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

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Abstract

Introduction of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) marked the new era of intellectual property (IP) rights protection through preferential trade agreements (PTAs). TRIPS-plus IP rules impose substantial domestic costs on developing countries, yet many governments adopt them through preferential trade agreements with the United States and the European Union. This study explains TRIPS-plus adoption as a function of internal structural vulnerability and external political support. Developing countries whose labor-intensive exports rely heavily on discretionary preference schemes such as the Generalized System of Preferences face credible threats of suspension and therefore stronger incentives to formalize access through PTAs that include TRIPS-plus rules. A refined measure of political trade dependence that isolates these sensitive sectors captures this vulnerability more accurately than aggregate indicators, first introduced by Manger and Shadlen (2014). Foreign aid functions as a complementary mechanism that helps governments manage the domestic adjustment costs of strengthened IP protections, although compensation emerges only when obligations are substantively deep and donors can mobilize aid coherently. Empirically, TWFE OLS estimates show that higher PTD significantly increases the likelihood of adopting TRIPS-plus provisions. PanelMatch results confirm a short-lived rise in US aid after signature, while EU aid remains unresponsive due to weaker IP obligations and donor fragmentation.

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

*The earlier version of this paper, "Leveraging for Better Investment Grounds", was presented at 2022 IPES Conference. I appreciate the valuable feedback from the panel participants.

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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 secure rents for innovation-intensive firms headquartered in advanced economies but impose significant adjustment costs on developing countries through delayed generic entry, constrained policy space, and heightened regulatory burdens. 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 acceptance: 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 Smith, 2007; Bearce and Tirone, 2010; Baccini and Urpelainen, 2012; Kono and Montinola, 2015). Because TRIPS-plus obligations differ in their substantive intrusiveness across donors and because donors vary in the coherence of their aid regimes, the political value of compensation should differ systematically across partners.

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 1990 to 2023. 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 USAID (for the United States) and OECD DAC2A (for the European Union). 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, with democracy included as a moderator 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 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, while EU aid declines modestly and displays no sustained effect, which is consistent with the relatively lighter obligations embedded in EU agreements and the EU's fragmented aid architecture. Together, the findings support the claim that export vulnerability under discretionary preferences, coupled with the strategic deployment of aid by coherent donors, pushes emerging economies into TRIPS-plus compliance.

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. They also imposed asymmetric disadvantages on developing countries. Stronger IP rules can displace workers in unlicensed-goods sectors, delay the arrival of generic pharmaceuticals, and produce monopoly pricing that falls heavily on low-income populations (Maskus, 2000). Research further shows that heightened IPR protection channels rents toward advanced, innovation-intensive economies and suppress local technological

upgrading (Glass and Wu, 2007; McCalman, 2001). These structural concerns motivated the Doha Declaration's emphasis on safeguarding access to medicines.

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 IPR 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 cannot meaningfully negotiate around strengthened IP commitments when seeking preferential access to major markets. They face a bundled set of obligations rather than a menu of separable concessions.

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. This paper refines the concept by isolating those developing economies whose export portfolios are heavily concentrated in labor-intensive sectors that rely on these 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 has 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. 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. These resources create room for transitional measures that cushion the impact on health budgets, generic producers, and vulnerable consumers. 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 nondemocratic 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 protections impose 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 is 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. A large body of scholarship identifies the United 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. 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, the existing literature does not characterize EU obligations as uniquely intrusive. Rather, the central finding across the literature is that the United States occupies the far end of the TRIPS-plus spectrum, advancing IP protection, especially in pharmaceuticals and enforcement, that exceed those pursued by any other advanced economy. The EU's TRIPS-plus clauses therefore 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. 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 US foreign aid apparatus, characterized by centralized executive authority and clear channels for linking disbursements to specific policy concessions, is institutionally equipped to provide such compensation. By contrast, not only EU TRIPS-plus obligations generally produce less domestic disruption and therefore weaker political demand for compensation, the European Union faces structural barriers to using aid instrumentally. Authority over development assistance is divided between the European Commission and the member states, each operating under distinct priorities, instruments, and budgetary constraints (Carbone, 2007). This fragmentation produces heterogeneous preferences among principals and limits the Union's ability to coordinate and condition aid in support of discrete policy outcomes. Findings by Kim and Jensen (2018) further underscore how these institutional features shape the distribution of EU assistance, showing that EU aid patterns reflect dispersed principals rather than a unified strategic actor.

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 1990 to 2023.

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

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

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. Finally, 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).

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:

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

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, $\boldsymbol{\Gamma}$ the vector of covariate coefficients, α_i country fixed effect, and δ_t year fixed effect.

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. US bilateral aid disbursement data are sourced from the total official development assistance (ODA) amounts reported by US Agency for International Development (USAID) via the ForeignAssistance.gov database. EU aid disbursement data originate from OECD DAC2A ("Aid (ODA) disbursements to countries and regions") database.

PanelMatch (Imai et al., 2023) is well suited for evaluating the effect of TRIPS-plus signing on aid inflows 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.

The analysis also incorporates a binary democracy indicator as a moderator to estimate separate treatment effects for democratic and non-democratic emerging economies. This reflects well-established findings, also incorporated in H2, that democracies are more likely to receive bilateral aid, face stronger public scrutiny over policy concessions, and respond differently to donor incentives (Baccini and Urpelainen, 2012; Carter and Stone, 2015). Conditioning treatment effects

on regime type allows the analysis to identify whether TRIPS-plus signing increases aid inflows more strongly among democratic recipients, which aligns with theories suggesting that aid is more effectively deployed as a compensatory instrument in political systems with higher transparency and accountability. Comparing average treatment effects on the treated (ATTs) across regime categories therefore provides a substantive test of whether the political institutions of recipient states condition the aid-related consequences of TRIPS-plus commitments.

Table 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
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

Table 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
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

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.1 presents all the results. Figure 1 visualizes the results by plotting coefficients and 95% confidence intervals only for PTD across four models with different dependent variables. Coefficients that are statistically significant at 95% confidence level correspond to shapes that are filled in, whereas those that are not significant are left hollow.

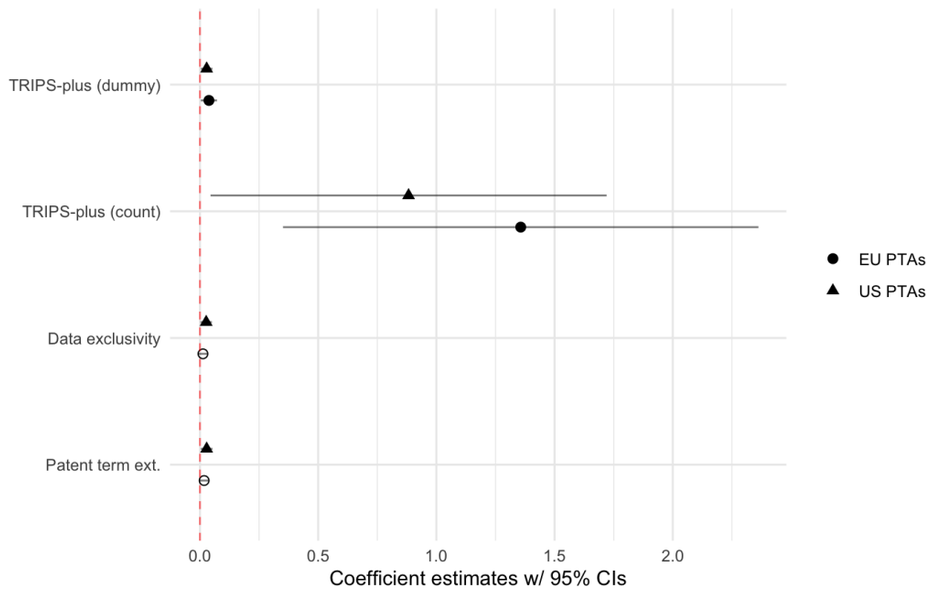

Figure 1: PTD & TRIPS-plus: TWFE OLS results

All four coefficients in Figure 1 confirm that rise in the three-year moving average of PTD of emerging economies on the United States contributes to higher likelihoods of signing TRIPS-plus agreements, and adopting more TRIPS-plus provisions. Note that all the substantive interpretations reflect within-country effects, as TWFE OLS models have been used. One standard deviation increase in the PTD measure, which is roughly 0.078 (refer to Table 2), the probability of signing a trade agreement including direct reference to TRIPS standards (*TRIPS-plus dummy*) increases by 0.22 percentage-point ($0.078 \times 0.028 \approx 0.0022$; refer to column (2) of Table A.1). This is comparable to roughly a 50% increase from the mean probability of signing TRIPS-plus with the United States, which is 0.004. Similarly, a one standard deviation increase in PTD results in 43% ($(0.078 \times 0.882)/0.163 \approx 0.429$; refer to column (4) of Table A.1) increase in the number of TRIPS-plus provisions included in a PTA with the United States, compared to the mean level of the dependent variable (*TRIPS-plus count*). PTD shows about the same size of effect on signing treaties with test data exclusivity and patent term extension, as the coefficient sizes are similar to that of the TRIPS-plus dummy model (refer to columns (6) and (8)).

Political trade dependence on the European Union also shows substantial influence on the overall decision of signing TRIPS-plus agreement, and adding extra clauses in a PTA with the European Union: a one standard deviation increase in PTD on EU contributes to roughly a 65% increase ($(0.038 \times 0.257)/0.015 \approx 0.651$; refer to column (1) in Table A.1) relative to the mean probability of signing TRIPS-plus at 0.015, while the same magnitude of increase in PTD on EU results in a 103% increase ($(1.357 \times 0.257)/0.337 \approx 1.034$ refer to column (3) in Table A.1) relative to the average count of TRIPS-plus clauses in a EU PTA, which is 0.337. On the other hand, PTD does not bear significant effect on the odds of adopting test data exclusivity and patent term extension clauses in EU PTAs. The coefficients for both models do not show statistical significance, even at 90% confidence level.

I further probe for the possibilities where the significant results of the PTD analysis hinge on a short, specific time span by looking at 5-year and even 7-year moving average of PTD. The results presented in Table A.2 and A.3 confirm that higher PTD consistently predicts increased likelihood of signing TRIPS-plus agreements. In fact, the size of PTD coefficients gets larger with longer time period over which the PTD measure gets averaged, i.e., 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 in US- or EU-proposed trade agreements.

3.3 TRIPS-Plus on Aid Disbursements

Next, I turn to investigating the effects of signing TRIPS-plus agreements on bilateral aid disbursements. Figure 2 reports PanelMatch estimates for the democracy subsample 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.

The results show that democratic emerging economies experience an immediate and siz-

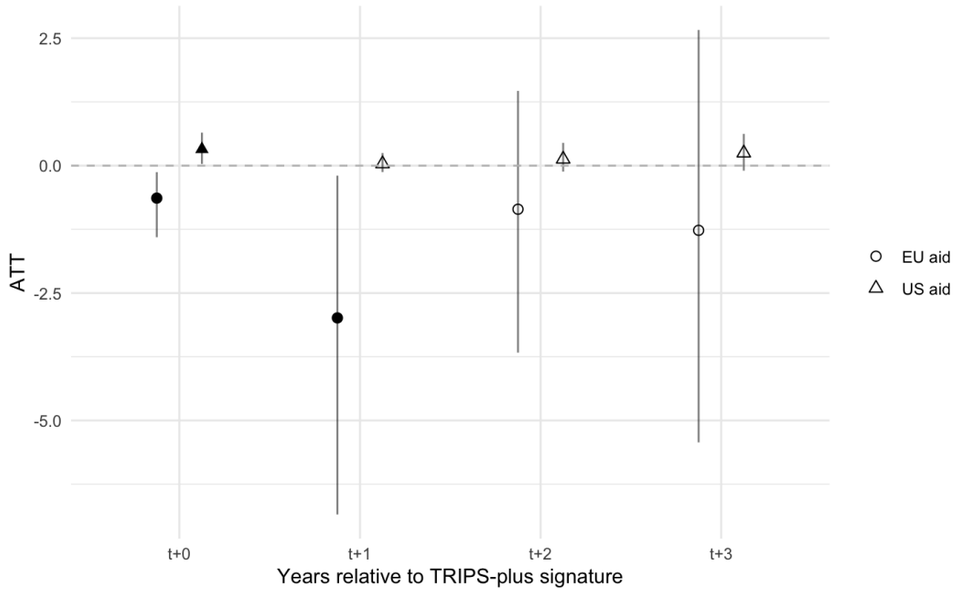

Figure 2: Aid disbursement & TRIPS-plus: PanelMatch results

able 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 38 percent increase ($exp(0.323) - 1 \approx 0.38$) in US aid inflow, relative to matched democratic control units with 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, and the confidence intervals widen substantially, 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.

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A Appendix

Table A.1: 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	0.038*	0.028*	1.357**	0.882*	0.013	0.026*	0.018	0.028*
	(0.017)	(0.012)	(0.507)	(0.422)	(0.011)	(0.012)	(0.011)	(0.012)
GDP per capita (logged)	0.038	0.026+	1.074	0.775+	0.019+	0.014	0.032*	0.026+
	(0.027)	(0.014)	(0.767)	(0.462)	(0.011)	(0.014)	(0.014)	(0.014)
GDP (logged)	-0.021	-0.024	-0.879	-0.691	-0.019+	-0.012	-0.034*	-0.024
	(0.036)	(0.015)	(0.950)	(0.485)	(0.011)	(0.015)	(0.016)	(0.015)
GDP growth (%)	-0.007	0.000	-0.096	-0.009	0.000	0.000	0.001	0.000
	(0.006)	(0.002)	(0.123)	(0.060)	(0.001)	(0.002)	(0.001)	(0.002)
RTAs signed	0.075**	0.025**	1.748**	0.836**	0.019*	0.023**	0.023*	0.025**
	(0.013)	(0.008)	(0.358)	(0.284)	(0.009)	(0.008)	(0.009)	(0.008)
Democracy	-0.005	0.005	-0.073	0.146	0.000	0.004	-0.002	0.005
	(0.007)	(0.003)	(0.175)	(0.099)	(0.002)	(0.003)	(0.002)	(0.003)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
N	1,658	2,162	1,658	2,162	1,658	2,162	1,658	2,162
R^2	0.183	0.110	0.158	0.111	0.102	0.112	0.102	0.110
Within R^2	0.078	0.024	0.067	0.022	0.031	0.021	0.035	0.024

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

Table A.2: 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)	0.054**	0.056**	1.821**	1.808*	0.015	0.053*	0.021	0.056**
	(0.017)	(0.021)	(0.586)	(0.696)	(0.014)	(0.020)	(0.015)	(0.021)
GDP per capita (logged)	-0.011	0.031	-0.202	0.900	0.008	0.016	0.022	0.031
	(0.037)	(0.020)	(0.954)	(0.643)	(0.009)	(0.020)	(0.014)	(0.020)
GDP (logged)	0.041	-0.031	0.564	-0.877	-0.010	-0.015	-0.028	-0.031
	(0.048)	(0.021)	(1.233)	(0.656)	(0.011)	(0.020)	(0.018)	(0.021)
GDP growth (%)	-0.007	0.000	-0.073	-0.012	0.001	-0.001	0.002	0.000
	(0.007)	(0.002)	(0.144)	(0.063)	(0.001)	(0.002)	(0.002)	(0.002)
RTAs signed	0.099**	0.030**	2.355**	0.993**	0.027*	0.027**	0.031*	0.030**
	(0.017)	(0.009)	(0.500)	(0.325)	(0.012)	(0.009)	(0.013)	(0.009)
Democracy	-0.006	0.007+	-0.082	0.202+	-0.001	0.005	-0.003	0.007+
	(0.008)	(0.004)	(0.203)	(0.115)	(0.002)	(0.003)	(0.003)	(0.004)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
N	1,464	1,981	1,464	1,981	1,464	1,981	1,464	1,981
R^2	0.204	0.117	0.184	0.118	0.119	0.118	0.119	0.117
Within R^2	0.106	0.028	0.092	0.026	0.043	0.024	0.047	0.028

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

Table A.3: 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)	0.067**	0.077**	2.367**	2.568*	0.020	0.077**	0.029	0.077**
	(0.024)	(0.029)	(0.764)	(0.983)	(0.020)	(0.029)	(0.021)	(0.029)
GDP per capita (logged)	-0.133*	0.025	-3.719*	0.981	-0.024	0.025	-0.011	0.025
	(0.063)	(0.027)	(1.499)	(0.934)	(0.017)	(0.027)	(0.021)	(0.027)
GDP (logged)	0.186*	-0.021	4.381*	-0.838	0.019	-0.021	0.001	-0.021
	(0.076)	(0.026)	(1.885)	(0.908)	(0.018)	(0.026)	(0.024)	(0.026)
GDP growth (%)	-0.006	-0.001	-0.029	-0.045	0.002	-0.001	0.003	-0.001
	(0.007)	(0.002)	(0.157)	(0.076)	(0.002)	(0.002)	(0.002)	(0.002)
RTAs signed	0.110**	0.030**	2.761**	1.038**	0.032*	0.030**	0.036*	0.030**
	(0.020)	(0.011)	(0.580)	(0.370)	(0.015)	(0.011)	(0.015)	(0.011)
Democracy	-0.002	0.006	0.031	0.192	0.000	0.006	-0.002	0.006
	(0.010)	(0.004)	(0.249)	(0.150)	(0.002)	(0.004)	(0.003)	(0.004)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
N	1,272	1,820	1,272	1,820	1,272	1,820	1,272	1,820
R^2	0.217	0.124	0.209	0.123	0.136	0.124	0.135	0.124
Within R^2	0.121	0.027	0.113	0.026	0.053	0.027	0.056	0.027

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