR

[7] Ho (2011) provides a detailed discussion of TRIPS+ provisions and their effect on global medicine.
[8] There is significant literature regarding the compliance gap issue. Lanjouw and Lerner (2000) provide a fantastic review of empirical literature. Doyle and Luck (2004) dive into the theoretical underpinnings of the compliance gap. Trainer (2008) focuses on the legal mechanisms of enforcement, in both domestic and international realms.
[9] Mertha (2005) and Thomas (2017) both focus on the political mechanisms behind China's compliance gap with regard to TRIPS.
[10] Dennis Blair and Keith Alexander, "China's Intellectual Property Theft Must Stop," *The New York Times*, August 15, 2017.

provisions in PTAs often seek to tighten enforcement mechanisms and ensure that domestic law enforcement is not shielding their compatriots from prosecution.

Winners and Losers from Strong IP Rights

Who stands to gain and who stands to lose from a world where stronger IP rights are the norm? There are two groups of clear winners, and a handful of likely losers.

The most notable winners in a world with stronger IP rights are firms which generate significant amounts intellectual property and own intellectual assets. These firms cluster in sectors which require heavy investment in research and development, most notably pharmaceuticals, biotechnology, agricultural chemistry, and software. These industries are dominated by firms from wealthy, developed countries, which produce highly educated workers capable of engineering novel IP. For instance, between 1997 and 2004, nearly 90% of patents granted by the US Patent Office went to firms from ten developed countries. Nearly 70% went to firms from the US, Germany, and Japan. In middle-income countries, 97% of all patent applications come from abroad. That rate is even higher in low-income countries, at 99.8%. (Shadlen, 2007). Firms that produce and publish movies, music, and television also stand to gain from stronger IP rights, as rampant online piracy of their copyrighted products threatens to plunder their profits. The Motion Picture Association of America, in addition to the majority of Hollywood production studios, has heavily lobbied the US government to push for stronger protections of their copyrighted works around the world. It is worth noting these IP-producing firms are, on average, bigger than firms that don't produce IP.[11] Recent literature indicates that large firms, in the mold of those that produce significant IP, have come to dominate both foreign trade and overseas investment, and are consequently more likely to support trade liberalization than smaller firms.[12]

Firms that rely on brand recognition to drive profitability, even if they do not specialize in research and development, also stand to benefit from stronger IP rights abroad. Nike and Adidas derive significant value from the average person's ability to recognize a swoosh or three stripes and associate it with high quality shoes. Naturally, counterfeiters recognize the potential profits from passing off cheap shoes as if they were pricey and desirable. Stronger IP rights—in

[11] Schumpeter (1942), Galbraith (1952), Scherer (1965), & Acs and Audretsch (1987).
[12] See Madeira (2016), Kim (2017), Osgood et. al (2017), Osgood (2017b), and Plouffe (2017).

this case, stricter enforcement of trademark rights—protect these firms from counterfeiters and give them a method of recourse if a firm or individual in the country tries to illegally profit off of their brand.

While the beneficiaries of a world with stronger IP rights are largely concentrated in the global North, the likely losers are concentrated in the global South, where IP rights are traditionally weaker and economies churn out less IP.

Strong IP rights would have a particularly adverse effect on firms which seek to commercially exploit protected IP. The counterfeiters who made knockoff Nikes relied on weak enforcement of foreign trademarks—strong enforcement stops them in their tracks. More legitimate businesses stand to lose out as well. Where weak patent protections allow firms to make generic variants of patented products, stronger patent enforcement would force them to pay to license the patent and produce the good, driving up both prices and costs.

The general public in countries that don't produce much IP loses out as well. Stronger IP rights allow foreign producers of IP to exercise their monopoly power, undercut the domestic firms which made generic versions of their product, and raise prices in turn. The cost of higher prices can be quite severe, and various NGOs have begun to oppose the inclusion of strong IPRs in PTAs due to the negative effect they have on consumer welfare.[13] Conflict between the global pharmaceutical industry and the general public in the developing world highlights the tension between winners and losers from stronger IP rights. American pharmaceutical firms have rather aggressively lobbied for stronger protections on their patented drugs, at the expense of foreign consumers who lack the purchasing power to acquire the drugs they need. Strengthening the enforcement of pharmaceutical patents undercuts firms that produced generic versions of patented drugs, effectively tightening the grip the pharmaceutical industry has on global drug prices. The Association for Accessible Medicines—a collection of US- and foreign-owned pharmaceutical firms—has come out against the strong protections for pharmaceutical patents in the US-South Korea PTA (KORUS), arguing that the unnecessarily strong protections would hurt Korean consumers, as well as members of the association.

Governments also stand to lose from a world with stronger IP rights. Where a government may have previously retained the ability to design an intellectual property regime

[13] Dür and De Bièvre (2007), Dür and Mateo (2014), and Pianta (2014) discuss the logic of NGO opposition.

that best suits their firms and citizens, the imposition of stronger IP rights diminishes that "policy space" and prevents the state from representing its constituents (Shadlen 2005b, 2008). The states pushing for stronger IP rights abroad, however, made full use of that policy space, and crafted their IP laws to the benefit of their producers. As Deere (2008) argues, strong IP provisions lack tangible economic and political benefits for the developing countries that accept them.

Data Structure

To test my three hypothesis using intellectual property rights as the BTB provision, I assembled a dataset consisting of every bilateral preferential trade agreement that has been ratified since 1947. My dataset also includes observations of all multilateral agreements consisting of 15 or fewer signatories. I relied on the DESTA database—which maintains a dataset of all bilateral agreements, multilateral agreements, accessions to multilateral agreements, withdrawals from agreements, amendments to agreements, and consolidations of agreements—to assemble my dataset.

The key outcome variable I use to test Hypothesis 1—which also plays an important role in my other two hypotheses as an explanatory variable—is whether the agreement includes a strong provision regarding intellectual property. To code this variable, I relied on DESTA's coding of "strong" intellectual property provisions. DESTA maintains a supplemental dataset in their database that details which preferential trade agreements included a "strong" IP chapter and which did not. DESTA defines a strong IP chapter as a chapter with one or more "substantive" provisions. A substantive provision is, by DESTA's definition, a provision which goes deeper than simply stating an agreed-upon intent to achieve goal. As a result, if the agreement requires a concrete change in domestic law to fulfill the requirements agreed to upon ratification, DESTA coded the agreement as having a "strong" IP chapter. If an agreement has a strong IP chapter, per DESTA, I coded it as "1". If it does not, I coded it as "0".

The explanatory variable I use to test Hypothesis 1 is the ratification of a PTA with either the United States or European Union. I chose to operationalize this test by using the United States and European Union as the states which stand to internalize a significant portion of the benefits from strong IPRs around the world. The US and EU maintain the world's two largest markets—comprising over half of the global consumer market (World Bank)—and play a significant role in establishing global norms, as would a hegemonic state. The US and EU also

generate a substantial portion of the world's intellectual property, and maintain the highest and second-highest standards for IP in the world. I coded the states party to each agreement—both bilateral and multilateral—in my dataset. My tests compare the frequency with which states ratify PTAs with strong IP chapters given the US or EU as the partner, and given any other country as the partner.

The outcome variable I use to test Hypothesis 2a is the ratification of a PTA with either the US or European Union. My explanatory variable significantly narrows the population of PTAs included in this test, as the explanatory variable is a country having signed a PTA with a strong IPR chapter with either the US or EU. The outcome variable being tested is whether the states who have had their IPRs raised by one of the two major powers are more or less likely to ratify a PTA with the other major power.

The outcome variable I use to test Hypothesis 2b is whether the agreement with the other major power includes an IP chapter with strong provisions. This variable uses the same definition of a strong IP chapter as Hypothesis 1.

The explanatory variable I use to test Hypothesis 2b is whether the country has ratified a PTA with either the US or the EU, given that the other major power raised their IPRs through a PTA.

The outcome variable I use to test Hypothesis 3 is whether raised-standard states include a strong IPR provision in their future agreements with low-standard states. This uses the same definition of a strong IP chapter as discussed above. The explanatory variable I use to test this hypothesis is whether the state had its IPRs strengthened through a PTA with the US or EU. The explanatory variable narrows the population to states which meet that criteria, allowing me to assess the inclusion of strong IP chapters in their future PTAs with low-standard states.

Hypothesis 1: Test, Results, and Analysis.

My first hypothesis is that the countries which stand to internalize a significant portion of the benefits from raising IP standards will be much more likely to provide them by signing PTAs with strong protections for IP. For the purposes of my tests, I used the United States and European Union as a proxy for the states that stand to benefit significantly from raising their trading partners' IP standards, as both the US and the EU produce substantial intellectual property and stand to gain from the proliferation of high IP standards.

To test this hypothesis, I determined how frequently countries have their IP standards raised for the first time through a PTA with the US and the EU. For comparison, I also determined how often countries have their IP standards raised for the first time via a PTA with any other country. I tested this hypothesis using two types of tests: one non-parametric, and one parametric.

I chose to focus on countries having their IP standards raised for the first time in this test, as that initial standard-raising agreement is what provides the benefit that externalizes upon the rest of the world. States seldom seek the raise their partners' IP standards further than they have already been raised, as the concessions—in the form of raised IP standards—extracted in the initial agreement are already significant, and any further standard-raising would come at a large fixed-cost in the form of negotiation for the high-standard state, while providing only a marginal benefit. While those benefits would, in theory, externalize upon the rest of the world, they are seldom provided in practice. With that in mind, I narrowed the focus of this test to the first-time countries have their IP standards raised.

If my hypothesis is supported by these tests, they should yield results which show that the United States and European Union are far more frequently the providers of raised-IP standards than all other countries. The US and EU would, if this hypothesis is correct, recognize that their firms stand to benefit substantially by raising their trading partners' standards, and be willing to pay the costs of attaining those raised standards. The US and EU would understand that they are providing this benefit for the rest of the world, but believe the benefits received by their firms justify providing what amounts to a public good. Other high-standard states would recognize that they would likely benefit from raised standards, but not enough to justify the costs of negotiating a trade agreement. It follows that the other high-standard states would also understand that the United States and European Union have a penchant for providing these raised IP standards, and that it is easier to free-ride on the benefit than provide it themselves.

The accompanying null hypothesis is that all states should be equally willing to provide raised IP standards in their PTAs. If the null hypothesis is supported by this test, there should be no notable difference in the likelihood of a state having its IP standards raised for the first time by the US or EU or any other country.

Non-Parametric Test and Results:

My non-parametric test is a simple comparison of the percentage of first-time IP-standard-raising PTAs negotiated by the US or EU, and the percentage of all PTAs negotiated by the US or EU. If this test supports my hypothesis, there should be a notable difference between the percentage of first-time IP-standard-raising PTAs with the US and EU and the proportion of all PTAs with the US and EU, with the percentage of standard-raising PTAs far higher than the proportion of all PTAs.

If this test supports the null hypothesis, there should be no difference in the percentage of first-time standard-raising agreements signed by the US or EU and the percentage of all PTAs signed by the US or EU. The null hypothesis posits that all states would be equally likely to provide these standard-raising provisions. If that is the case, there would be no difference in the percentage of first-time standard-raising PTAs states sign, and the percentage of all PTAs states sign. If all states are equally likely to provide these standard raising provisions, and the US and EU are party to approximately 8% of the world's PTAs, then the US and EU should be party to 8% of the PTAs which include a strong IP chapter. However, if the US and EU are doing the lion's share of providing these raised IP standards, they should be providing more first-time raised-IP-standard PTAs than their percentage of all PTAs.

This test supports my hypothesis. The United States and European Union have been party to 7.716% of all PTAs. By comparison, the US and EU have been party to 44.8% of all agreements which raised a country's IP standards for the first time. The difference between those percentages is 37.1%. While the US and EU are not providing the majority of raised IP standards, they are providing a substantial proportion, far exceeding what one would expect given an equal likelihood of provision by all countries.

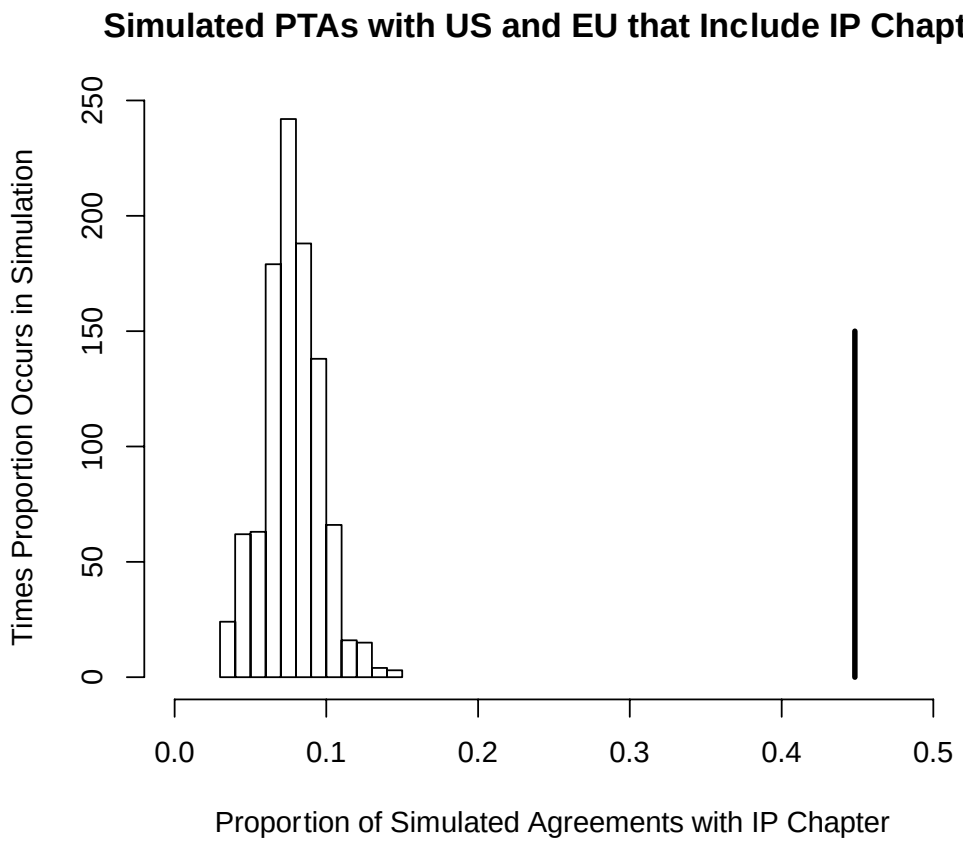
Is it realistic that this result could arise without rejecting the null hypothesis? To evaluate this possibility, I ran 1000 simulations of PTAs including strong-IPR chapters, given the assumption that all countries are equally likely to include strong-IP provisions in their PTAs.

If this test supports Hypothesis 1, that countries which stand to internalize a substantial portion of the benefits from stronger IP rights will be more likely to provide them in their agreements, we should see a substantial difference in the simulated percentage of IPR-strengthening PTAs to which the US or EU are a party, and the actual percentage to which they are party, with the actual percentage greatly outpacing the simulations.

If this test supports the null hypothesis, that states are equally likely to include these provisions in their PTAs, we should expect to see no difference in the simulated frequency with which the US and EU are party to PTAs with these provisions, and the frequency seen in reality.

The results of my simulations are displayed in Figure 2.

(Figure 2: the black line is the real percentage)



This test of Hypothesis 1 supports the hypothesis. The US and EU are party to 44.8% of PTAs which include a strong IPR chapter—that point is denoted by the black line on (Fig. 2). Across the 1000 simulations, the highest percentage of IPR-strengthening PTAs to which the US and EU were party given the probability of the null hypothesis was 14%, more than 30% below the real frequency.

Parametric Test and Results:

My parametric test uses a Cox Proportional Hazards Model to illustrate the difference in likelihood for a country signing a PTA which includes a strong IP provision between the US and EU and doing so with any other country.

The model consists of two different states. The control state—the black line in (Fig. 3)—repeatedly signs PTAs with countries that are not the US or EU. The treated state—the red line in (Fig. 3)—repeatedly signs PTAs with the US and EU. The model moves temporally, based on how many agreements have been signed. The first agreement signed by the two states is represented at the location "1" on the x-axis of (Fig. 3). The second agreement at location "2," and so on. The Cox model demonstrates the likelihood of signing a PTA that *does not* include a strong IP chapter at each stage in the agreements timeline, given the specified signatories. The higher the number, and corresponding vertical plotting on (Fig. 3), the lower the probability to signing a PTA with a strong IP chapter. The Cox model also allows for the calculation of "hazard ratios." Hazard ratios constitute the probability of the control state "surviving"—not signing a PTA with a strong IP chapter, given that the state has not "died" up to that point—divided by the probability of the treated state surviving. A high hazard ratio indicates that the test state has a higher probability of signing a PTA with a strong IP chapter than the control state.

If this test supports my hypothesis that states that stand to internalize a significant portion of the gains from providing raised IP standards in PTAs will be more likely to do so, we can expect to see a noteworthy difference in the proportion of the original population remaining in the population between those who sign a PTA with the US or EU, and those who do not. We would expect to see the country that signs a PTA with the US or EU exhibit a higher probability of "dying" than those which did not at every stage in the timeline. That expectation derives from the rates at which the US and EU are party to PTAs that raise IP standards, and the rate at which the rest of the world ratifies PTAs that raise IP standards without the US or EU. If the US and EU are ratifying the bulk of IP standard-raising PTAs, the probability would drop more quickly and steeply than the probability for states partnering with any non-US or EU state.

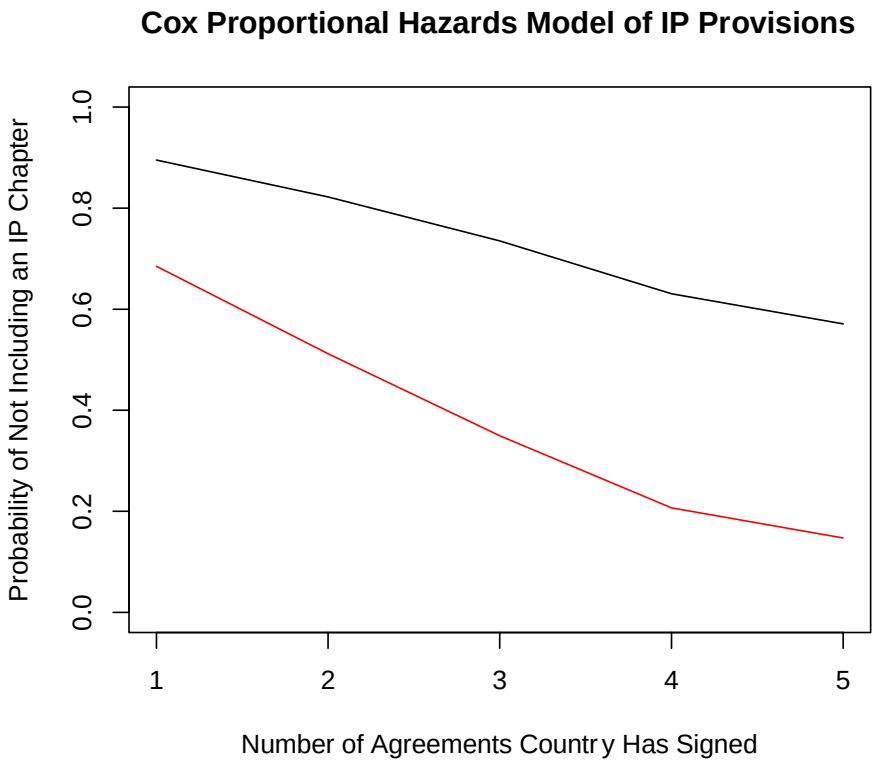
If this test supports the null hypothesis—that states are equally likely to ratify PTAs that raise IP standards—we should expect to see no difference in the rate at which the two probabilities decline.

The results of the parametric test support my hypothesis that states which stand to internalize a significant proportion of the gains from providing raised IP standards are much more likely to do so. There is a strong positive relationship between signing a PTA which raises IP standards and the partner state being either the US or EU (Table 1).

A visualization of my results has been labeled (Fig. 3) below, which plots the survival curves implied by the Cox model. The x-axis represents how many trade agreements the country has signed at the time. The y-axis represents the probability of not signing a strong IP chapter after that amount of time. As an example, a country which has signed 2 trade agreements with the US or EU has a probability of not having included a strong IP provision in that agreement of only .4. In contrast, a country which has signed 2 trade agreements with countries other than the US or EU has a probability greater than .8 of having not included a strong IP provision. Overall, the probability of not signing a PTA with a strong IP chapter is lower at every stage for states that sign a PTA with the US or EU versus those that sign PTAs with other countries.

It is also common to report the hazard ratio associated with Cox proportional hazards model. The hazard ratio in this case represents the probability that a country signing an agreement with the US or EU includes a strong IP provision divided by the probability that a country signing an agreement with a country other than the US or EU includes such a provision. Thus, a hazard ratio greater than 1 indicates that such provisions are more common with the US or EU. Note that the hazard ratio is constant across time by assumption in the Cox model. The estimated hazard ratio for this model is Exp[1.229] = 3.42, and the model easily rejects the null hypothesis that that hazard ratio is 1. As the hazard ratio is the division of two probabilities, we can conclude that a PTA is 3.42 times more likely to include a strong IP provision if the US or EU is party to the agreement. This reinforces the graphical results of the model in a simple way: the US or EU are much more likely to push for strong IP provisions in their trade agreements than other countries.

(Figure 3: Cox Model for Intellectual Property Hypothesis 1)



(Table 1: Regression Results for Hypothesis 1)

	Dependent variable:
	time = time0
usoreu	1.229***
	(0.177)
year	0.135***
	(0.013)
Observations	1,932
R^2	0.112
Max. Possible R^2	0.519
Log Likelihood	-592.073
Wald Test	197.930*** (df = 2)
LR Test	229.600*** (df = 2)
Score (Logrank) Test	238.684*** (df = 2)
Note:	*p<0.1; **p<0.05; ***p<0.01

Hypothesis 2a

My second hypothesis is divided into two parts. Hypothesis 2a is that raised-IP-standard countries that have ratified an IP-standard-raising agreement with the either US or EU are significantly less likely to ratify a PTA with the EU or US than states that have not done so.

The accompanying null hypothesis for Hypothesis 2a is that raised-IP-standard countries that have ratified an IP-standard-raising agreement with the US or EU are equally likely to ratify a PTA with the EU or US as states that have not had their IP standards raised by the US or EU.

To test Hypothesis 2a, I calculated four proportions. They are as follows: the proportion of states that had their IP standards raised via a PTA with the US that went on to ratify a PTA with the EU; the proportion of states that did not have their IP standards raised via a PTA with the US that went on to ratify a PTA with the EU; the proportion of states that had their IP standards raised via a PTA with the EU that went on to ratify a PTA with the US; and the proportion of states that did not have their IP standards raised via a PTA with the EU that went on to ratify a PTA with the US.

Non-Parametric Test and Results:

I applied both a non-parametric test and a parametric test to those proportions to test Hypothesis 2a. For my non-parametric test, I compared the proportion of countries that have had their IP standards raised by the US and have gone on to ratify an agreement with the EU with the proportion of countries that have ratified an agreement with the US that did not raise their IP standards and have gone on to ratify an agreement with the EU. I also compared the proportion of countries that have had their IP standards raised by the EU and have gone on to ratify an agreement with the US with the proportion of countries that have ratified an agreement with the EU that did not raise their IP standards and have gone on to ratify an agreement with the US.

If my non-parametric test of hypothesis 2a is supported by my data, we would expect to see a markedly lower proportion of states that have had their IP standards raised by the US or EU going on to sign an agreement with the other than those that have not had their IP standards raised by the US or EU. The logic behind that expectation flows from the lost incentive by the other high-standard state. If the US raised a country's IP standards via a PTA, the EU gained the benefit without paying any cost to attain it. As a result, the EU has now lost a significant incentive to negotiate—and pay a fixed cost in doing so—for a PTA with the state whose IP standards were raised. The EU would have used its desire to see the country's IP standards raised

as part of its reasoning for engaging in negotiations. Without that justification, the EU has lost incentive to negotiate, and therefore is less likely to do so than if the US had not raised that country's IP standards.

If the null hypothesis is supported by my non-parametric test of Hypothesis 2a, we would expect to see no difference in the proportion of states who have their IP standards raised by the US or EU going on to ratify a PTA with the EU or US, and those that did not have their IP standards raised by the US or EU going on to ratify another PTA with the EU or US. That expectation stems from the belief that states that have ratified a PTA with the US or EU are equally likely to do so with the EU or US regardless of whether they had their IP standards raised in the original PTA.

The results of my non-parametric test do not clearly support Hypothesis 2a. The proportion of states whose IP standards were raised in a PTA with the United States and went on to ratify a PTA with the European Union is 69.2%; the exact ratio is 9/14. The proportion of states that signed a PTA with the US that didn't raise their IP standards and went on to ratify a PTA with the EU was 100%. On paper, such a finding would support my hypothesis, as this proportion is far higher than the previous proportion, in line with the relational outcome that would support Hypothesis 2a. However, the exact ratio was 1/1. As only a single observation contributes to the finding of 100%, to glean support for my hypothesis from this result would be dubious.

In addition, the alternative relationship more clearly does not support my hypothesis. The proportion of states whose IP standards were raised in a PTA with the EU and went on to ratify a PTA with the US is 60%; the exact ratio is 3/5. The proportion of states that signed a PTA with the EU that didn't raise their IP standards and went on to ratify a PTA with the US was 14%; the exact ratio is 7/50. This result directly contradicts Hypothesis 2a. The states the hypothesis predicted to be more likely to ratify an agreement with the US—those that ratified an agreement with the EU but did not include a strong IP chapter—were significantly less likely to do so than those the hypothesis predicted to be unlikely to ratify an agreement with the US.

Why exactly is this the case? It is quite possible is that the United States, if presented with the opportunity to easily do so, will gladly push the raised-standard partner to reaffirm their new standards—at little cost to both parties—and attain access to the method of recourse extracted by the European Union. This result would also make sense if the states from whom the

European Union did not extract a strong IP chapter do not have large enough consumer markets or manufacturing bases to justify the United States extracting a strong IP chapter through internalized benefits.

Parametric Test and Results:

In addition to my non-parametric test of Hypothesis 2a, I conducted a parametric test of the validity of Hypothesis 2a. My parametric test of 2a sought to determine the predictive relationship between ratifying an IP-standard-raising PTA with the US or EU, and ratifying a future agreement with the EU or US.

If my hypothesis is supported by this test, we should expect to see a negative relationship between signing an IP standard-raising PTA with the US or EU and the likelihood of ratifying a PTA with the EU or US in the future. However, the regression test does not support my hypothesis, yielding a statistically significant positive relationship between ratifying an IP standard-raising PTA with the US or EU and ratifying a future PTA with the EU or US (Table 2). Per this test, a state which has ratified an IP-standard raising PTA with either the US or EU is significantly more likely to ratify a PTA with the other major power than if it had not ratified an IP-standard raising PTA with the US or EU.

(Table 2: Regression Results for Hypothesis 2a)

	Dependent variable:
	usoreu
postusoreuSIP	0.069***
	(0.022)
time0	-0.003***
	(0.001)
year	0.002***
	(0.0005)
Constant	-3.499***
	(0.978)
Observations	1,932
R^2	0.015
Adjusted R^2	0.013
Residual Std. Error	0.267 (df = 1928)
F Statistic	9.497*** (df = 3; 1928)
Note:	*p<0.1; **p<0.05; ***p<0.01

Hypothesis 2b

Hypothesis 2b is that the agreements signed by raised-standard states with high-standard states are likely to include a chapter on the already-raised-standard. For the purposes of testing this hypothesis, I examined states whose IP standards were raised through a PTA with the US or EU, and used the EU or US respectively as the high-standard state.

Non-Parametric Test and Results:

To test hypothesis 2b, I used both a non-parametric and a parametric test. My non-parametric test sought to determine the proportion of agreements with EU or US that included a chapter on intellectual property signed by states that already had their IP standards raised by the US or EU. Additionally, it sought to determine the proportion of agreements with the EU or US that included an IP chapter if the US or EU did not raise that country's IP standards.

The hypothesis being tested by this test is that states whose IP standards have been raised by the US or EU are likely to include IP chapters in their future agreements with the EU or US.

The null hypothesis is that states whose IP standards have been raised by the US or EU are *not* likely to include IP chapters in their future agreements with the EU or US.

If my non-parametric test supports Hypothesis 2b, we should expect to see a positive relationship between states whose IP standards have been raised through a PTA with the US or EU and their future agreement with the EU or US including an IP chapter. The states should also be more likely to include an IP chapter in the agreement if the past agreement raised IP standards than if there was no past agreement to raise standards. This expectation derives from the idea that there is very little cost to be paid by the high-standard state once the original benefit has been extracted; they are likely simply reaffirming the prior agreement and gaining access to a method of recourse should their firms' IP rights be infringed.

If my non-parametric test supports the null hypothesis for 2b, we should expect to see no relationship between having IP standards raised through a PTA with the US or EU and future agreements with the EU or US including a chapter on IP.

My non-parametric test supported Hypothesis 2b. The proportion of agreements containing an IP chapter signed by the EU and a state whose IP standards were raised by the US was 33%; the exact figures were 3/9. Additionally, the proportion of agreements containing an IP chapter signed by the EU and a state which has not ratified an agreement with the US was .044%; the exact ratio was 2/45. Both of these findings support Hypothesis 2b, as the EU was more likely to have a chapter pertaining to IP in agreements with states whose standards have already been raised than in agreements with countries whose standards had not been raised by the US.

Parametric Test and Results:

My parametric test sought to predict the likelihood of signing a PTA with a strong IP chapter if the country has not previously had its IP-standards raised through a PTA with the US or EU, and predict the likelihood of signing a PTA with a strong IP chapter if the country already has had its IP-standards raised through a PTA with the US or EU.

The hypothesis being tested in this test is that a PTA between a state whose IP standards were raised by the US or EU and the EU or US is more likely to include a strong IP chapter than a PTA between a state whose IP standards have not been raised by the US or EU and the EU or US.

The null hypothesis, in this scenario, is that a PTA between a state whose IP standards were raised by the US or EU and the EU or US is *no more likely* to include a strong IP chapter than a PTA between a state whose IP standards have not been raised by the US or EU and the EU or US.

For this test to support the hypothesis, we should expect a positive relationship between a country having its IP standards raised by the US or EU and its next agreement with the EU or US including a strong IP chapter. This expectation stems from the idea that including an IP chapter in an agreement with a state whose IP standards have already been raised should come at little cost to both parties, as the raised-standard state is unlikely to have to raise its standards any higher, and it has already paid the domestic adjustment cost of raising said standards, and the high-standard state is likely to simply push the raised-standard state to reaffirm its commitment to raised standards, and grant access to the agreed-upon method of recourse to the high-standard state.

The parametric model for hypothesis 2b supports this hypothesis, returning a statistically significant relationship (Table 3). A state whose IP standards were not raised by the US or EU in a past PTA has a probability of .214 of including a strong IP chapter if it is to ratify a PTA with the US or EU. A state whose IP standards were raised by the US or EU in a past PTA has a probability of .31 of including a strong IP chapter if it is to ratify a PTA with the US or EU, nearly .1 higher than the predicted probability given no prior IP standard-raising PTA. Per this model, a state is more likely to include a strong IP chapter in its subsequent agreements with the EU or US if it has already had its IP standards raised by the US or EU.

With that said, it's important to note that the fourth model, which deals exclusively with bilateral agreements, exhibits a reasonably strong negative relationship. It is quite possible that this hypothesis holds in the case of multilateral agreements and all agreements, but not for only bilateral agreements.

(Table 3: Regression Results for Hypothesis 2b)

	Dependent variable:			
	strongipprov			
	(1)	(2)	(3)	(4)
postusoreuSIP	0.186***	0.152***	0.174***	0.170***
	(0.022)	(0.026)	(0.023)	(0.027)
usoreu	0.230***	0.061**	0.214***	0.083***
	(0.023)	(0.027)	(0.025)	(0.029)
time0	-0.001	-0.002**	-0.001*	-0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
year	0.004***	0.006***	0.005***	0.006***
	(0.0005)	(0.001)	(0.0005)	(0.001)
postusoreuSIP:usoreu			0.096	-0.204**
			(0.061)	(0.086)
Constant	-8.871***	-11.814***	-8.907***	-11.820***
	(0.988)	(1.423)	(0.988)	(1.421)
Observations	1,932	1,246	1,932	1,246
R^2	0.158	0.107	0.159	0.111
Adjusted R^2	0.156	0.104	0.157	0.107
Residual Std. Error	0.268 (df = 1927)	0.269 (df = 1241)	0.268 (df = 1926)	0.268 (df = 1240)
F Statistic	90.124*** (df = 4; 1927)	37.167*** (df = 4; 1241)	72.656*** (df = 5; 1926)	30.976*** (df = 5; 1240)
Note:				*p<0.1; **p<0.05; ***p<0.01

Hypothesis 3

To test hypothesis 3—that raised-standard states are likely to demand that low-standard partners in a PTA accept similar strong IP provisions, and will not ratify without them—I used a parametric test to demonstrate the likelihood of a raised-standard state including a strong IP chapter in a PTA with a low-standard state.

The hypothesis being tested through this test is that if a state has previously ratified a PTA with the US or EU which raised its IP standards, the state is more likely to include a strong IP provision in its future PTAs than if it had not. The null hypothesis in this scenario is that a

state is no more likely to include strong IP provisions in future PTAs if it has had its standards raised by the US or EU than if it has not had its standards raised.

If this test supports the hypothesis, we should expect to see a positive relationship between a state having its IP standards raised via a PTA with the US or EU and the inclusion of a strong IP chapter in its subsequent agreements. This expectation flows from the notion that a raised-standard state will want its trading partners to adopt the same standards that it has adopted to prevent those raised-standards from acting as form of comparative advantage for the trading partner in the newly-deepened economic relationship. As the state would want to prevent the other state from gaining both comparative advantage and also preferential market access, it will be more likely to push for heightened IP standards, and less likely to accept an agreement without a strong IP chapter. Both of those factors would make the country's future agreements more likely to include strong IP chapters.

If this test supports the null hypothesis, there should be no relationship between a state having its IP standards raised via a PTA with the US or EU and the inclusion of a strong IP chapter in subsequent agreements.

The parametric test for Hypothesis 3 supported my hypothesis at a high degree of statistical significance (Table 4). This model found that states are 17.4% more likely to include a strong IP chapter in future PTAs with non-US or EU states if the state had its IP standards raised by either the US or EU in a previous trade agreement.

(Table 4: Regression Results for Hypothesis 3)

	Dependent variable:	
	strongipprov	
	(1)	(2)
postusoreuSIP	0.186***	0.174***
	(0.022)	(0.023)
usoreu	0.230***	0.214***
	(0.023)	(0.025)
time0	-0.001	-0.001*
	(0.001)	(0.001)
year	0.004***	0.005***
	(0.0005)	(0.0005)
postusoreuSIP:usoreu		0.096
		(0.061)
Constant	-8.871***	-8.907***
	(0.988)	(0.988)
Observations	1,932	1,932
R^2	0.158	0.159
Adjusted R^2	0.156	0.157
Residual Std. Error	0.268 (df = 1927)	0.268 (df = 1926)
F Statistic	90.124*** (df = 4; 1927)	72.656*** (df = 5; 1926)
Note:		*p<0.1; **p<0.05; ***p<0.01

Chapter Conclusion

In this chapter, I conducted seven tests to assess the validity of my three hypotheses. Five of the seven tests supported by my hypotheses, with only my parametric and non-parametric tests of Hypothesis 2a not supporting my hypotheses.

Hypothesis 1 was supported by both the parametric and non-parametric tests. My non-parametric test concluded that the EU and US provide a significant portion of IP-standard-raising PTAs—44.8%—37.1% greater than their share of the total number of PTAs ratified by states.

My parametric test concluded that states are substantially more likely to ratify a PTA that raises its IP standards if their partner is either the US or EU.

Hypothesis 2a was not supported by either my parametric test or my non-parametric test. My parametric test found a statistically significant positive relationship between a state having its IP standards raised by the US or EU, and the subsequent ratification of a PTA between the state and the EU or US. My non-parametric test indicated that 69.2% of states whose IP standards were raised by the US went on to ratify a PTA with the EU. While 100% of states whose IP standards were not raised in their PTA with the US went on to ratify a PTA with the EU, there was only one state in that population, making it difficult to draw meaningful conclusions. Additionally, the non-parametric test demonstrated that 60% of states whose IP standards were raised by the EU went on to ratify a PTA with the US. Only 14% of states whose IP standards were not raised in their PTA with the EU went on to ratify a PTA with the US. That final finding is in direct contradiction with hypothesis 2a; coupled with the results of my parametric 2a test, I find it difficult to believe hypothesis 2a is accurate with regards to intellectual property provisions.

Hypothesis 2b was supported by both my parametric and non-parametric test. My non-parametric test indicated that the proportion of agreements containing an IP chapter signed by the EU and a state whose IP standards were raised by the US was 33%. The test furthered that only 4.4% of agreements signed by the EU and a state whose IP standards were not raised by the US included IP provisions. My parametric test showed a similar conclusion -- a state whose IP standards were not raised by the US or EU in a past PTA has a probability of .214 of including a strong IP chapter if it is to ratify a PTA with the US or EU. Moreover, a state whose IP standards were raised by the US or EU in a past PTA has a probability of .31 of including a strong IP chapter if it is to ratify a PTA with the US or EU.

Hypothesis 3 was supported by my test -- states are 17.4% more likely to include a strong IP chapter in its future PTAs with non-US or EU states if the state had its IP standards raised by either the US or EU in a previous trade agreement.

In conclusion, Hypothesis 1, 2b, and 3 were all supported by my tests, while hypothesis 2a was not supported by my two tests.

Chapter 3: Environmental Protections

Chapter Introduction

This chapter tests the validity of my three hypotheses by using the inclusion of a chapter with strong environmental protections—abbreviated as "EPs"—as the provision of interest.

In Hypothesis 1, I posit that states which stand to internalize a substantial portion of the gains from a regulatory provision will be more likely to pay the cost in negotiations necessary to convince the low-standard state to accept the regulatory provision. The logic of this hypothesis derives from prior research regarding the role of hegemons in the provision of global public goods. Hegemonic actors can avoid the collective action problem of providing a public good by internalizing a substantial portion of the gains, effectively treating the provision as a private good. I theorize that the EU and US will play the role of hegemon and provide stronger environmental protections through their PTAs. The EU maintains particularly strong standards for environmental protection, and therefore has a natural interest in bringing other states up to its level.

In Hypothesis 2, I assert that high-standard states are less likely to negotiate a PTA with a raised-standard state. In addition, I hypothesize that if a raised-standard state does negotiate and ratify a PTA with a high-standard peer, that agreement is likely to include a chapter regarding the area of interest, as the cost of negotiating for the high-standard state, and adapting domestic law for the raised-standard state, is quite low. In testing this hypothesis, I use the United States and European Union as the high-standard state negotiating with a raised-standard state whose environmental standards were raised by the other. Both the US and EU are, under this theoretical framework, considered high-standard states with regards to environmental protection, as they both maintain high environmental standards vis-à-vis the rest of the world, with the EU holding particularly high standards for environmental protection.

In Hypothesis 3, I postulate that raised-standard states are likely to, in a PTA negotiation with a low-standard state, demand that the low-standard state raise their environmental protections to the level of the raised-standard state. It follows that raised-standard state will be unlikely to ratify a PTA with a low-standard state without gaining the concession of stronger environmental protections. I use states whose EPs were raised by the US or EU as the population

of raised-standard states, and their post-raised-standards PTA partners as the population of low-standard states.

The results of my tests strongly supported Hypothesis 1 and Hypothesis 3, but did not support Hypothesis 2.

Environmental Protections as a BTB Provision

Strong environmental protections constitute a behind-the-border provision, as they provide a nonexcludible change to a domestic regulatory environment. When the European Union pushes a state to strengthen its environmental protections through a preferential trade agreement, the environmental protection affects all firms and individuals who operate in the country, not just firms and individuals from the European Union. While firms in the European Union would benefit from firms based in their trading partners playing by the same rules, firms the world over would experience that same benefit from stronger environmental protections, without paying any cost in negotiation. Greenhouse gas emissions affect humanity indiscriminately; environmental protections which reduce emissions inherently externalize upon the entirety of the human population. As a result, environmental provisions of PTAs serve as a public good. Moreover, strong environmental movements exist throughout the developed world. While members of such movements may not necessarily benefit materially from stronger environmental protections, they benefit psychically, as they know something is being done to improve an issue they care about.

The countries of the world have negotiated hundreds of conventions regarding environmental protection. These conventions serve as binding agreements, committing states to uphold agreed upon regulations mandated by the convention. Only states that ratify the conventions commit themselves to the convention's terms. Oftentimes states will sign on to the agreement during the process of negotiation, yet their legislature will not ratify the agreement and fully agree to its requirements.

These conventions deal with a wide range of environmental issues. The Montreal Protocol of 1987 laid out a global initiative to phase out chlorofluorocarbons, a type of gas used for refrigeration and aerosols which, at the time, was heavily responsible for the depletion of the ozone layer. The 1993 Convention on Biodiversity sought to establish guidelines regarding the protection of biodiversity. The Kyoto Protocol of 1992 attempted to create a global framework for reducing greenhouse gas emissions, a key driver of climate change. The 2015 Paris

Agreement mirrors the Kyoto Protocol in its objectives. The 1994 United Nations Convention to Combat Desertification sought to foster cooperative planning to mitigate the effects of drought and desertification across the globe. The International Convention for the Prevention of Pollution from Ships, negotiated in 1973 and revised in 1978, laid out global guidelines to prevent ships from polluting the ocean through solid, liquid, and gaseous waste. These are only a handful of conventions, and by no means encompass every area of environmental protection regulated by multilateral treaties.

Unlike TRIPS, these conventions do not serve as a global baseline for environmental protection. There is no requirement of ratification for membership in the World Trade Organization, and universal ratification is seldom achieved.[14]

As a result, states that maintain high standards for environmental protections have begun to use their leverage in PTA negotiation to push states to ratify these environmental conventions. Provisions mandating some form of adherence to environmental conventions make up just under 13% of all environmental provisions included in PTAs.[15]

The remaining 87% of environmental provisions included in PTAs cover a wide range of concepts and environmental issues, with varying degrees of commitment. States often lay out a series of environmental principles with which both parties agree. The polluter pays principle and the prevention principle—which constitute a formal recognition that the polluting party should pay for environmental damage, and an agreement to take responsibility for protecting the environment from degradation, respectively—are two common principles included in PTAs. Mutual recognition of national sovereignty over natural resources, fisheries, environmental regulatory policy, and enforcement is also common practice in environmental chapters.

Environmental chapters also frequently include knowledge-sharing provisions, in which both parties agree to conduct joint research programs regarding the environment, and exchange information and expertise. A joint research program will also often conduct environmental monitoring and provide reports assessing compliance to both states. These provisions are most commonly included in agreements between a high-standard state and a low-standard state. In addition to imparting expertise upon the low-standard state, high-standard states sometimes

[14] David Vogel (2009) provides a thorough history of the rise of environmental protections in PTAs and multilateral environmental agreements.
[15] Trade and Environment Database (TREND).

include provisions that finance—through aid or loans—upgrades for facilities to ensure compliance with new requirements. This injection of capital also serves to assist the low-standard state to transition away from pollutive energy sources towards greener forms of energy. Also commonly found in environmental protection chapters are provisions that intend to incorporate the public into efforts to protect the environment, either through education programs which teach the populace about environmental laws and raise awareness, or through facilitating voluntary environmental protection in the private sector by providing economic incentives for firms and supporting the efforts of non-governmental organizations.

Oftentimes high-standard states seek to include provisions which strengthen the enforcement of preexisting environmental protections in the low-standard state. A key way this manifests in agreements is through the ability for private citizens to file suit against another actor for environmental damage, and allow the aggrieved party to receive damages that would mitigate the consequences of the damage. This provides an incentive for firms and individuals to comply with environmental law, as they now could face legal recourse if they do not adhere to national standards. High-standard states also often push for provisions which give the public the ability to petition the government to investigate its own failures to enforce specific environmental laws, and require the state to conduct a formal investigation and provide a public response to the allegation.

Environmental protections also take the form of commitments by the state to consider the interaction of specific industries and the environment when planning future policy. These commitments, however, are often nebulously defined and difficult to enforce, as states are only required to *consider* the effects a policy might have on the environment, rather than explicitly requiring tangible action in future policymaking.

High-standard states will, on occasion, push their partners to include provisions which encourage both the production and trade of environmental goods and services. Environmental goods constitute renewable forms of energy, energy-efficient goods and services, and goods which have been sustainably sourced to justify a legitimate ecolabel. These provisions often justify the use of subsidy for the low-standard state to enhance the competitiveness of their environmental goods. Furthermore, some environmental chapters agree to future coordination between the signatories' customs agencies to combat offenses related to environmental

protection, such as the import and export of goods that have been banned from entering the country on environmental grounds.

Agreements frequently contain a dispute-settlement mechanism agreed upon by the signatories to facilitate an equitable and effective implementation of the terms of the agreement as they relate to the environment. The dispute settlement mechanism almost always falls under the purview of the intergovernmental committee tasked with overseeing enforcement.

Finally, environment chapters often include binding commitments to combat degradation and ensure stronger protection across countless dimensions of the environment. Some notable protections that take shape through PTAs are fishery and forest conservation, emphasizing the sustainable use of water, measures that combat air pollution and climate change, preventing soil erosion, ensuring nuclear safety, managing hazardous waste, properly using pesticides and fertilizers, preventing the outbreak of invasive species, and safeguarding biodiversity.

Winners and Losers from Environmental Protections

Of the three behind-the-border provisions I use to test my hypotheses, environmental protections have the fewest clear-cut winners and losers. The benefits of stronger environmental protections are the least targeted of these three hypotheses, as they can be experienced by myriad parties in a wide array of ways. Those who stand to lose, however, are more concentrated in the raised-standard state than those who stand to win. With that said, winners and losers will vary depending on the type of protection included in the PTA.

The most distinct winners from stronger environmental protections are firms that manufacture goods in states that already have strong environmental protections. Lax environmental protections allow manufacturers in low-standard states to use the cheapest form of energy possible—regardless of environmental impact—to produce their goods. Such firms also have to worry far less about the byproducts of their manufacturing process than states in high-standard states where manufacturing is more tightly regulated. This serves as a form of comparative advantage for those low-standard manufacturers, as they are afforded the ability to streamline their manufacturing process and keep costs as low as possible. Strengthening environmental protections makes their products less competitive in the global economy (Stewart, 1993), which helps manufacturers in high-standard states by making them inherently more competitive.

It is important to point out that environmental protections are not necessarily a direct impediment to business activity. Porter (1991) posits that pollution itself is a waste of resources, and reducing pollution may improve the efficiency with which resources are used. Porter and van der Linde (1995a, 1998) contend that well-designed environmental protections have the ability to trigger innovation, and even completely offset the costs of compliance. This assertion has come to be known as the Porter Hypothesis, and has sparked heavy debate among economists. Porter is quick to note that his hypothesis is reliant on well-designed environmental regulations; not just any regulation will drive innovation or come without accompanying cost.[16]

It is crucial to make a distinction here between firms from high-standard states which produce domestically, and multinational firms from high-standard states which produce their products abroad. A domestic manufacturer benefits from stronger protections abroad, as other firms are forced to play by similar rules. However, many multinational firms based in the global North produce their goods in the global South, before shipping them around the world for sale. Stronger environmental protections would hurt these multinational firms, as their process of production becomes less efficient and more expensive, leading to higher prices and less competitive products (Barbera and McConnell, 1990).

Moreover, it is also possible that firms which manufacture their finished goods in the global North could be hurt by stronger protections. Final assembly of a finished good may occur in a country with strong environmental protections, while the sourcing of raw materials and the production of components occur in countries with weaker protections. Strengthening environmental protections in countries where they were previously weak could have adverse effects on those manufacturers, whose input costs have ballooned due to higher standards. Manufacturers in countries with strong protections that directly compete with firms that manufacture in states with low standards would benefit from stronger protections abroad, while manufacturers in countries with strong protections that rely on raw materials and goods-in-process from low-standard states would be hurt by stronger protections.

What about firms in raised-standard states that don't rely on manufacturing? These firms would likely benefit from stronger environmental protections. Firms in the tourism industry, for instance, stand to gain from stronger protections, as their "product"—their country—will be less

[16] Ambec et. al (2013) provide a rich analysis of the Porter Hypothesis and the literature the hypothesis spawned.

polluted and corrupted by the byproducts of industry, making tourism more sustainable and less susceptible to shocks due to poor environmental conditions.[17] Those employed by the tourism industry would stand to benefit as well, as their livelihoods would face less uncertainty due to environmental concerns.

With that said, some non-industrial sectors suffer under stronger environmental protections. Provisions which strengthen protections on fisheries hurt fishermen, at least in the short term, by reducing their yields, and by extension, profits. They will likely benefit in the long run due to more sustainable practices, but those whose livelihoods depend on the ability to consistently work will be hurt by such a provision.[18]

How will the general public in the raised-standard state be affected by stronger environmental protections? Those employed by industries which rely on extraction will likely be hurt, as their employers face more stringent restrictions and cannot produce as efficiently as they once could, leading to cutbacks or layoffs. That logic holds for those employed by manufacturing, who would likely take a hit as well. Those employed in the service sector would likely face no immediate repercussions from stronger environmental protections. With that said, it is entirely possible that stronger environmental protections could lead to a general rise in prices for goods produced domestically.[19][20]

It is important to note that the human population as a whole stands to benefit from stronger environmental protections, specifically those with an eye towards slowing climate change. These benefits manifest in the long term. Urban populations clustered on or near coastlines benefit from protections that seek to combat climate change, as they have the potential to slow the rate of rising sea levels. Populations facing increased desertification due to climate

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[17] Beijing, for instance, saw its tourism decline 15% from January 2013 to June 2013, following heavy global news coverage of China's polluted cities during the early months of the year (Associated Press, "Air Pollution Blamed as China Loses Tourists." *The Telegraph*, February 4, 2016).

[18] The same is true for loggers. Long-term benefits, in the form of more sustainable practices that make the logging industry solvent moving forward, will hurt employees in the short-term by reducing their outputs and, in all likelihood, hours and wages.

[19] Locally-sourced fish would become more expensive due to conservation practices which reduce supply. Manufactured goods sold domestically would also become more expensive, as production becomes less efficient and firms are forced to invest more in the process of production, passing costs onto consumers.

[20] The general public in countries that trade with the raised-standard state would also see an increase in prices, though such a rise would be far less pronounced, as they likely have access to goods from other competitor countries that lack strong environmental protections.

change stand to benefit from stronger protections as well, as measures which slow or reverse desertification would prevent them from being displaced due to conditions unconducive to human settlement. The human population as a whole stands to benefit from protections which seek to combat climate change, as extreme weather resulting from a changing climate comes with major costs, in the form of wildfires, hurricanes, floods, and droughts.

What effect do stronger environmental protections have on governments? It is difficult to say whether the government whose standards are being raised receives benefits or costs from the new protections. On one hand, the state has lost the policy space it once had to craft an environmental protections regime that benefits its constituents the most (Shadlen, 2005b, 2008). On the other hand, if a state has a population receptive to the idea of stronger environmental protections, the state can be seen as a beneficiary, as it not only did what its constituents wanted, but it also extracted an additional benefit in the form of deeper access to wealthy markets simply for doing something it might have done without intervention from another state.

How might high-standard governments benefit from stronger environmental protections? Uninvolved governments have little to gain or lose from stronger environmental protections in other states. However, if a state has a population that has indicated that protecting the environment and combatting climate change is a national priority, the government can score domestic political points by pushing other countries to strengthen environmental protections. Though the public does not necessarily stand to receive tangible or immediate benefits from stronger environmental protections, their abstract support for protecting the environment can translate into concrete support for the government which promoted their national values and objectives during an upcoming election. The government can signal to both its constituents and its peers that it takes protecting the environment seriously. This signaling on the global stage can have two possible effects. The first scenario is that other states which prioritize protecting the environment see that the states who raise standards through a PTA are providing a good for the rest of the world, and therefore feel comfortable freeriding. Alternatively, states whose populations take protecting the environment seriously might feel pressured by their population to engage in similar behavior and attempt to raise standards in other countries, to signal that their constituents are willing to pay the cost of negotiation to signal to the world that protecting the environment is a priority.

Data Structure

For Hypothesis 1, my key outcome variable is whether the agreement includes a strong chapter regarding environmental protections. To code this variable, I relied on a dataset from the Trade and Environment Database (TREND) (Berger, Brandi, Bruhn, and Morin, 2017). TREND's dataset collects information regarding every environmental provision included in every trade agreement currently in force. The TREND dataset contains 286 variables, each a different form of environmental protection included in at least one PTA. In coding a strong environmental provision, I defined "strong" as a provision which warrants a change in domestic law to achieve full implementation. Using that definition, I narrowed the number of relevant variables from 286 to 89. If a trade agreement contained three or more of those 89 strong provisions, I coded the agreement as "strong." All agreements that had two or fewer of these provisions received a coding of "not strong."

The 89 provisions included in my coding of strong contain a wide array of environmental protections. The bulk of those included in this coding scheme deal with a state's accession to a previously-negotiated multilateral treaty, like the Rotterdam Convention which deals with hazardous chemicals, or the Kyoto Protocol which sought to reduce greenhouse gas emissions. My coding of strong also includes provisions which establish specific, targeted environmental protections with which the low-standard state must comply. For instance, the KORUS agreement between the United States and South Korea includes provisions which required Korea to crack down on illegal logging. Canada's agreement with Chile requires Chile to strengthen its conservation practices in the fishing industry. The EU's agreement with Lebanon mandates stronger waste management protocols to protect coastal areas. My coding scheme also includes provisions which lead to the harmonization of standards between states. The EU's agreement with Moldova, for example, requires Moldova to gradually comply with the EU's own laws regarding climate change prevention, achieving full compliance within a specified timeframe. My scheme also incorporates provisions which require states to take specific actions to ensure the enforcement of preexisting domestic environmental regulations. Though these provisions do not explicitly change domestic law, I consider them worthy of receiving the distinction of "strong," as they constitute a regulatory change in the form of an adjustment of normal practice that affects firms, the public, and the state responsible for enforcement.

My explanatory variable for Hypothesis 1 is whether the state has signed a PTA with either the United States or European Union. My test compares the frequency with which states ratify PTAs that strengthen their environmental protections with the US or EU, and the frequency with which they strengthen their EPs through PTAs with other states.

For Hypothesis 2a, my outcome variable is the ratification of a PTA with the US or EU. The explanatory variable in this hypothesis is whether the state in question has signed a PTA with either the EU or US that strengthened environmental protections. This explanatory variable serves to winnow the population of PTAs under examination to only those which have ratified a PTA with either the EU or US, and determine the frequency of my outcome variable—ratification of a PTA with the other high-standard, quasi-hegemonic state.

For Hypothesis 2b, my outcome variable is the inclusion of strong environmental protections. This variable uses the same definition of strong environmental protections as Hypothesis 1. My explanatory variable is having already had one's EPs strengthened via a PTA with the US or EU, and the state has gone on to ratify a PTA with the other high-standard major power.

The outcome variable for Hypothesis 3 is the ratification of a PTA with strong environmental protections with a low-standard state. This hypothesis uses the same definition of strong as Hypothesis 1 and Hypothesis 2. The explanatory variable is whether the state has had its EPs strengthened via a PTA with either the US or EU. The explanatory variable narrows the population to states who have had their standards raised by a major power, and allows for the testing of whether their future PTAs with low-standard states contain strong EP chapters.

Hypothesis 1: Test, Results, and Analysis

My first hypothesis is that countries that stand to internalize a significant portion of the benefits from strengthening environmental protections will be much more likely to provide them by signing PTAs with strong environmental protections chapters. I treated the United States and European Union as a proxy for the states that stand to benefit a great deal from strengthening their trading partners' environmental protections, as both the US and the EU maintain high standards themselves and stand to gain from the rest of the world's firms conforming to the standards to which those in the US and EU have already adapted.

To test this hypothesis, I determined how often countries have their environmental protections raised for the first time through a PTA with the US and the EU. I also determined

how often countries have their environmental standards raised for the first time via a PTA with countries that are not the US or EU. I tested this hypothesis using a parametric and a nonparametric test.

If this test supports this hypothesis, it should return results which show that the United States and European include stronger environmental protections in their PTAs significantly more often than all other countries. Under this hypothesis, the US and EU would recognize that their firms stand to benefit by raising their trading partners' environmental standards, and be willing to pay the costs in negotiation to provide those raised standards. While the US and EU would understand that they are providing this benefit for the rest of the world, they likely believe the benefits received by their firms, coupled with the political benefits of demonstrating commitment to a cleaner planet, justify providing what effectively serves as a public good for the rest of the world. If this is the case, other high-standard states would also recognize that the United States and European Union often provide these stronger environmental protections, making it easier to free-ride on the benefit than provide it themselves.

The null hypothesis which accompanies Hypothesis 1 is that all states should be equally willing to provide raised environmental standards in their PTAs. If this test supports the null hypothesis, we would expect to see no difference in the likelihood of the US or EU strengthening a country's environmental protections, and any other country doing so.

Non-Parametric Test and Results:

My non-parametric test compares the percentage of PTAs that strengthen a state's environmental protections for the first time that include the US or EU, and the percentage of all PTAs that include the US or EU. If this test supports my hypothesis, there should be a difference between the percentage of EP-strengthening PTAs including the US or EU and the proportion of all PTAs that include the US or EU, with the percentage of standard-strengthening PTAs significantly higher than the proportion of all PTAs.

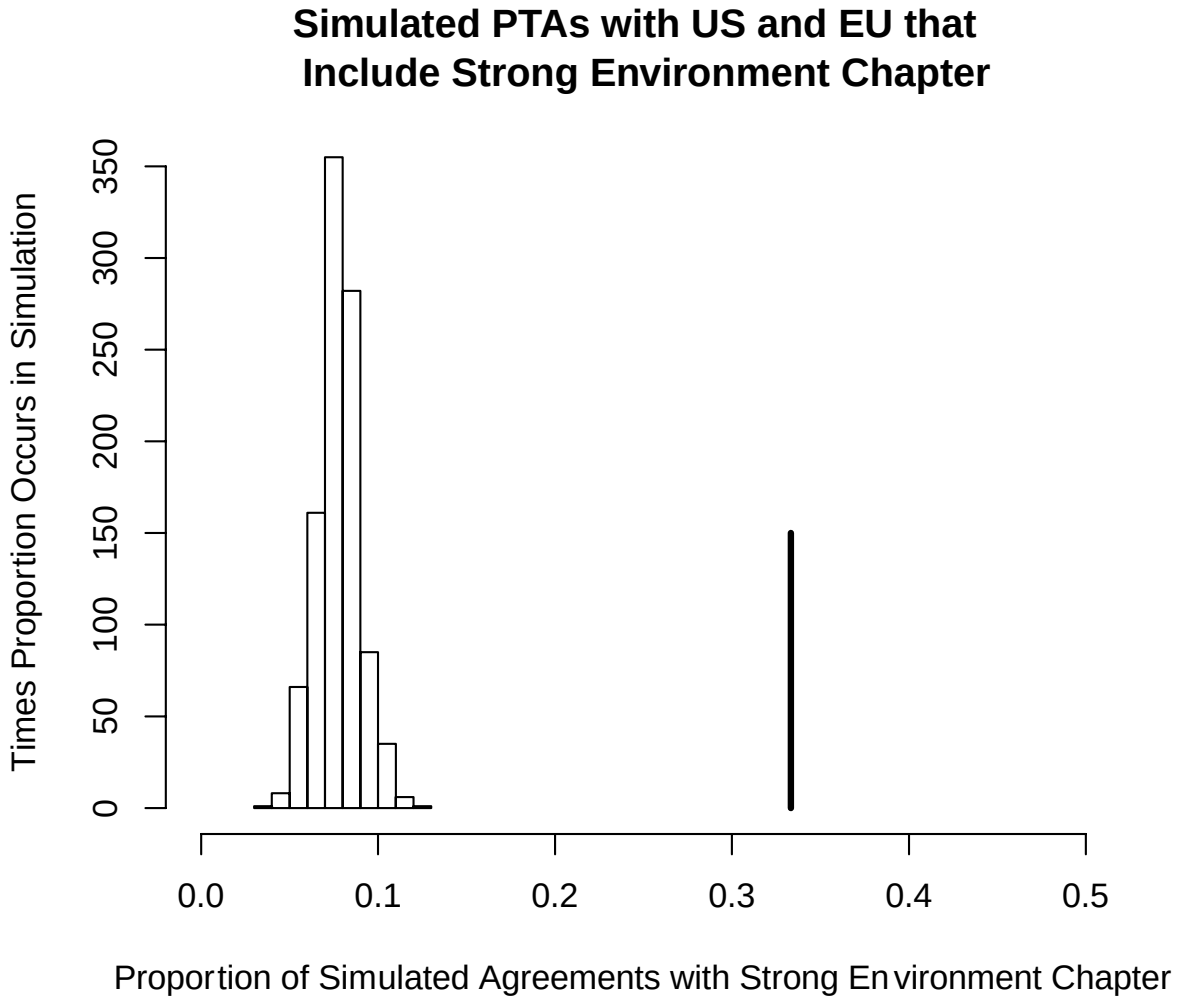
If this test instead supports the null hypothesis, we should anticipate no difference in the percentage of EP-strengthening PTAs ratified by the US or EU and the percentage of all PTAs ratified by the US or EU. The null hypothesis is predicated on the idea that all states would be equally likely to provide these EP-strengthening provisions in their PTAs. If the null hypothesis

is supported, we would expect no difference in the percentage of first-time EP-raising PTAs ratified by states, and the percentage of all PTAs ratified by states.

This test supports my hypothesis. While the United States and European Union have been signatories for 7.716% of all PTAs, they have been party to 33.3% of all PTAs that include provisions which strengthen environmental protections. It is noteworthy that the US and EU are not providing the majority of the world's EP-strengthening PTAs—two-thirds of PTAs with a strong environment chapter do not include the US or EU. With that said, they do provide a substantially higher proportion than one would expect under the null hypothesis, which assumes that all countries have an equal likelihood of including a strong environmental chapter in their trade agreements.

I ran 1000 simulations of PTA negotiation, given the null hypothesis as a key assumption, to evaluate whether the result borne out in reality would be likely to arise if the null hypothesis is accurate. For this test to support Hypothesis 1 in the context of environmental protections, we would expect a substantial difference between the simulated percentage of strong-environment PTAs with the US or EU as a party, and the actual percentage of such PTAs, with the actual percentage far greater than the simulated frequency. If this test were to support the null hypothesis, we would expect to see overlap between the simulated percentage and the real percentage. The results of this test are displayed in Figure 4.

(Figure 4: the black line is the actual proportion)



The first parametric test of Hypothesis 1 supports Hypothesis 1 in the context of environmental protections. The US and EU are party to 33.3% of PTAs which include an EP-strengthening chapter. Across the 1000 simulations, the highest percentage of EP-strengthening PTAs to which the US and EU were party given the probability of the null hypothesis was 12%, more than 20% below reality.

Parametric Test and Result:

I also used a parametric test to assess the validity of Hypothesis 1 in this context. I employed a Cox Proportional Hazards Model to assess the likelihood of a country signing a PTA

with a strong environmental protections chapter with the US or EU, and the likelihood of signing such an agreement with any other country.

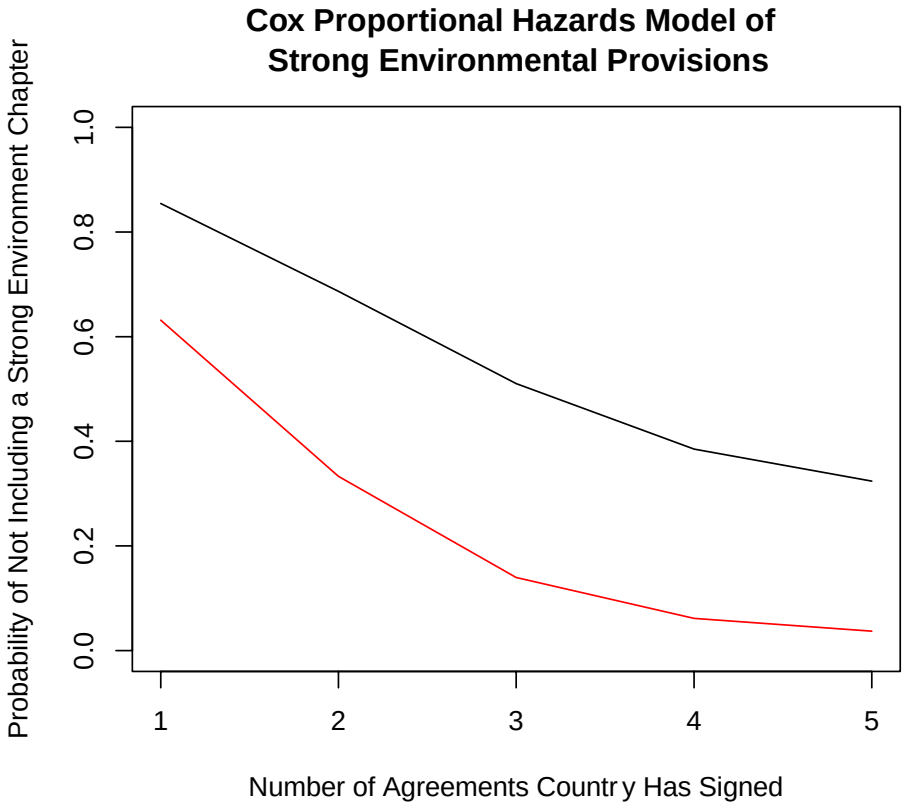
The Cox model creates two theoretical states. The control state repeatedly signs PTAs with countries that are not the US or EU, while the treated state repeatedly signs PTAs with the US and EU. This Cox model evaluates the likelihood of signing a PTA that does not include a strong EP chapter for both the control state and the treated state. The higher the plot on the y axis in (Figure 4), the lower the probability to signing a PTA with a strong environmental protections chapter.

If this test supports my hypothesis that states who stand to internalize a significant portion of the gains from providing stronger environmental protections in PTAs will be more likely to provide them, we should expect to see a substantial difference in the likelihood of ratifying a PTA with a strong environment chapter between the treated state and the control state. To support this hypothesis, we would anticipate the country that signs its PTAs with the US or EU to exhibit a greater probability of including a strong environment chapter than the state whose partner was never the US or EU. If the US and EU are more likely to include strong environmental protection chapters in their PTAs, the probability of not signing a PTA with a strong environment chapter would drop more quickly and steeply for the treated state than for the control state.

If this test instead supports the null hypothesis—that states are equally likely to ratify PTAs that strengthen environmental protections—we should expect to see no discrepancy in the rate at which the two probabilities decline.

A visualization of my results is displayed as (Figure 5). The red line represents the treated state, and the black represents the control state. Additionally, Table 5 details the result of my regression analysis for this test.

(Figure 5: Cox Proportional Hazards Model for Environmental Protections)



(Table 5: Regression Results for Hypothesis 1)

	Dependent variable:
	time = time0
usoreu	1.073***
	(0.139)
year	0.112***
	(0.009)
Observations	1,932
R^2	0.147
Max. Possible R^2	0.741
Log Likelihood	-1,152.074
Wald Test	272.190*** (df = 2)
LR Test	307.983*** (df = 2)
Score (Logrank) Test	304.292*** (df = 2)
Note:	*p<0.1; **p<0.05; ***p<0.01

The results of this test support my hypothesis. There is a strong positive relationship between the likelihood of a country ratifying a PTA that includes a strong environmental protection chapter and that agreement being signed with the United States or European Union.

I have also included the hazard ratio associated with this Cox model. This hazard ratio represents the probability that a state ratifying an agreement with the US or EU includes a strong environment chapter, divided by the probability that a state ratifying an agreement with a country other than the US or EU will include such a provision. Any hazard ratio greater than 1 indicates that such provisions are more common in agreements with the US or EU. The estimated hazard ratio for this model is Exp[1.073] = 2.9234. Given that ratio, the model rejects the null hypothesis that that hazard ratio is 1. This test indicates that US or EU are 2.92 times more likely to push for strong environmental provisions in their trade agreements than other states.

Hypothesis 2a

Hypothesis 2a is that states that have ratified a PTA with the either US or EU that strengthened their environmental protections will be substantially less likely to ratify a PTA with the EU or US than states who have not done so.

The null hypothesis for Hypothesis 2a is that states that have ratified a PTA with the either US or EU that strengthened their environmental protections will be equally likely to ratify a PTA with the EU or US as states who have not had their environmental protections strengthened by the US or EU.

To test Hypothesis 2a, I calculated four proportions. The proportions are like so: 1. the proportion of states that had their environmental protections strengthened via a PTA with the US that went on to ratify a PTA with the EU; 2. the proportion of states that did not have their environmental protections strengthened via a PTA with the US that went on to ratify a PTA with the EU; 3. the proportion of states that had their environmental protections strengthened via a PTA with the EU that went on to ratify a PTA with the US; and 4. the proportion of states that did not have their environmental protections strengthened via a PTA with the EU that went on to ratify a PTA with the US. I used these proportions to test this hypothesis non-parametrically and parametrically.

Non-Parametric Test and Results:

For my non-parametric test, I compared the percentage of states that have had their environmental protections strengthened by the US and have gone on to ratify an agreement with the EU with the percentage of states that have ratified an agreement with the US that did not strengthen their environmental protections and have gone on to ratify an agreement with the EU. In addition, I compared the percentage of countries that have had their environmental protections strengthened by the EU and have gone on to ratify an agreement with the US with the percentage of countries who have ratified an agreement with the EU that did not strengthen their EPs and ratified a subsequent agreement with the US.

If my non-parametric test supports Hypothesis 2a in the context of environmental protections, we would anticipate a noticeably lower percentage of states who have had their environmental protections strengthened by the US or EU signing an agreement with the other major power than those who have not had their EPs strengthened by the US or EU. This expectation stems from the lost incentive by the other high-standard state. If the EU strengthened a country's environmental protections through a PTA, the US accessed the benefit without paying any cost. It follows that the US has now lost a significant incentive to negotiate a PTA — and pay the cost of negotiation—with the state whose EPs were strengthened. The US would have incorporated its desire to see the country's environmental protections strengthened into its calculus for engaging in negotiations. Without that justification, the US has lost what was once an incentive to negotiate, and consequently is less likely to push for a PTA with that state than if the EU had not strengthened that state's environmental protections.

However, if this non-parametric test supports the null hypothesis, we would expect no difference in the frequency with which a state whose EPs were strengthened by the US or EU goes on to ratify a PTA with either the EU or US, and the frequency with which a state whose EPs were not strengthened in their PTA with the US or EU goes on to ratify a PTA with either the EU or US, respectively. The null hypothesis assumes that states which ratify a PTA with the US or EU are equally likely to ratify a PTA with the EU or US, regardless of whether they had their environmental protections strengthened.

The results of this test do not completely support Hypothesis 2a. The percentage of states whose EPs were strengthened in a PTA with the United States and went on to ratify a PTA with the European Union is 66.6%; the exact ratio is 8/12. The percentage of states that signed a PTA

with the US that didn't strengthen its EPs and subsequently ratified a PTA with the EU was 100%; the exact ratio was 2/2. While such a result supports Hypothesis 2a, the fact that there were only two circumstances where the state that didn't see the US strengthen its EPs through a PTA and went on to ratify a PTA with the EU makes the results a bit suspect. Moreover, the other side of this relationship directly contradicts Hypothesis 2a. The percentage of states whose environmental protections were strengthened in a PTA with the EU and went on to ratify a PTA with the US is 29.17%; the exact ratio is 7/24. The proportion of states that signed a PTA with the EU that didn't strengthen its EPs and went on to ratify a PTA with the US was 9.68%; the exact ratio was 3/31.

These results largely contradict Hypothesis 2a. The states the hypothesis predicted to be more likely to ratify an agreement with the US—those that ratified an agreement with the EU but did not include a strong environment chapter—were significantly less likely to do so than those the hypothesis predicted to be unlikely to ratify an agreement with the US.

Parametric Test and Results:

My parametric test of Hypothesis 2a sought to determine the predictive relationship between ratifying an EP-strengthening PTA with the US or EU, and ratifying a future agreement with the EU or US.

If this test supports Hypothesis 2a, we should see a negative relationship between signing a PTA that strengthens environmental protections with the US or EU and the likelihood of ratifying a PTA with the EU or US down the line. The regression test does not support my hypothesis, returning a statistically significant positive relationship between ratifying an EP-strengthening PTA with the US or EU and ratifying a future PTA with the EU or US (Table 6). A state that has signed a PTA that contains a strong environment chapter with either the US or EU is substantially more likely to sign a PTA with the other major power than if it had not signed an environmental protection-strengthening PTA with the US or EU.

(Table 6: Regression Results for Hypothesis 2a)

	Dependent variable:
	usoreu
postusoreuENV	0.061***
	(0.020)
time0	-0.003***
	(0.001)
year	0.002***
	(0.0005)
Constant	-3.453***
	(0.982)
Observations	1,932
R^2	0.014
Adjusted R^2	0.013
Residual Std. Error	0.267 (df = 1928)
F Statistic	9.278*** (df = 3; 1928)
Note:	*p<0.1; **p<0.05; ***p<0.01

Hypothesis 2b

Hypothesis 2b is that the agreements signed by raised-standard states with high-standard states are likely to include a chapter regarding the standard which has already been raised. To test this hypothesis, I assessed states whose environmental protections were strengthened through a PTA with the US or EU, and used the other of the EU or US as the other high-standard state.

Non-Parametric Test and Results:

In testing Hypothesis 2b, I used both a non-parametric and a parametric test. My non-parametric test determined the percentage of agreements with EU or US that included a chapter on environmental protections signed by states that already had their EPs strengthened by the US or EU. Additionally, it assessed the percentage of agreements with the EU or US that included an EP chapter if the US or EU did not strengthen that country's environmental protections.

This test evaluates the hypothesis that states whose environmental protections have been strengthened by the US or EU will likely include environmental protection chapters in their

subsequent agreements with the EU or US. The accompanying null hypothesis is that states whose environmental protections have been strengthened by the US or EU are unlikely to include EP chapters in their subsequent agreements with the EU or US.

If this non-parametric test supports Hypothesis 2b, we should anticipate a substantial positive relationship between states having their environmental protections have been strengthened through a PTA with the US or EU and their future agreement with the EU or US including an environmental protections chapter. The states should also be more likely to include an environmental protections chapter if the past agreement strengthened protections than if there was no past agreement to strengthen do so. There is very little cost for the high-standard state to pay in negotiation once the original benefit has been extracted, as they are most likely reaffirming the prior commitment and demonstrating that they have a vested interest in protecting the environment.

If this non-parametric test supports my the hypothesis for 2b, we should see no relationship between having environmental protections strengthened through a PTA with the US or EU and future agreements with the EU or US including a chapter on environmental protections.

The results of this nonparametric test of Hypothesis 2b supported the hypothesis. The percentage of PTAs with an EP chapter signed by the EU and a state whose environmental protections were strengthened by the US was 75%; the exact figures were 6/8. Additionally, the percentage of PTAs with an EP chapter signed by the EU and a state which has not ratified an agreement with the US was 37.78%; the exact ratio was 17/45. Both of these results support Hypothesis 2b. The EU was more likely to have include a chapter that deals with environmental protections in its agreements with states whose protections have already been strengthened than in agreements with states whose protections had not been strengthened by the US.

Parametric Test and Results:

My parametric test attempted to predict the likelihood of signing a future PTA that includes a chapter regarding environmental protections, given that the country has not previously strengthened its environmental protections through a PTA with the US or EU. This parametric test also sought to predict the likelihood of signing a PTA with an environmental protection

chapter if the country already has had its protections strengthened through a PTA with the US or EU.

The hypothesis being evaluated in this test is that a PTA between a state whose environmental protections have been already strengthened by the US or EU and the EU or US is more likely to include an EP chapter than a PTA between a state whose environmental protections have not been strengthened by the US or EU and the EU or US. If this test supports the Hypothesis 2b, we would see a positive relationship between a state having its environmental protections strengthened by the US or EU and its subsequent agreement with the EU or US containing a substantial environmental protections chapter. Including an EP chapter in an agreement with a state whose environmental protections have already been strengthened should come at a meager cost to both states. The raised-standard state is unlikely to have to strengthen its protections more than it already has, and it has already paid the domestic adjustment cost of strengthening such protections, making the cost of compliance appear relatively small. The high-standard state will likely push its raised-standard counterpart to reaffirm its prior commitment to stronger environmental protections, and signal to both their constituents at home and the rest of the world that protecting the environment is a priority for the government.

The null hypothesis being evaluated by this test is that a PTA between a state whose environmental protections were strengthened by the US or EU and the EU or US is no more likely to include a chapter regarding environmental protection than a PTA between a state whose EPs have not been strengthened by the US or EU and the EU or US.

If this test supports Hypothesis 2b, we should see a positive relationship between a state having its environmental protections strengthened by the US or EU and its subsequent agreement with the EU or US including a substantial environmental protections chapter. Including an EP chapter in an agreement with a state whose environmental protections have already been strengthened should come at little cost to both states. The raised-standard state is unlikely to have to strengthen its protections any more, and it has already paid the domestic adjustment cost of strengthening such protections. The high-standard state is likely to simply push the raised-standard state to reaffirm their commitment to stronger environmental protections, so as to avoid paying a further cost in negotiation, while signaling to both their constituents at home and the rest of the world that protecting the environment is a priority for the government.

The parametric model for hypothesis 2b does not support the hypothesis (Table 7). A state whose environmental protections were not strengthened by one of the major powers in a prior PTA has a likelihood of 28.5% of including a substantial EP chapter if it is to ratify a PTA with the US or EU. A state whose environmental protections were strengthened by the US or EU in a past PTA has a likelihood of 27% of including a substantial environmental protections chapter, if it is to ratify a PTA with the US or EU. While only a minor difference, the state that has already had its standards raised has a likelihood 1.5% lower than the predicted likelihood assuming no prior EP-strengthening PTA. According to this parametric model, a state is less likely to include a substantial environmental protections chapter in its future PTAs with the EU or US if it has had its protections strengthened by the US or EU in the past.

(Table 7: Regression Results for Hypothesis 2b)

	Dependent variable:			
	enviro			
	(1)	(2)	(3)	(4)
postusoreuENV	0.210***	0.172***	0.212***	0.185***
	(0.026)	(0.029)	(0.027)	(0.030)
usoreu	0.282***	0.211***	0.285***	0.231***
	(0.029)	(0.033)	(0.033)	(0.036)
time0	0.004***	0.006***	0.004***	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)
year	0.007***	0.010***	0.007***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)
postusoreuENV:usoreu			-0.015	-0.137
			(0.074)	(0.093)
Constant	-13.017***	-19.068***	-13.012***	-19.096***
	(1.270)	(1.751)	(1.271)	(1.750)
Observations	1,932	1,246	1,932	1,246
R^2	0.215	0.256	0.215	0.258
Adjusted R^2	0.213	0.254	0.213	0.255
Residual Std. Error	0.344 (df = 1927)	0.328 (df = 1241)	0.344 (df = 1926)	0.328 (df = 1240)
F Statistic	132.014*** (df = 4; 1927)	106.874*** (df = 4; 1241)	105.567*** (df = 5; 1926)	86.008*** (df = 5; 1240)
Note:				*p<0.1; **p<0.05; ***p<0.01

Hypothesis 3

To test Hypothesis 3, I employed a parametric test to demonstrate the probability of a raised-standard state ratifying a PTA that includes a strong environmental protections chapter with a low-standard state.

The hypothesis being evaluated by this test is like so: if a state has previously ratified a PTA with the US or EU which strengthened its environmental protections, the state will be more likely to include strong environmental protection provisions in its future PTAs than if it had not had its protections strengthened. The null hypothesis under evaluation is that a state is not any

more likely to include strong EP provisions in future PTAs if it has had its protections strengthened by the US or EU than if it has not seen its protections strengthened.

If this test supports Hypothesis 3, we should see a positive relationship between a state having its environmental protections strengthened through a PTA with the US or EU, and the inclusion of a strong EP chapter in its future agreements. The logic behind this hypothesis is that a raised-standard state will want its trading partners to accept the same standards that it has accepted, so as to prevent those raised-standards from serving as a form of comparative advantage for the trading partner. As the state would seek to prevent the other state from gaining both comparative advantage and also preferential market access in one fell swoop, it will be more likely to push for stronger environmental protections during the process of negotiation, and less likely to accept an agreement that does not include a strong EP chapter. Both of those factors would make the country's future agreements more likely to include strong EP chapters.

However, if this test supports the null hypothesis, we should see no relationship between a state having its EPs strengthened via a PTA with the US or EU and the presence strong EP chapters in its future PTAs.

The parametric test for Hypothesis 3 supported the hypothesis (Table 8). This model concluded that states are 21.2% more likely to include a strong environmental protection chapter in its PTAs with non-US or EU states if the state saw its environmental protections strengthened by either the US or EU through a prior PTA.

(Table 8: Regression Results for Hypothesis 3)

	Dependent variable:	
	enviro	
	(1)	(2)
postusoreuENV	0.210***	0.212***
	(0.026)	(0.027)
usoreu	0.282***	0.285***
	(0.029)	(0.033)
time0	0.004***	0.004***
	(0.001)	(0.001)
year	0.007***	0.007***
	(0.001)	(0.001)
postusoreuENV:usoreu		-0.015
		(0.074)
Constant	-13.017***	-13.012***
	(1.270)	(1.271)
Observations	1,932	1,932
R^2	0.215	0.215
Adjusted R^2	0.213	0.213
Residual Std. Error	0.344 (df = 1927)	0.344 (df = 1926)
F Statistic	132.014*** (df = 4; 1927)	105.567*** (df = 5; 1926)
Note:		*p<0.1; **p<0.05; ***p<0.01

Chapter Conclusion

This chapter contains seven tests to evaluate the validity of my three hypotheses. Four of the seven tests supported by my hypotheses. Three of the seven did not support my hypotheses. The three tests which did not support my hypotheses were the parametric and non-parametric tests of Hypothesis 2a, and the parametric test of Hypothesis 2b.

Both the parametric and non-parametric tests supported Hypothesis 1. My non-parametric test found that the EU and US provide a significant portion of EP-strengthening PTAs—33.333%—25.6% higher than their share of the total number of PTAs ratified by states. My parametric test reached a similar conclusion: states are substantially more likely to ratify a PTA

that strengthens its environmental protections if the agreement's other party is either the US or EU.

Both my parametric and non-parametric tests of Hypothesis 2a did not support the hypothesis in question. My parametric test returned a statistically significant positive relationship between a state's environmental protections being strengthened by the US or EU, and the state subsequently signing a PTA with the EU or US. Moreover, My non-parametric test found that 66.7% of states whose environmental protections were strengthened by the US went on to ratify a PTA with the EU. 100% of states whose IP standards were not raised in their PTA with the US went on to ratify a PTA with the EU. However, there were only two states in the population which returned that result of 100%, impeding our ability to draw meaningful conclusions from that portion of the test. In addition, the non-parametric test also found that 29.17% of states whose EPs were strengthened by the EU ratified a PTA with the US. Only 9.68% of states whose environmental protections were not strengthened in their PTA with the EU ratified a future PTA with the US. That final finding directly contradicts hypothesis 2a. As a result of these results from both the parametric and nonparametric test, it is difficult to argue that hypothesis 2a is accurate with respect to environmental protections.

Hypothesis 2b was supported by my non-parametric test, but not my parametric test. The non-parametric test of 2b concluded that the percentage of agreements containing an environmental protection chapter signed by the EU and a state whose environmental protections were strengthened by the US was 75%. The test also concluded that 37.78% of agreements signed by the EU and a state whose EPs had not been strengthened by the US contained substantial environmental protections.

My parametric test returned a different conclusion. A state whose environmental protections were not strengthened by the US or EU in a prior PTA has, per this test, a probability of .285 of including a substantial environmental protections chapter if it is to ratify a PTA with the US or EU. Conversely, a state whose environmental protections were strengthened by the US or EU in a prior PTA has a probability of .27 of including a substantial environment chapter if it is to ratify a PTA with the US or EU, indicating a very slight negative relationship.

Hypothesis 3 was supported by my test. The test concluded that states are 21.2% more likely to include a substantial environmental protections chapter in its future PTAs with non-US

or EU states, if the state had its environmental protections strengthened by either the US or EU in a previous trade agreement, than if it had not had its protections strengthened.

In conclusion, Hypothesis 1 and 3 were supported by my tests, while hypothesis 2a and 2b were not supported by my tests.

Chapter 4: Labor Standards

Chapter Introduction

This chapter evaluates my three hypotheses in the context of labor standards.

The provision of raised labor standards through preferential trade agreements effectively constitutes a public good in the global economy, as the benefits from the provision cannot be exclusively captured by the negotiating parties. As a result, the benefits positively externalize upon the world. The benefits of raised labor standards manifest abroad through two channels. Firms which compete with those that make their products in the raised-standard state benefit from their competition having newly higher input costs, in the form of higher wages, shorter workdays, and improved conditions. It matters not whether those firms are located in the state which paid the cost to raise labor standards—they reap the benefits all the same. Additionally, states which would like to see stronger labor standards throughout the world as a matter of defending human rights would benefit from the realization of that goal, regardless of whether the state paid the cost to provide the improved conditions.

In Hypothesis 1, I contend that states which stand to internalize a significant portion of the gains from stronger labor standards will be more likely to provide the necessary concessions to extract stronger labor standards through PTA negotiations. The theory undergirding this hypothesis stems from the hegemonic theory of public goods provision in the global economy, whereby hegemonic states provide global public goods when they internalize the benefits to the point at which they essentially constitute a private good for the hegemon. I contend that the United States and European Union fill the role of hegemons with regards to providing raised labor standards in their trading partners. The US and EU maintain stronger domestic labor standards than the global average, and stand to benefit from the rest of the world playing by the same rules. In addition, firms in the US and EU benefit from workers in other countries having greater purchasing power, as they are better able to consume more expensive American and European consumer goods. There are also potential political benefits from pushing for stronger labor standards abroad that can be internalized by the US and EU, providing an additional justification to pay the cost of extracting raised standards.

In Hypothesis 2a, I posit that high-standard states are less likely to negotiate PTAs with a raised-standard states, as they have lost an incentive to negotiate due to their ability to internalize benefits in that issue area from another state's negotiation.

In Hypothesis 2b, I posit that if a high-standard and raised-standard state do ratify a PTA, it will likely contain a chapter regarding the behind-the-border provision of interest. This is because the cost of reaffirming a commitment to standards adopted in a past agreement is quite low for the raised-standard state. The cost of negotiating a simple reaffirmation of those standards is also quite low for the high-standard state. I treat the United States and European Union as high-standard states under this framework, as both states uphold comparatively strong labor standards.

In Hypothesis 3, I assert that in a PTA negotiation with a low-standard state, raised-standard states will demand that their trading partner raise their labor standards to a level approximating their own. A raised-standard state will naturally be unlikely to sign a PTA with a low-standard state without including a chapter that strengthens their partner's labor standards, as they do not wish to grant deeper market access to a competitor that can outcompete domestic industries due to artificially lower labor standards. To evaluate this hypothesis, I treat states with labor standards raised by the US or EU as the raised-standard states in question, while their PTA partners following the ratification of their standard-raising PTA make up the population of low-standard states.

The results of my test lend support to Hypotheses 1, 2b, and 3. They do not, however, support Hypothesis 2a. These results align completely with the results regarding intellectual property, and are for the most part in alignment with the results regarding environmental protections.

Labor Standards as a BTB Provision

Stronger labor standards should be understood as a behind-the-border provision, as they alter the domestic regulatory environment in a non-excludible manner. When a state pushes its trading partner to raise its labor standards in exchange for a valuable concession in a PTA, the raised labor standards impact all individuals and firms who do business in the country, regardless of their nation of origin. Raised labor standards are designed to impact all firms in the country. While one can imagine how American firms would yearn for exclusive access to stronger intellectual property rights in foreign lands, it is far more difficult to imagine a world where the

US would push other countries to apply stricter-than-average labor standards exclusively to American multinational firms.

It is critical to examine the logic that justifies raising another country's labor standards. Whereas raising another state's IP rights primarily benefits multinational corporations that do business in the raised-standard state, strengthening a state's labor standards primarily benefits firms that *do not* employ workers in the raised-standard state. Providing safer working conditions, mandating shorter workdays and workweeks, and allowing workers to collectively bargain all increase the cost of doing business in the raised-standard state and diminish the competitiveness of firms that comply with those new regulations. The primary beneficiaries of raised labor standards abroad—from the perspective of the high-standard states which push for stronger labor standards—are the firms that compete with companies which produce their products in the raised-standard state, as their competition has become less efficient and, by extension, competitive. Additionally, firms that produce consumer goods stand to benefit significantly as well, as improved labor standards—most notably the right to collectively bargain—will likely lead to a rise in purchasing power for citizens of the raised-standard state, driving demand for consumer goods produced by firms in the global North. In short, high-standard states press for these raised standards with the intention of rewriting the rules for all businesses that do business in the raised-standard state. As a domestic regulatory change, rather than a targeted, country-specific benefit, raised labor standards constitute a behind-the-border provision. As a regulatory change that stands to benefit firms the world over, raised labor standards act as a public good in the global economy.

Movements to improve conditions for workers date back to the early 19th century. As Great Britain industrialized, the burgeoning manufacturing sector employed scores of children, overwhelmingly from abjectly poor families. Those as young as four years old were thrust into employment in factories and mines, often working 60-80 hour weeks in perilous conditions.[21] A key driver of child labor was the ability for firms to pay children substantially less than adult men—roughly 10-20% of their daily wages (Galbi, 1997). Parliament passed a series of laws throughout the 19th century, known as the Factory Acts, which imposed various restrictions on child labor by shortening hours and banning wage labor for children younger than 10. New

[21] Edward Palmer Thompson, *The Making of the English Working Class (*New York: Vintage Books, 1966).

regulations in the mid-19th century shifted focus from conditions for children to conditions for workers across the board. These laws required government inspection of factories and mines to ensure compliance with minimum standards for working environments. By the end of the 19th century, all of Central and Western Europe, as well as the United States, had developed legal guidelines to dictate acceptable working conditions for laborers.

In 1919, the International Labor Organization came into being as a branch of the newly-formed League of Nations. The first annual International Labor Conference was held that same year. Representatives from all League of Nations member-states ratified the first six International Labor Conventions, which sketched out guidelines regarding the minimum age for employment, acceptable working hours, conditions for night work by women and young people, maternity protection, and unemployment.[22] Though not a member of the League, the United States petitioned to join and was accepted by the ILO in 1934. Following the Second World War, the ILO was absorbed by the newly-formed United Nations, and it has served as a UN agency governing global labor standards since.

The ILO's labor standards are binding, to a degree. The ILO maintains eight core labor standards, known as its fundamental Conventions. Adoption of each of the fundamental Conventions is required upon gaining membership of the ILO. 186 of the 193 member states of the United Nations have joined the ILO and adopted these core standards. The fundamental Conventions focus on a handful of key issue areas—most notably employment discrimination, child labor, forced labor, equal pay, and collective bargaining. Outside the fundamental Conventions, the ILO maintains 182 separate, unrequired conventions—some ratified by over 100 states, some ratified by none—which deal with a bevy of labor-related issues, ranging from workplace hygiene to radiation protection. Unlike the WTO, the ILO lacks an enforcement mechanism. Implementation of the ILO's conventions is left up to national governments, and litigation to ensure enforcement is done in domestic court, rather than through an ILO body.

What shape do labor standards take as provisions in PTAs? NAFTA, ratified in 1993, was the first PTA between high-standard states—the US and Canada—and a low-standard state—Mexico—to include a chapter regarding labor standards. NAFTA's labor provisions emphasized

[22] "International Labor Organization: Origins and History," Origins and History, Accessed March 1, 2018. http://www.ilo.org/global/about-the-ilo/history/lang--en/index.htm.

working conditions with a focus on health and safety. NAFTA also included strong, cross-border enforcement mechanisms to ensure effective implementation of preexisting domestic labor laws, as well as the new standards laid out in the agreement. The post-GATT world has seen an impressive continuation of that trend -- 40% of PTAs ratified since 1990 include a reference to labor (Carrère, et. al, 2017b), and they differ significantly in their scope and depth. Unsurprisingly, the bulk of agreements containing labor standard provisions are ratified between high-standard and low-standard states. Whereas over 50% of North-South PTAs since 1990 reference labor, only 16% of South-South PTAs contain labor provisions.[23]

Oftentimes labor standards simply receive lip service in the preamble—as was the case in the 2008 PTA between Chile and Ecuador—where both states commit to "improve" conditions for workers, without any roadmap for achieving that goal.

Not all labor standard provisions, however, are so noncommittal. The US' 1999 PTA with Cambodia granted preferential market access on the condition of complying with global labor standards. The states agreed to join with the ILO to develop an independent monitoring system to observe working conditions and assess compliance with both the ILO's Core Labor Standards and Cambodia's own labor laws (Brown et. al, 2013). The 2004 PTA between the United States and the Dominican Republic created a labor inspection system staffed by a joint team of Dominicans and Americans to improve compliance with preexisting labor standards (Schrank, 2013).

While establishing effective enforcement mechanisms to ensure compliance with preexisting standards has developed into an important and common labor standard provision, the most potent provisions incentivize "deep cooperation" between the high-standard and raised-standard state. These provisions—like those included in the 2010 PTA between the European Union and South Korea—create advisory bodies which represent the relevant stakeholders from labor, business, and government to ensure smooth and effective implementation of the labor standards (Postnikov and Bastiaens, 2014). The inspection systems in the US' agreements with Cambodia and the Dominican Republic fall under the tent of deep cooperation.

[23] Carrère, et. al (2017)

Winners and Losers from Strong Labor Standards

Who stands to gain and who stands to lose from stronger labor standards? There are a handful of notable parties on either side of this equation. The costs and benefits, however, are not perfectly concentrated in specific groups; even those who seemingly benefit the most from stronger labor standards may be harmed by tougher regulatory standards.

The most natural starting point in discussing winners and losers from stronger labor standards is those whose labor is the subject of stronger regulation. Workers in industries subject to heightened standards appear at first blush to benefit significantly from their externally-imposed conditions. Workers who were never afforded the right to collectively bargain will surely be better off due their ability to unionize and hold leverage in negotiations with management for higher wages and higher quality benefits. Improved working conditions, which emphasize worker health and safety, undoubtedly improves quality of life for factory workers. Restrictions on child labor incentivize children to stay in school rather than taking up employment at a young age.

However, it is important to note that improving labor standards could yield unintended consequences that run counter to the goals of the provisions. As Brown et. al (2004) write, "well-intentioned efforts to raise the wages and working conditions of workers in developing countries may work to the detriment of these workers and their families… [policymakers should] be wary of entering into preferential agreements that may not be in their national interests." Studies by Golub (1997) and Panagariya (2006) support that logic, indicating that higher wages and improved working conditions often undercut the state's comparative advantage, pricing goods out of the global market and forcing firms to shed employees or risk collapse. The Bangladeshi economy, for instance, is structured heavily around low-wage garment manufacturing. An overwhelmingly poor and enormous population of unskilled workers makes Bangladesh, for better or worse, one of the world's most competitive countries at making clothes. Improving working conditions could drive jobs in the garment industry out of Bangladesh and into other low-skilled states with a population large enough to continuously drive wages lower.

Despite the above concerns, many others have argued that strong labor provisions are compatible with, and even conducive to economic growth and increased competitiveness in the global economy. Schrank (2013) points to provisions in the 2004 US-Dominican Republic PTA that incentivized skill development to help laborers move into higher-skill, higher-wage work.

Velasco (2002) considers this increased accessibility to human capital resources a key contribution to the Dominican Republic's "growth miracle." The types of labor provisions unquestionably impact the degree to which the general public in the raised-standard state benefits from the raised-standards.

What about the general public in high-standard states? Do they stand to benefit or struggle as a result of stronger labor standards abroad? On the one hand, stronger labor standards drive up the cost of production, and in order to turn a profit, firms will likely pass those costs onto the consumers of their goods. The general public will likely lose a degree of their purchasing power due to improved labor standards in states which produce consumer goods purchased largely by states in the global North. However, an increase in awareness of sweatshop conditions among wealthy consumers has led to a rise in demand for goods produced in reasonable working conditions.[24] That rise in demand has seen some multinational firms independently address poor labor standards in their supply chains, in an effort to win consumer favor (Locke, 2013).

This rising consumer demand for fair-trade products creates an incentive for high-standard states—the overwhelming majority of which being democratic governments—to negotiate for raised labor standards in their trading partners, those states to which trade will likely be diverted due to the increased market access offered in exchange for the raised standards. There are political points to be scored, which could conceivably influence electoral prospects, from supporting the changing consumer tastes of the citizenry.

How might the government of the raised-standard state be impacted by accepting stronger labor standards? The answer is likely dependent on the economic results borne out after accepting the raised standards. Workers will almost assuredly support the raised standards, which on the surface improve their standard of living and the comfort of their working environment. A democratic government would likely reap political benefits from providing stronger labor standards while simultaneously extracting deeper market access from a wealthy, high-standard state in the global north. For an authoritarian regime, the political benefits are likely less salient. However, the government would likely lose some support from industry as a result of their newfound difficulty in turning a profit in the cutthroat global economy. In an authoritarian

[24] See Elliott and Freeman (2003), and Heinmueller and Hiscox (2012).

regime, where the winning coalition consists of a more concentrated, wealthier, more powerful group than in a democratic polity, it is possible that the loss of productivity could create painful outcomes for the state. Moreover, if the prediction made by Golub (1997) and Panagariya (2006) holds true, and workers lose their livelihoods in droves, it is possible that the public could turn on the state as well.

Which firms stand to benefit and which firms stand to lose from stronger labor standards? This is perhaps the most clear relationship between winners and losers from raised labor standards. Firms—both multinational and domestic—which employ a significant proportion of their workforce in the raised-standard state, and rely on manufacturing done in that state to ensure profitability, will almost certainly be hurt by the new standards, which drive up the costs of overhead and make them less competitive vis-à-vis their competitors. On the other side of the coin, firms that do not rely heavily on the raised-standard state for production will likely benefit, as their competitors have conceivably just become less efficient and less competitive at producing, driving consumers towards firm which can produce the cheapest end-product.

Data Structure

The key outcome variable in my evaluation of Hypothesis 1 in the context of labor standards is whether the agreement contains a chapter regarding labor standards. In coding this variable, I used the World Trade Organization's Regional Trade Agreements Information System (RTA-IS).[25] The RTA-IS contains a database detailing the types of provisions included in all trade agreements notified by the WTO. The site allows uses to search trade agreements by the types of provisions included in the agreement. I narrowed the search criteria to include only preferential trade agreements that included a chapter regarding labor standards. The database returned 75 PTAs with labor chapters. I coded the 70 PTAs that included fewer than 15 member-states—the cutoff I used in my dataset across all three provisions—as having a labor chapter.

The explanatory variable used to test Hypothesis 1 is whether the state has ratified a PTA with either the European Union or the United States. My tests of Hypothesis 1 assess how frequently states sign PTAs with the US and EU which raise labor standards. The tests compare

[25] Regional Trade Agreement Information System, accessed February 4, 2018, http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx

that frequency to how often states sign PTAs that raise labor standards with non-US and EU partners.

The outcome variable in Hypothesis 2a is the ratification of a PTA with the either the European Union or United States. This hypothesis' explanatory variable is whether the state has, in the past, signed a PTA that raised its labor standards with either the US or EU. The explanatory variable for this hypothesis culls the population of observed PTAs to only those signed by states whose labor standards were raised by the US or EU, after their labor standards were raised.

The outcome variable used to test Hypothesis 2b is whether the PTA includes a chapter regarding labor standards. The explanatory variable for this hypothesis is having already ratified a PTA with either the US or EU that raised labor standards.

For Hypothesis 3, the outcome variable is the ratification of a trade agreement with a low-standard state which includes a labor chapter. The explanatory variable under this hypothesis is whether, in the past, the state had its labor standards raised through a PTA with the US or EU. This allows us to narrow the population of states used to test this hypothesis to only those whose labor standards were raised by a hegemonic state.

Hypothesis 1: Tests, Results, and Analysis

My first hypothesis is that the countries who stand to internalize a significant portion of the benefits from raising labor standards will be much more likely to provide them by signing PTAs that mandate stronger labor standards. The United States and European Union serve as a proxy for hegemonic states under the framework of my theory.

To test this hypothesis, I determined how often states see their labor standards raised through a PTA for the first time by the US or EU. I also determined how often states have their labor standards raised by countries other than the US and EU. I used both a non-parametric and a parametric test to evaluate this hypothesis. If these tests support my hypothesis, we would expect to see that the US and EU are far more frequently the providers of stronger labor standards through PTAs than any other state. The null hypothesis being evaluated by these tests is that all states should be equally willing to provide strengthened labor standards in their PTAs. If these tests support the null hypothesis, there should be no noteworthy difference in the frequency with

which the US and EU include these provisions in their PTAs, and the frequency with which other countries do so.

Non-Parametric Test and Results:

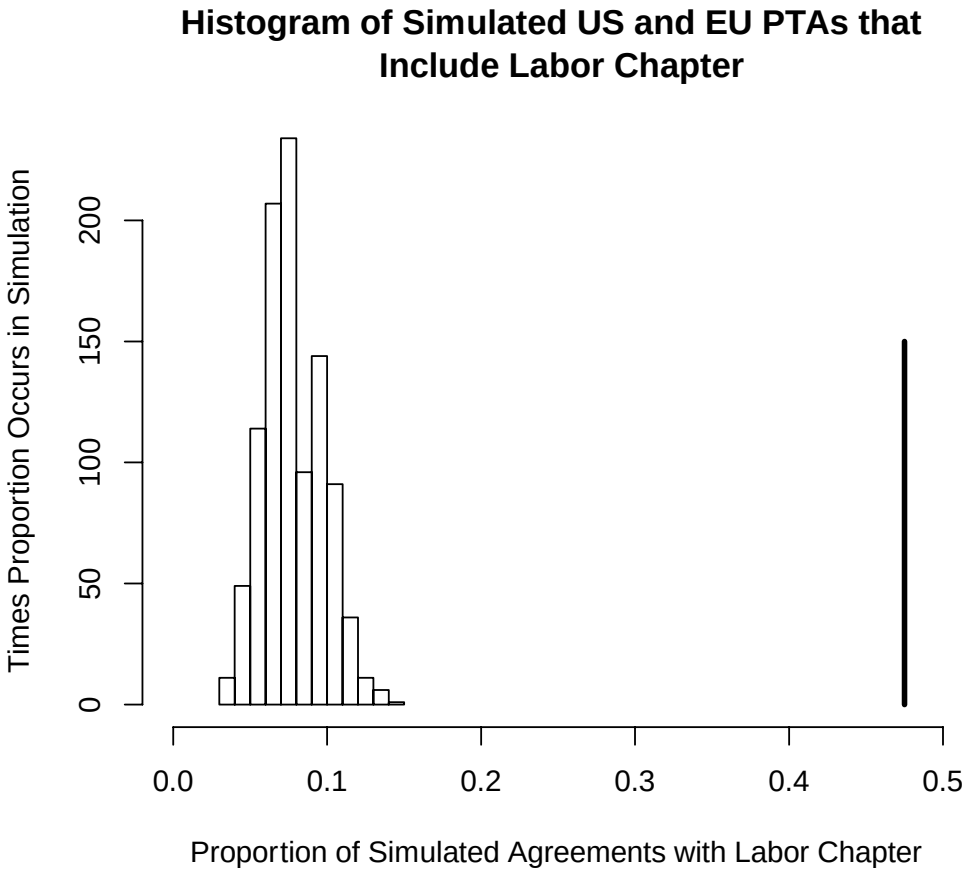
My non-parametric test compares the proportion of PTAs which raise a state's labor standard for the first time that are negotiated by the US or EU, and the proportion of all PTAs negotiated by the US or EU.

The null hypothesis asserts that all states are equally likely to include these types of provisions. If the null hypothesis is accurate, the US and EU should be party to roughly 8% of PTAs that raise labor standards, as they are party to approximately 8% of all PTAs.

This nonparametric test supports my hypothesis. The United States and European Union have been party to 7.7% of all PTAs, but are party to 47.5% of PTAs which raise the other state's labor standards. The difference between those proportions is 39.8%. While they do not provide the majority of PTAs that raise labor standards, the US and EU provide just under half of the world's PTAs labor standard raising PTAs, a greater proportion than their equivalent for both intellectual property rights and environmental protections.

To assess whether this outcome is plausible if the null hypothesis is accurate, I ran 1000 simulations of PTA negotiation under the assumption that states are equally likely to include these provisions. The results of these simulations are displayed below, in Figure 6.

(Figure 6: Simulated US and EU PTAs with Labor Chapter)



The results of these simulations strongly support Hypothesis 1. Across the 1000 simulations, the highest percentage of PTAs signed by the US and EU to include a labor chapter was 15, over 30% lower than the percentage seen in reality. This indicates that it is quite unlikely that the results we see in reality could occur if all countries are equally likely to include labor provisions in their PTAs.

Parametric Test and Results:

To test Hypothesis 1 parametrically, I used a Cox Proportional Hazards Model. The Cox model determines the likelihood of a country signing a PTA with a labor chapter if its agreements are with the US or EU, as well as the likelihood of signing a PTA with a labor chapter if its agreement are with any other country.

This Cox model creates two states: the treated state, which signs multiple PTAs with the US and EU; and the control state, which signs multiple PTAs with countries that are not the US

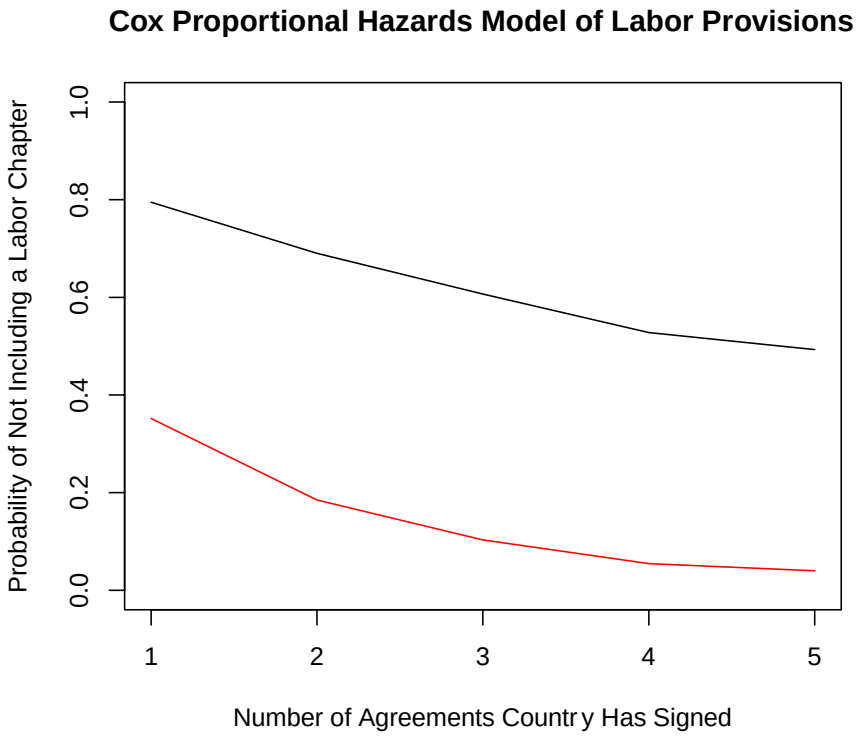
or EU. The model demonstrates the probability of signing a PTA which does not include labor provisions for both the control state and the treated state.

If this test supports Hypothesis 1, we would see a substantial difference in the probability of signing a PTA that does not include a labor chapter with the US or EU, and that same probability with any other country. The probability of not including a labor chapter for the treated state would be significantly lower than for the control state.

If this test supports the null hypothesis, there should be no difference in those probabilities over time, as both the treated state and control state would be ratifying PTAs with countries that include labor chapters—according to the null hypothesis—in an equal proportion of their agreements.

A visualization of this Cox model is included below as (Figure 7). The red line represents the treated state, and the black line represents the control state. (Table 9) details the results of my regression analysis for this test.

(Figure 7: Cox Proportional Hazards Model for Labor Rights)



(Table 9: Regression Results for Hypothesis 1)

	Dependent variable:
	time = time0
usoreu	1.515***
	(0.175)
year	0.135***
	(0.012)
Observations	1,932
R^2	0.126
Max. Possible R^2	0.518
Log Likelihood	-575.968
Wald Test	226.540*** (df = 2)
LR Test	259.620*** (df = 2)
Score (Logrank) Test	288.133*** (df = 2)
Note:	*p<0.1; **p<0.05; ***p<0.01

The results of this Cox model support Hypothesis 1. There is a strong positive relationship between the likelihood of a state signing a PTA which raises its labor standards, and either the US or EU being party to the standard-raising PTA (Table 9). Figure 7 visualizes this strong positive relationship.

I have included the accompanying hazard ratio for this Cox model as well. A hazard ratio greater than 1 would demonstrate that labor provisions are more common in agreements with the US or EU than with non-hegemonic states. The estimated hazard ratio under this model is Exp[1.515] = 4.55. If the null hypothesis was supported by this model, the expected hazard ratio would be 1. This model quite easily rejects the null hypothesis, and finds that the US and EU are notably more likely—4.55 times, in fact—to include labor provisions in their trade agreements than non-US or EU states.

Hypothesis 2a

Hypothesis 2a is that states which have ratified an agreement that includes labor provisions with the either US or EU are less likely to ratify a future PTA with the EU or US than states who have not had their labor standards raised.

The null hypothesis accompanying Hypothesis 2a is that states which have ratified a PTA including labor standards provisions with either the US or EU are just as likely to ratify a future PTA with the EU or US as states who have not had their labor standards raised via a PTA the US or EU.

Like with intellectual property rights and environmental protections, I calculated four noteworthy proportions to test this hypothesis. They are as follows: the proportion of states that had their labor standards raised through a PTA with the US that went on to ratify an agreement with the EU; the proportion of states that did not have their labor standards raised by the US that went on to ratify an agreement with the EU; the proportion of states that had their labor standards raised by the EU that went on to ratify an agreement with the US; and the proportion of states that did not have their labor standards raised by the EU that went on to ratify an agreement with the US.

Non-Parametric Test and Results:

The results of this non-parametric test do not convincingly support Hypothesis 2a. 63.6% of states whose labor standards were raised by the US ratified a future agreement with the EU;

the exact ratio was 7/11. Additionally, 100% of states that signed an agreement with the US that didn't raise labor standards ratified a future agreement with the EU. While this finding supports Hypothesis 2a, this simple comparison of percentages suffers from the same issue as the equivalent tests for intellectual property rights and environmental protections. The exact ratio was 3/3. While this sample of states whose standards were not raised by the US is slightly larger than the sample in the IP rights and environmental protections test, it would still be unwise to claim that these results support the Hypothesis 2a, as the sample size is so small.

The reverse relationship—focusing on states that first signed an agreement with the EU—clearly does not support my hypothesis. 37.5% of states who saw the EU raise their labor standards ratified an agreement with the United States; the exact ratio is 6/16. Only 10.3% of states whose labor standards were not raised in their PTAs with the EU ratified a future agreement with the US; the exact ratio is 4/39. The states Hypothesis 2a expected to be more likely to ratify PTAs with the US were, in reality, substantially less likely to do so.

Parametric Test and Results:

My parametric test of Hypothesis 2a evaluated the predictive relationship between ratifying a PTA with the US or EU that strengthens labor standards, and signing a future agreement with the EU or US.

The test does not support the hypothesis. The results of this regression—displayed in (Table 10)—returned a statistically significant positive relationship between signing a PTA with the US or EU that raises labor standards, and signing a PTA with the EU or US in the future. These results indicate that states which have had their labor standards raised through a PTA with the US or EU are more likely to ratify a PTA with the other hegemonic state than states whose labor standards have not been raised by their PTA with the EU or US.

(Table 10: Regression Results for Hypothesis 2a)

	Dependent variable:
	usoreu
postusoreuLAB	0.048**
	(0.023)
time0	-0.003***
	(0.001)
year	0.002***
	(0.0005)
Constant	-3.664***
	(0.980)
Observations	1,932
R^2	0.012
Adjusted R^2	0.010
Residual Std. Error	0.267 (df = 1928)
F Statistic	7.557*** (df = 3; 1928)
Note:	*p<0.1; **p<0.05; ***p<0.01

Hypothesis 2b

Hypothesis 2b is that PTAs between raised-standard states and high-standard states are likely to contain a chapter regarding the raised standard. To assess Hypothesis 2b, I took note of states whose labor standards were raised via their PTAs with the US and EU. Those states serve as the raised-standard states in this framework. The EU and US serve as the high-standard states.

Non-Parametric Test and Results:

My non-parametric test determined the frequency with which agreements signed by states whose labor standards were raised by the US or EU, and EU or US, included a chapter on labor standards. The test compared that frequency with how often states which have not had their labor standards raised via a PTA sign agreements with the US and EU.

This non-parametric test evaluates the hypothesis that states whose labor standards have been raised by the US or EU are likely to include labor chapters in their future agreements with the EU or US. The null hypothesis under evaluation in this test is that states whose labor

standards have been raised by the US or EU are no more likely to sign PTAs with the US or EU that include labor chapters than states whose labor standards have not been raised by the US or EU.

This test supports Hypothesis 2b. 57.1% of agreements signed by the EU and a state whose labor standards were raised in an agreement with the US included a labor chapter. The exact proportion was 4/7. Moreover, only 22.2% of agreements signed by the EU and a state whose labor standards had not been raised by the US contained a labor chapter. The exact proportion was 10/45. These proportions both support Hypothesis 2b, as the EU included labor chapters in over half of its agreements with raised-standard states, and included labor chapters in just over 1/5 of its agreements with states without labor standards raised by the US.

Parametric Test and Results:

My parametric test for Hypothesis 2b predicts the likelihood of signing a PTA with a labor chapter if the state's labor standards have not been raised by the US or EU. The test also determines the probability of ratifying a PTA with a labor chapter if the state's labor standards have been raised by the US or EU.

The hypothesis being evaluated by this test is that PTAs between states whose labor standards were raised by the US or EU and the EU or US are more likely to include labor chapters than agreements between states without raised labor standards and the EU or US. The accompanying null hypothesis is that PTAs between states whose labor standards were strengthened by the US or EU and the EU or US are not any more likely to include labor chapters than agreements between states without raised labor standards and the EU or US. The results of this regression are displayed in (Table 11).

This test supports Hypothesis 2b, yielding a statistically significant relationship (Table 11). A state whose labor standards have not been raised by the US or EU through a PTA has a probability of .249 of including a labor chapter in its future PTAs with the US or EU. States whose labor standards have been raised by the US or EU have a probability of .342 of including a strong labor chapter in their future PTAs with the US or EU. According to this test, a state is nearly 10% more likely to include a labor chapter in its future PTAs with the EU or US if either the US or EU has already raised its labor standards.

The fourth model tested in this regression focuses exclusively on bilateral agreements, and returns a negative relationship between raised labor standards at the hand of the US or EU and future agreements with the EU or US including a labor chapter. While this relationship is not statistically significant, it is worth noting that there is no significant positive relationship under a bilateral framework. It is possible that Hypothesis 2b is accurate with regards to multilateral agreements and all PTAs on the whole, but not for bilateral agreements.

(Table 11: Regression Results for Hypothesis 2b)

	Dependent variable:			
	labor			
	(1)	(2)	(3)	(4)
postusoreuLAB	0.107***	0.086***	0.096***	0.094***
	(0.023)	(0.028)	(0.025)	(0.029)
usoreu	0.261***	0.172***	0.249***	0.181***
	(0.023)	(0.027)	(0.025)	(0.029)
time0	0.002**	0.003***	0.002**	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
year	0.004***	0.006***	0.004***	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)
postusoreuLAB:usoreu			0.093	-0.100
			(0.069)	(0.093)
Constant	-8.255***	-11.228***	-8.303***	-11.188***
	(1.010)	(1.428)	(1.010)	(1.428)
Observations	1,932	1,246	1,932	1,246
R^2	0.146	0.137	0.147	0.138
Adjusted R^2	0.144	0.134	0.145	0.134
Residual Std. Error	0.274 (df = 1927)	0.269 (df = 1241)	0.274 (df = 1926)	0.269 (df = 1240)
F Statistic	82.428*** (df = 4; 1927)	49.284*** (df = 4; 1241)	66.338*** (df = 5; 1926)	39.663*** (df = 5; 1240)
Note:				*p<0.1; **p<0.05; ***p<0.01

Hypothesis 3

To assess Hypothesis 3, I used a parametric test that evaluates the likelihood of raised-standard states including labor chapters in their PTAs with low-standard states.

This test evaluates the hypothesis that states which have ratified PTAs with the US or EU that raised their labor standards are more likely to include labor chapters in their future PTAs than if they have not had their labor standards raised by the US or EU. The null hypothesis under evaluation is that states are not any more likely to include labor chapters in their future agreements if their labor standards were raised by the US or EU than if their standards had not been raised. The results of this regression are displayed in (Table 12).

(Table 12: Regression Results for Hypothesis 3)

	Dependent variable:	
	labor	
	(1)	(2)
postusoreuLAB	0.107***	0.096***
	(0.023)	(0.025)
usoreu	0.261***	0.249***
	(0.023)	(0.025)
time0	0.002**	0.002**
	(0.001)	(0.001)
year	0.004***	0.004***
	(0.001)	(0.001)
postusoreuLAB:usoreu		0.093
		(0.069)
Constant	-8.255***	-8.303***
	(1.010)	(1.010)
Observations	1,932	1,932
R^2	0.146	0.147
Adjusted R^2	0.144	0.145
Residual Std. Error	0.274 (df = 1927)	0.274 (df = 1926)
F Statistic	82.428*** (df = 4; 1927)	66.338*** (df = 5; 1926)
Note:		*p<0.1; **p<0.05; ***p<0.01

This test strongly supported Hypothesis 3. States, per this model, are 9.6% more likely to include labor chapters in their PTAs if their labor standards were raised by the US or EU than if the US or EU have not raised their labor standards.

Chapter Conclusion

This chapter included seven tests to evaluate the validity of my three hypotheses in the context of labor standards. Five of the seven tests supported by my hypotheses. Neither the parametric nor non-parametric test of Hypothesis 2a supported the hypothesis.

Hypothesis 1 was supported by both tests. According to the non-parametric test, the US and EU provide a substantial portion—47.5%—of PTAs that contain labor provisions, while being party to only 7.72% of agreements, a difference of 39.784%. The parametric test of Hypothesis 1 indicated that states are substantially more likely to raise their labor standards through a PTA if the negotiating partner is the US or EU, the states which served as a proxy for hegemonic states under this framework.

Neither the parametric nor non-parametric test of Hypothesis 2a supported the hypothesis. If Hypothesis 2a was supported by the parametric test, we would see a negative relationship between a state's labor standards being raised by the US or EU and the likelihood of ratifying a PTA with the EU or US. The test returned a statistically significant positive relationship, directly contradicting the expectation. The non-parametric test showed that 63.64% of states with labor standards raised by the US ratified a PTAs with the EU. 100% of states without raised labor standards via PTAs with the US ratified agreements with the EU. There were, however, only three states in this population, which makes drawing meaningful conclusions rather dubious. The test also found that 37.5% of states with labor standards raised by a PTA with the EU ratified an agreement with the US, while only 10.26% of states without raised labor standards through a PTA with the EU ratified agreements with the US. Those findings also directly contradict Hypothesis 2a. Given the results of both the parametric and non-parametric tests of Hypothesis 2a, I find it difficult to conclude that this hypothesis applies to labor standards.

Both the parametric and non-parametric tests lend support to Hypothesis 2b. My non-parametric test demonstrated that 57.143% of agreements signed between a state with labor standards raised by the United States and the European Union included a labor chapter. Conversely, only 22.22% of agreements signed by states without labor standards raised by the

US and the European Union included labor chapters. The parametric test of Hypothesis 2b also yielded results in support of the hypothesis. States without labor standards raised by the US or EU have a probability of .249 of including a labor chapter. The probability of including a labor chapter in future agreements is .342 for states whose standards have been raised by the US or EU, a difference of nearly 10%.

The parametric test of Hypothesis 3 supported the hypothesis. The model found that states are 9.6% more likely to include a labor chapter in their future PTAs if they have had their labor standards raised by the US or EU than if they have not had their labor standards raised through a PTA.

To conclude, these tests supported Hypotheses 1, 2b, and 3. However, neither test supported Hypothesis 2a.

Concluding Discussion

This paper developed a theory in stark contrast to the orthodox model of competitive liberalization. By keying in on behind-the-border provisions and asserting that they should be viewed through the lens of public goods provision in the global economy, this project argued that trade agreements are not necessarily contagious—one agreement does not always make future agreements more likely. Rather, the inclusion of BTB provisions effectively serves as a public good, externalizing the benefits of the agreement onto uninvolved parties and diminishing what would have been an incentive to negotiate future agreements.

I tested three hypotheses which stem from this theory across three different regulatory areas—intellectual property rights, environmental protections, and labor standards. My first hypothesis—that states which stand to internalize a significant portion of the benefits from the provision will be the likely providers of the regulatory change—was supported across all three of my tests. The United States and European Union, quasi-hegemonic actors with the ability to absorb the benefits of the public good, provide the lion's share of agreements with BTB provisions, in line with the theory. My third hypothesis—that raised-standard states would push for BTB provisions in their new agreements with low-standard states—was also supported by my three tests. My second hypothesis, however, was not clearly supported by the tests. Under the theory, we expected high-standard states to avoid ratifying agreements with raised-standard states, as they have already received the benefit from the provision of the raised standard. However, across all three provisions, high-standard states were more likely to negotiate agreements with raised-standard states than with low-standard states. The second portion of my second hypothesis—that raised-standard states will likely include a chapter on the issue area where their standards were raised in future agreements with high-standard states—was supported by the tests for intellectual property rights and labor standards, but not for environmental protections.

This theory would surely benefit from continued study and more artful techniques for testing. While this paper used the United States and European Union as a proxy for high-standard states likely to internalize a sizable share of the benefits from raising standards, future work would do well to operationalize the classifications of high-standard, low-standard, and raised-standard states, and utilize data regarding the cross-border flow of goods and services. This

would more accurately capture the internalization of benefits as part of the strategic logic for paying the cost of raising another state's standards, and add nuance lost when only the United States and European Union are used as a proxy. Moreover, future testing of Hypothesis 2 would benefit from operationalized classifications, as the population of agreements under examination would expand significantly and testing would rely less on whether raised-standard states negotiate with the US and EU and more on whether they negotiate with all high-standard states. Future studies could also look to test these hypotheses in both bilateral and multilateral contexts to examine the proliferation of BTBs under both conditions.

While multilateral approaches to deepening the interconnectedness of the global economy have proven successful in the 20th century, the 21st century has seen multilateral negotiation grind to a halt. The Doha Round of WTO negotiations, which commenced in 2001, has yet to achieve any tangible progress. With that said, a key finding of this paper is the importance of hegemonic states in providing regulatory provisions through bilateral agreements. In a world where multilateralism takes a back-seat to bilateralism, the role of hegemonic states grows only more important. Ironically, the United States—one of the few powers capable of providing heightened standards through BTB provisions—has begun to abdicate its status as a leader in global affairs under President Trump. If the United States further embraces an insular worldview marked by protectionism, the European Union will remain the sole standard-bearer of the liberal, rules-based global order. With a rising China happy to fill the geopolitical void left by the United States, perhaps Beijing will turn to PTAs as a means to exert its influence and impose its own regulatory standards on the developing world. While it would be foolhardy to confidently predict the future, a multipolar world characterized by blocs dominated by hegemonic states, with divergent rules and priorities, may be much closer than we think.

Bibliography

Acs, Zoltan J., and David B. Audretsch. "Innovation, Market Structure, and Firm Size." *The Review of Economics and Statistics*69, no. 4 (1987): 567–74. https://doi.org/10.2307/1935950.

Aghion, Philippe, Pol Antràs, and Elhanan Helpman. "Negotiating Free Trade." *Journal of International Economics* 73, no. 1 (September 1, 2007): 1–30. https://doi.org/10.1016/j.jinteco.2006.12.003.

Ambec, Stefan, Mark A. Cohen, Stewart Elgie, and Paul Lanoie. "The Porter Hypothesis at 20: Can Environmental Regulation Enhance Innovation and Competitiveness?" *Review of Environmental Economics and Policy* 7, no. 1 (January 1, 2013): 2–22. https://doi.org/10.1093/reep/res016.

Asakura, Hironori, and World Customs Organization. *World History of the Customs and Tariffs*. World Customs Organization, 2003.

Baccini, Leonardo, and Andreas Dür. "The New Regionalism and Policy Interdependence." *British Journal of Political Science*42, no. 1 (January 2012): 57–79. https://doi.org/10.1017/S0007123411000238.

Baldwin, David Allen. *Neorealism and Neoliberalism: The Contemporary Debate*. Columbia University Press, 1993.

Baldwin, Richard, and Dany Jaimovich. "Are Free Trade Agreements Contagious?" *Journal of International Economics* 88, no. 1 (September 1, 2012): 1–16. https://doi.org/10.1016/j.jinteco.2012.03.009.

Barbera, Anthony J, and Virginia D McConnell. "The Impact of Environmental Regulations on Industry Productivity: Direct and Indirect Effects." *Journal of Environmental Economics and Management* 18, no. 1 (January 1, 1990): 50–65. https://doi.org/10.1016/0095-0696(90)90051-Y.

Barton, John H., Judith L. Goldstein, Timothy E. Josling, and Richard H. Steinberg. *The Evolution of the Trade Regime: Politics, Law, and Economics of the GATT and the WTO*. Princeton University Press, 2006. http://www.jstor.org/stable/j.ctt7t1bb.

Berger, Axel, Clara Brandi, Dominique Bruhn, Jean-Frédéric Morin (2017): TREND analytics - Environmental Provisions in Preferential Trade Agreements. German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn, Germany, and Université Laval, Canada. DOI: 10.23661/trendanalytics_2017_1.0

Bergsten, C. Fred. "Globalizing Free Trade." *Foreign Affairs*75, no. 3 (1996): 105–20. https://doi.org/10.2307/20047584.

Bhagwati, Jagdish, and Arvind Panagariya. “The Theory of Preferential Trade Agreements: Historical Evolution and Current Trends.” *The American Economic Review* 86, no. 2 (1996): 82–87. http://www.jstor.org/stable/2118101.

Blair, Dennis C., and Keith Alexander. “Opinion | China’s Intellectual Property Theft Must Stop.” *The New York Times*, August 15, 2017, sec. Opinion. https://www.nytimes.com/2017/08/15/opinion/china-us-intellectual-property-trump.html.

Brown, Drusilla K., Alan Deardorff, and Robert Stern. "The effects of multinational production on wages and working conditions in developing countries." In *Challenges to globalization: Analyzing the economics*, pp. 279-330. University of Chicago Press, 2004.

Brown, Drusilla, Rajeev Dehejia, and Raymond Robertson. *Is there an efficiency case for international labour standards?*. ILO, 2013.

Carrère, Céline, Marcelo Olarreaga, and Damian Raess. "Labour Clauses in Trade Agreements Promote Southern Exports to the North." Labour Clauses in Trade Agreements Promote Southern Exports to the North | VOX, CEPR's Policy Portal. December 21, 2017. Accessed February 26, 2018. https://voxeu.org/article/labour-clauses-trade-agreements-promote-southern-exports-north.

Chen, Maggie Xiaoyang, and Sumit Joshi. “Third-Country Effects on the Formation of Free Trade Agreements.” *Journal of International Economics* 82, no. 2 (2010): 238–48. https://ideas.repec.org/a/eee/inecon/v82y2010i2p238-248.html.

Conybeare, John A. C. “Public Goods, Prisoners’ Dilemmas and the International Political Economy.” *International Studies Quarterly* 28, no. 1 (March 1, 1984): 5–22. https://doi.org/10.2307/2600395.

Dai, Mian, Yoto V. Yotov, and Thomas Zylkin. “On the Trade-Diversion Effects of Free Trade Agreements.” *Economics Letters* 122, no. 2 (February 1, 2014): 321–25. https://doi.org/10.1016/j.econlet.2013.12.024.

Deere, Carolyn. *The Implementation Game: The TRIPS Agreement and the Global Politics of Intellectual Property Reform in Developing Countries*. OUP Oxford, 2008.

Doyle, Michael W., and Edward C. Luck. *International Law and Organization: Closing the Compliance Gap*. Rowman & Littlefield, 2004.

Dür, Andreas, and Dirk De Bièvre. “Inclusion without Influence? NGOs in European Trade Policy.” *Journal of Public Policy* 27, no. 1 (May 2007): 79–101. https://doi.org/10.1017/S0143814X0700061X.

Dür, Andreas, Leonardo Baccini, and Manfred Elsig. “The Design of International Trade Agreements: Introducing a New Dataset.” *The Review of International Organizations* 9, no. 3 (September 1, 2014): 353–75. https://doi.org/10.1007/s11558-013-9179-8.

Dür, Andreas, and Gemma Mateo. "Public Opinion and Interest Group Influence: How Citizen Groups Derailed the Anti-Counterfeiting Trade Agreement." *Journal of European Public Policy* 21, no. 8 (September 14, 2014): 1199–1217. https://doi.org/10.1080/13501763.2014.900893.

Elliott, Kimberly Ann, and Richard B. Freeman. "Can labor standards improve under globalization?." *Peterson Institute Press: All Books* (2003).

Estevadeordal, Antoni, Kati Suominen, and Robert Teh, eds. *Regional rules in the global trading system*. Cambridge University Press, 2009

Galbi, Douglas A. "Child Labor and the Division of Labor in the Early English Cotton Mills." *Journal of Population Economics* 10, no. 4 (1997): 357–75. http://www.jstor.org/stable/20007554.

Galbraith, J.K. (1952). *American capitalism: the concept of countervailing power.* Houghton Mifflin.

Gilpin, Robert, and Jean M. Gilpin. *The Political Economy of International Relations*. Princeton University Press, 1987. http://www.jstor.org/stable/j.ctt19wcct3.

Ginarte, Juan C., and Walter G. Park. "Determinants of Patent Rights: A Cross-National Study." *Research Policy* 26, no. 3 (October 1, 1997): 283–301. https://doi.org/10.1016/S0048-7333(97)00022-X.

Golub, Mr Stephen S. *International labor standards and international trade*. International Monetary Fund, 1997.

Gowa, Joanne. "Public Goods and Political Institutions: Trade and Monetary Policy Processes in the United States." *International Organization* 42, no. 1 (ed 1988): 15–32. https://doi.org/10.1017/S0020818300007190.

Haftel, Yoram Z. "Ratification Counts: US Investment Treaties and FDI Flows into Developing Countries." *Review of International Political Economy* 17, no. 2 (June 3, 2010): 348–77. https://doi.org/10.1080/09692290903333103.

Hainmueller, Jens, and Michael J. Hiscox. "The Socially Conscious Consumer? Field Experimental Tests of Consumer Support for Fair Labor Standards." Rochester, NY: Social Science Research Network, 2015. https://papers.ssrn.com/abstract=2062435.

Hicks, Raymond, and Soo Yeon Kim. "Reciprocal Trade Agreements in Asia: Credible Commitment to Trade Liberalization or Paper Tigers?" *Journal of East Asian Studies* 12, no. 1 (April 2012): 1–29. https://doi.org/10.1017/S1598240800007608.

Ho, Cynthia M. "An Introduction to TRIPS." Rochester, NY: Social Science Research Network, August 15, 2011. https://papers.ssrn.com/abstract=1909320.

Hoogvelt, Ankie. “Globalisation,” 114–31. Palgrave, London, 1997. https://doi.org/10.1007/978-1-349-25671-6_6.

Horn, Henrik, Petros C. Mavroidis, and André Sapir. “Beyond the WTO? An Anatomy of EU and US Preferential Trade Agreements.” *The World Economy* 33, no. 11 (November 1, 2010): 1565–88. https://doi.org/10.1111/j.1467-9701.2010.01273.x.

"International Labor Organization: Origins and History." Origins and History. Accessed March 1, 2018. http://www.ilo.org/global/about-the-ilo/history/lang--en/index.htm.

Kim, In Song. “Political Cleavages within Industry: Firm-Level Lobbying for Trade Liberalization.” *American Political Science Review* 111, no. 1 (February 2017): 1–20. https://doi.org/10.1017/S0003055416000654.

Kindleberger, Charles Poor. "The formation of financial centers: A study in comparative economic history." (1973).

Kindleberger, Charles P. “Dominance and Leadership in the International Economy: Exploitation, Public Goods, and Free Rides.” *International Studies Quarterly* 25, no. 2 (June 1, 1981): 242–54. https://doi.org/10.2307/2600355.

Kindleberger, Charles P. “Hierarchy versus Inertial Cooperation.” *International Organization*40, no. 4 (ed 1986): 841–47. https://doi.org/10.1017/S0020818300027399.

Kindleberger, Charles P. “International Public Goods without International Government.” *The American Economic Review*76, no. 1 (1986): 1–13. http://www.jstor.org/stable/1804123.

Koo, Won W., P. Lynn Kennedy, and Anatoliy Skripnitchenko. “Regional Preferential Trade Agreements: Trade Creation and Diversion Effects.” *Review of Agricultural Economics* 28, no. 3 (2006): 408–15. http://www.jstor.org/stable/3877187.

Kreinin, Mordechai E. “Effect of Tariff Changes on the Prices and Volume of Imports.” *The American Economic Review* 51, no. 3 (1961): 310–24. http://www.jstor.org/stable/1814161.

Kucik Jeffrey. “The Domestic Politics of Institutional Design: Producer Preferences over Trade Agreement Rules.” *Economics & Politics* 24, no. 2 (May 21, 2012): 95–118. https://doi.org/10.1111/j.1468-0343.2012.00399.x.

Lake, David A. *Power, Protection, and Free Trade: International Sources of US Commercial Strategy, 1887-1939*. Cornell Univ Pr, 1988.

Lake, David A. “Leadership, Hegemony, and the International Economy: Naked Emperor or Tattered Monarch with Potential?” *International Studies Quarterly* 37, no. 4 (1993): 459–89. https://doi.org/10.2307/2600841.

Lanjouw, Jean O., and Josh Lerner. “The Enforcement of Intellectual Property Rights: A Survey of the Empirical Literature,” 201–24. Springer, Boston, MA, 2000. https://doi.org/10.1007/978-1-4757-3194-1_8.

Limao, Nuno. “Preferential Trade Agreements as Stumbling Blocks for Multilateral Trade Liberalization: Evidence for the United States.” *American Economic Review*96, no. 3 (June 2006): 896–914. https://doi.org/10.1257/aer.96.3.896.

Lipsey, Richard G. "The Theory of Customs Union: A General Equilibrium Analysis." *London School of Economics, Research Monograph* 7 (1970).

List, John A., and Catherine Y. Co. “The Effects of Environmental Regulations on Foreign Direct Investment.” *Journal of Environmental Economics and Management* 40, no. 1 (July 1, 2000): 1–20. https://doi.org/10.1006/jeem.1999.1095.

Locke, Richard M. *The promise and limits of private power: Promoting labor standards in a global economy*. Cambridge University Press, 2013.

Madeira, Mary Anne. “New Trade, New Politics: Intra-Industry Trade and Domestic Political Coalitions.” *Review of International Political Economy* 23, no. 4 (July 3, 2016): 677–711. https://doi.org/10.1080/09692290.2016.1218354.

Manger, Mark S. *Investing in Protection: The Politics of Preferential Trade Agreements between North and South*. Cambridge University Press, 2009.

Mansfield, Edward D., and Helen V. Milner. *Votes, vetoes, and the political economy of international trade agreements*. Princeton University Press, 2012.

Mertha, Andrew. *The politics of piracy: Intellectual property in contemporary China*. Cornell University Press, 2005.

Olson, Mancur. "The logic of collective action: Public goods and the theory of groups, second printing with new preface and appendix (Harvard Economic Studies)." (1971).

Osgood, Iain. “The Breakdown of Industrial Opposition to Trade: Firms, Product Variety, and Reciprocal Liberalization.” *World Politics* 69, no. 1 (January 2017): 184–231. https://doi.org/10.1017/S0043887116000174.

Osgood, Iain, and Yilang Feng. “Intellectual Property Provisions and Support for US Trade Agreements.” *The Review of International Organizations*, May 13, 2017, 1–35. https://doi.org/10.1007/s11558-017-9279-y.

Osgood, Iain, Dustin Tingley, Thomas Bernauer, In Song Kim, Helen V. Milner, and Gabriele Spilker. “The Charmed Life of Superstar Exporters: Survey Evidence on Firms and Trade Policy.” *The Journal of Politics* 79, no. 1 (October 21, 2016): 133–52. https://doi.org/10.1086/687207.

Panagariya, Arvind (2006), "Trade and Labor Standards: A Trade Economist's View", *Integration & Trade no.* 10 (2006): 261-280.

Park, Walter G. "International Patent Protection: 1960–2005." *Research Policy* 37, no. 4 (May 1, 2008): 761–66. https://doi.org/10.1016/j.respol.2008.01.006.

Pianta Mario. "Slowing Trade: Global Activism Against Trade Liberalization." *Global Policy* 5, no. 2 (May 21, 2014): 214–21. https://doi.org/10.1111/1758-5899.12116.

Plouffe, Michael. "Firm Heterogeneity and Trade-Policy Stances Evidence from a Survey of Japanese Producers <a Href="#fns01">†</A>." *Business and Politics* 19, no. 1 (March 2017): 1–40. https://doi.org/10.1017/bap.2016.6.

Porter, Gareth. *Global Environmental Politics*. Avalon Publishing, 1991.

Porter, Michael E., and Claas van der Linde. "Green and Competitive: Ending the Stalemate." *Journal of Business Administration and Policy Analysis*, January 1, 1999, 215. https://www.questia.com/library/journal/1G1-80128064/green-and-competitive-ending-the-stalemate.

Porter, Michael E., and Claas van der Linde. "Toward a New Conception of the Environment-Competitiveness Relationship." *Journal of Economic Perspectives* 9, no. 4 (December 1995): 97–118. https://doi.org/10.1257/jep.9.4.97.

Postnikov, Evgeny, and Ida Bastiaens. "Does Dialogue Work? The Effectiveness of Labor Standards in EU Preferential Trade Agreements." *Journal of European Public Policy* 21, no. 6 (July 3, 2014): 923–40. https://doi.org/10.1080/13501763.2014.910869

Press, Associated. "Air Pollution Blamed as China Loses Tourists." *The Telegraph*, February 4, 2016. https://www.telegraph.co.uk/travel/news/Air-pollution-blamed-as-China-loses-tourists/.

Regional Trade Agreement Information System, accessed February 4th, 2018. http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx

"Regional Trade Agreements: Facts and Figures." *World Trade Organization*, accessed September 8th, 2017. https://www.wto.org/english/tratop_e/region_e/regfac_e.htm

Scherer, F. M. "Firm Size, Market Structure, Opportunity, and the Output of Patented Inventions." *The American Economic Review* 55, no. 5 (1965): 1097–1125. http://www.jstor.org/stable/1809230

Schrank Andrew. "From Disguised Protectionism to Rewarding Regulation: The Impact of Trade-related Labor Standards in the Dominican Republic." *Regulation & Governance* 7, no. 3 (August 14, 2013): 299–320. https://doi.org/10.1111/rego.12008.

Schumpeter, Joseph Alois. *Socialism, capitalism and democracy*. Harper and Brothers, 1942.

Shadlen, Kenneth C. "Exchanging Development for Market Access? Deep Integration and Industrial Policy under Multilateral and Regional-Bilateral Trade Agreements." *Review of International Political Economy* 12, no. 5 (December 1, 2005): 750–75. https://doi.org/10.1080/09692290500339685.

Shadlen, Kenneth C. "Intellectual Property, Trade, and Development: Can Foes Be Friends Global Insights." *Global Governance* 13 (2007): 171–78.

Shadlen, Kenneth C. "Policy Space for Development in the WTO and beyond: The Case of Intellectual Property Rights." Monograph, 2005. http://www.ase.tufts.edu/gdae/

Snidal, Duncan. "The Limits of Hegemonic Stability Theory." *International Organization* 39, no. 4 (ed 1985): 579–614. https://doi.org/10.1017/S002081830002703X

Solís, M., B. Stallings, and S. Katada. *Competitive Regionalism: FTA Diffusion in the Pacific Rim*. Springer, 2009.

Srinivasan, Thirukodikaval Nilakanta, and Jagdish Bhagwati. "Outward-orientation and development: are revisionists right?." In *Trade, development and political economy*, pp. 3-26. Palgrave Macmillan, London, 2001.

Stewart, Richard B. "Environmental Regulation and International Competitiveness." *The Yale Law Journal* 102, no. 8 (1993): 2039–2106. https://doi.org/10.2307/796859

Thomas, Kristie. "Assessing the Post-TRIPS Intellectual Property System in China in the Short Term: Exploring the Enforcement Gap," 105–37. Palgrave Series in Asia and Pacific Studies. Palgrave Macmillan, Singapore, 2017. https://doi.org/10.1007/978-981-10-3072-7_6

Thompson, Edward Palmer. *The Making of the English Working Class* New York: Vintage Books, 1966.

Trainer, Timothy P. "Intellectual Property Enforcement: A Reality Gap (Insufficient Assistance, Ineffective Implementation)." *John Marshall Review of Intellectual Property Law* 8 (2009 2008): [i]-79

Vernon, Raymond. "International Investment and International trade in the Product Cycle*." In *International Economic Policies and Their Theoretical Foundations (Second Edition)*, edited by John M. Letiche, 415–35. Economic Theory, Econometrics, and Mathematical Economics. Boston: Academic Press, 1992. https://doi.org/10.1016/B978-0-12-444281-8.50024-6.

Viner, Jacob. *The Customs Union Issue*. Oxford University Press, 2014.

Vogel, David. *Trading Up: Consumer and Environmental Regulation in a Global Economy*. Harvard University Press, 2009.

World Bank Household final consumption expenditure (current US$). 2018. Accessed January 6, 2017. https://data.worldbank.org/indicator/NE.CON.PRVT.CD?year_high_desc=true.