Who's More Willing to Bend: Intellectual Property Rights Protection in North-South Trade Agreements*

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Abstract

TRIPS-plus intellectual property rules in preferential trade agreements impose substantial domestic costs on developing countries, yet many governments adopt them. This study argues that TRIPS-plus adoption is a function of internal structural vulnerability and external political support. Developing countries whose labor-intensive exports depend on discretionary preference schemes such as the Generalized System of Preferences face credible threats of market access withdrawal, creating stronger incentives to formalize trade relations through PTAs that include TRIPS-plus rules. A refined measure of political trade dependence (PTD) isolating these sensitive sectors captures this leverage more precisely than aggregate trade indicators. Foreign aid functions as a complementary mechanism: coherent donors such as the United States can deploy targeted aid to help democratic governments absorb the domestic adjustment costs of strengthened IP obligations, whereas fragmented donors such as the European Union cannot. TWFE estimates on WTO developing countries (1995-2024) show that higher PTD significantly increases the probability of adopting TRIPS-plus provisions in both US and EU agreements. PanelMatch results reveal that democracies signing TRIPS-plus agreements with the United States experience an immediate 42 percent increase in aid relative to autocratic counterparts, while EU aid shows no compensatory response.

Keywords: North-South trade agreements, TRIPS, intellectual property rights, foreign aid

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1 Introduction

The World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) transformed intellectual property protection from a largely aspirational standard into an enforceable multilateral obligation. Over the subsequent three decades, the United States and the European Union embedded even stronger "TRIPS-plus" requirements in their preferential trade agreements (PTAs). These provisions extend patent monopolies beyond the baseline twenty-year term, grant pharmaceutical firms exclusive control over clinical trial data that delays the entry of cheaper generic alternatives, restrict governments' ability to issue compulsory licenses for essential medicines, and impose heightened enforcement obligations that raise compliance costs for developing-country regulatory agencies (Fink and Reichenmiller, 2006; Maskus, 2000; Shadlen, 2005). By prolonging monopoly protections and constraining the policy tools available to governments, TRIPS-plus rules secure rents for innovation-intensive firms headquartered in advanced economies while shifting substantial adjustment costs onto developing countries, which fall most visibly on public health systems dependent on affordable generics, on local producers competing against patent-protected imports, and on consumers facing higher prices for medicines and agricultural inputs. This asymmetry raises a central question: why do emerging economies agree to obligations that generate concentrated domestic losses for consumers, public health systems, and local producers?

Existing research emphasizes the bargaining advantages that accrue to large import markets. Scholars show that the United States and the European Union routinely leverage their market size to extract deeper commitments from smaller partners, especially when agreements are negotiated under the shadow of unilateral preference withdrawal (Manger and Shadlen, 2014; Dür and Mödlhamer, 2022; Dür et al., 2023). The literature also documents that donors often pair demanding provisions with strategically timed aid transfers that help governments absorb domestic opposition and ratify costly reforms (Baccini and Urpelainen, 2012; Bearce and Tirone, 2010). This paper draws on both mechanisms to explain variation in TRIPS-plus adoption: the internal structural vulnerability generated by entrenched export dependence on concessional tariff benefits and the external accommodation that foreign aid can provide.

The argument begins with the leverage created by discretionary preference schemes. When a large importing economy grants tariff exemptions under programs such as the US Generalized

System of Preferences (GSP) or the EU GSP+, it confers substantial rents on labor-intensive light manufacturing sectors in the beneficiary economy (Manger and Shadlen, 2014). Because these schemes can be suspended unilaterally, governments whose employment and export earnings depend on them face a credible threat. Manger and Shadlen (2014) conceptualize this vulnerability as "political trade dependence (PTD)," showing that it drives countries to abandon discretionary arrangements and enter PTAs that guarantee market access even when such agreements require deeper concessions. This logic transfers directly to TRIPS-plus IP provisions, which often form core components of PTA packages negotiated with the United States and the European Union.

Foreign aid introduces the second mechanism. When TRIPS-plus demands are deep enough to generate politically salient domestic adjustments, large donors frequently deploy targeted assistance that mitigates the short-term costs of compliance and helps governments defuse resistance. Existing work highlights the strategic use of aid in securing policy change, particularly when donors seek commitments that provoke nontrivial domestic pushback (De Mesquita and A. Smith, 2007; Bearce and Tirone, 2010; Baccini and Urpelainen, 2012; Kono and Montinola, 2015). However, the capacity to supply such compensation is not uniform across donors. The United States administers foreign aid through a centralized structure under executive authority, which allows it to align disbursements with specific policy concessions such as TRIPS-plus acceptance (Fleck and Kilby, 2010; Bermeo, 2018). The European Union, by contrast, operates through a fragmented aid architecture in which the European Commission and twenty-seven member states maintain separate budgets, strategic priorities, and implementation channels (Carbone, 2007). This institutional fragmentation produces competing logics of development and foreign policy coherence that prevent the EU from conditioning aid on discrete trade concessions in the way that the United States can (Carbone, 2013; Kim and Jensen, 2018; Dietrich, 2021). Because TRIPS-plus obligations also differ in substantive depth across donors, with US agreements imposing more intrusive pharmaceutical and enforcement provisions than their EU counterparts, the political demand for compensatory aid and the institutional capacity to supply it diverge systematically between the two.

The argument advances the literature in two respects. First, it unifies trade dependence and foreign assistance within a single bargaining framework, identifying both the structural and political conditions under which emerging economies accept TRIPS-plus obligations. Second, it refines the measurement of political trade dependence (PTD). Whereas Manger and Shadlen (2014) relied on aggregate exports entering preference schemes, their theory centers on labor-intensive industries as the core constituency vulnerable to preference withdrawal. I tailor the PTD measure to this theoretical foundation by restricting the numerator to labor-intensive sectors most exposed to unilateral suspension. The revised indicator identifies the subset of exports that drive political sensitivity to external market pressure.

Empirically, I construct a panel of 123 self-declared developing economies in the WTO from 1995 to 2024. TRIPS-plus provisions are coded from the TRIPS-plus dataset by Morin and Surbeck (2020), PTD from UNCTAD GSP utilization data, combined with United States International Trade Commission (USITC) DataWeb, and bilateral aid from US Agency for International Development (USAID) and OECD DAC2A. The research design proceeds in two stages. First, two-way fixed effects (TWFE) OLS models estimate how PTD shapes the likelihood that a PTA contains TRIPS-plus clauses, controlling for income, growth, regime type, and cumulative PTA activity. Second, PanelMatch estimators assess how aid inflows change in the years after TRIPS-plus signature, comparing democratic recipients against autocratic counterparts to capture heterogeneity in compensatory aid responses across regime types.

The results support the theory. A one standard deviation increase in the revised PTD measure raises the probability of accepting TRIPS-plus obligations. Robustness checks using alternative specifications of PTD, including the traditional aggregate measure and a global-export-denominated variant, confirm the pattern. The PanelMatch analysis shows that democratic TRIPS-plus signatories experience a sharp but short-lived rise in US aid at the moment of commitment, consistent with the logic of targeted compensation. EU aid displays no compensatory increase, consistent with both the lighter obligations embedded in EU agreements and the fragmented institutional structure of EU aid governance that prevents the coordination of disbursements around discrete policy concessions. Together, the findings support the claim that export vulnerability under discretionary preferences, coupled with the strategic deployment of aid by coherent donors, drives TRIPS-plus adoption among emerging economies.

2 Structural Dependence and the Politics of TRIPS-Plus Adoption

The creation of the WTO placed TRIPS at the center of global intellectual property governance by introducing comprehensive and enforceable IP rules into the multilateral trading system. Unlike the earlier World Intellectual Property Organization (WIPO) framework, TRIPS endowed states with a dispute settlement mechanism that permitted binding adjudication and retaliatory sanctions. The agreement reflected the preferences of the United States and the European Community whose firms held the preponderance of global IP assets and promoted stronger standards as a means to expand innovation, foreign investment, and technology transfer (Helfer, 2004). These priorities aligned with the interests of IP-intensive industries. As Sell (2003) documents, pharmaceutical, software, and entertainment multinationals successfully pressed the United States Trade Representative (USTR) to pursue high-standard IP protections in both multilateral and preferential arenas.

Following TRIPS, the United States consistently incorporated TRIPS-plus obligations into all PTAs negotiated after 1999 (Fink and Reichenmiller, 2006; Drahos and Braithwaite, 2002; Morin and Surbeck, 2020). These obligations, such as extended patent terms, exclusivity tied to regulatory delays, restricted compulsory licensing, 70 years of copyright protection, and stringent enforcement rules, went well beyond WTO requirements. The distributional consequences of such provisions have been examined through distinct analytical lenses. Theoretical models of innovation and technology transfer predict that stronger IP protections channel rents toward innovation-intensive economies and suppress local technological upgrading in developing countries (Maskus, 2000; Glass and Wu, 2007; McCalman, 2001). Ex ante simulation studies estimate that proposed IP reforms would raise drug prices, delay generic entry, and reduce consumer welfare, though these findings are conditional on modeling assumptions (R. D. Smith et al., 2009). Ex post empirical analyses examine actual outcomes: Shadlen (2005) provides one of the most systematic accounts, showing that developing countries accepting deep integration commitments in exchange for preferential market access experienced constrained industrial policy space in practice. Across all three strands, the evidence converges on the conclusion that TRIPS-plus provisions impose asymmetric disadvantages on developing countries: displacing workers in unlicensed-goods sectors, delaying the arrival of generic pharmaceuticals, and producing monopoly pricing that falls heavily on low-income populations. These structural concerns motivated the Doha Declaration's emphasis on safeguarding access to medicines. These provisions are part of the overarching conditionality embedded in North-South trade relations: developed countries extend unilateral preferential access to developing-country exports through the Generalized System of Preferences (GSP), creating a structural dependency that shapes the broader environment in which PTAs are negotiated. Figure A.1 in the Appendix maps GSP eligibility among WTO self-declared developing countries over time. The figure shows that a large majority of these countries are simultaneously eligible for both US and EU preferences, placing them in the overlap zone where competitive leverage from either donor is most acute. Eligibility shifts as countries graduate from GSP upon signing PTAs or exceeding income thresholds, which underscores the time-varying nature of the structural dependency that underpins the PTD mechanism.

It is within this environment that TRIPS-plus provisions became central components of US PTA bargaining. Studies of the negotiation process show that advanced economies frequently present strengthened IP obligations as standard, non-negotiable elements of their trade packages. Lindstrom (2009) demonstrates that the United States repeatedly adopted a take-it-or-leave-it posture in its PTAs, offering little scope for developing partners to adjust IP provisions to domestic constraints. Her analysis of the US-Thailand and US-South African Customs Union (SACU) negotiations illustrates how resistance to the IP chapter effectively stalled or collapsed broader agreements because the United States treated the IPR chapter as an indivisible part of the overall deal. Turk (2009) similarly characterizes US FTAs as standard-form contracts that leave weaker partners with minimal room to tailor TRIPS-plus provisions to developmental or public-health needs. These findings indicate that developing countries typically cannot negotiate around strengthened IP commitments when seeking preferential access to major markets; they confront a bundled set of obligations rather than a menu of separable concessions.

This characterization of TRIPS-plus provisions as non-negotiable packages admits important exceptions, however, particularly when partner countries possess sufficient market size or bargaining leverage. The recently concluded EU-Mercosur agreement involved protracted negotiations in which the IP chapter was substantively contested, and the final text reflects compromises that depart from the EU's standard template. Similarly, the EU-India negotiations have been marked by sustained resistance to IP provisions, especially those affecting pharmaceutical access, which contributed to extended delays (Roffe, 2014; Drexl, 2014). These cases illustrate that the take-it-or-leave-it dynamic characterizing most North-South PTA negotiations can be attenuated when a developing-country partner commands meaningful countervailing leverage. For the large majority of emerging economies that lack such leverage, however, the bundled nature of PTA packages remains the operative constraint.

The indivisibility of these commitments mirrors the bargaining power asymmetries in trade negotiations (Manger and Shadlen, 2014; Dür and Mödlhamer, 2022; Dür et al., 2023), which motivates the adaptation of that framework to the TRIPS-plus domain. When the IP chapter is treated as a core element of the trade package, governments confront a constrained choice in which market access leverage shapes the set of politically feasible outcomes. Such inflexibility in IP commitments interacts with domestic political conditions to generate variation in willingness to accept TRIPS-plus obligations.

The starting point is political trade dependence (PTD). Manger and Shadlen (2014) conceptualize PTD as vulnerability arising when a substantial share of a developing country's exports enters advanced economies under discretionary preference schemes such as the US GSP or the EU GSP Plus, and show that higher PTD drives countries to formalize market access through PTAs. It may seem that the link from PTD to TRIPS-plus adoption follows automatically from this result, given that US and EU PTAs routinely contain TRIPS-plus provisions. However, the theoretical contribution of extending the framework to TRIPS-plus commitments specifically is twofold. First, not all PTAs carry the same depth of IP obligations: the variation in TRIPS-plus intensity across agreements means that PTD may predict not only whether a country enters a PTA but also the stringency of the IP provisions it accepts. Second, identifying the specific mechanism through which labor-market vulnerability drives acceptance of costly IP commitments, rather than general trade exposure, provides a sharper and more theoretically grounded account of when and why emerging economies take on regulatory burdens that disproportionately benefit advanced economies.

This paper refines the concept by isolating those developing economies whose export portfolios are heavily concentrated in labor-intensive sectors that rely on unilateral concessions for continued viability. Such sectors support large workforces and generate essential foreign-exchange earnings. Even modest erosion in preferential access can trigger factory closures, relocations, or mass layoffs. Governments governing such structures face a strategic environment in which the threat of losing preferences carries greater weight than resistance to strengthened IP protections.

Countries lacking this structure, whether because they export a more diversified set of goods or rely less on labor-intensive sectors, do not share the same vulnerability and therefore should exhibit different levels of willingness to accept TRIPS-plus obligations. The refined PTD measure captures this distinction by restricting the numerator to labor-intensive sectors most exposed to unilateral suspension, whereas the aggregate indicator used by Manger and Shadlen (2014) conflates sectors with heterogeneous political weight and vulnerability profiles. The empirical section includes a direct comparison of the refined and traditional measures to demonstrate their divergence and assess whether the theoretically motivated restriction improves predictive performance. Brazil's experience under Special 301 designations (Drahos and Braithwaite, 2002) illustrates how reliance on the US market reshaped domestic incentives under threat of punitive measures. A similar pattern appears in the findings of Dür and Mödlhamer (2022), who show that deep IPR provisions arise most frequently in agreements between partners with pronounced asymmetries in market size, bargaining leverage, and innovative capacity.

H1: Emerging economies with higher political trade dependence (PTD) are more likely to sign TRIPS-plus agreements.

Although PTD forms the central pressure point, governments must also manage the domestic distributional consequences of stronger IP rules. These consequences fall heavily on consumers, public health institutions, and local producers of generics. Even governments facing acute vulnerability to preference withdrawal cannot ignore these constituencies. As Antoine et al. (2024) find, heightened public salience increases resistance within developing countries, which demonstrates that domestic contestation remains a meaningful barrier even when bargaining power is lopsided. This combination of non-negotiable IP packages and internal opposition requires a framework that integrates both dimensions. Foreign aid complements the PTD mechanism by easing the management of these internal pressures. Studies of aid and reform show that donors often align financial transfers with policy change. Bearce and Tirone (2010) find that aid commonly supports market-oriented reforms when donor monitoring is credible, and Baccini and Urpelainen (2012) demonstrate that aid assists governments in adopting PTAs that would otherwise provoke destabilizing opposition.

In the TRIPS-plus setting, aid provides governments with resources that help mitigate or compensate the domestic actors who incur the concentrated costs of heightened IP protections. The compensatory mechanism can operate through several channels: targeted technical assistance for upgrading patent offices and regulatory agencies, sector-level support directed at industries affected by stronger IP rules such as pharmaceutical and agricultural sectors, and broader budgetary transfers that expand fiscal space for governments facing adjustment pressures (Prowse, 2006; Cali and Te Velde, 2011). In the TRIPS-plus context, the most politically relevant channel involves transfers that offset the concentrated costs borne by identifiable domestic constituencies, particularly generic pharmaceutical producers, public health systems, and consumers of medicines (Shadlen et al., 2011; R. D. Smith et al., 2009).

The compensatory logic advanced here centers on the moment of commitment rather than the pre-signature negotiation phase. Before a PTA is signed, the domestic costs of TRIPS-plus obligations remain prospective and uncertain: opposition has not yet fully mobilized around concrete legislative or regulatory changes, and governments retain the option to walk away from the negotiating table. Donors, for their part, face a credible commitment problem in deploying aid before signature. Resources transferred in advance of a formal agreement risk being wasted if negotiations collapse or if the developing-country partner ultimately refuses the IP chapter. The act of signature resolves this bilateral uncertainty by simultaneously locking in the developing country's regulatory commitments and signaling to the donor that compensation will be met with compliance. It is therefore at or immediately after signature that the political demand for compensatory transfers peaks: governments must now manage the concentrated losses borne by generic pharmaceutical producers, public health systems, and consumers as implementation looms, and donors can credibly link disbursements to an observable and irreversible policy commitment (Baccini and Urpelainen, 2012; De Mesquita and A. Smith, 2007). To be sure, some forms of technical cooperation, particularly capacity-building assistance aimed at upgrading patent offices or aligning regulatory frameworks with new IP standards, may flow during the negotiation process itself. However, such pre-signature assistance addresses institutional readiness rather than political compensation; it helps governments build the administrative machinery needed to implement TRIPS-plus obligations but does not offset the distributional losses that generate domestic opposition. The theoretically and politically consequential transfer is the post-commitment side payment that eases the short-term adjustment costs of stronger IP rules, and the empirical design is calibrated accordingly: the PanelMatch estimator uses the year of TRIPS-plus signature as the treatment and traces aid dynamics in a symmetric window around that event.

The political distribution of aid further conditions how this compensatory channel operates. Baccini and Urpelainen (2012) show that democracies are more likely to receive strategically motivated aid because donors view them as more credible implementers of reform commitments, and because democratic institutions force governments to manage public opposition more transparently. Carter and Stone (2015) add an important institutional mechanism on the donor side. They demonstrate that the United States allocates disproportionate aid to democracies due to the structure of congressional appropriations. US foreign aid budgets are shaped by developmental and humanitarian mandates embedded in legislation, and members of Congress face political and reputational costs when supporting transfers to autocratic regimes. These constraints create systematic hurdles for channeling large or politically sensitive aid packages to non-democratic governments. Democracies therefore enjoy better prospects of securing substantial US aid, not because they demand it more intensely, but because the US legislative process makes aid to autocracies more difficult to justify and more vulnerable to congressional veto.

These donor-side dynamics reinforce the role of aid in TRIPS-plus bargaining. Governments confronting politically salient domestic losses, especially democratic ones that attract larger and more politically durable aid flows, receive resources that help them accommodate constituencies harmed by stronger IP rules. Aid does not eliminate the structural vulnerability associated with PTD, but it strengthens governments' capacity to reconcile external constraints with internal tensions when TRIPS-plus provisions are presented as integral components of a PTA bargain.

H2: Democratic emerging economies signing TRIPS-plus agreements should receive larger volumes of foreign aid in return.

In the context of TRIPS-plus bargaining, however, the deployment of aid as compensation hinges on the substantive depth of the obligations being undertaken. When strengthened IP protection imposes significant political and economic adjustment costs, recipient governments have greater need for external resources to offset the concentrated losses experienced by public health institutions, generic producers, and vulnerable consumers. Where the obligations are relatively mild, this compensatory demand should be correspondingly weaker. The political salience of aid following TRIPS-plus signature therefore depends not only on recipient-side vulnerability but also on the degree to which the commitments themselves intrude on sensitive regulatory domains.

These considerations are especially relevant because TRIPS-plus obligations vary substantially across donors, as Table 1 demonstrates. A large body of scholarship identifies the United

Table 1: Comparison of TRIPS-Plus Provisions in US and EU Trade Agreements

Provision	United States	European Union
Patent Protection		
Patent term extension	Required; compensates for regulatory and patent office delays (typically 3–5 years additional)	Required via Supplementary Protection Certificates (SPCs); up to 5 years extension
Patentable subject matter	Broad scope; includes plants, animals, and surgical methods in some FTAs	Generally narrower; excludes plants and animals consistent with TRIPS flexibilities
Second-use patents	Explicitly permitted in most FTAs	Not typically required
Compulsory licensing	Restricted to national emergencies, anti-competitive remedies, and public non-commercial use (pre-2007 FTAs); flexibilities restored in post-May 2007 FTAs	Generally preserves TRIPS flexibilities; fewer explicit restrictions on compulsory licensing grounds
Patent linkage	Required; regulatory authorities must notify patent holders before approving generics	Not required; EU relies on judicial enforcement rather than regulatory linkage
Data Exclusivity		
Pharmaceutical test data	5 years for new chemical entities; 3 years for new clinical information	8 years data exclusivity + 2 years market exclusivity + 1 year for new indication (8+2+1 formula)
Biologics	No biologics-specific exclusivity in bilateral FTAs with developing countries; standard 5-year NCE provisions apply	Covered under same 8+2+1 framework as small molecules
Protection against reliance	Prohibits reliance on originator data for generic approval during exclusivity period	Similar prohibition; additionally bars generic marketing for 2 years after data exclusivity expires
Other Key Provisions		
Geographical indications	Opposes expansion beyond wines and spirits; prefers trademark-based protection	Strongly promotes GI protection for agricultural and non-agricultural products; requires partner countries to protect listed EU GIs
Enforcement	Extensive provisions: criminal penalties for IP infringement, border measures, statutory damages, *ex officio* enforcement	Criminal enforcement for commercial-scale infringement; emphasis on civil and border measures
Exhaustion of rights	Generally supports national exhaustion (restricting parallel imports) in FTAs	More flexible; some agreements silent on exhaustion, preserving policy space
Traditional knowledge	Limited provisions	Increasingly includes provisions on genetic resources and traditional knowledge disclosure

Note: US provisions reflect the standard FTA template, though post-May 2007 agreements (Peru, Colombia, Panama) include modified pharmaceutical provisions following the bipartisan trade deal. EU provisions reflect the standard Association Agreement and Economic Partnership Agreement templates. Both donors' provisions exceed the TRIPS Agreement minimum standards ("TRIPS-plus"), but differ in emphasis: the US prioritizes patent linkage, enforcement, and restrictions on compulsory licensing, while the EU emphasizes longer data exclusivity periods and geographical indication protection.

States as the central global driver of maximalist TRIPS-plus standards, particularly in pharmaceuticals and enforcement (Sell, 2003; Fink and Reichenmiller, 2006; Drahos and Braithwaite, 2002). US PTAs typically contain extensive data exclusivity, restrictions on compulsory licensing, enhanced enforcement rules, and patent term extensions that delay the arrival of generics and constrain regulatory flexibility far more than the baseline TRIPS requirements. Notably, US agreements require patent linkage, which compels regulatory authorities to notify patent holders before approving generic competitors, a mechanism absent from EU agreements that instead rely on judicial enforcement.Morin (2009) demonstrates that this strategy has produced a ratcheting effect in which US bilateral commitments establish new baselines that subsequently diffuse through multilateral forums. These provisions impose substantial compliance burdens on developing countries and trigger domestic opposition that governments must manage at the moment of signature. In contrast, although the European Union also incorporates TRIPS-plus elements into its PTAs, comparative analyses confirm that EU agreements tend to adopt a more flexible approach that accommodates the regulatory traditions of partner countries (Roffe, 2014; Seuba, 2014; Maskus, 2014; Drexl, 2014). The European Union's Economic Partnership Agreements with African, Caribbean, and Pacific states, for instance, include IP provisions but typically allow longer transition periods and preserve greater policy space for developing-country partners than comparable US agreements. Where the EU does pursue ambitious TRIPS-plus standards, its priorities differ from those of the United States: EU agreements place particular emphasis on geographical indication (GI) protection for agricultural products and on longer data exclusivity periods under the $8+2+1$ framework, rather than on patent linkage or enforcement mechanisms that directly constrain generic pharmaceutical entry. The EU TRIPS-plus clauses are therefore expected to generate comparatively lower political adjustment costs for developing country partners. Together, these differences imply that the need for compensatory aid is significantly stronger when governments accept a US TRIPS-plus package than when they accept the relatively lighter obligations typically found in EU agreements.

These divergent TRIPS-plus strategies interact directly with the institutional features of donor aid regimes. The broader aid allocation literature establishes that donor motivations reflect a mix of strategic, commercial, and developmental considerations (Alesina and Dollar, 2000; Bearce and Tirone, 2010). For the United States, strategic and commercial interests figure prominently in aid decisions, and the centralized structure of US foreign aid governance, which operates through USAID under executive authority, facilitates the alignment of aid disbursements with specific policy objectives (Fleck and Kilby, 2010; Milner and Tingley, 2010). Bermeo (2018) further demonstrates that targeted development strategies allow the United States to calibrate assistance toward countries undertaking reforms that align with US commercial and geopolitical interests. Because US obligations are deeper and thus more politically disruptive, the United States has both stronger incentives and stronger demands from recipients to deliver targeted side payments immediately after commitment.

The European Union, by contrast, faces structural constraints that limit its capacity to deploy aid instrumentally. As Carbone (2007) documents, EU development policy operates through a complex institutional architecture in which the European Commission and twenty-seven member states maintain distinct aid budgets, strategic priorities, and implementation channels. This fragmentation produces what Carbone (2013) characterizes as competing logics of EU aid: a development logic emphasizing poverty reduction and a political logic emphasizing EU foreign policy coherence, with neither consistently dominating. Carbone (2012) further shows that policy coherence between EU trade and development objectives remains an aspiration rather than a reliable institutional feature. The result is that the European Union lacks the unified principal structure necessary to condition aid on discrete policy concessions such as acceptance of TRIPS-plus provisions. Kim and Jensen (2018) confirm empirically that EU aid patterns reflect dispersed preferences among multiple principals rather than a coordinated strategic allocation. Dietrich (2021) generalizes this insight, showing that donor institutional structures, particularly the degree of centralization in aid governance, systematically shape how and whether aid is used to pursue foreign policy objectives.

The combined effect is that the compensatory role of aid operates unevenly across donors. US TRIPS-plus agreements generate strong political incentives for targeted post-signature transfers, and the centralized US aid regime can credibly supply them. EU TRIPS-plus agreements generate weaker political incentives for compensation, and the fragmented EU aid regime has limited capacity to provide targeted side payments even when desirable. These dynamics reinforce the expectation that TRIPS-plus signature will be followed by discernible increases in US aid but not by comparable changes in EU aid.

H3: Signing a TRIPS-plus agreement increases subsequent aid inflow from the United States but does not generate comparable compensatory increases in aid from the European Union.

3 Empirical evidence

3.1 Data & Identification

Political trade dependence (PTD) is the central empirical concept in my study, as it captures the vulnerability of emerging economies that advanced industrialized nations exploit when they push for TRIPS-plus intellectual property reforms. I follow Manger and Shadlen (2014), who show that a higher moving average over three years of exports eligible under the GSP to the United States or the European Union increases the likelihood of signing a PTA between the North and the South. Accordingly, I calculate PTD as the ratio of each developing country's exports from labor-intensive sectors entering either US or EU market under GSP benefits to the total amount of exports to the two markets. Then, I take 3-year moving average of the obtained PTD measure to even out short-term fluctuations in trade flows, following Manger and Shadlen (2014)'s approach. As a robustness check, I look into even longer time horizons, 5-year and 7-year moving averages of PTD later in the chapter.

My version of PTD refines the measure to focus on the industries in developing countries that are especially vulnerable to revocation of concessionary tariff schemes. Manger and Shadlen (2014) point out in their theory that labor-intensive light manufacturing sector exports are particularly sensitive to GSP benefits as emerging economies' exports are heavily concentrated on these sectors, while preferential access to large markets give the industries competitive advantage because they are not capital-intensive. However, their measure of PTD does not discern labor-intensive sector exports from other industries. To address this gap, I restrict the GSP benefiting trade volume to exports in labor-intensive sectors identified by HS chapter codes 08 (hides, skins and leathers), 11 (textiles), 12 (footwear, headgear, umbrellas, and etc.) and 20 (miscellaneous manufactured goods), following definitions of labor-intensive sectors introduced in Manger and Shadlen (2014), Donno and Rudra (2019), and Ing et al. (2017). In many emerging economies these industries employ large numbers of workers and require little fixed capital, so even modest shifts in preference margins can trigger factory closures, mass layoffs and sharp losses in export earnings. The amount of exports utilizing GSP benefits are sourced from UNCTAD Database on GSP Utilization[1] , along with the United States International Trade Commission (USITC) DataWeb[2] ranging from 1995 to 2024.

[1] https://gsp.unctad.org/utilizationbycountry
[2] https://dataweb.usitc.gov

Dependent variables in the analyses concerning PTD all indicate whether trade agreements signed between the United States/European Union and developing countries contain TRIPS-plus provisions. The variables are sourced from the TRIPS-plus dataset introduced by Morin and Surbeck (2020). Among numerous available indicators, I focus on four that best characterize the presence and depth of TRIPS-plus obligations: `ipr_tripsplus_per_pta_dummy`, `ipr_tripsplus_per_pta`, `undisclosed_information_test_data_exclusivity`, and `patent_term_extension`. The first variable identifies whether a treaty contains any provisions that explicitly reflect TRIPS-plus standards, and the second counts how many such obligations appear in a given PTA. The latter two variables capture clauses that represent some of the most intensive TRIPS-plus commitments. `undisclosed_information_test_data_exclusivity` records whether a PTA grants a defined period of exclusive rights over pharmaceutical or agro-chemical test data associated with new chemical entities. `patent_term_extension` identifies whether the agreement requires extending the patent term when administrative or regulatory processes delay market entry.

These two provisions place unusually stringent constraints on the policy space of developing countries. Test data exclusivity restricts generic producers from relying on existing clinical trial data to obtain marketing approval during the exclusivity window. This restriction is particularly demanding for developing economies whose pharmaceutical sectors rely heavily on lawful imitation, reverse engineering, and the rapid introduction of generic medicines once patents expire. Even when no patent blocks entry, test data exclusivity can function as an independent barrier that delays generic competition, elevates drug prices, and constrains access to essential medicines. Patent term extensions impose a similar burden by prolonging monopoly protection beyond the standard twenty-year TRIPS baseline whenever regulatory or patent-granting delays occur. For countries that depend on the timely expiration of patents to facilitate technological diffusion, local learning, and competitive production of generics, extended patent life postpones opportunities for technical replication and raises the long-run costs of development. The combined effect of these intensive TRIPS-plus obligations is to strengthen and lengthen exclusive rights in ways that directly impede the mechanisms of catch-up industrialization and public health strategies that many developing countries rely upon.

Control variables include macroeconomic conditions of developing countries that may affect their chances of signing TRIPS-plus trade agreements. GDP, GDP per capita, and GDP growth in percentage, sourced from World Bank's World Development Indicators dataset (World

Bank, 2024), are included as countries' market size and wealth may affect their laws and regulations. The binary variable, Democracy, which indicates whether a country is a democracy, is included to account for the tendency of democratic countries sharing institutional preferences. I construct this variable utilizing the Polity V dataset (Marshall and Gurr, 2018), setting Polity scores (ranging from -10 to 10) above zero as democracies. Additionally, the cumulative number of regional trade agreements (RTAs) in a given year signed by each emerging economy other than with the United States or the European Union is included, as the literature suggests signing more PTAs earlier leads to signing extra PTAs especially if the earlier PTAs signed have attracted more direct investment flows (Baccini and Dür, 2015). Finally, the annual number of patent applications filed in each developing country, sourced from the World Bank's World Development Indicators (originally compiled by the World Intellectual Property Organization), is included to control for the domestic innovation environment that may independently shape a country's propensity to accept stronger IP protections. For the US model, a binary indicator for placement on the USTR Special 301 Watch List is also included, capturing whether a country has been publicly identified by the United States as providing inadequate IP protection, a designation that may independently affect a country's likelihood of entering TRIPS-plus commitments.

The TRIPS-plus variables are regressed on PTD, along with the control variables to obtain the effects of PTD on the probabilities of signing TRIPS-plus agreements. I employ two-way fixed effects (TWFE) OLS model with country and year fixed effects, and the functional form is as follows:

$$y_{it} = PTD_{i,MA} + \mathbf{X\Gamma} + \alpha_i + \delta_t,$$

where y_{it} corresponds to one of the TRIPS-related dependent variables, $PTD_{i,MA}$ the measure of PTD as a three-year moving average of a developing country i, $\mathbf{X}$ the vector of the control variables, $\mathbf{\Gamma}$ the vector of covariate coefficients, α_i country fixed effect, and δ_t year fixed effect.

To probe the robustness of the refined PTD measure, I also test two alternative specifications. The first follows the original operationalization by Manger and Shadlen (2014), which computes PTD as the share of a developing country's total bilateral exports to the donor that enters under GSP, without restricting attention to labor-intensive sectors. This traditional measure treats all GSP-eligible exports identically and serves as a benchmark for evaluating whether sector-specific refinement adds explanatory power. The second alternative replaces the bilateral export denominator with each country's total global exports, following the suggestion that bilateral dependence may overstate vulnerability for countries whose trade with the donor constitutes only a small share of their worldwide commerce. If global trade exposure rather than donor-specific dependence drives TRIPS-plus adoption, this measure should outperform the bilateral variant. Descriptive statistics for all three PTD specifications are reported in Tables A.1 and A.2.

Another important concept in this study is bilateral aid flow between donor states (United States, European Union) and developing country recipients. Within the scope of this paper, developing nations are the countries that have declared themselves developing country status in WTO. Anchoring the definition of "developing country" in each economy's self-declared status at the WTO reflects how countries themselves position their development needs. Moreover, this WTO status directly determines eligibility for the concessional trade schemes, including GSP and Special & Differential Treatment. Thus, using the self-declared status mirrors exactly the countries that face and leverage those rules in practice.

The analysis draws on donor-specific data sources for US and EU bilateral aid rather than relying on a single harmonized dataset. US aid disbursements are sourced from the ForeignAssistance.gov database maintained by USAID, which records the full universe of US official development assistance as reported by the administering agency. EU aid disbursements originate from the OECD DAC2A ("Aid (ODA) disbursements to countries and regions") database, which aggregates flows from the European Commission and individual member states into a unified framework. This design choice reflects the institutional asymmetry at the core of the theoretical argument. The United States operates a centralized aid apparatus in which USAID serves as the primary reporting and disbursing entity, and its own database captures disbursement timing and recipient-level detail with greater granularity than DAC aggregate reporting (Fleck and Kilby, 2010; Bermeo, 2018). No comparable single-source database exists for EU aid precisely because authority over development assistance is divided between the Commission and twenty-seven member states, each maintaining distinct budgets and reporting cycles (Carbone, 2007; Kim and Jensen, 2018). The OECD DAC2A is specifically designed to aggregate disbursements across multiple donors within a common reporting standard, making it the natural instrument for capturing the full EU aid envelope. Using each donor's most institutionally appropriate data source thus mirrors the very contrast in aid governance that the theory highlights. This approach is consistent with the broader comparative aid literature, in which studies of US aid allocation routinely rely on USAID-reported data (Fleck and Kilby, 2010; Bermeo, 2018; Carter and Stone, 2015), while analyses of EU or multi-donor aid draw on OECD DAC reporting (Kim and Jensen, 2018; Dietrich, 2021; Alesina and Dollar, 2000).

PanelMatch (Imai et al., 2023) is well suited for evaluating the effect of TRIPS-plus signing on aid inflows of democracies compared to their autocratic counterparts because it is designed for situations in which treatment adoption varies across units and over time and where past realizations of both treatment and covariates influence future outcomes. Participation in TRIPS-plus agreements is staggered, non-random, and shaped by prior political and economic characteristics that also affect aid allocation. Under these conditions, standard difference-in-differences designs risk bias if treated and untreated units follow different pre-treatment paths. PanelMatch addresses these concerns by constructing matched sets of treated and comparable control units with similar treatment histories and covariate profiles before treatment occurs, thereby approximating the sequential ignorability assumption required for causal inference. The design therefore provides a credible framework for estimating how the onset of a TRIPS-plus agreement (`ipr_tripsplus_per_pta_dummy`) alters subsequent bilateral aid flows.

The matching procedure is further refined with Covariate Balancing Propensity Score (CBPS) weighting, which balances key structural determinants of aid allocation across treated and control groups. GDP, GDP per capita, GDP growth (in %), and PTD of recipient countries are included because they capture the macroeconomic and geopolitical factors that systematically shape donor behavior. Donors allocate aid partly in response to recipient market size, income level, economic performance, and exposure to preferential trade arrangements. These variables also correlate with the likelihood of entering a TRIPS-plus agreement. Balancing on them ensures that comparisons of treated and untreated units are not confounded by differences in economic scale, development level, or political trade dependence. Incorporating these covariates into CBPS weights therefore strengthens the credibility of the estimated treatment effects by improving overlap and reducing residual imbalance.

3.2 PTD and TRIPS-Plus

The first analysis explores the effect of political trade dependence (PTD) of emerging economies on their signing TRIPS-plus trade agreements. I estimate US and EU PTAs separately, since governments often negotiate parallel PTAs. Because many developing countries sign preferential agreements with both the United States and the European Union in overlapping periods, pooling them in a single specification risks blurring the distinct impact of each market. By creating two mutually exclusive subsamples, I obtain cleaner, more precisely identified estimates of how PTD on each market influences the likelihood of adopting TRIPS-plus commitments. Table A.3 presents the full regression results. Figure 1 visualizes the PTD coefficients and 95% confidence intervals across three models with different dependent variables and alternative specifications of the PTD measure. The model using TRIPS-plus count as the dependent variable is excluded from the plot, due to a scalability issue with its large coefficient size. Filled shapes denote coefficients that are statistically significant at 95% confidence level; hollow shapes indicate non-significance.

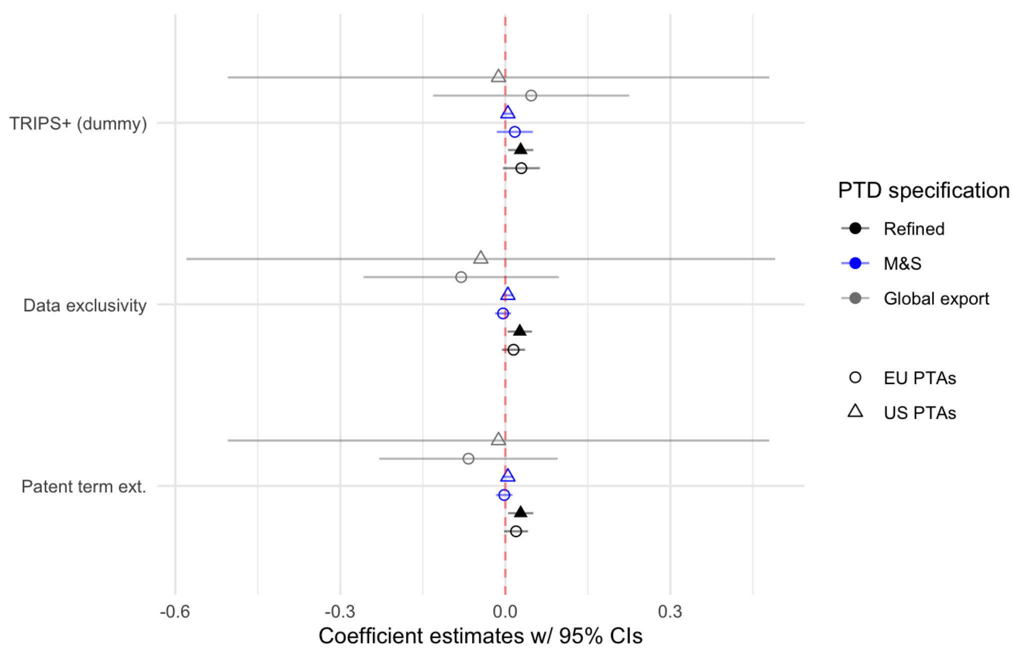

Figure 1: PTD & TRIPS-plus: TWFE OLS results

All three US coefficients using the refined version of PTD in Figure 1 confirm that a rise in the three-year moving average of PTD on the United States contributes to a higher likelihood of signing TRIPS-plus agreements and of adopting more TRIPS-plus provisions. Note that all substantive interpretations reflect within-country effects, given the two-way fixed effects specification. A one standard deviation increase in the refined PTD measure, roughly 0.078 (refer to Table A.2), raises the probability of signing a trade agreement that directly references TRIPS standards (*TRIPS-plus dummy*) by 0.22 percentage points ($0.078 \times 0.028 \approx 0.0022$; column (2) of Table A.3). This corresponds to approximately a 44% increase relative to the mean probability of signing TRIPS-plus with the United States, which is 0.005. Similarly, a one standard deviation increase in PTD yields roughly a 42% increase in the number of TRIPS-plus provisions included in a US PTA ($(0.078 \times 0.885)/0.163 \approx 0.423$; column (4) of Table A.3), relative to the mean level of the dependent variable. PTD shows comparable effects on signing treaties with test data exclusivity ($0.078 \times 0.026 = 0.002$; column (6)) and patent term extension ($0.078 \times 0.028 = 0.0022$; column (8)), both significant at the 5% level.

Political trade dependence on the European Union also shows substantial influence on the overall probability of signing TRIPS-plus agreements and on the count of TRIPS-plus clauses. A one standard deviation increase in PTD on the EU raises the probability of signing a TRIPS-plus agreement by roughly 50% relative to the mean ($(0.257 \times 0.029)/0.015 \approx 0.497$; column (1) of Table A.3), while the same increase results in an 86% increase in the average count of TRIPS-plus clauses ($(0.257 \times 1.128)/0.337 \approx 0.860$; column (3)). Both estimates are statistically significant, though the TRIPS-plus dummy coefficient is significant only at the 10% level. On the other hand, PTD on the EU does not bear a significant effect on the odds of adopting test data exclusivity clauses specifically (column (5)). Patent term extension (column (7)) is marginally significant at the 10% level.

I further probe whether the significant results of the PTD analysis hinge on a short, specific time span by examining 5-year and 7-year moving averages of PTD. The results presented in Tables A.4 and A.5 confirm that higher PTD consistently predicts an increased likelihood of signing TRIPS-plus agreements. In fact, the PTD coefficients grow larger with longer averaging windows, from 3 to 5 to 7 years. In other words, if an emerging economy has become deeply entrenched in the US or EU market under preferential schemes over a longer time horizon, the country is more likely to accept TRIPS-plus terms.

I additionally examine two alternative PTD specifications. Table A.6 reports results using the original PTD measure by Manger and Shadlen (2014), which computes dependence across all GSP-eligible exports without restricting attention to labor-intensive sectors. The coefficients are statistically insignificant across all dependent variables for both the US and EU models. Table A.7 reports results using global exports as the denominator, which similarly yields null findings across all specifications. The null results are also visualized in Figure 1.

These null results carry substantive implications for the conceptualization of political trade dependence. The insignificance of the traditional PTD measure indicates that general GSP dependence, aggregated across all product categories, does not generate sufficient political pressure to drive TRIPS-plus adoption. This is consistent with the theoretical expectation that coercive leverage operates through sectors where preference revocation would impose concentrated employment losses, rather than through the overall volume of preferential trade. When all GSP exports are treated identically, the measure dilutes the politically salient vulnerability that the refined version captures.

The null result using global exports as the denominator reinforces the bilateral nature of the coercive mechanism. A developing country's overall trade exposure to the world economy does not predict its acceptance of TRIPS-plus commitments; what matters is its asymmetric dependence on a *specific donor's* removable preferences. A country that sends 80 percent of its preferential exports to the United States in vulnerable sectors faces qualitatively different bargaining pressure than one whose US trade constitutes a small fraction of a diversified global portfolio, even if both countries have similar aggregate trade openness. Taken together, these results serve as a discriminant validity test: the refined PTD measure identifies a theoretically distinct mechanism of coercive leverage that broader operationalizations fail to detect.

3.3 Addressing Selection in US TRIPS-Plus Agreements

A natural concern with the PTD analysis is whether selection effects bias the estimated relationship between trade dependence and TRIPS-plus adoption. This concern is particularly salient for the United States, where TRIPS-plus agreements are rare events: only a handful of developing countries have signed such agreements with the US during the sample period. One might worry that unobserved characteristics of these few countries, rather than PTD itself, drive the observed association.

A standard approach to addressing selection would involve a two-stage model, such as a Heckman selection correction or bivariate probit, that separately models the decision to sign a PTA and the inclusion of TRIPS-plus provisions conditional on having a PTA. However, this approach is inapplicable in the US case for a straightforward empirical reason: virtually all US PTAs negotiated after 2000 contain TRIPS-plus provisions. The selection and outcome stages are empirically indistinguishable, as accepting a US PTA *is* accepting TRIPS-plus. There is no conditional variation in TRIPS-plus content to model in a second stage.

This empirical reality means that the relevant concern collapses to a standard omitted variable bias question: are there unobserved confounders that drive both PTD and PTA signature, inflating or deflating the estimated coefficient? To address this directly, I employ the coefficient stability framework developed by Oster (2019). The key insight of this approach is that the movement of the coefficient of interest between a short regression (without controls) and the full specification (with controls) reveals information about how observables relate to the treatment variable. Under the assumption that unobservables relate to the treatment proportionally to observables (the "proportional selection" assumption), one can bound the degree of omitted variable bias.

The critical diagnostic is δ, which measures how much more important unobservables would need to be relative to observables to drive the coefficient to zero. The standard threshold for robustness is $|\delta| > 1$: if unobservables would need to be more influential than the full set of included controls to eliminate the effect, the result is considered robust.

Table 2: Oster bounds statistics

DVs:	TRIPS-plus (dummy)	TRIPS-plus (count)	Data exclusivity	Patent term extension
β_{short}	0.018	0.541	0.015	0.018
β_{full}	0.028	0.885	0.026	0.028
R^2_{short}	0.078	0.080	0.081	0.078
R^2_{full}	0.105	0.106	0.107	0.105
R^2_{max}	0.137	0.138	0.140	0.137
δ	-3.088	-3.084	-2.992	-3.088

Table 2 reports the Oster bounds statistics for all four US TRIPS-plus dependent variables, with R^2_{max} set to $1.3 \times \tilde{R}^2$ following Oster (2019). Across all specifications, the PTD coefficient increases when moving from the short to the full model ($\hat{\beta}_{full} > \hat{\beta}_{short}$), indicating that the observable controls were net suppressors: they were partially masking the true PTD effect rather than inflating it. This pattern produces negative δ values, ranging from -2.99 to -3.09. A negative δ implies that for unobservables to drive the coefficient to zero, they would need to operate in the opposite direction from the included controls and at roughly three times their magnitude.

The choice of $R^2_{max} = 1.3 \times \tilde{R}^2$ follows the empirical benchmark established by Oster (2019), who examines a large sample of randomized controlled trials published in leading economics journals. In these studies, where treatment assignment is known to be exogenous, the observed R^2 from the fully controlled specification accounts on average for the true R^2 up to a factor of approximately 1.3. This implies that if all relevant unobservables were included, R^2 would increase by no more than 30 percent beyond the controlled model. The $1.3 \times \tilde{R}^2$ benchmark thus represents a calibrated upper bound on the explanatory power of unobservables, grounded in the empirical regularity that well-specified social science models typically capture the majority of outcome variation attributable to confounders. Using this benchmark rather than $R^2_{max} = 1$ avoids the overly conservative assumption that a perfect-fit model is attainable with observational data.

The interpretation is as follows. The observable controls - GDP, GDP per capita, GDP growth, democracy, patent applications, and existing RTAs - when accounted for, reveal a stronger PTD effect than the naive estimate. Under proportional selection, accounting for unobservables would push the coefficient even further from zero. For the result to be spurious, an unobserved confounder would need to simultaneously (a) work in the opposite direction from GDP, regime type, innovation capacity, and existing trade architecture combined, (b) be three times as influential as all of these controls, and (c) be largely orthogonal to the included covariates, since any correlation with observables is already partially captured. Constructing a theoretically plausible candidate that satisfies all three conditions is exceedingly difficult.

3.4 TRIPS-Plus on Aid Disbursements

Next, I turn to investigating the effects of signing TRIPS-plus agreements on bilateral aid disbursements to democratic developing countries, compared to autocracies. Figure 2 reports PanelMatch estimates using a symmetric lead–lag window of three years on either side of TRIPS-plus signature. TRIPS-plus signature corresponds to the TRIPS-plus dummy variable (`ipr_tripsplus_per_pta_dummy`) in the preceding section. Each point plots the ATT for a given year relative to signature, with $t + 0$ marking the year in which the agreement is signed. Filled markers denote statistically significant effects at conventional levels, while hollow markers indicate imprecise or statistically insignificant estimates. Triangles represent effects on US aid, and circles represent effects on EU aid. Vertical bars show 95% confidence intervals. Table A.8 in the Appendix reports the full PanelMatch estimates, including bootstrapped standard errors and the number of treated and matched control units for each specification.

The results show that democratic emerging economies experience an immediate and sizable increase in US aid upon signing a TRIPS-plus agreement. The ATT at $t + 0$ indicates that democracies signing a TRIPS-plus agreement with the United States receive substantially higher aid disbursements in the year of signature than comparable democracies that do not enter such agreements. In substantive terms, the point estimate corresponds to an approximately 42 percent increase ($exp(0.352) - 1 \approx 0.42$) in US aid inflow, relative to matched autocratic control units with

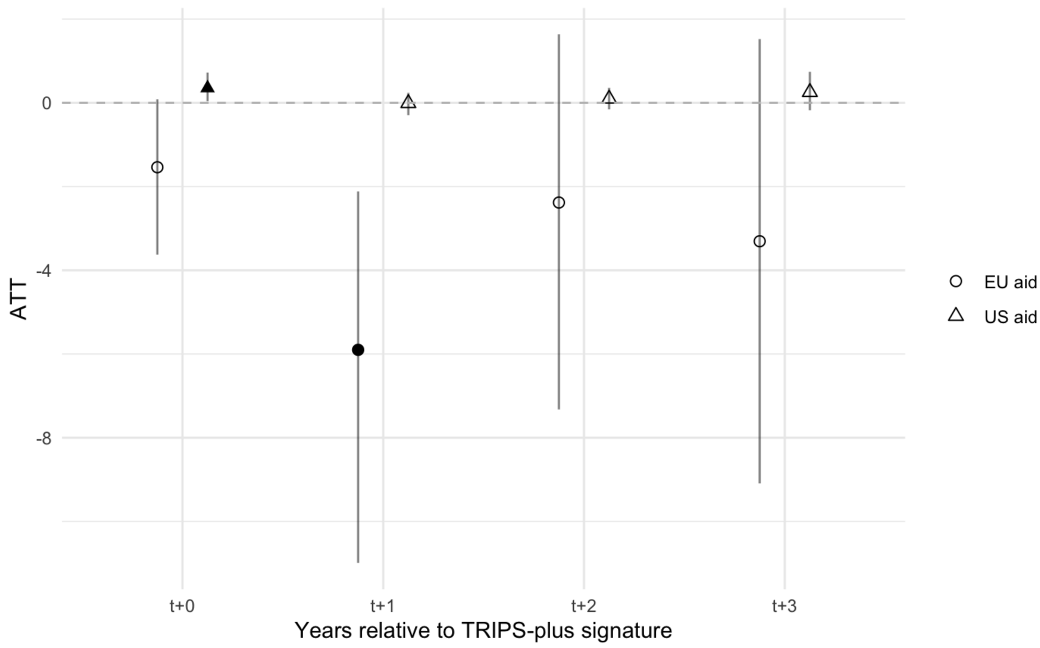

Figure 2: Aid disbursement & TRIPS-plus: PanelMatch results

similar pretreatment histories. This immediate surge supports the interpretation that US aid functions as a targeted compensatory instrument that facilitates acceptance of intensive TRIPS-plus provisions among democratic recipients.

At later leads, the treatment effect on US aid returns toward zero, indicating no persistent increase in aid even just a couple of years after signature. This temporary surge parallels the logic argued by Baccini and Urpelainen (2012) showing that side payments designed to ease formation of agreements are typically front-loaded rather than sustained. Democracies receive an initial infusion that helps governments navigate the concentrated domestic costs of stronger IP rules, yet once the agreement is concluded, donor incentives weaken and aid levels stabilize. The short-lived nature of the effect is therefore analytically consistent with a compensatory, deal-facilitating function rather than long-term development financing.

EU aid displays a sharply different trajectory from US aid within the democracy sample. The ATT estimates show a statistically significant decline in EU aid inflows at $t + 0$ and $t + 1$ for democracies that sign TRIPS-plus agreements with the European Union, followed by no discernible effects in subsequent years. The absence of a positive EU response is consistent with the theoretical expectation that side payments emerge only when obligations generate politically consequential domestic costs and when donors possess the institutional capacity to mobilize aid strategically. In the EU case, neither condition holds.

The depth of TRIPS-plus obligations helps explain the limited EU response. Existing scholarship demonstrates that US TRIPS-plus demands are exceptionally far-reaching relative to those advanced by other developed economies (Abbott, 2002; Abbott and Reichman, 2007; Fink and Reichenmiller, 2006). These maximalist commitments impose substantial adjustment pressures on developing-country governments, generating strong political demand for compensatory transfers at the moment of signature. By contrast, EU TRIPS-plus clauses do not approach the intrusive depth characteristic of US agreements. When compliance burdens are lighter, governments face fewer politically salient losses and thus less need for compensatory aid. The temporary dip in EU aid at $t + 0$ and $t + 1$ is compatible with this logic: TRIPS-plus signature with the EU does not trigger disruptive domestic adjustment, and may instead shift the EU's aid priorities toward other recipients whose development or governance profiles align more closely with ongoing programming.

Donor-side institutional structure reinforces this pattern. Even if some political demand for compensation were present, the European Union's diffuse aid architecture constrains its ability to direct and condition assistance around specific policy concessions (Carbone, 2007; Kim and Jensen, 2018). Fragmented principals face coordination obstacles that coherent donors, such as the United States, do not encounter. The PanelMatch results therefore reveal a consistent empirical pattern: democratic developing countries receive immediate, but short-lived, compensation from the United States after signing TRIPS-plus commitments, while EU aid does not adjust upward in any systematic way. This divergence aligns with the theoretical claim that meaningful aid-for-policy exchange requires both deep obligations and a donor with centralized authority capable of deploying aid instrumentally.

4 Conclusion

TRIPS recast the global rules of intellectual property by turning what had been largely aspirational norms into enforceable commitments. In the thirty years since its adoption, the United States and the European Union have widened that reach by adding stricter TRIPS-plus provisions to successive preferential trade agreements. While these provisions lock in persistent rents for IP-intensive industries based in advanced economies, they also shift sizable adjustment costs to lower-income partners. This asymmetry poses a central puzzle of why so many emerging economies accept rules that appear to divert wealth from their own producers and consumers.

This research identifies the conditions under which developing countries accept TRIPS-plus intellectual property rules that create visible domestic adjustment costs and redistribute rents toward advanced economies. The study develops a combined framework that links internal structural vulnerability generated by political trade dependence with the external rewards that coherent donors can supply through targeted foreign aid. This approach clarifies why some emerging economies accept TRIPS-plus obligations while others with similar levels of development or similar PTA activity do not. The framework also distinguishes the politics of aid-for-reform from existing work by demonstrating that the usefulness of aid as a side payment depends on the depth of the obligations involved as well as the coherence of the donor that attempts to supply compensation.

The empirical results support these claims. Higher political trade dependence significantly increases the likelihood of signing TRIPS-plus PTAs, and the refined PTD measure that focuses on labor-intensive sectors performs consistently across specifications. The analysis also shows that only US aid raises the probability of accepting TRIPS-plus obligations. EU aid does not have a comparable effect. The PanelMatch analysis reinforces these differences. Democratic recipients experience a short-lived rise in US aid immediately after signing TRIPS-plus obligations, which aligns with the logic of targeted compensation. EU aid displays no compensatory increase. These results are consistent with the substantive depth of US TRIPS-plus demands and the capacity of the United States to coordinate aid in support of specific policy concessions. They are also consistent with the lighter TRIPS-plus obligations typically found in EU PTAs and with the fragmentation of EU aid governance.

The findings have broader implications for research on asymmetric trade relations and the diffusion of regulatory standards. First, the results point toward a wider pattern in which deep regulatory obligations spread most readily when developing countries rely heavily on labor-intensive, preference-dependent exports and when powerful donors are able to mobilize compensation at the moment of commitment. Second, they show that donor coherence is a key political resource in shaping policy outcomes in developing countries. Fragmented donors are limited in their ability to use aid strategically even when they possess significant market leverage.

Taken together, this study shows that TRIPS-plus diffusion arises through the interaction of structural dependence and donor aid strategy. Internal vulnerability shapes the willingness of governments to consider stringent IP rules, while external support determines whether those rules become politically feasible. This interaction explains why the United States exercises a distinctive influence over TRIPS-plus adoption and why similar influence does not extend to the European Union.

5 Competing Interests

The author declares none.

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A Appendix

Figure A.1: GSP eligibility of WTO developing countries

Table A.1: Descriptive statistics - EU aid recipients

DVs	Mean	SD	Min	Max	*N*
TRIPS-plus (dummy)	0.015	0.120	0	1	2,387
TRIPS-plus (count)	0.337	3.052	0	39	2,387
Data exclusivity	0.003	0.050	0	1	2,387
Patent term extension	0.003	0.054	0	1	2,387
Covariates	Mean	SD	Min	Max	*N*
PTD_{MA}	0.179	0.257	0.000	0.982	2,142
PTD_{MA} (5-year)	0.182	0.252	0.000	0.973	1,902
PTD_{MA} (7-year)	0.183	0.247	0.000	0.972	1,664
PTD_{MA} (M&S)	0.148	0.236	0.000	0.991	2,142
PTD_{MA} (global export)	0.012	0.051	0.000	0.469	1,732
EU aid (logged)	16.35	7.377	-20.08	22.52	2,112
GDP per capita (logged)	8.934	0.998	6.752	11.784	2,316
GDP (logged)	24.63	2.048	20.16	30.56	2,316
GDP growth (%)	4.009	5.123	-36.392	63.440	2,365
RTAs signed	0.197	0.491	0	6	2,387
Democracy	0.658	0.474	0	1	2,387
Patent applications (logged)	2.696	3.337	0.000	13.741	2,385

Table A.2: Descriptive statistics - US aid recipients

DVs	Mean	SD	Min	Max	*N*
TRIPS-plus (dummy)	0.005	0.100	0	1	3,150
TRIPS-plus (count)	0.163	0.087	0	42	3,150
Data exclusivity	0.004	0.098	0	1	3,150
Patent term extension	0.005	0.100	0	1	3,150
Covariates	Mean	SD	Min	Max	*N*
PTD_{MA}	0.025	0.078	0.000	0.737	2,918
PTD_{MA} (5-year)	0.027	0.075	0.000	0.698	2,682
PTD_{MA} (7-year)	0.028	0.072	0.000	0.676	2,459
PTD_{MA} (M&S)	0.077	0.141	0.000	0.893	1,617
PTD_{MA} (global export)	0.0004	0.002	0.000	0.052	2,337
US aid (logged)	17.25	2.599	-15.74	23.48	2,498
GDP per capita (logged)	8.833	0.966	6.289	10.960	2,960
GDP (logged)	24.38	2.002	20.01	30.20	2,960
GDP growth (%)	3.817	5.412	-36.392	106.280	3,001
RTAs signed	0.197	0.500	0	6	3,150
Democracy	0.696	0.460	0	1	2,760
Patent applications (logged)	2.489	3.152	0.000	11.028	3,045
USTR Watch List	0.200	0.400	0	1	3,150

Table A.3: Political Trade Dependence (PTD) & TRIPS-plus clauses: TWFE OLS results

DVs:	TRIPS-plus (dummy)		TRIPS-plus (count)		Data exclusivity		Patent term extension	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	EU PTA	US PTA	EU PTA	US PTA	EU PTA	US PTA	EU PTA	US PTA
PTD	0.029^{+}	0.028^{*}	1.128^{*}	0.885^{*}	0.015	0.026^{*}	0.019^{+}	0.028^{*}
	(0.017)	(0.012)	(0.504)	(0.390)	(0.011)	(0.011)	(0.011)	(0.012)
GDP per capita (logged)	0.009	0.021	0.651	0.589	0.026^{+}	0.009	0.037^{*}	0.021
	(0.037)	(0.013)	(0.987)	(0.403)	(0.013)	(0.012)	(0.015)	(0.013)
GDP (logged)	0.065	-0.023^{+}	1.030	-0.630	-0.016^{+}	-0.011	-0.028^{*}	-0.023^{+}
	(0.040)	(0.014)	(1.002)	(0.398)	(0.009)	(0.012)	(0.013)	(0.014)
GDP growth (%)	-0.006	-0.001	-0.067	-0.020	0.001	-0.001	0.001	-0.001
	(0.005)	(0.001)	(0.109)	(0.043)	(0.001)	(0.001)	(0.001)	(0.001)
RTAs signed	0.084^{**}	0.024^{**}	1.975^{**}	0.803^{**}	0.019^{*}	0.022^{**}	0.022^{*}	0.024^{**}
	(0.013)	(0.008)	(0.339)	(0.268)	(0.008)	(0.008)	(0.009)	(0.008)
Democracy	0.000	0.004^{+}	0.038	0.142	0.000	0.004	-0.001	0.004^{+}
	(0.007)	(0.003)	(0.167)	(0.090)	(0.002)	(0.003)	(0.002)	(0.003)
Patent applications (logged)	0.000	-0.001	0.046	-0.039	0.000	-0.001	0.000	-0.001
	(0.002)	(0.001)	(0.045)	(0.033)	(0.000)	(0.001)	(0.000)	(0.001)
USTR Watch List		-0.009		-0.256		-0.006		-0.009
		(0.006)		(0.173)		(0.005)		(0.006)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
N	1,882	2,455	1,882	2,455	1,882	2,455	1,882	2,455
R^2	0.195	0.105	0.173	0.106	0.094	0.107	0.095	0.105
Within R^2	0.085	0.024	0.075	0.022	0.028	0.021	0.032	0.024

Standard errors clustered at country level in parentheses
*Signif. Codes: **: 0.01, *: 0.05, +: 0.1*

Table A.4: PTD robustness check: 5-year moving average

DVs:	TRIPS-plus (dummy)		TRIPS-plus (count)		Data exclusivity		Patent term extension	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	EU PTA	US PTA	EU PTA	US PTA	EU PTA	US PTA	EU PTA	US PTA
PTD (5-year MA)	0.046^{*}	0.054^{**}	1.625^{*}	1.729^{**}	0.018	0.051^{**}	0.024^{+}	0.054^{**}
	(0.021)	(0.019)	(0.623)	(0.635)	(0.014)	(0.018)	(0.014)	(0.019)
GDP per capita (logged)	-0.062	0.024	-1.132	0.649	0.021	0.009	0.032^{+}	0.024
	(0.052)	(0.018)	(1.315)	(0.553)	(0.015)	(0.016)	(0.017)	(0.018)
GDP (logged)	0.167^{**}	-0.029	3.389^{*}	-0.808	-0.013	-0.014	-0.027^{+}	-0.029
	(0.055)	(0.018)	(1.364)	(0.523)	(0.011)	(0.015)	(0.015)	(0.018)
GDP growth (%)	-0.005	-0.001	-0.041	-0.023	0.001	-0.001	0.001	-0.001
	(0.006)	(0.001)	(0.120)	(0.045)	(0.001)	(0.001)	(0.001)	(0.001)
RTAs signed	0.110^{**}	0.029^{**}	2.615^{**}	0.953^{**}	0.026^{*}	0.026^{**}	0.030^{*}	0.029^{**}
	(0.017)	(0.009)	(0.469)	(0.306)	(0.011)	(0.009)	(0.012)	(0.009)
Democracy	0.000	0.006^{+}	0.044	0.180^{+}	0.000	0.005^{+}	-0.002	0.006^{+}
	(0.008)	(0.003)	(0.204)	(0.099)	(0.002)	(0.003)	(0.003)	(0.003)
Patent applications (logged)	0.001	-0.002	0.053	-0.055	0.000	-0.002^{+}	0.000	-0.002
	(0.002)	(0.001)	(0.047)	(0.036)	(0.000)	(0.001)	(0.000)	(0.001)
USTR Watch List		-0.002		-0.047		-0.001		-0.002
		(0.004)		(0.129)		(0.004)		(0.004)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
N	1,661	2,248	1,661	2,248	1,661	2,248	1,661	2,248
R^2	0.223	0.113	0.202	0.113	0.108	0.114	0.109	0.113
Within R^2	0.118	0.028	0.103	0.026	0.037	0.025	0.041	0.028

Standard errors clustered at country level in parentheses
*Signif. Codes: **: 0.01, *: 0.05, +: 0.1*

Table A.5: PTD robustness check: 7-year moving average

DVs:	TRIPS-plus (dummy)		TRIPS-plus (count)		Data exclusivity		Patent term extension	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	EU PTA	US PTA	EU PTA	US PTA	EU PTA	US PTA	EU PTA	US PTA
PTD (7-year MA)	0.044	0.072**	1.826*	2.403**	0.023	0.072**	0.031	0.072**
	(0.033)	(0.026)	(0.901)	(0.887)	(0.019)	(0.026)	(0.020)	(0.026)
GDP per capita (logged)	-0.242**	0.017	-5.831**	0.680	0.001	0.017	0.011	0.017
	(0.087)	(0.023)	(2.057)	(0.808)	(0.022)	(0.023)	(0.023)	(0.023)
GDP (logged)	0.405**	-0.020	9.224**	-0.779	0.003	-0.020	-0.011	-0.020
	(0.096)	(0.021)	(2.262)	(0.728)	(0.017)	(0.021)	(0.021)	(0.021)
GDP growth (%)	-0.002	-0.001	0.036	-0.043	0.001	-0.001	0.002	-0.001
	(0.006)	(0.002)	(0.125)	(0.053)	(0.001)	(0.002)	(0.001)	(0.002)
RTAs signed	0.121**	0.029**	3.017**	1.007**	0.030*	0.029**	0.034*	0.029**
	(0.019)	(0.010)	(0.542)	(0.349)	(0.013)	(0.010)	(0.014)	(0.010)
Democracy	0.006	0.005	0.221	0.174	0.001	0.005	-0.001	0.005
	(0.011)	(0.004)	(0.273)	(0.127)	(0.002)	(0.004)	(0.003)	(0.004)
Patent applications (logged)	0.001	-0.002+	0.040	-0.064+	0.001	-0.002+	0.001	-0.002+
	(0.002)	(0.001)	(0.051)	(0.038)	(0.000)	(0.001)	(0.000)	(0.001)
USTR Watch List		-0.001		-0.039		-0.001		-0.001
		(0.004)		(0.140)		(0.004)		(0.004)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
N	1,440	2,061	1,440	2,061	1,440	2,061	1,440	2,061
R^2	0.248	0.120	0.231	0.119	0.121	0.120	0.123	0.120
Within R^2	0.143	0.027	0.130	0.026	0.044	0.027	0.048	0.027

Standard errors clustered at country level in parentheses
*Signif. Codes: **: 0.01, *: 0.05, +: 0.1*

Table A.6: Original PTD by Manger and Shadlen (2014)

DVs:	TRIPS-plus (dummy)		TRIPS-plus (count)		Data exclusivity		Patent term extension	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	EU PTA	US PTA	EU PTA	US PTA	EU PTA	US PTA	EU PTA	US PTA
PTD (M&S)	0.017	0.005	0.435	0.161	-0.004	0.005	-0.002	0.005
	(0.017)	(0.005)	(0.416)	(0.175)	(0.007)	(0.005)	(0.008)	(0.005)
GDP per capita (logged)	0.010	-0.008	0.638	-0.270	0.022+	-0.008	0.034*	-0.008
	(0.038)	(0.008)	(0.994)	(0.295)	(0.012)	(0.008)	(0.014)	(0.008)
GDP (logged)	0.068+	0.001	1.230	0.042	-0.009	0.001	-0.021+	0.001
	(0.040)	(0.003)	(1.012)	(0.115)	(0.008)	(0.003)	(0.012)	(0.003)
GDP growth (%)	-0.006	0.000	-0.073	0.012	0.000	0.000	0.001	0.000
	(0.005)	(0.000)	(0.109)	(0.014)	(0.001)	(0.000)	(0.001)	(0.000)
RTAs signed	0.084**	0.003	1.976**	0.094	0.019*	0.003	0.022*	0.003
	(0.013)	(0.003)	(0.344)	(0.094)	(0.008)	(0.003)	(0.009)	(0.003)
Democracy	0.000	0.000	0.067	0.004	0.001	0.000	0.000	0.000
	(0.007)	(0.001)	(0.174)	(0.024)	(0.002)	(0.001)	(0.003)	(0.001)
Patent applications (logged)	0.000	-0.002	0.050	-0.065	0.000	-0.002	0.000	-0.002
	(0.002)	(0.002)	(0.045)	(0.066)	(0.000)	(0.002)	(0.000)	(0.002)
USTR Watch List		0.001		0.032		0.001		0.001
		(0.002)		(0.054)		(0.002)		(0.002)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
N	1,882	1,328	1,882	1,328	1,882	1,328	1,882	1,328
R^2	0.194	0.187	0.171	0.187	0.092	0.187	0.093	0.187
Within R^2	0.085	0.013	0.073	0.013	0.027	0.013	0.029	0.013

Standard errors clustered at country level in parentheses
*Signif. Codes: **: 0.01, *: 0.05, +: 0.1*

Table A.7: Alternative PTD using global export as the denominator

DVs:	TRIPS-plus (dummy)		TRIPS-plus (count)		Data exclusivity		Patent term extension	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	EU PTA	US PTA	EU PTA	US PTA	EU PTA	US PTA	EU PTA	US PTA
PTD (global export)	0.047	-0.012	0.257	-0.726	-0.080	-0.045	-0.067	-0.012
	(0.090)	(0.248)	(3.272)	(8.439)	(0.090)	(0.269)	(0.082)	(0.248)
GDP per capita (logged)	0.060*	0.027	2.149**	0.777	0.031*	0.012	0.046*	0.027
	(0.026)	(0.017)	(0.805)	(0.526)	(0.016)	(0.016)	(0.018)	(0.017)
GDP (logged)	-0.040	-0.024	-1.697*	-0.633	-0.015	-0.008	-0.032*	-0.024
	(0.028)	(0.018)	(0.781)	(0.559)	(0.010)	(0.017)	(0.016)	(0.018)
GDP growth (%)	-0.003	-0.001	0.047	-0.029	0.001	-0.001	0.001	-0.001
	(0.004)	(0.002)	(0.085)	(0.072)	(0.001)	(0.002)	(0.001)	(0.002)
RTAs signed	0.070**	0.026**	1.676**	0.855**	0.022*	0.023**	0.025**	0.026**
	(0.013)	(0.008)	(0.365)	(0.290)	(0.009)	(0.008)	(0.010)	(0.008)
Democracy	-0.004	0.007+	0.018	0.229+	0.002	0.006+	0.001	0.007+
	(0.009)	(0.004)	(0.225)	(0.121)	(0.003)	(0.003)	(0.004)	(0.004)
Patent applications (logged)	0.001	-0.001	0.082+	-0.046	0.000	-0.002	0.000	-0.001
	(0.002)	(0.001)	(0.044)	(0.038)	(0.000)	(0.001)	(0.000)	(0.001)
USTR Watch List		-0.013+		-0.370+		-0.009		-0.013+
		(0.007)		(0.222)		(0.006)		(0.007)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
N	1,538	1,994	1,538	1,994	1,538	1,994	1,538	1,994
R^2	0.193	0.114	0.160	0.115	0.100	0.116	0.100	0.114
Within R^2	0.070	0.025	0.060	0.023	0.031	0.022	0.035	0.025

Standard errors clustered at country level in parentheses
*Signif. Codes: **: 0.01, *: 0.05, +: 0.1*

Table A.8: PanelMatch results

DVs:	EU aid	US aid
	(1)	(2)
$t+0$	-1.571	0.352*
	(1.154)	(0.208)
$t+1$	-5.943*	-0.010
	(2.695)	(0.169)
$t+2$	-2.407	0.095
	(2.733)	(0.163)
$t+3$	-3.324	0.254
	(3.246)	(0.279)
Treated units	32	9
Matched set size (median)	69	98

Boostrapped standard errors in parentheses
Matched set size denotes how many control units are matched to each treated unit.
*Signif. Codes: *: 0.05*