Trade Plants the Flag: Sanctions-busting and the Signing of New Preferential Trade Agreements

Yɪ-ʜᴀᴏ Sᴜ

Institute for National Defense and Security, Taiwan

Why does the imposition of trade sanctions sometimes lead to the signing of new preferential trade agreements (PTAs) between target countries and their trade partners? I argue that the occurrence of trade-based sanctions-busting behavior increases the likelihood of signing new PTAs despite the pressure from senders of sanctions. The notion that "trade plants the flag" explains how firms that bust sanctions lobby their home governments for signing PTAs to secure their first-mover advantage in a sanctioned market. By using rare event models and weighting methods, this empirical analysis of data from 1950 to 2006 reveals that firms' rent-seeking behavior is the driving force of seeking PTAs especially during multilateral trade sanctions. Thus, this finding can illuminate sanctions agenda as firm-level transactions may serve as a determinant of state-led institutionalized cooperation after the execution of sanctions.

Economic sanctions and preferential trade agreements (PTAs) are two contrasting economic instruments with the former suppressing commerce and the latter facilitating it (Hufbauer and Oegg 2003; Hafner-Burton and Montgomery 2008). The exercise of sanctions creates a triadic relationship among primary senders, target countries, and partners of target countries (Early 2009).[1] Counterintuitively, trade sanctions sometimes encourage the signing of new PTAs between targets and some of their partners despite political backlash from sender countries. For instance, to ensure the effectiveness of sanctions against Myanmar (1988–), the United States and the European Union (EU) exerted diplomatic pressure to block the early entry of Myanmar to the Association of Southeast Asian Nations (ASEAN) (Chongkittavorn 2001). However, the sanctions eventually drove Thailand and Singapore to advocate for Myanmar's accession to the ASEAN Free Trade Area in 1997.

Two competing theories, which differ in the driving forces of pursuing free trade, offer explanations for this puzzling phenomenon. First, the existing realist

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[1] Take as an example the international sanctions after the 2014 Crimea Crisis. The target country is Russia. Primary senders are the United States and the EU. Trade partners of the target country refer to countries that are neither primary senders nor sanctioned countries.

argument that "trade follows the flag" presumes that political relations shape economic relations (Pollins 1989). State officers take the initiative to seek trade treaties with anticipation that merchants would follow suit with political gesture (Kasaba 1993). In particular, allies are more likely to sign PTAs with each other than their counterparts because the increased incomes can be used for defense expenditure against adversaries (Mansfield 1993). Applied to the triadic context of sanctions, the notion that "trade follows the flag" implies that allies sign PTAs with the aim of reaping economic gains against the primary senders of sanctions. Nonetheless, this realist argument fails to elucidate economic cooperation between target countries and security partners of sender countries (Early 2012), as seen in Thailand and Singapore's support for Myanmar's integration into the ASEAN during the US and EU sanctions.

Accordingly, I draw an analogy that "trade plants the flag" from the liberal perspective.[2] Rather than focusing on political consideration, this argument attends to the changing business interaction in the marketplace that establishes a long-term and reliable economic relationship with sanctioned countries. Specifically, it demonstrates that signing new PTAs is likely to occur in the circumstance associated with trade-based sanctions-busting. Trade-based sanctions-busting refers to an attempt by foreign firms to undermine the efficacy of economic sanctions for commercial purposes (Early 2015).[3] Those firms are driven by the first-mover advantage to a sanctioned country when other firms comply with sanctions and temporarily cease business with the target country. To consolidate their first-mover advantage before senders lift sanctions, firm-level sanctions-busters lobby decision makers to sign PTAs that maximize their market share within the sanctioned market. In this regard, firms' sanctions-busting behavior accounts for another important factor that motivates the deepening of institutionalized trade relationships during sanctions.

To test the argument that "trade plants the flag," I employ rare event models on a panel dataset from 1950 to 2006 and conduct inverse probability weighting (IPW) in the second stage of data analysis. Statistical results exhibit the predicted relationship that although sanctions harm target countries' overall ability to sign PTAs, sanctions-busting assistance renders target countries 1.35 times more likely to sign new PTAs with targets. The finding holds in multilateral sanctions but fails to find supporting evidence in unilateral sanctions. With more countries joining sanctions and increasing restrictions on legal transactions, firms' rent-seeking behavior is decisive in fostering institutionalized cooperation between targets and their partners. The results of IPW also endorse the argument that sanctions-busting is the driving force behind signing PTAs, especially during multilateral trade sanctions.

This finding contributes to the scholarship on PTAs and sanctions through the triadic lens. In addition to the removal of trade barriers, PTAs provide institutional mechanisms to resolve disagreements, ameliorate collective action problems, and foster a sense of trust between member states (Schiff and Winters 1998; Smith 2000). Thus, PTAs enhance the commitment among participant countries to sanction common adversaries (Mansfield 1994) and reduce the likelihood of using sanctions against PTA members (Hafner-Burton and Montgomery 2008). This study adds to the existing literature as it presents the first empirical analysis to answer why and how target countries sign new PTAs with their trade partners. Although previous works indicate that global trade and foreign direct investment (FDI) usually increase after sanctions are exercised (Early 2012; Lektzian and Biglaiser 2013), no research has examined the extent to which firms' rent-seeking behavior spills over into the signing of new PTAs.

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[2] Articles have attempted to contend that "trade does not follow the flag" or "flag follows the trade" (Smith 2018). I use "plant" to symbolize the creation of PTAs based on the bottom-up approach.

[3] In this study, sanctions-busting means trade-based sanction-busting behaviors, unless specified otherwise.

The remainder of this article elaborates how "trade plants the flag." The second section discusses the underlying assumptions and primary goals of each actor in the triadic context of sanctions. I illustrate the role of firms in affecting the signing of new PTAs between targets and their partners in the third section. The fourth section introduces my research design and explains the identification strategy of statistical methods. The fifth and sixth sections present the empirical results and case study on Myanmar's admission to the ASEAN, respectively. The conclusion provides policy implications and further research agenda.

The Nexus between Sanctions, Sanctions-busting, and PTAs in the Triadic Context

International institutions are rationally designed (Koremenos, Lipson, and Snidal 2001). PTAs are "a set of institutions that are designed to foster economic integration among member-states by improving and stabilizing each member's access to other participants' markets" (Milner and Mansfield 2012, 1). In enhancing access to markets, PTAs require all member states to make reciprocal concessions on trade policy discretion and punish the violations of trade liberalization (Hicks and Kim 2015). Given these institutional mechanisms that commit member states to reduce trade barriers, policymakers sign PTAs with an expectation to increase trade flows.

Therefore, I assume that primary senders tend to prevent targets from signing PTAs to ensure that sanctions are effective. They implement coercive sanctions with an intent to inflict economic loss on target countries (Askari, Forrer, and Yang 2003), regardless of whether sanctions are effective in impelling compliance from targets (Baldwin 1985; Whang 2011). Moreover, by achieving multilateral cooperation, primary senders can limit the capacity of targets to seek PTAs with alternative partners (Bapat and Morgan 2009). For example, they may seek to enforce multilateral sanctions through international institutions to incur substantial costs in backing down (Martin 1994) and resolve the bargaining problem with secondary senders (Drezner 2000). These mechanisms should allow primary senders to make the threat to isolate targets more credible, thereby reducing the possibility of signing a PTA with targets.

In response, the ultimate goal of target countries is to survive sanctions without making concessions (Peksen and Peterson 2016). To this end, sanctioned countries show a great appetite for economic cooperation with their trade partners to break isolation and minimize economic severity. They can benefit from long-term cooperation and prevent opportunism by institutionalizing coordination with their partners (Yarbrough and Yarbrough 1992; Lake 2001). For example, suffocated by the US and EU sanctions that punish the annexation of Crimea, Russia was eager to facilitate economic integration with its neighboring countries. On May 29, 2014, political leaders of Belarus, Kazakhstan, and Russia signed the treaty to advance the Eurasian Customs Union to the Eurasian Economic Union.

Treaties are the joint outcomes of individual decisions (Przeworski and Vreeland 2002). However, during sanctions trade partners of target countries have a relative bargaining advantage to inject their preferences in negotiations because targets seek to attract international trade and FDI (Allee and Peinhardt 2014). Despite considerable leverage, theorists of economic realism and liberalism generate different arguments for explaining their intentions to seek economic cooperation with targets.

Economic Realism and State-level Sanctions-busters

Adherents of economic realism prioritize political factors in dictating the patterns of economic cooperation (Pollins 1989). Foreign aid is one of the diplomatic tools for great powers to assist countries in surviving politically and economically costly adjustments (Baccini and Urpelainen 2012). Early and Jadoon's (2016) study shows

that US sanctions ironically have a positive effect on receiving foreign aid to sanctioned countries. Early (2015) defines aid-based sanctions-busting behavior as an attempt of politically motivated third-party countries to defeat sanctions in the form of unilateral support. These countries offer aid packages to targets with an intention to soft-balance senders of sanctions or prolong the duration of sanctions (Pape 2005; Early 2011). An example of aid-based sanctions-busting is of China and Russia providing food and energy to North Korea for enduring UN and US sanctions.[4] From the standpoint of the Chinese and Russian governments, the geopolitical purpose of aid-based sanctions-busting is to maintain North Korea as a buffer between themselves and the United States.

Nonetheless, foreign aid may not be a reliable source of trade and capital replacement to target countries as it relies on one-sided support from third-party countries (Early 2015). Moreover, realists believe that such economic cooperation is fleeting and unlikely to be permanently institutionalized because it invokes concern about relative gains. That is, a country gains more from cooperation than its cooperators (Powell 1991). Political and economic independence are vital to ensure a state's continued survival because dependence on others lowers its power to eliminate threats to security (Keohane and Nye 1977). Advancing the integration level during sanctions raises the vulnerability of target states to suffer costs. For their trade partners, seeking a high integration level with sanctioned countries also increases susceptibility to political and economic risks.

However, realists contend that such negative impacts can be mitigated if cooperators are allies. Alliances are formed to enhance security by deterring aggression and coordinating military actions during conflicts (Leeds and Anac 2005). Defense pacts that include provisions for defensive support alleviate the negative security externalities of PTAs because free trade gains can be exploited against rivals rather than allies (Long and Leeds 2006).

Economic Liberalism and Firm-level Sanctions-busters

Realist arguments have a limitation in explaining economic cooperation between the target countries and allies of sender countries (Early 2012). To fill this void, liberal theories yield an analytical utility by focusing on the strategic behavior of firms. Trade sanctions distort the market within sanctioned countries by reducing the comparative advantage of export sectors while benefiting import-intensive producers (Pond 2017). The distorted markets attract foreign traders and firms to engage in trade-based sanctions-busting (Early 2015). Prior literature has indicated that firms take advantage of the misfortune of target countries to reap commercial benefits (Early 2012; Lektzian and Biglaiser 2013; Barry and Kleinberg 2015).

States often find restraining their firms from sanctions-busting costly because oversight and enforcement are difficult, and because the firms' increase in revenues benefits the home governments. A striking case is that of Chinese firms trading within Iran. These firms are attracted by the increased demand after other firms operating within Iran are required to withdraw. For instance, Zhongxing Telecommunications Equipment (ZTE), China's leading telecom equipment maker, was charged with illegal shipments to Iran. The US Department of the Treasury's Office of Foreign Assets Control imposed a $100 million fine on the sanction violations of ZTE in 2017 (US Department of the Treasury 2017). Although the Chinese

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[4]For instance, the Russian embassy in Pyongyang admitted that Russia delivered over 2,000 tons of wheat to North Korea in March 2019. Critiques considered the delivery as part of Moscow's public support of North Korea's economic crisis (Zwirko 2019). Similarly, it is widely known that Beijing's purpose in aiding North Korea is to maintain stability and prevent intervention from the United States (Nanto 2011). Admittedly, whether state-level sanctions-busting contributes to the signing of PTAs deserves further investigation. However, thus far, no sign has emerged that either China or Russia is seeking a PTA with North Korea.

government supported the UN resolution on deploying a sanction against Iran in 2010, ZTE prioritized commercial opportunities over the political risks of penalty.

Before discussing how sanctions-busting leads to PTA signature, it is necessary to introduce the liberalist assumptions on the sources of trade policy. Liberals acknowledge that states conduct cost-and-benefit calculations among alternative courses of action to determine their foreign policies (Gilpin 2002). As a black box, states are presumed to reflect subsets of societal actors' autonomous preferences to maximize aggregate gains (Moravcsik 1997). Thus, the preferences and behavior of privately organized social groups serve as fundamental determinants of seeking international cooperation. These individual actors, especially firms, are assumed to behave rationally in pursuit of their self-interests (Moravcsik 1997). Although states can influence the incentive structure of firms by making it painful or attractive for the latter to behave in a manner that meets the state expectation, in reality, it is still those commercial actors who engage in transactions across borders (Norris 2016).

This assumption often receives criticisms that point to the presence of state-owned enterprises (SOEs). SOEs are directly owned, financed, and managed by states. However, to become globally competitive in selling goods in foreign markets, SOEs show autonomy relative to state control. For example, Russian enterprises on natural resources, including oil and mineral extraction, can create consistent revenue in global markets with limited state support (Connolly 2018). Conversely, the rent-dependent sector, primarily comprising industries such as automotive machinery, often struggles to balance expenditures without state subsidies. These rent-dependent firms dominate domestic markets while failing to expand overseas (Connolly 2018). In this regard, firms capable of busting sanctions in foreign markets are relatively free from state control.

Trade Plants the Flag: Explaining Why Sanctions-busting Encourages the Signing of PTAs

The notion that "trade plants the flag" maintains that trade-based sanctions-busting contributes to governments' initiating efforts to negotiate and sign cooperative international economic agreements through the efforts of internationally active firms. Market-seeking and resource-seeking firms are two common types of firms engaging in international trade and PTAs (Baccini, Pinto, and Weymouth 2017). Market-seeking firms are generally export-oriented sectors. Unlike import-competing industries, export-oriented sectors prioritize free trade and put pressure on home governments to maximize their gains in foreign markets (Jo and Namgung 2012). Resource-seeking firms take advantage of their foreign affiliates to add values to the goods from countries with high competitive advantages, thereby opting for the policy that aims to reduce trade barriers (Baccini, Pinto, and Weymouth 2017). Regardless of the market-seeking or resource-seeking firms, they hold back if they cannot profit from doing business with sanctioned countries.

Furthermore, firm-level sanctions-busters exercise political influence to lobby on PTAs in election campaign, congressional voting, or factional politics (Fordham and McKeown 2003; Manger 2005; Baccini and Dür 2015) for securing the first-mover advantage in a sanctioned market. From firms' perspective, an effective institutionalized arrangement can enforce contracts, reduce transaction costs, and raise the costs of defection and opportunism in international interactions (North 1991). After the onset of sanctions, foreign firms are requested to disinvest and terminate business with sanctioned countries. Nevertheless, certain foreign firms and investors swoop in the sanctioned market despite growing hostility and military conflicts (Lektzian and Biglaiser 2013). In anticipation that sanctions will be eventually lifted, these firms need to increase their market share and consolidate the established business network before other firms come back. Therefore, they have an

incentive to seek new PTAs with sanctioned countries to strengthen the first-mover niche before other entrants. By contrast, the need to secure the first-mover advantage is constant in non-sanctioned countries. As a result, their home governments are responsive to firm-level busters' preference and therefore prefer economic integration with sanctioned countries than non-sanctioned countries. This proposition is summarized as the following primary hypothesis.

H1: *The occurrence of trade-based sanctions-busting behavior from trade partners increases the likelihood of signing new PTAs with target countries.*

As an extension, the occurrence of sanctions-busting during multilateral sanctions should be strong in triggering the signing of PTAs. Under multilateral sanctions, partner countries face either increased political pressure by senders to join a sanctioning coalition or the legal obligation by international institutions to enforce sanctions (Drezner 2000). In this circumstance, these countries are unable to take the initiative to sign PTAs. As a result, private sanctions-busters incentivize their home governments to prioritize the economic benefits of signing PTAs with sanctioned countries because multilateral sanctions generate more incentives for sanctions-busting activities (Drezner 2000). Specifically, trade sanctions distort the target market by favoring the import sector while undermining the export sector (Pond 2017). Restrictions on imported goods raise prices for target markets because fewer foreign firms bear the risks of illegal shipping (Kaempfer and Lowenberg 1999). Similarly, embargoes on targets' exported goods drive prices below the world average because of the fewer legal export destinations (Kaempfer and Lowenberg 1999). As a result of higher damage on the target economy, multilateral sanctions widen the gap between the price during sanctions and the price in peacetime. With sanctions-busters more reliant on the sanction rents within the target countries during multilateral sanctions, their products and services are less competitive compared with those of firms that withdraw from a sanctioned market. Thus, sanctions-busters are more active in lobbying for signing a PTA to reinforce their first-mover advantage in a multilaterally sanctioned market.

H2: *The occurrence of trade-based sanctions-busting behavior from trade partners during multilateral sanctions increases the likelihood of signing new PTAs with target countries.*

Research Design

Dependent Variable: Signature of PTAs

I use NewGene software (Bennett, Poast, and Stam 2017) to create a sample on a directed country-dyadic and annual basis from 1950 to 2006, in which i is the target country and j is its trade partner. I adopt a directed data structure to differentiate sanctioned countries from trade partners who engage in sanctions-busting behavior. Although the coding of PTA signature can be fitted in the non-directed structure, distinguishing countries under trade sanctions from countries busting sanctions is conceptually necessary.

The number of total observations is 1,276,100, and the number of dyads is 39,248. The primary dependent variable is the signing of PTAs, which is cited from the dataset of "The Design of Trade Agreements" (DESTA; May 2019 version) (Dür, Baccini, and Elsig 2014). This database covers all reciprocal trade agreements designed to liberalize trade. Moreover, because the database codes the specific institutional design of PTAs, I can conduct a robustness check by excluding framework agreements. This approach generates accurate estimated effects of sanctions-busting on PTAs focused on market access. Several pairs of countries sign different PTAs in the same year. These repeated values of PTA signing do not challenge my theoretical claim, but I keep only one observation per year to maintain the panel data structure.

I concentrate my discussion on signing instead of entry into force of PTAs to capture the sanction dynamics. The signing of international agreements signals the determination to bind with each other, whereas commencement demonstrates the consent to enforce such agreements legally (Haftel and Thompson 2013). During sanctions, primary senders can exercise diplomatic leverages to pressure the governments of third-party states but are refrained from interfering with the legislation. Moreover, delayed ratification of international treaties often stems from domestic institutional hurdles or defied public opinions over bargaining outcomes (Haftel and Thompson 2013). Therefore, the determinants of commencing PTAs have little to do with the pressure from primary senders in sanctioned markets.

Independent Variables: Imposition of Trade Sanctions and Occurrence of Sanctions-busting

I obtain data on sanctions and sanctions-busting from Early and Spice (2015) gleaned from the third edition of *Economic Sanctions Reconsidered* (Hufbauer et al. 2007). As this study focuses on the effect of trade sanctions, I exclude the cases of financial sanctions. I code trade sanctions as 1 if a target receives either an import or export sanction or both in the given year and 0 otherwise. Moreover, I categorize trade sanctions into unilateral and multilateral trade sanctions. The former is coded 1 when the target country is sanctioned by only one primary sender in the given year. The latter includes instances with multiple primary senders or international organization cooperators. In the case of international sanctions, I found problems with Hufbauer et al.'s (2007) method of coding in that several multilateral sanctions were coded as unilateral cases. I checked their case research data with the narratives provided by Early and Spice (2015) and summarized the corrections I made in table A of the online appendix. Despite this problem, the observations on unilateral and multilateral sanctions are not mutually exclusive because a target may be sanctioned by different countries in the same year for different reasons.

The primary explanatory variable is trade-based sanctions-busting behavior.[5] It is coded as a dummy variable that operationalizes whether a significant number of firms bust the sanction. The variable is specified as 1 when fulfilling two criteria: (1) a significant increase in trade between targets and their partners after sanctions are executed and (2) an absolute threshold for which the busting can sufficiently compensate the economic loss generated by senders (Early 2015). The first criterion is a yearly 5 percent growth in the average imports or exports during sanctions. The second criterion is set up to eliminate any significant boost generated by a small amount of baseline index. A trade amount with the target country is required to comprise at least 5 percent of the target's total trade in the given year. Sanctions-busting relationships are coded as persisting until an observation year in which trade levels decline (Early 2015). The number of sanctions-busting behavior under all trade sanctions between 1950 and 2006 is 2,994. The numbers under unilateral and multilateral trade sanctions are 1,886 and 1,376, respectively.

Control Variables

The first covariate is a dummy variable of *PRIMARY SENDERS*. I create this variable to denote dyads in which trade partners are the primary nation-state senders of trade sanctions. I include this covariate because, although firms from primary sender countries have incentives to bust sanctions, analyzing how those sender countries sign PTAs with targets is not the purpose of this research. I denote the

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[5] Most literature invokes lagged explanatory variables to reduce simultaneity effects. However, lag identification does not mitigate the concern about reverse causality because lag identification "merely moves the channel through which endogeneity affects the estimates of parameters of interest" (Bellemare, Masaki, and Pepinsky 2017, 949). Thus, I use the lagged variable of sanctions-busting for robustness checks. In addition, as this research focuses on the signing of PTAs during sanctions, the lagged sanctions-busting variable is recoded as 0 if the sanction is lifted in the given the.

dyads between primary nation-state senders and targets as 1 and 0 otherwise. Similar to the coding of sanctions-busting, the observations of *PRIMARY SENDERS* under unilateral or multilateral trade sanctions are recoded as 0 when the primary senders do not impose these types of sanctions. The coding on these senders is based on the information in the database of Hufbauer et al. (2007).

The second control variable is the cost of economic sanctions to targets. The intuition is that the greater the severity of sanctions, the higher the likelihood of non-sanctioned countries seeking PTAs with targets. Although Hufbauer et al. (2007) measure the average cost during the entire sanction episode, scholars often express concerns when the static cost variable is coded as constant over the whole sanction period because it makes little sense that target countries face the same cost of sanctions over time (Early and Spice 2015; Peksen and Son 2015). However, given the lack of an agreed solution, I adopt the cost to target (percent of GNP) by Hufbauer et al. (2007) and run additional models controlling for the cost of trade sanctions as robustness checks. Noticeably, because a target country may encounter different episodes of sanctions with different costs simultaneously, I choose the highest cost in the given year to address the severity of sanctions.

The third covariate measures the current level of economic integration, which is released by the Inter-University Consortium for Political and Social Research (Baier and Bergstrand 2011). Compared with the DESTA database focusing on the timing of signature, this database covers the realized PTAs on the basis of country dyads from 1960 to 2005. I consider this factor because dyads with great integration conclude more new PTAs than those with low integration. Specifically, based on how much agreements restrict the trade regulation of governments, principal investigators classify PTAs into six forms, including non-reciprocal PTAs, preferential trade arrangements, free trade areas, customs unions, common markets, and economic unions, which are coded, respectively, from 1 to 6 (Frankel 1997). With the rise in the level of integration, governments are relinquishing more control over trade policies.

Other covariates that affect the signing of PTAs are the presence of defense pacts, joint democracies, joint memberships in GATT and WTO, common regional trade agreements (RTAs), logged real GDP of individual countries, logged distance, and colonial relations between targets and their partners. The presence of defense pacts is coded 1 if target and partner states share a defense pact and 0 otherwise. The data come from the Formal Alliances in the Correlates of War Project (Version 4.1) (Gibler 2009). Second, studies have pointed out that democratic countries are more likely to seek PTAs than authoritarian regimes. Engaging in PTAs can act as a credible signal for leaders in democratic regimes to show their commitment to free trade, as protectionist interests are believed to cause resource distortions in the long run (Mansfield, Milner, and Rosendorff 2002; Milner and Mansfield 2012). The democratic score is coded between −10 (highest authoritarian) and 10 (highest democratic), and the data are obtained from the Polity IV Project (Marshall and Gurr 2014). Joint democracies are coded 1 when both countries show higher than 5 in their regime types and 0 otherwise. Logged distance refers to the log of distance between the capitals of two countries plus 1. However, if both countries are contiguous, then the value is computed as 0. Data of distance are generated by NewGene software.

RTAs account for a considerable proportion of trade agreements (Mansfield and Solingen 2010). Including RTAs also allows me to control geographical factors that drive targets to engage in PTAs with their neighbors. The value is coded 1 if target and partner states share common RTAs and 0 if not. Similarly, prior research has demonstrated that international institutions improve the bargaining power of countries in rounds of negotiation and facilitate the liberalization policy at a low cost (Mansfield and Reinhardt 2003). If both countries are members of GATT or WTO, then such dyads are coded 1 and 0 otherwise. If two countries ever had colonial

relations, then the dyads are coded 1 and 0 for no colonial ties. The data on RTAs, WTO, and colonial relations are from the CEPII Gravity Dataset (Head, Mayer, and Ries 2010). The economic size is likewise critical economic determinants of forming free trade agreements (Baier and Bergstrand 2004). Accordingly, I control the logged real GDP of target countries and their trade partners. GDP data are cited from The Quality of Government Standard Dataset (Teorell et al. 2018).

Following the standard approach of Carter and Signorino (2010), I account for temporal dependence in binary data models with a cubic polynomial of year. As binary time-series cross-section observations often violate independence assumption, the result of the logistic analysis may be misleading without accounting for the temporally related observations. Thus, these variables are computed according to the number of years since a dyad has signed a PTA. Table B of the online appendix lists the summary statistics of all independent, dependent, and control variables.

Statistical Methods

The empirical analysis has two parts, and each step copes with different challenges to causal inferences in observational panel data. First, signing PTAs is a typical example of rare events in the literature of international political economy (Mansfield and Reinhardt 2003). The number of signing PTAs is 24,954, accounting for 1.96 percent of the sample in my dataset. Similarly, the occurrence of sanctions-busting behavior constitutes 0.23 percent of the sample. The rare occurrence of both the dependent variable and explanatory variable gives rise to the problem of quasi-separation because the explanatory variable almost perfectly predicts the outcome (King and Zeng 2001). Therefore, I select rare event models to obtain accurate estimates of sanctions-busting and cluster standard errors by country dyads to address serial correlations (Zeger and Liang 1986). To sum up, the joint decision of countries i and j to sign new PTAs is based on the following model specification:

$$\Pr\left(\text{PTA}_{ijt} = 1\right) = f(\alpha_0 + \alpha_1 \text{ sanction}_{it} + \alpha_2 \text{ sanctions} - \text{busting}_{jt} + \alpha_{3-12}C_{ijt}$$
$$+ \alpha_{13-15} \text{ cubic splines} + \varepsilon_{ijt}), \tag{1}$$

where f denotes the linking function of rare event models, subscript i represents the target country, j denotes its trade partner, t refers to the year, ε_{ijt} means the error-correction terms, and C denotes all control variables that capture the observable dyad-specific characteristics.

In addition to the rare occurrence of PTA signing, repeated measurements of the same dyads and time-varying covariates in the time-series cross-sectional data pose another threat to the argument that "trade plants the flag." That is, sanctions-busting behavior at time t may contribute to the current or future signing of PTAs through the history of other covariates, such as the real GDP of individual countries (Blackwell and Glynn 2018). One can also expect that trade partners with a high propensity to seek PTAs are likely to witness their firms bust sanctions against the target country.[6] Hence, I employ IPW based on the inverse probability of each observation's exposure to the treatment of sanctions-busting. First, treatment weights are calculated to increase the under-represented observations and decrease the over-represented observations in the original sample (Williamson and Ravani 2017). For instance, suppose the Organization for Economic Cooperation

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[6]To fight endogeneity, scholars often resort to the two-stage instrumental variable or fixed-effects models. Nonetheless, instrument variable is unsuitable for discrete explanatory and outcome variables. Simply applying the reasoning of instrumental variables to the nonlinear model leads to the problem of "forbidden regressions" because only ordinary least-squares estimation can produce first stages that are uncorrelated with fitted values (Angrist and Pischke 2009). Moreover, fixed-effects models should not be used when the panel data structure does not exhibit considerable variations in the key independent variable and the dichotomous dependent variable (Beck and Katz 2001; Lipscy 2018).

and Development (OECD) countries often engage in sanctions-busting. Thus, dyads whose trade partners are OECD members are assigned a low weight. The group comparability is therefore enhanced to assess the treatment effect of sanctions-busting. Second, by applying IPW to the data, researchers can generate a pseudo-population in which the paths between the treatment and time-varying confounders are eliminated (Hernán and Robins 2019). In the pseudo-population, the causal effect is expressed as the following equation:

$$\beta_1 = E[\text{PTA}_{\text{sanctions-busting=1}}] - E[\text{PTA}_{\text{sanctions-busting=0}}], \qquad (2)$$

where the letter E represents the population average, and $\text{PTA}_{\text{sanctions-busting=1}}$ and $\text{PTA}_{\text{sanctions-busting=0}}$ are two counterfactual outcomes to be compared.

To calculate the weights, I use the Stata codes released by Hernán and Robins (2019).[7] Technically, the procedure involves three steps. First, using the logistic model, I acquire the denominator of the IP weights and predict the conditional probability of sanctions-busting on the basis of all covariates, except the imposition of trade sanctions. I then conduct another logistic model to obtain the numerator of IP weights and predict the probability of witnessing sanctions-busting. Next, these values allow me to generate the stabilized IP weights[8] and simulate a pseudo-population consisting of a treated group and an untreated group of dyads. Lastly, logistic models are fitted in the pseudo-population with clusters on dyads to estimate the causal impacts of sanctions-busting on PTA signature. Admittedly, this weighting approach is not perfect because sanctions-busting is completely dependent on the presence of sanctions. Hence, the trade sanction variables, including unilateral and multilateral sanctions, cannot be included in predicting the likelihood of witnessing sanctions-busting. Despite this limitation, IPW can minimize the concerns about endogeneity that affect the causal inference.

Results

I present the main statistical results on PTA signature in table 1. The online appendix provides the results of robustness checks controlling for cost to targets and using PTAs with market access or lagged sanctions-busting by one year. The argument that "trade plants the flag" under all trade sanctions finds supporting evidence at the 95 percent significance level in all models, including rare event models and logistic models using IP weights. The argument holds in all rare event models of multilateral sanctions but fails to find support in the cases of unilateral sanctions. The models using IPW, excluding the models using lagged sanctions-busting by one year, lend support to the hypothesis that signing PTAs is likely when the firms from trade partners bust multilateral trade sanctions. These results demonstrate that the occurrence of sanctions-busting can negate the negative impact of trade sanctions and multilateral sanctions on signing new PTAs with sanctioned countries.

In table 1, the variable of sanctions-busting is positively associated with the signing of PTAs. The point-estimated coefficients on sanctions-busting are 0.365 and 0.308, and the coefficients on the imposition of trade sanctions are -0.094 and -0.082 in the samples from 1950 to 2006 and from 1960 to 2005, respectively. The magnitudes of sanctions and sanctions-busting diminish after controlling the current level of PTAs. Although the decrease in the absolute values of sanctions and sanctions-busting is not large, this result indicates that decision makers consider the current level of mutual economic integration to determine whether to seek new PTAs.

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[7] Their codes are available at https://www.hsph.harvard.edu/miguel-hernan/causal-inference-book/.

[8] Stabilized weights are employed to adjust the extreme weights that lead to the treatment effect with a large variance. Moreover, stabilized weights can also be applied to discrete dependent variables such as dichotomous and count data (Robins, Hernán, and Brumback 2000; Xu et al. 2010).

Table 1. Rare event models on signing of PTAs

Model	All (1)	Unilateral (2)	Multilateral (3)	All (4)	Unilateral (5)	Multilateral (6)
Trade sanctions	−0.094***	0.207***	−0.602***	−0.0823**	0.185***	−0.580***
	(−3.669)	(7.117)	(−13.880)	(−3.041)	(6.215)	(−12.149)
Trade sanctions-busting	0.365**	0.231	0.720***	0.308*	0.174	0.724***
	(3.101)	(1.553)	(4.436)	(2.499)	(1.128)	(4.141)
Primary senders	−0.568	−0.766	−0.0777	−0.443	−0.711	0.0735
	(−1.719)	(−1.566)	(−0.198)	(−1.245)	(−1.293)	(0.187)
Current level of PTAs				0.643***	0.645***	0.642***
				(44.857)	(44.918)	(45.167)
Defense pacts	0.582***	0.583***	0.578***	0.347***	0.348***	0.341***
	(22.134)	(22.214)	(21.947)	(12.555)	(12.568)	(12.331)
Joint democracies	0.219***	0.230***	0.202***	0.0468	0.0574*	0.0317
	(8.826)	(9.350)	(8.159)	(1.769)	(2.180)	(1.202)
WTO members	0.751***	0.766***	0.745***	0.548***	0.561***	0.545***
	(39.696)	(40.365)	(39.292)	(29.265)	(29.799)	(29.028)
Colonial relations	0.759***	0.747***	0.750***	0.734***	0.724***	0.723***
	(10.510)	(10.401)	(10.476)	(11.438)	(11.291)	(11.351)
Common RTAs	0.422***	0.428***	0.427***	−1.289***	−1.286***	−1.287***
	(14.644)	(14.850)	(14.823)	(−25.799)	(−25.649)	(−25.899)
Logged distance	−0.179***	−0.179***	−0.180***	−0.135***	−0.134***	−0.136***
	(−42.705)	(−42.825)	(−42.655)	(−28.813)	(−28.626)	(−29.141)
Logged GDP of target	−0.00056	−0.00619	0.000613	−0.00907*	−0.0142**	−0.00812
	(−0.115)	(−1.267)	(0.127)	(−2.001)	(−3.108)	(−1.809)
Constant	−2.715***	−2.690***	−2.713***	−3.029***	−3.011***	−3.019***
	(−38.059)	(−37.714)	(−37.971)	(−44.779)	(−44.400)	(−44.729)
Observations	1,244,024	1,244,024	1,244,024	1,070,620	1,070,620	1,070,620

Notes: *t*-statistics in parentheses, year cubic terms omitted, cluster on dyads, one-tailed test, *$p < .05$, **$p < .01$, ***$p < .001$. Trade sanctions, unilateral sanctions, multilateral sanctions, sanctions-busting, and primary senders under different sanctions are different variables. I place these variables in the same rows to save space in the output tables. This approach applies to the output tables on robustness checks in the online appendix.

Working with rare event data, scholars focus on relative risks and the change in predicted probability to interpret the sustentative effects of independent variables (Kroenig 2009; Fuhrmann and Kreps 2010). I likewise generate these values by using Models 4, 5, and 6 and present the results in table 2. The baseline-predicted probability of PTA signature is 0.026 when setting *PRIMARY SENDERS* as 0, other dummy variables as 1, and all continuous and ordinal variables at their mean. Holding other factors constant, the change in sanctions-busting behavior from 0 to 1 increases the chance of PTA signature by 0.007. Considering that PTA signing is a rare outcome, this value is small but important in terms of a large sample (King and Zeng 2001). For example, suppose that 100,000 observations (dyad year) are performed, the result reflects that approximately 700 additional country dyads can engage in signing PTAs if sanctions-busting occurs. Moreover, based on the relative risks reported in table 2, I find that target states are 1.35 times more likely to conclude the PTA negotiation with partner states whose firms bust sanctions. The condition is thus critical for primary senders because the more PTAs signed during sanctions, the less the utility of sanctions to achieve the desired political goals.

With regard to the models on unilateral and multilateral sanctions, the mechanism that "trade plants the flag" clearly does not work under unilateral sanctions. Moreover, the coefficients on unilateral sanctions are statistically positive in all models. This finding is consistent with the argument that unilateral sanctions fail to

Table 2. Substantive effects of variables on the likelihood of signing of PTAs

Variable	Change in predicted probability	Relative risks
Baseline probability	0.026	
All trade sanctions	−0.002	0.923
Trade sanctions-busting	0.007	1.351
Partner is primary sender	−0.009	0.645
Baseline probability	0.029	
Unilateral trade sanctions	0.005	1.198
Unilateral trade sanctions-busting	0.005	1.193
Partner is unilateral primary sender	−0.015	0.508
Baseline probability	0.023	
Multilateral trade sanctions	−0.018	0.570
Multilateral trade sanctions-busting	0.012	2.030
Partner is multilateral primary sender	0.002	1.053
Current level of PTAs	0.019	1.865
Defense pacts	0.007	1.404
Joint WTO members	0.011	1.711
Common RTAs	−0.061	0.294
Colonial relations	0.013	2.054
Joint democracies	0.001	1.047

Note: The probabilities are calculated using Models 4, 5, and 6 in table 1. As the substantive effects of covariates are very similar using unilateral and multilateral sanctions, I display their effects under all trade sanctions here and place the rest information in the online appendix.

isolate target countries from seeking alternative markets and suppliers in the third-party countries (Barfield and Groombridge 1998; Hufbauer and Oegg 2003). With considerable political space, target countries do not necessarily need to trace the record of sanctions-busting activities to identify alternative partners. Likewise, without a binding obligation to comply with unilateral sanctions, third-party states have substantial leeway to initiate PTA negotiations for seizing new market opportunities within sanctioned countries. In short, firms that bust unilateral sanctions are not the key driving force behind the signing of new PTAs with target countries.

By contrast, the statistical results support the hypothesis that firm-level sanctions-busting renders the signing of PTAs during multilateral sanctions favorable. The magnitude of multilateral sanctions (−0.580) in Model 6 is larger than that of all trade sanctions. The quantitative difference points to the fact that multilateral sanctions largely diminish the prospect for signing PTAs with targets. Despite the negative impact, the positive effect of sanctions-busting is large (0.724) and significant at the 99.9 percent level. The relative risk of sanctions-busting suggests that sanctioned countries during international sanctions are almost 2.03 times more likely to sign PTAs with their partners when witnessing the occurrence of sanctions-busting. This finding informs policymakers of the unintended consequences of multilateral sanctions. Even though multilateral sanctions can minimize the political space of target countries, the effects are counterbalanced when firms are attracted by lucrative trading opportunities.

In terms of models using IPW, the causal effects remain statistically positive ($z > 1.96$) in the cases of trade sanctions and multilateral sanctions (table 3). The fine-grained data reveal that the coefficients on sanctions-busting in the weighted samples in 1950–2006 and 1960–2005 are 1.386 and 1.422, respectively. These estimates are interpreted as what would happen if a dyad witnesses the occurrence of sanctions-busting versus never (Williamson and Ravani 2017). The results indicate that the log likelihood of signing new PTAs with target countries is approximately 1.40 higher when firms bust sanctions for profits than in counterfactual scenarios

Table 3. Causal effects of sanctions-busting on signing of PTAs using IPW

Model	Independent variable	Original sample	Coefficient	z-statistics
1	Trade sanctions-busting	1950–2006	1.386	5.71
2	Unilateral trade sanctions-busting	1950–2006	2.033	6.52
3	Multilateral trade sanctions-busting	1950–2006	0.630	2.79
4	Trade sanctions-busting	1960–2005	1.422	5.91
5	Unilateral trade sanctions-busting	1960–2005	1.950	6.43
6	Multilateral trade sanctions-busting	1960–2005	0.641	2.63

Note. The critical value of *z*-statistics is 1.96 using one-tailed test at the 95 percent significance level.

in which firms show minimal interest in conducting business with sanctioned countries. These coefficients become larger perhaps because the variable of sanctions has to be omitted to calculate the weights. Owing to the same limitation, sanctions-busting under unilateral sanctions becomes significantly positive in the weighted samples. However, as the results based on the original samples that include unilateral sanctions variables do not support the main hypothesis, it is risky to claim that sanctions-busting increases the likelihood of PTA signing during unilateral sanctions.

The logic that "trade plants the flag" finds support after the weighted samples are used on multilateral sanctions. Although the coefficients become slightly smaller (approximately 0.64), the results still indicate that the condition of sanctions-busting is the most favorable for concluding PTA negotiations during multilateral sanctions. The estimates using IPW become negative and statistically insignificant when the sanctions-busting variable is lagged by one year during multilateral sanctions (tables K and L). Considering that the coefficients based on the original sample are statistically significant in models using lagged variables, the contrasting results may be also attributed to the omission of the multilateral sanctions variable in estimating the weight. Other things being equal, however, the finding holds in IPW models using the current occurrence of sanctions-busting, which I intend to test in this study.

Robustness Checks and Alternative Explanations

These main findings are robust when cost to targets is included as a covariate and a different dependent variable is used. The negative impacts of sanctions are more influential and the coefficients on sanctions-busting are greater in the models on signing PTAs with market access than the ones in the main models. A wide difference in magnitude implies high incentives for seeking PTAs with specific market provisions when firms increase trade with companies of sanctioned states.

Furthermore, consistent with the expectation from literature, most political and economic determinants of PTA formation hold in my empirical analysis. My statistical analysis does not reject the realist argument because coefficients on defense pacts are significantly positive in all rare event models. One can maintain that trade partners are willing to deepen the institutionalization of trade relations if they have a defense agreement with sanctioned countries. However, the magnitude of defense pacts on signing new PTAs with market access shrinks to 0.177 when controlling for the effect of the PTAs' current level. This coefficient is notably lower than the coefficient on sanctions-busting (0.334) based on the result of Model 16. The connotation is that security allies pay little attention to PTAs with market access, perhaps because PTA framework agreements alone can assist them in addressing the determination to fight the primary senders of sanctions.

Case: Myanmar's Entry into the ASEAN

The process-tracing of Myanmar's admission to the ASEAN in 1997 reveals that third-party countries prefer signing PTAs with sanctioned countries rather than their counterparts when witnessing the occurrence of sanctions-busting. From the viewpoint of third-party firms, signing a PTA can reinforce their first-mover advantage because sanctions temporarily force foreign competitors to cease transactions with targets. This advantage, nevertheless, remains constant in non-sanctioned countries that have larger bargaining leverage to negotiate a PTA that can protect their firms operating in the domestic market.

The Myanmar economy was paralyzed owing to the sanction by the United States and EU from 1988 when the military junta suppressed pro-democratic demonstrations. To isolate Myanmar, EU members and the United States blocked Myanmar's accession to this regional organization. For instance, the US government denied renewal of the bilateral textile agreement in July 1991 and signed the Executive Order No. 13047, "Prohibiting New Investment in Burma," in 1997 (Alternative ASEAN Network on Burma 2003). The EU canceled the Generalized System of Preference granted to Myanmar industries, suspended non-humanitarian aid, and boycotted the ASEAN meeting where Myanmar was a participant (Than 2005). The sanctions not only froze potential sources of revenue that could sustain the military rule but also restricted Myanmar's economic cooperation with its major trade partners, such as Germany and Japan, since the era of Burmese Way to Socialism (Kudo and Mieno 2007). After the imposition of sanctions, Japan dramatically reduced the amount of loans until 1998 when the need to repair the runway of Rangoon International Airport arose (Mekong Watch 2001). Thus, by 2016, when the United States lifted the sanction, Myanmar only signed PTAs with the partners solely under the ASEAN framework.

The increased expected gain through sanctions-busting from Thai and Singaporean merchants played an important role in breaking the isolation of Myanmar from Western sanctions. Thai and Singaporean firms were the top two contributors between 1989 and 1996, acquiring 39 and 55 of the total 247 approved projects to invest in Myanmar (Khine 2008). Thai firms engaged in harvesting natural resources in Myanmar. Granted logging concessions in December 1988, Thai companies contributed approximately $112 million per year, and such trade in timber provided the Myanmar military junta with sufficient foreign exchange (Alternative ASEAN Network on Burma 2003). Leading Thai politicians in the provincial administration controlled the logging activities and road construction along the border (Alternative ASEAN Network on Burma 2003). To secure the extraction, these businessmen continued to pressure the Chatichai Choonhavan administration (1988–1991) to create additional checkpoints for encouraging border trade (Chongkittavorn 2001). However, agricultural sectors and interest groups sought to postpone liberalization toward developed countries. Owing to the imbalances in bargaining leverage with powerful countries, they were worried that the Thai government would not protect them from economic penetration (Salim 2006). The result was that Thailand signed bilateral PTAs with Australia, New Zealand, and Japan in 2004, 2005, and 2007, respectively, almost a decade after Myanmar's accession to the ASEAN in 1997.

Compared with the resource-seeking Thai companies, market-seeking Singaporean firms concentrated on tourism and construction industries, accounting for a third of Singapore's total investment in Myanmar (Alternative ASEAN Network on Burma 2003). Asia World, founded in 1992, expanded from a trading company to the largest conglomerate in Myanmar and cooperated with 20 Singaporean companies primarily in the ventures of construction, transportation, and infrastructure (Kean and Bernstein 1998). As such, when the Singaporean Prime Minister Goh Chok Tong paid a visit to Yangon in March 1994, he declared that the market in

Myanmar presented a high priority for Singaporean businessmen (Buszynski 1997). In contrast to the expected surging FDI outflow to Myanmar, Singapore often retains its control of foreign capital. For example, during the PTA negotiation, the US officials insisted that Singapore remove the prohibition of capital controls, which was the first time the United States included this obligation in the PTA (Weintraub 2004). Faced with a higher risk of losing capital control, Singapore would rather first facilitate the integration with sanctioned countries that needed to attract rather than export FDI.

With substantial economic stakes in Myanmar, Southeast Asian top officials lobbied hard for Myanmar's acceptance into the ASEAN. The logic was that marketization and liberalization could be effective in engaging Myanmar into the international community (Solingen 1999). As the primary beneficiary, although the Chatichai administration initially supported the international sanctions, Chatichai eventually struck to the policy of "changing battlefields to marketplaces" (Zaw 2001). Thailand ultimately proposed a "constructive engagement approach" in 1991 in favor of improving Myanmar's economy with dialogue and diplomacy instead of sanctions and containment (Cheak 2008). Sukhumbhand Paribatra, the Thai Deputy Minister of Foreign Affairs, articulated that Myanmar's membership in the ASEAN should be endorsed by all Southeast Asian nations to fulfill regional cooperation and balance the negative repercussion of western isolation (Cheak 2008). In response, Myanmar's Intelligence Chief Khin Nyunt requested an invitation to participate in the formal ASEAN meeting when he paid a visit to Singapore in May 1993; Myanmar decided to become the ASEAN observer and voiced its intention to accede to the ASEAN Treaty of Amity and Cooperation in 1995 (Buszynski 1997). In accordance with the principle of non-interference, the constructive engagement approach struck a chord with ASEAN founding members and allowed them to legitimately reject US and EU intrusion in Myanmar's integration with ASEAN members.

Conclusion

Economic sanctions aim to induce concessions from target countries. Although sanctions are not always effective in changing the policies of targets, such sanctions generate market distortion within sanctioned countries (Pond 2017). Therefore, changes in market conditions create incentives for foreign firms to bust sanctions for profits. Furthermore, if firms increase trade with sanctioned countries, then they exhibit their influences on their home governments to sign new PTAs to bolster their competitive edges within a sanctioned market. The absolute economic gains of PTAs consequently propel governments to downplay the pressure from primary senders of sanctions.

The finding that "trade plants the flag" suggests that sender countries should assess the unintended consequences of multilateral sanctions carefully. Although trade sanctions lessen the prospect of signing new PTAs with targets, firm behavior can drive their home governments to backslide the efforts of multilateral sanctions. The case study on the multilateral sanctions against Myanmar confirms the theoretical expectation. Despite the close security cooperation between Singapore, Thailand, and the United States, the rent-seeking propensity of firms locks the Thai and Singaporean governments in the lust of allowing Myanmar to join the ASEAN. Therefore, this dynamic implies that persuading third-party countries to join a sanction coalition is not sufficient. To retard any PTA negotiation with targets, primary senders may need to ensure that third-party countries actually enforce sanctions.

More broadly, the causal logic triggered by commercial actors can illuminate research agenda that considers the formation of international institutions after the implementation of sanctions. From senders' perspective, private firms' violations weaken the effectiveness of sanctions. However, from another viewpoint, this study reveals that sanctions-busters lobby their home governments to prevent the

environment from developing in a way that adversely affects their business in the long term. The result is that governments sign new PTAs with target countries that eventually increase taxable gains. In summary, this approach demonstrates that firms' distinctive responses to sanctions can serve as an explanatory variable to analyze the emergence of various formal institutions during economic sanctions.

Acknowledgments

Conflict of Interest

Supplementary Information

Supplementary information is available at the *Foreign Policy Analysis* data archive.

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