Firms Lobbying for Preferential Trade

Abstract

Lobbying disclosures often hide what firms lobby about, but we introduce new data and exploit timing to show that multinational firms lobby intensively about preferential trade agreements (PTAs). We argue that some firms lobby for ratification, which lowers tariffs on imported intermediate inputs, while others lobby to shape PTA terms to influence behind-the-border regulations. Our empirical analysis untangles these incentives by identifying groups of firms with different motivations and investigating which branches of government they lobby and when. We use PanelMatch (Imai, Kim and Wang 2023) to conduct staggered diff-in-diff analyses at the firm level, using Fortune Global 500 firms and a comprehensive set of US PTA negotiations. Pharmaceutical firms lobby for intellectual property rights protection; firms represented on the US Trade Representative's general policy making committee lobby to shape PTA provisions; other firms lobby for ratification of PTAs with countries where they have investments.

1 Introduction

US multinational corporations are the main constituency and primary beneficiary of US trade policy. The leading firms were able to use provisions of the US Trade Act of 1974 and amendments in 1979, 1984 and 1988 to formalize their control over trade policy through the advisory committee system of the office of the US Trade Representative (USTR). As the center of gravity of the US export sector shifted from manufacturing to services and intellectual property, the rapidly growing firms in those industries used their influence to steer USTR, which in turn shaped a new generation of international trade law. In some cases, the new rules were literally written by US firms. Pfizer and IBM designed the TRIPS agreement, which shifted intellectual property protection into the trade regime (Drahos and Braithwaite, 2002; Sell, 2003); AIG, American Express and Bank of America pushed for the General Agreement on Trade in Services (GATS) (Feketekuty, 1988; Preeg, 1995); a coalition including Boeing, AIG, General Motors, General Electric, Motorola and AT&T pushed China's WTO membership and Permanent Normal Trade Relations through a skeptical Congress (Davis and Wei, 2020). An array of multinational firms stands behind US negotiators in every preferential trade agreement (PTA) to ensure that the bargaining leverage of US consumers is used to secure market access, deregulation and a broad agenda of policies related to intellectual property rights. This paper studies the efforts of US MNCs to influence the negotiation of PTAs quantitatively.

We theorize that multinational corporations support trade agreements for two distinct reasons: to lower US tariffs that impose costs on their imports of intermediate goods and related-party trade (Osgood, 2018); and in order to use US trade leverage to reshape behind-the-border policies in US trade partners to their own advantage (Sell, 2003). High-productivity firms engage in the majority of trade and foreign investment and generally expect to benefit from reductions in trade barriers (Melitz, 2003). However, there are additional reasons for multinationals to prefer preferential trade agreements over multilateral agreements. PTAs are not primarily about tariffs; they leverage duty-free access to a large market to obtain concessions from countries with smaller markets on a wide range of behind-the-border policies including regulation, intellectual property protection and investor-state

dispute settlement (ISDS). While the welfare benefits of lowering tariffs are clear, these trade-related policies are public goods that have distributional consequences, and the policy changes sought by US firms need not be welfare enhancing (Rodrik, 2018). MNCs tend to produce differentiated goods and services and engage in monopolistic competition, so they stand to benefit from terms of PTAs that limit competition and enhance their own competitiveness, for example by guaranteeing extended terms of patent protection. Both sets of incentives—to lower trade barriers and to seek monopoly rents—lead MNCs to actively lobby for PTAs.

The first step in our argument is to demonstrate empirically that the leading multinational firms actively engage in lobbying about PTAs—a proposition that is generally assumed in the trade literature, and for which anecdotal evidence abounds, but for which well-identified, firm-level behavioral evidence is sorely lacking. We present credible evidence by using difference-in-difference analyses (Imai et al., 2023). These analyses are designed to find heterogeneous treatment effects of PTA negotiations on firm-level lobbying by groups of firms that are expected to be exceptionally engaged in trade policy. Our baseline models focus on firms that are members of the Pharmaceutical Research and Manufacturers of America (PhRMA), which have a long track record of lobbying for inclusion of provisions on intellectual property rights (IPR) in trade agreements. Thus, we test the claim that firms are politically engaged in trade negotiations by showing that PhRMA members increase their political activity more than non-PhRMA members do when negotiations begin.

These estimates represent a conservative lower bound on trade lobbying, because they capture differences between groups of Fortune Global 500 firms that are generally engaged in politics, and they limit consideration to within-firm changes over time. We use numbers and characteristics of lobbying reports as dependent variables, and we analyze original data on media hits that combine firm names with PTA negotiations, which serve to link firm political activity directly to PTAs with particular countries. We find that PhRMA members increase their lobbying significantly more than non-PhRMA members both when negotiations begin and after an agreement is signed, and that these increases affect lobbying of USTR and of Congress.

The next stage of our empirical analysis seeks to untangle firms' diverse motivations by identifying groups of firms with different incentives and investigating which branches of government they lobby and when they become involved in the political process. Firms that seek to influence the conduct of negotiations should lobby USTR, while firms that seek to influence ratification should lobby Congress. We use the beginning of negotiations and signature of an agreement as interventions that spur MNC lobbying over the terms of an agreement and over ratification, respectively.

We focus on two groups of firms that have specific incentives to lobby about trade. First are firms whose executives hold temporary membership on the powerful Advisory Committee for Trade Policy and Negotiations (ACTPN), which directs the USTR. Membership in ACTPN provides privileged access to USTR that makes lobbying less costly and more effective. Consequently, we expect firms to increase their lobbying about the details of trade agreements during the negotiation process during the time that they hold membership. These firms also care about ratification and have reasons to lobby Congress; but we do not expect their lobbying of Congress to be affected by whether they currently hold ACTPN membership because membership does not affect the effectiveness of lobbying Congress. Second are firms that have invested in the countries that are negotiating PTAs with the United States. We expect invested firms to lobby for ratification of PTAs generically in order to reduce trade barriers because they engage in related-party trade with their affiliates abroad. Firms without foreign affiliates in a particular country cannot engage in bilateral related-party trade; those with foreign affiliates can. We find that invested firms increase their lobbying of Congress during the ratification process more than non-invested firms, but do not lobby USTR significantly differently than non-invested firms during the negotiation stage. The results indicate that distinct groups of firms respond in distinct ways to PTA negotiations, which allows us to draw inferences about their objectives.

The normative implications of the control of US trade policy by MNCs depend on whether their motivations are to lower trade barriers or to seek policy changes in US trade partners that promote monopolistic market strategies. We find the implications to be mixed. The rise of the knowledge economy has expanded the range of rents available to firms that

specialize in differentiated, knowledge-intensive products and services. Meanwhile, globalization has increased market concentration and the corresponding political influence of the leading firms. Our results provide robust evidence that small groups of prominent firms engage actively in shaping the terms of US preferential trade agreements. This pattern appears to be consistent with monopolistic strategies. We also find evidence, however, that multinational firms lobby for ratification of PTAs with countries where they have investments, which is consistent with efforts to lower trade barriers.

2 Argument

Multinational corporations have natural advantages in lobbying about trade policy. Effective lobbying requires that firms have information advantages over government officials (Crawford and Sobel, 1982; Austen-Smith and Wright, 1992), and multinational operations provide that advantage. Small firms are effectively shut out of the lobbying game by high fixed costs (Grier et al., 1994; Bombardini, 2008; Weymouth, 2012; Kerr et al., 2014; Kim, 2017), because political access depends on an infrastructure of campaign contributions and investments in research and reputation. In addition, lobbying must be profitable at the margin, and trade agreements have higher stakes for multinational firms that engage in related-party trade or have intellectual property to protect (Kim and Osgood, 2019). Political power depends on incentives to lobby.

Multinational firms have two distinct interests in trade policy: lowering tariffs (reducing marginal costs) and securing behind-the-border policy concessions (raising fixed costs of entry). Both incentives arise because MNCs are high-productivity firms that can afford to pay the fixed costs of engaging in trade and foreign investment, and trade expands their markets (Melitz, 2003; Helpman et al., 2004). As the variable cost of trading falls, multinationals expand their market share at the expense of domestically-oriented firms and incumbent firms abroad; market concentration and market power increase (Arkolakis et al., 2019; Autor et al., 2020). On the other hand, producing differentiated goods and services and engaging in monopolistic competition gives MNCs incentives to support policies that create

fixed costs that restrict entry by competitors (Gulotty, 2020). Leading MNCs lobby their home countries to use trade policy to secure protection for intellectual property rights abroad, which prevents imitators from entering the market and driving prices down (Ryan, 1998; Sell, 2003; Drahos and Braithwaite, 2002). Examples include Pfizer lobbying for extended patent terms for pharmaceuticals, Microsoft lobbying for copyright protection for software, and Intel lobbying for protection for proprietary design technology. Since intellectual property protections confer monopoly rights, there is no principled way to draw a line between trade advocacy and rent seeking.

From the perspective of foreign countries, the motivation to lower tariffs is relatively benign: MNCs resist protectionism (Milner, 1988) and may represent the last bulwark of the international trade regime. MNCs are responsible for most US imports, and manufacturing firms spread their production over global value chains (GVCs). PTAs allow MNCs to avoid taxation on the intermediate goods that they import, which is often regarded as the primary reason for MNCs to support PTAs (Osgood, 2018). MNCs also supported unilateral US trade concessions under the Generalized System of Preferences (GSP) for developing countries and product-specific tariff waivers, which had similar effects on their costs (Blanchard and Matschke, 2015).[1]

The alternative rationale for MNC lobbying for PTAs arises because PTAs are discriminatory, so they leverage the market power of a large country to extract policy concessions from a smaller one. Countries with large markets are able to shift the terms of trade in their favor by imposing optimal tariffs, in effect shifting part of the burden of domestic taxation onto foreign exporters (Bagwell and Staiger, 2002). Even when tariff bindings are relatively low, countries with large markets can shift substantial volumes of trade from one trading partner to another by offering preferential access, which shifts their trading partners' terms of trade and gives large countries substantial leverage in trade negotiations. Contemporary PTAs contain chapters on investment, services, intellectual property, domestic regulation and investor-state dispute settlement that are advanced by developed-country negotiators who work closely with the most interested multinational firms (Dür et al., 2014).

1. The first Trump administration allowed the GSP system to expire in 2020 and it has not subsequently been renewed.

Sales of goods and services by majority-owned foreign affiliates of US MNCs are more than twice as large as US exports, so MNCs have ample incentive to try to influence the behind-the-border regulations that shape their profits (Weymouth, 2017, 939).

In the analysis that follows, we use difference-in-differences models to estimate well-identified effects of the negotiation of trade agreements on firm lobbying behavior. It is important to emphasize that our hypotheses are consequently about differences in differences, rather than about levels of lobbying. All of the US Global Fortune 500 firms in our sample are leading firms; most are multinationals; most are actively engaged in political activity and have interests in trade agreements. However, we expect some groups of firms to increase their lobbying more than others under particular circumstances. In our baseline models we focus on PhRMA members. Firms that are members of Pharmaceutical Research and Manufacturers of America (PhRMA) derive the lion's share of their profits from intellectual property rights, because their market share depends on legal protection that limits competition from generic brands. Anecdotal evidence indicates that they are deeply involved in trade negotiations, and we test this quantitatively. We expect them to engage directly with USTR early in the negotiation process to influence the content of PTAs. We also expect them to increase their Congressional lobbying during the ratification process, beginning when the PTA is signed. If these patterns hold, this represents credible evidence of firm political behavior to influence trade agreements.

Hypothesis 1 (H1): *PhRMA firms increase lobbying more than non-PhRMA firms in response to PTA negotiations.*

In the second stage of our analysis we attempt to isolate the effects of particular incentives to engage in trade lobbying by focusing on groups of firms that exemplify those incentives. When trade negotiations begin firms have the opportunity to influence their course by lobbying the US Trade Representative, and this is the stage in the process where the scope is greatest to exert leverage over detailed provisions, including behind-the-border regulations. Firms with interests in expanding market access and limiting competition in their foreign markets should intervene at this early stage in the process and lobby USTR. We estimate this incentive by focusing on *ACTPN* members, described below. In contrast,

after a treaty is signed firms have the opportunity to influence its ratification by lobbying Congress. The detailed provisions are generally locked in at this point, so the MNCs that wait until this stage to become involved lobby because they support trade liberalization *per se*. We estimate this incentive by focusing on *invested firms*, defined below.

ACTPN. The process of trade lobbying was formalized by the Trade Act of 1974 and subsequent amendments to include an elaborate advisory committee structure that guides the work of the Office of the US Trade Representative. Firms whose CEOs serve on the key committee, the Advisory Committee for Trade Policy and Negotiations (ACTPN), are able to lobby the USTR more effectively and at lower cost than other firms (Feketekuty, 1988). Membership is temporary, typically lasting for two to four years, and we expect firms to capitalize on this fleeting opportunity by participating more intensively during their tenure. Privileged access does not eliminate the need to lobby, because lobbying is informative communication, and the information that firms have to provide to the USTR is highly detailed. For example, the USTR relies on submissions by firms to compile the annual National Trade Estimate of foreign trade barriers. The CEOs who sit on the ACTPN do not have all of that data at their fingertips, but they are able to facilitate working-level contacts with USTR. We expect firms represented on the ACTPN to invest in lobbying during the negotiation phase and direct their attention to USTR, because that is where they enjoy a temporary comparative advantage. These prominent firms are concerned about ratification of PTAs as well as their content, but temporary ACTPN membership is not obviously related to changes in their incentives to lobby Congress or to lobby for ratification, so tests that reject such within-firm effects can be used to isolate the mechanism of access to USTR.

Hypothesis 2 (H2): *Firms whose officers have temporary ACTPN membership increase their lobbying of USTR (but not Congress) more than non-ACTPN firms in response to PTA negotiations.*

Invested firms. The final group of firms that we investigate consists of firms that have acquired foreign affiliates in a country that is party to a particular PTA prior to the initiation of formal negotiations and that are not associated with PhRMA or ACTPN. We call these *invested firms*. Firms acquire political interests when they acquire specific

assets (Frieden, 1991). Having acquired assets that are useful to access a particular market or to participate in a particular value chain, they have incentives to engage in political activity to support that line of business. Firms that have country-specific trade interests generally support trade agreements because these countries represent important links in their supply chains (Kim et al., 2019; Meckling and Hughes, 2017). Examples include Boeing's investments in China and US automobile producers in Mexico. Because their interest in the PTA is to lower US tariffs (Osgood, 2018), they push successful completion of PTAs against coalitions that seek to block them. We expect invested firms to be more motivated by the opportunity to lower US import tariffs than other firms, and consequently to lobby Congress more intensively and intervene more at the ratification stage. On the other hand, we do not expect firms' prior investments in a country to be strongly correlated with their interest in specific PTA provisions. Interest in behind-the-border regulation depends on sector and product rather than investment, and firms that lobby for market access may wait to invest until after a PTA is ratified. Moreover, for the average invested firm, lobbying about detailed PTA provisions is not profitable because none of the generic benefits of PTAs, such as security of investment for FDI, depend on securing special provisions that differ from the standard USTR checklist. (Kim et al., 2019 argue that security of investment is the most important concern that arises in PTAs for firms that are engaged in GVCs.) Consequently, evidence that invested firms do not increase their lobbying of USTR more than other firms during PTA negotiations serves as a check of our proposed mechanism. This indicates that their special interest in PTAs is indeed related to ratification.

Hypothesis 3 (H3): *Firms that have made investments in countries negotiating PTAs with the United States increase their lobbying of Congress (but not USTR) more than non-invested firms in response to PTA signature.*

3 Empirical evidence

3.1 Data

Our data start with a list of firms drawn from the Fortune Global 500, which lists the largest global firms by revenue. We collected these lists from 1992 to 2018, which yields a list of 1,352 firms that entered the top 500 at some point in the last quarter century. We matched these firm names with public lobbying data reported under the LDA and collected by Lobbyview (Kim, 2018) and used them to construct data on media hits linking the firms to PTA negotiations. Our media hits data feature 117,118 media documents over the time span of 1993 - 2017, including newspaper articles, broadcasts, business insight reports and policy analysis reports. We use the Lexis-Nexis web archive to search and retrieve media sources that combine the name of a firm included in the Fortune Global 500 list, the name of a country included in one of our PTA treaties or negotiations, and the terms "FTA," "Free Trade Agreement," or "agreement." Each article is coded as a "hit" for the identified firm in the year in which it occurs.

Our data cover 24 PTAs negotiated by the United States, 14 of which have come into force. Some of the other negotiations are ongoing (e.g. US-Kenya), some have been suspended (e.g. FTAA), and in one case the United States failed to ratify (the TPP). Table A.1.1 in the appendix provides a comprehensive list of US PTA negotiations, and Table 1 summarizes the time elapsed during the stages of treaty negotiations. On average, two years pass between the initiation of negotiations and treaty signature and another 2.7 years between signature and ratification.

ACTPN membership is temporary, and our data include 39 firms represented on the ACTPN during the analysis period. Table 1 in the appendix summarizes the length of appointment terms. Term length varies by US presidential administration, and there is no statutory limit to the number of years of service or to whether they may be consecutive. For example, the ACTPN charter published by the Biden administration states that "The President may reappoint individuals to the ACTPN for any number of terms." While executives

affiliated with firms serve 2.6 years consecutively on average, the executives of American International Group, Bethlehem Steel, Eastman Kodak, IBM, and Procter & Gamble served terms of 5.9 years. Procter & Gamble was represented for the longest time, 8.4 years in total, including non-consecutive terms. The average firm that was represented enjoyed 4.9 years on the ACTPN. The full list of firms and their representatives is in Table A.1.2.

Table 1: Descriptive Statistics

Variables	Mean	SD	Min	Max	N
PTA hits per year (long format)	0.22	2.94	0	400	769,128
USTR lobbying reports	0.23	1.02	0	20	32,047
Congressional lobbying reports	3.64	10.30	0	235	32,047
ACTPN membership	0.01	0.07	0	1	32,047
PhRMA membership	0.01	0.10	0	1	32,047
Cumulative M&A events in US	0.40	1.34	0	41	32,047
Fortune 500 rank	226.01	145.48	1	500	6,110
PTA timeline	Mean	SD	Min	Max	N
Negotiation to signature	1.87	1.81	1	8	15
Signature to ratification	1.36	1.74	0	5	14
Negotiation to ratification	2.79	2.08	1	7	14
ACTPN appointment	Mean	SD	Min	Max	N
Consecutive term length (years)	2.64	1.50	1	7	43
Total years served	4.87	2.49	1	12	43

1. Our data spans from 1993 to 2017.
2. Total of 24 PTAs and 154 FDI host countries are covered.
3. Out of 1,352 firms, 384 are US firms and 968 are non-US firms.

3.2 Identification strategy

We seek to show that firm lobbying responds to the negotiation of PTAs, and we do this by comparing changes in lobbying at key times by groups of firms that are expected to be particularly engaged in trade policy with changes observed at the same times among other similarly-positioned firms. We conduct difference-in-differences analyses using media hits and numbers of reports of lobbying USTR and Congress as dependent variables. We use several specifications to probe alternative motivations for lobbying, employing different groups of firms expected to experience heterogeneous treatment effects as follows: (1) a firm's membership in the pharmaceutical industry interest group PhRMA; (2) a firm officer's ACTPN membership; and (3) a firm's prior investment in a country covered by a proposed PTA (excluding PhRMA and ACTPN firms). We use the initiation of treaty negotiations and treaty signature as interventions to determine treatment timing, which allows us to

disentangle firms' interests in the details of PTA design from their interests in final passage. Using a difference-in-difference model to identify heterogeneous effects of a common shock does not require an assumption that assignment to a group is exogenous. Rather, as in any diff-in-diff design, the validity of our results depends on the assumption that the time trends in the dependent variable in the treatment and control groups are parallel prior to treatment. If this is true, the difference in the differences between the two groups before and after the intervention can be attributed to the intervention.

Because 24 PTAs were under consideration during the period of analysis and we are interested in effects of each intervention that may last for several years, we face a problem of overlapping treatments. This is a more severe identification problem than the standard staggered difference-in-differences that has become a recent focus of the methods literature. In a staggered diff-in-diff model different cohorts of the treatment group are treated at different times, so the control group changes over time, but each unit is treated only once (Sun and Abraham, 2021). In our application, firms may be treated at varying times, may be treated repeatedly, and may revert from treatment to control status depending on the duration of the effect that is estimated. We use a model that has been proposed by Imai et al. (2023) as a solution to this problem, which accounts for units that change treatment status multiple times by matching treated and untreated units in period t that share the same treatment pattern for a specified number of periods before t.

The Imai et al. (2023) PanelMatch model combines the diff-in-diff estimator with matching. The first step is to select the length of time over which the treatment histories will be matched, which involves the familiar bias-inefficiency trade-off. We choose to match over the previous four years, which is conservative in our setting. Next, the researcher chooses the duration of the effect to be estimated, where longer-term effects are more likely to be confounded because units may change treatment status between the application of the treatment and the measurement of its estimated effect. We estimate one-, two-, three-, four- and five-year effects and compare results. Next, each treated observation at a given time t is matched to the set of control units that share the identical treatment history from $t-4$ to $t-1$, as we chose to match over the previous four years. After the matched sets are

constructed, we refine the set of control observations that are used to obtain the estimated effect by balancing on a set of covariates, which in our setting are firm characteristics: the firm's cumulative number of M&A investments in the United States (Bloomberg Terminal) and the firm's Fortune Global 500 ranking, which are proxies for firm size. We use covariate balancing propensity-score weighting, a robust estimation method introduced by Imai and Ratkovic (2014), which reduces unobserved heterogeneity by reducing the weights on control observations that are most dissimilar from observations in the treatment group. Finally, the difference-in-differences estimates of average treatment effect on the treated (ATT) for each treated observation are computed. This is obtained by estimating the counterfactual outcome for each treated observation, using the weighted average of the control units in the refined matched sets. These estimates are averaged across all of the treated units to calculate the ATT. The PanelMatch package provides diagnostics to assess the parallel trends assumption and covariate balance, and these are presented in the online appendix. The results indicate that matching on firm size is sufficient to guarantee parallel trends.

3.3 Main Findings

Table 2: Overview of the PanelMatch results

	Dependent variable		
Intervention	Media hits	Lobbying USTR	Lobbying Congress
Negotiation	• **PhRMA:** (+) • **ACTPN:** (+) • **Investment:** (+)	• **PhRMA:** (+) • **ACTPN:** (+) • Investment: null	• **PhRMA:** (+) • ACTPN: null • **Investment:** (+)
Signature	• PhRMA: null • **ACTPN:** (+) • Investment: null	• **PhRMA:** (+) • ACTPN: null • Investment: null	• **PhRMA:** (+) • ACTPN: null • **Investment:** (+)

Each entry is a (treatment group):(effect) pair.
Bolded results are significant ($p < .05$). Sign in parentheses.

Table 2 summarizes our main results using PanelMatch. We estimate heterogeneous effects for three groups of firms (PhRMA, ACTPN, Invested); investigate the effects of two interventions (negotiation, signature); and use three dependent variables (media hits, USTR lobbying, and Congressional lobbying). All of the estimated effects are in the expected direction: the negotiation and ratification of PTAs increases lobbying effort by the interested

US firms. The boldface entries indicate statistically significant results. The results for media hits indicate that all three groups of firms appear more often in media coverage of PTAs while they are being negotiated, which is consistent with the interpretation that their increased lobbying is directly linked to those negotiations. The results indicate that PhRMA firms are engaged at every stage of the process, rushing to lobby both USTR and Congress following the initiation of negotiations and again following treaty signature. In contrast, the diverging results for ACTPN firms and other invested firms provide evidence about mechanisms. Firms represented on ACTPN respond to PTA negotiations with increased lobbying of USTR, but do not appear to increase Congressional lobbying; on the other hand, invested firms not associated with ACTPN or PhRMA respond to PTA negotiations with increased lobbying of Congress, but not of USTR. There is evidence that ACTPN and invested firms respond both to the initiation of negotiations and to treaty signature, but we will show that the timing of those responses suggests that ACTPN firms seek to influence the content of treaties while invested firms seek to assure their ratification.

3.4 PhRMA Membership

We turn first to PhRMA members, which have well-established objectives of using trade policy to promote their intellectual property rights.

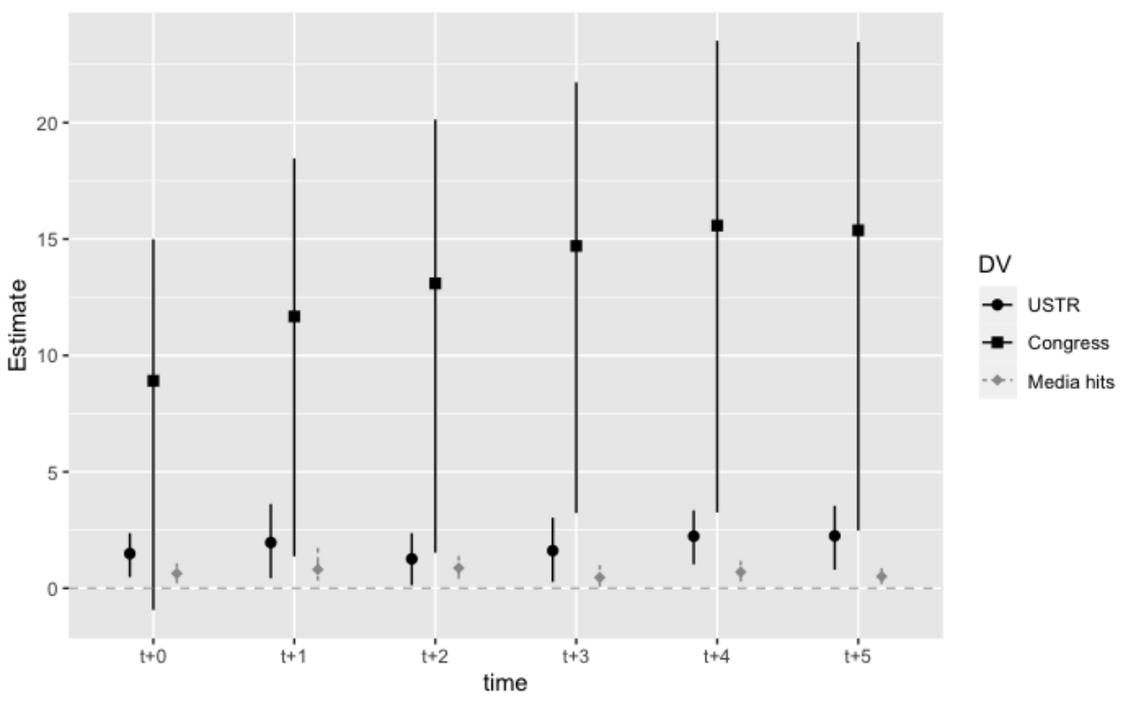

Figure 1: PhRMA × negotiation

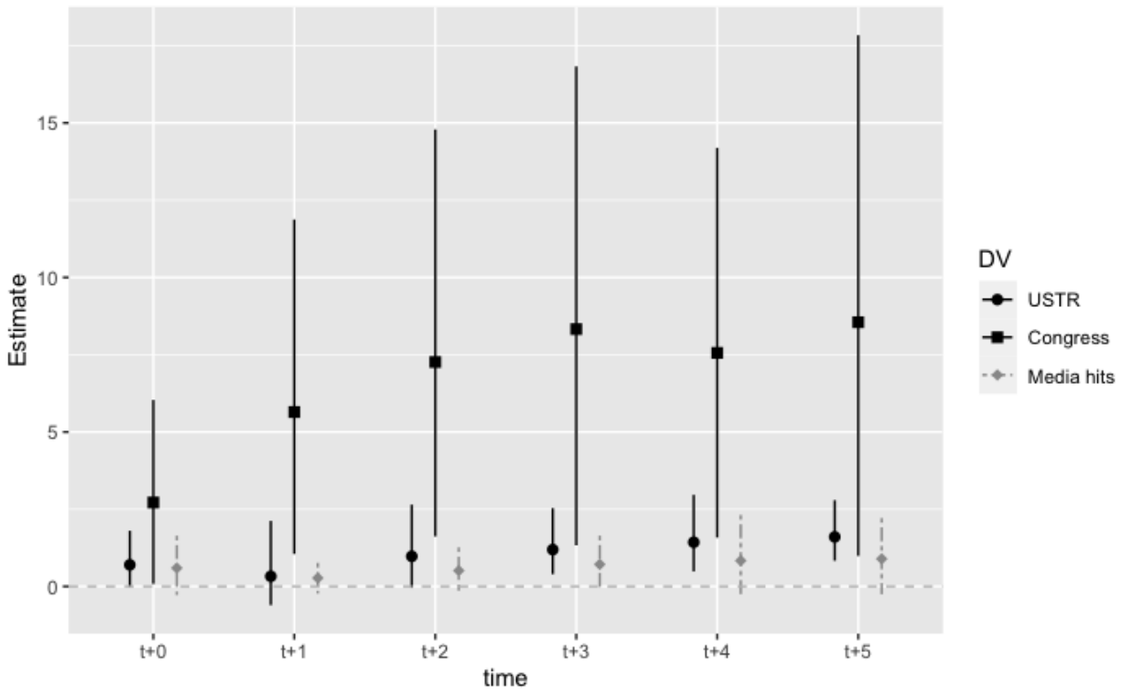

Figure 2: PhRMA × signature

Figure 1 plots how our three dependent variables respond to the onset of negotiations.[2] US PhRMA members increase their lobbying of USTR by an average of 1.49 lobbying reports more than other US firms when negotiations begin on a new PTA, and the gap rises to 1.96 lobbying reports the following year and remains statistically significant throughout the estimation window. The difference in differences between PhRMA firms and other firms represents 6.8 times the mean in the year negotiations begin and 8.9 times the mean in the following year. Non-US PhRMA firms also lobby USTR and appear to increase their lobbying of USTR following the onset of negotiations as well, but the effects (difference in differences between foreign PhRMA firms and other foreign firms) are an order of magnitude smaller and are only marginally significant (see online appendix Table A.3.2, Column 6). The pattern in media coverage is similar. US PhRMA members diverge from other US firms immediately when treaty negotiation begins, when the difference in difference is almost three times the mean number of media hits, and the gap widens over the next two years and remains significant throughout the estimation window. This result links PhRMA firms to textual evidence from media coverage that ties their political activities to trade negotiations with particular countries.

2. PhRMA membership includes US and non-US firms, so we conduct subgroup analysis and present the estimated effects on the behavior of US firms. We do not find any significant effects of PTAs on the lobbying behavior of non-US PhRMA members.

Congressional lobbying by US PhRMA firms surges ahead of other US firms when negotiations begin. The result is large (8.9 additional Congressional lobbying reports) but only marginally significant in the year negotiations begin, but the estimated effect increases and becomes significant for the rest of the estimation window. From $t+1$ to $t+5$ the estimated effect ranges from 11.7 to 15.6 additional reports, or 3.2 to 4.3 times the average of 3.6 Congressional lobbying reports per firm. A firm is only required to file a maximum of four quarterly reports for its in-house lobbying, so an effect size this large indicates that PhRMA firms routinely hire additional outside lobbying firms to cover Capitol Hill when USTR begins a new trade negotiation. PhRMA firms are focused on shaping trade treaties to strengthen intellectual property rights, and they use every tool at their disposal to do so. Congressional lobbying effort by PhRMA firms peaks in years $t+4$ and $t+5$, when most treaties have already been signed. This is consistent with qualitative evidence (see the discussion of the TPP below) that these firms use the role that they play in the ratification process to bolster their leverage over trade negotiations.

PhRMA firms do not scale back their efforts during the ratification stage. USTR lobbying by PhRMA firms surges ahead of other US firms in the year of signature, which may be due to a last-minute push that occurs in the same calendar year but prior to the event itself. Although smaller than the estimated effect of negotiation, 0.7 additional lobbying reports amounts to three times the mean. USTR lobbying then diminishes, but it returns forcefully in years $t+3$ through $t+5$, when the estimated difference in difference ranges from 5.4 to 7.3 times the mean. These long ratification struggles occurred in four cases: Colombia-US, Korea-US, Panama-US, and the TPP. PhRMA firms lobbied forcefully for changes to the agreements that would lengthen their patent protections after the treaties had been signed, particularly in the Korean and TPP cases. Congressional lobbying by PhRMA firms likewise surges when a treaty is signed. The effect in the year of signature is substantial (2.7 additional Congressional lobbying reports) but only marginally significant. The difference in differences increases and becomes significant in the following years, rising to 5.6 in the year following signature and ranging from 7.3 to 8.6 reports for the rest of the estimation window, or more than twice the median of 3.6 reports. This is again consistent with qualitative evidence that PhRMA firms are very active on Capitol Hill during ratification episodes, and they step up

their efforts towards the end of bitterly contested struggles. In some cases, like the ill-fated TPP, PhRMA lobbying of key players in the House of Representatives and the Senate was not directed towards securing ratification, but rather towards holding up ratification in order to force USTR to work harder to secure a more favorable deal.

3.5 ACTPN Membership

We turn next to firms represented at the peak of the USTR advisory committee system, on the Advisory Committee on Trade Policy and Negotiations. Membership on the ACTPN gives the firm's representative a role in directing USTR, so these firms enjoy a temporary boost to lobbying efficacy, but only when they lobby USTR. Direct access should lead to a surge in lobbying during trade negotiations, and it should be directed to USTR, where it has the most impact. We do not expect temporary ACTPN membership to affect these firms' Congressional lobbying or their behavior during the ratification stage, because membership does not affect the marginal cost of lobbying Congress.

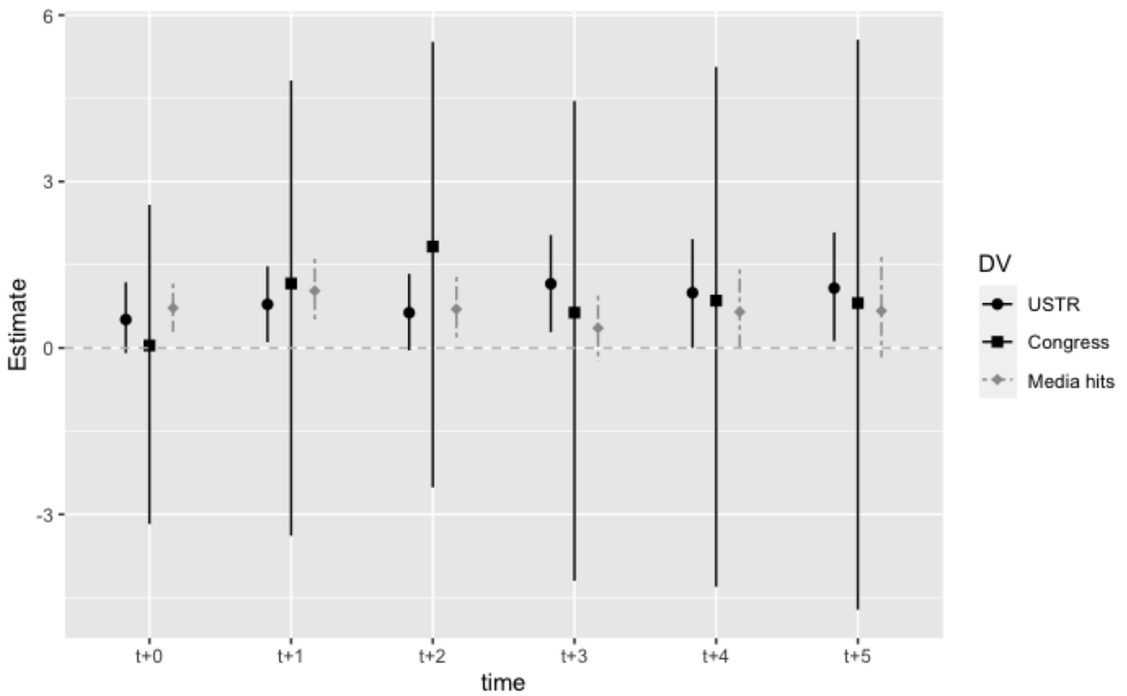

Figure 3: ACTPN × negotiation

ACTPN firms increase the frequency of their appearance in articles that refer to a PTA by 0.72 more times on average than firms not represented on the committee the year negotiations begin, 1.03 times more the following year, and 0.70 times more the next (refer to column (1) of Table A.3.1). These difference-in-differences estimates range from 3.2 to

4.7 times the mean of 0.22 articles. The differences remain elevated in years $t+3$ through $t+5$ but are only marginally significant. The media hits data do not specify how the firms exert influence, but they provide important information about the motivations behind firm lobbying because they provide a textual link between the firm and a negotiation involving a particular country.

The next step in our analysis is to pin down the mechanism of access to USTR, so we estimate the effect of ACTPN membership on lobbying USTR after negotiations begin. ACTPN firms substantially increase their USTR lobbying efforts after treaty negotiations are initiated. The effect is statistically significant the year after negotiations begin and in years $t+3$ through $t+5$, and is marginally significant the year negotiations begin and two years later. Firms that are sufficiently prominent to win seats for their officers on the ACTPN generally lobby more than other firms. However, the year after negotiations begin, firms with temporary ACTPN representation increase the number of reports filed that detail lobbying USTR by 0.79 more reports on average than non-ACTPN firms. The average number of USTR lobbying reports is 0.23 (see Table 1), so this difference-in-differences represents an increase that is 3.4 times greater than the mean. The estimated effect ranges from 0.64 to 1.16 reports for years $t+2$ to $t+5$, or from 2.8 to five times the mean.

We check the proposed mechanism of improved access to USTR by investigating whether we find effects that are not theoretically predicted, using Congressional lobbying as a dependent variable and treaty signature as an alternative intervention. All of these tests generate null results. We find that ACTPN firms do not behave differently than other firms in terms of Congressional lobbying when negotiations begin, which is consistent with our interpretation that ACTPN membership affects USTR lobbying because it provides privileged access to USTR, rather than because ACTPN members are more motivated to lobby in general. We find that ACTPN members do not increase their lobbying activity more than other firms in response to treaty signature, so they do not appear to be more motivated than other firms to secure ratification. This is consistent with our interpretation that firms are specifically incentivized to influence the terms of trade agreements while they are ACTPN members because they can do so more effectively.

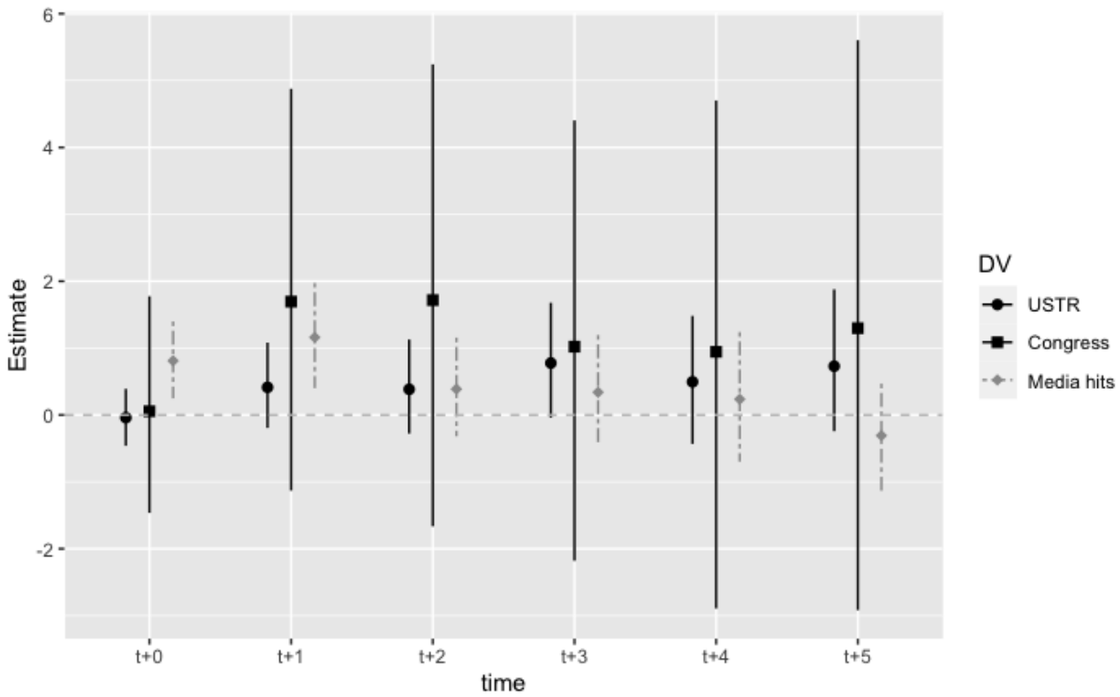

Figure 4: ACTPN × signature

We did not expect to find a substantial effect of treaty signature on media hits by ACTPN-affiliated firms, since treaty signature moves the action to ratification in Congress, and we expect the temporary effect of increased access due to ACTPN affiliation to be limited to USTR. We do find an effect, however. The effect appears in the year of signature and persists for the following year before becoming insignificant. A possible interpretation of these results is that they capture the lagged effect of the onset of negotiations, since most of the agreements in the dataset that were signed were concluded within a year of the beginning of negotiations.[3] This overlapping effects interpretation is consistent with the fact that the estimated effect of negotiations appears in the year negotiations begin (usually one year before signature) and persists for two more years. The results indicate that ACTPN-affiliated firms are not afforded more media coverage than other firms in extended ratification battles, which typically lasted four or more years after signature (e.g. Colombia-US, Korea-US, and Panama-US), which is consistent with our interpretation that ACTPN-affiliated firms, unlike PhRMA members, are not systematically engaged in lobbying for ratification in a way that differs from other firms.

3. The exceptions were Colombia-US (2004-2006), Oman-US (2004-2006), Panama-US (2004-2007), and TPP (2008-2016).

3.6 Invested Firms

We now turn to our analysis of the political behavior of firms that have made foreign direct investments in particular countries that negotiate PTAs with the United States, but which are not members of PhRMA or of ACTPN. We expect almost all firms to support PTAs in countries where they have investments, but few to lobby to influence their provisions. Consequently, invested firms should lobby Congress more intensely than non-invested firms during the ratification stage, but should not differ systematically from other firms in lobbying USTR or at the negotiation stage.

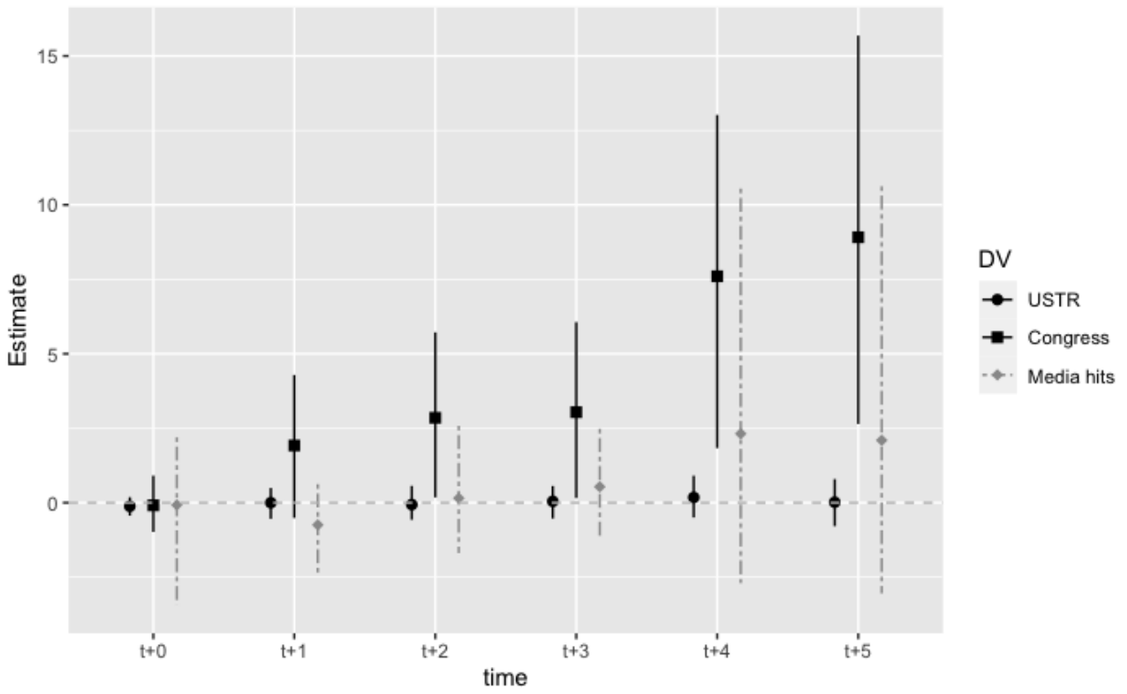

Figure 5: Invested & neither ACTPN nor PhRMA × signature

Consistent with this expectation, we find no results indicating that invested firms increase their lobbying of USTR more than non-invested firms in response to trade negotiations or treaty signature. On the other hand, we find robust evidence that invested firms increase their lobbying of Congress more, particularly after treaty signature. Figure 5 displays the estimated responses to treaty signature of US invested firms that are not associated with ACTPN or PhRMA. The quantitative results are reported in column 3 of Table A.3.1. The estimated effects are substantial two years after treaty signature (78% of the sample mean) and swell in years four and five. The difference-in-differences estimate is 7.6 Congressional lobbying reports in year $t + 4$ and 8.9 in year $t + 5$, representing an increase in lobbying of 2.1 and 2.4 times the mean, respectively. This suggests that the heaviest

lobbying is reserved for the handful of PTAs that are so controversial that the ratification struggle is drawn out for several years after treaty signature (e.g. Colombia-US, Korea-US, Panama-US, TPP).

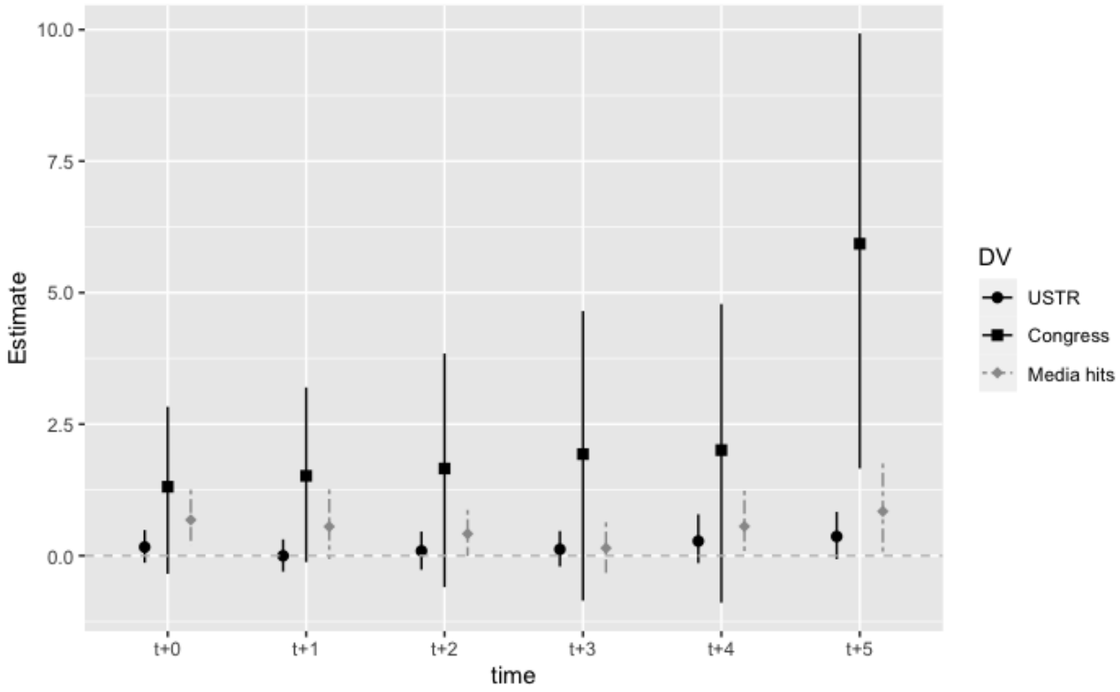

Figure 6: Invested & neither ACTPN nor PhRMA × negotiation

Similar but weaker responses are estimated following the beginning of negotiations. The results, presented in Figure 6, indicate a significant increase in Congressional lobbying only in year $t + 5$, when the effect is likely confounded by treaty signature because most PTAs were signed within four years of the beginning of negotiations. This suggests that invested firms ramp up their lobbying late in the process, and almost always after the treaty has been finalized, which is consistent with the interpretation that they lobby Congress to secure ratification rather than to shape a treaty's terms.

Foreign firms are also able to lobby in the United States, and many large foreign firms are able to use their US affiliates to represent their interests, so we also investigate the effect of trade negotiations on lobbying by foreign firms that have invested in countries that are involved in trade negotiations with the United States. We theorize that foreign firms have weaker incentives to lobby because their arguments are less persuasive to US officials (Crawford and Sobel, 1982). US firms have lobbying advantages because they employ a larger share of their workforce in the United States, remit a larger share of their profits to US shareholders, pay a larger share of their taxes in the United States, and are more

subject to US regulation and law and less vulnerable to pressure from foreign governments, and all of these advantages make the messages they send more credible. Consistent with this intuition, we find that the estimated effects on lobbying by foreign invested firms are statistically insignificant and an order of magnitude smaller than the estimated effects for US firms.

The online appendix provides documentation about our data, full tables of the results in the paper, additional results and robustness checks. It provides plots that assess the validity of the parallel trends assumption for each analysis. In addition, it presents a series of doubly robust placebo tests that lag the interventions, randomly reassign the groups over which heterogeneous effects are estimated, and simulate the distribution of estimated effects.

To sum up our quantitative results, we find evidence that three groups of firms respond to the initiation of trade negotiations in distinctive ways. PhRMA members, which have well-established objectives of obtaining strengthened intellectual property rights for their products, demonstrate the most robust pattern of results. They lobby USTR and Congress in response to the initiation of trade negotiations, and their lobbying efforts surge again when a trade agreement is signed. To further explore the motivations and mechanisms behind trade lobbying, we investigate the responses of two more groups that are expected to concentrate on treaty provisions and ratification, respectively. Firms represented on ACTPN have extraordinary temporary access to USTR, so we theorize that they will invest more heavily in shaping the terms of trade agreements. We find that they respond to trade negotiations by increasing their lobbying of USTR, which is consistent with this interpretation. Firms that have investments in countries negotiating trade agreements with the United States that are not members of PhRMA or represented on ACTPN, on the other hand, have special interests in the ratification of agreements but do not have special access, so we theorize that they lobby for ratification of agreements but do not make special efforts to shape their terms. We find that they respond to the signature of trade treaties by increasing their lobbying effort in Congress, which is consistent with this interpretation.

4 The Trans-Pacific Partnership

The Trans-Pacific Partnership (TPP) was the centerpiece of the Obama administration's trade diplomacy, an ambitious preferential trade agreement spanning the Pacific rim.[4] It was intended to counter the rise of China and contained chapters devoted to restraining the expansion of state-owned enterprises. US exporters, including agricultural interests and manufacturers with far-flung supply chains, supported the effort across the board.[5] From the beginning, the pharmaceutical industry proved a critical and demanding constituency that insisted that the agreement should move forward only if it satisfied PhRMA objectives regarding intellectual property rights.

As an example of the long-standing interest of the pharmaceutical firms in using free-trade agreements to advance their objectives, a 2004 US embassy cable from Wellington, New Zealand that was released by Wikileaks indicates that US pharmaceutical firms had been pressing for changes to the socialized medical system in New Zealand.

> A possible U.S.-New Zealand free-trade agreement (FTA) offers one last avenue for changing government policies that limit access to pharmaceuticals, several U.S. companies said. ... If FTA talks go forward, most of the drug companies will be looking to the U.S. government to win serious concessions from New Zealand on pharmaceutical issues. Pfizer ... will oppose free-trade negotiations until the New Zealand government alters some of its policies, especially its patent law and reference pricing.[6]

Bilateral trade negotiations with New Zealand were never initiated, but the pharmaceutical firms' interests were brought into the TPP along with New Zealand. Beginning in 2011, the Special 301 Report to Congress prepared by USTR and the Commerce Depart-

4. In addition to the United States, the TPP negotiating parties initially included Australia, Brunei, Chile, New Zealand, Peru, Singapore, and Vietnam; Canada, Japan, Mexico and Malaysia joined subsequently.

5. TPP was supported by a broad coalition of business and agricultural associations under the Trade Benefits America Coalition, led by the Business Roundtable (BRT) and the US Coalition for TPP, which was led by the Emergency Committee for American Trade (ECAT). Other business associations in support included the US Chamber of Commerce, the National Association of Manufacturers (NAM), and the National Foreign Trade Council (NFTC). "U.S. Business Groups Still Mulling TPP; Decisions Expected In Early December," *Inside U.S. Trade*, November 27, 2015, 33 (46): 151289.

6. "New Zealand's Pharmaceutical Market: No Quick Fix," Cable from the US Embassy in New Zealand, December 15, 2004. Wikileaks, *nzherald.co.nz*.

ment incorporated a paragraph expressing concerns about treatment of pharmaceuticals in New Zealand:

> With respect to New Zealand, U.S. industry has expressed serious concerns about the policies and operation of New Zealand's Pharmaceutical Management Agency (PhARMAC). Industry continues to express concerns regarding, among other things, the transparency, fairness, and predictability of the PHARMAC pricing and reimbursement regime, as well as the overall climate for innovative medicines in New Zealand.[7]

The same text appeared in the 2012 and 2013 reports, and with minor changes in the 2014, 2015 and 2016 reports.

PhRMA members stepped up their lobbying when the TPP negotiations began in 2009. Dollar expenditures peaked in 2009, and the number of lobbying reports peaked in 2014 during the most intense period of negotiations. At the height of the negotiations over the TPP, the pharmaceutical companies engaged dozens of lobbying firms and extensively lobbied Congress, the White House, USTR, the Department of State, and the Commerce Department. US pharmaceutical firms led the way, including Pfizer, Amgen, Eli Lilly, Johnson & Johnson, Merck, Abbvie, Gilead Sciences, and Bristol-Myers Squibb. Major foreign pharmaceutical firms also played a key role in lobbying, particularly Bayer, Novartis, Sanofi, GlaxoSmithKline (GSK) and AstraZeneca. Their agenda was represented in a draft document that USTR presented to the negotiating parties in June 2011 on "Transparency and Procedural Fairness for Healthcare Technologies," which represented the pharmaceutical companies' wish list.[8] Most of the objectives were substantially watered down during the negotiations, but the skeleton of the proposal remained in the final text.[9]

As the negotiations continued, the issue that moved to the forefront of firms' concern was the duration of patents on pharmaceuticals and biologics, or large-molecule medicines,

7. Office of the United States Trade Representative, 2011 Special 301 Report, 14.

8. USTR, *Trans-Pacific Partnership, Transparency Chapter—Annex on Transparency and Procedural Fairness for Healthcare Technologies*, June 22, 2011. Available at *Citizenstrade.org*

9. See *Trans-Pacific Partnership Treaty. Annex 26-A: Transparency and Procedural Fairness for Pharmaceutical Products and Medical Devices*, which was moved from the chapter on intellectual property to chapter 26, on transparency and anti-corruption. *ustr.gov*

which was set at twelve years in US law, but was limited to five years in Australia and New Zealand. The pharmaceutical lobby insisted that the twelve-year term should be included in the TPP and questioned whether the treaty would be worthy of industry support if this provision were excluded.

> "We will evaluate the agreement, when and if it is reached, but we are very clear that our position is that the U.S. law should be the standard for trans-Pacific partners," said John Castellani, president of industry group PhRMA. "If we get a strong protection for our intellectual property, then we will work very diligently to convince members of Congress that it's good for Americans."[10]

The length of patent protection was the central issue in the penultimate round of TPP negotiations conducted in Atlanta in October 2015. Marathon negotiating sessions between the US and Australian delegations over patent duration continued all night for three consecutive nights. The talks were extended for an extra day, and then final agreement was delayed until a future date.[11] The final agreement included a minimum of five years of protection plus unspecified "other measures" to protect patent rights that would "deliver a comparable outcome in the market." The pharmaceutical lobby was not impressed. The President and CEO of the Biotechnology Industry Organization (BIO)[12] Jim Greenwood declared himself "very disappointed" with the outcome.[13] PhRMA declined to indicate whether it would support TPP, while it and pharmaceutical firms mobilized their supporters to press the administration to return to the bargaining table and demand further concessions for pharmaceuticals.

A key advocate for the pharmaceutical companies was Sen. Orrin Hatch (R-Utah), who argued that the political calendar favored waiting for a better deal rather than accepting a flawed one, since presidential elections loomed in 2016. He argued that there was "no question" that a Republican administration would achieve a more favorable outcome for IP

10. William Mauldin, "Rift Over Drug Protections Complicates Trans-Pacific Partnership Trade Talks," *The Wall Street Journal*, Oct. 2, 2015.
11. "TPP trade deadlock: Pacific countries near deal after biotech breakthrough," *The Guardian*, Business, October 5, 2015. *theguardian.com*.
12. BIO is the world's largest trade association for biotechnology companies.
13. "BIO Statement on Data Exclusivity Provisions Within the Trans-Pacific Partnership," *Business Wire*, October 04, 2015. *businesswire.com*

protection of biologic drugs. Since Obama had opposed the extension of protection to twelve years as a Senator, the administration would "have to forgive those of us who doubt their commitment to get 12 years of protection for U.S. companies."[14] Sen. Hatch was the top Senate recipient of contributions from the pharmaceutical and health products industry in the 2011-12 election cycle, receiving $1.1 million in contributions for his Campaign Committee and Leadership PAC between 2006 and 2012, the last time he ran for reelection.[15]

Negotiations between Sen. Hatch and the Obama administration continued through the spring and summer of 2016 in the hopes of bringing TPP up for a vote during the lame duck session after the election, but the impasse over the length of patent protection proved insuperable. After meetings at the White House in May, Hatch declared, "they don't seem to be willing to go beyond the five years. It's going to change or there is not going to be any agreement. It's that simple."[16] President Obama called Hatch to try to seek an agreement on June 15, but Hatch held firm.[17] After another White House meeting in July, Hatch continued to insist on the market exclusivity period for biologics, which he called the "main outstanding issue."[18] Senate Majority Leader Mitch McConnell and House Speaker Paul Ryan closed ranks with Senator Hatch, insisting that the pharmaceutical firms' concerns must be addressed before TPP could be brought to a vote.

Meanwhile, industry groups remained cautiously optimistic throughout the spring and summer that TPP could be ratified during the lame duck session, but they carefully refrained from pushing for early ratification. For example, in the middle of the summer National Foreign Trade Council (NFTC) president Rufus Yerxa was quietly lobbying the House of Representatives to prepare for a TPP vote in the lame duck session.[19] A vice president of the National Association of Manufacturers (NAM) continued to hold out hope

14. "Hatch Doubts TPP Vote in 2016, Says GOP Would Get Better Deal on Biologics," *Inside U.S. Trade*, November 13, 2015, 33 (44): 151040.

15. Sen. Hatch raised a total of $13.9 million over that period, including $5.7 million in large individual contributions, $4.8 million in PAC contributions, and $0.6 million from lobbyists. Center for Responsive Politics. "Sen. Orrin G. Hatch - Campaign Finance Summary." *opensecrets.org*

16. "Hatch: White House Fails To Move on Biologics; TPP Vote Has 50-50 Chance," *Inside U.S. Trade*, May 13, 2016, 34 (19): 154154.

17. "Hatch-Obama Call Fails To Yield Biologics Deal; Lame Duck Hopes Still Alive," *Inside U.S. Trade*, June 17, 2016 , 34 (24): 154730.

18. "Hatch Discusses Biologics With Obama, Sees Chance For Movement," *Inside U.S. Trade*, July 15, 2016 , 34 (28): 155135.

19. "NFTC President: No Political Will for TPP Now, But Lobbying Will Continue," *Inside U.S. Trade*, July 15, 2016 , 34 (28): 155136.

of an agreement that the pharmaceutical firms would support in September, arguing that their support was "absolutely critical" to putting together a Congressional coalition to pass TPP.[20] Even the Chamber of Commerce, which had cautiously endorsed the TPP in January, refrained from breaking ranks with the pharmaceutical firms.

The window of opportunity to ratify the TPP closed while the industry associations were waiting for a better deal. The agreement became caught up in the politics of America's strangest presidential election, and Donald Trump promptly withdrew the United States from the treaty when his administration took office. The other eleven members proceeded to ratify the TPP, and when its terms came into effect, US pharmaceutical firms benefited from many of the changes to intellectual property law that had been negotiated in spite of the failure of the United States to ratify. US exporters in other industries including agriculture, in contrast, found themselves excluded from an agreement that the United States had negotiated, and faced increased trade discrimination instead of market opening.

5 Conclusion

Multinational firms control trade politics by lobbying USTR and Congress, and they have found preferential trade agreements to be the most profitable and effective way to extend their influence internationally. We find robust evidence that groups of firms that we expect to be interested in PTAs increase their lobbying effort more than other firms during trade negotiations and ratification struggles after treaty signature. We use three distinct groups of firms to study how and when firms lobby to influence the negotiation and ratification process, and we find evidence consistent with efforts to influence treaty terms and with efforts to secure ratification. Our research strategy focuses on identifying credible causal estimates, so we concentrate on the differences that emerge between these groups of interested firms and other prominent firms drawn from the Fortune Global 500 during the negotiation and ratification of PTAs rather than trying to estimate the average effect of these events on firm lobbying strategies. Because we estimate within-firm changes over time and

20. "Industry Groups Continue TPP Outreach, Hold Out Hope For Vote In 2016," *Inside U.S. Trade*, September 23, 2016, 34 (37): 155934.

our baseline for comparison is the set of other firms in the Fortune Global 500, our estimates represent a credible lower bound on trade lobbying.

The data cover the full range of PTAs negotiated by the United States during the period for which LDA lobbying data are available. The research design employs a range of dependent variables, including counts of lobbying reports that detail lobbying USTR and Congress and media hits involving articles about trade agreements that mention particular firms. It focuses on heterogeneous treatment effects on distinctive groups of firms to explore the variety of firm motivations, including a firm's prior investment in a country that is party to a particular treaty, ACTPN membership and membership in the PhRMA trade association. It investigates the effect of the onset of negotiations and the signature of treaties as interventions to leverage timing as a way to draw inferences about firm strategies.

We use PanelMatch analyses to probe various parts of this process. The estimator combines a difference-in-differences design with matching, which allows us to be reasonably confident that our results identify credible estimates of the differences in responses to negotiation onset and treaty signature by distinct groups of firms. Each of these findings is identified as a within-firm change of political behavior that occurs when either trade negotiations or treaty signature occurs, and matching on firms' pre-treatment histories removes numerous threats to inference.

Members of PhRMA have well-known objectives of shaping trade negotiations to strengthen behind-the-border policies to protect intellectual property rights, so our expectation was that they would increase lobbying of USTR during trade negotiations more than other firms. PhRMA firms do indeed spring into action when negotiations begin, and they lobby USTR more than other similarly-sized firms. They pursue a wide-ranging strategy, however, simultaneously lobbying USTR and Congress while negotiations are on-going. Lobbying Congress at this stage appears to be an effort to increase their leverage over trade negotiations. They attract substantial media attention during negotiations, and our media hits data provide textual evidence that links their activity to trade negotiations with particular countries. PhRMA firms also lobby both USTR and Congress intensively after treaty signature, particularly in the late stages of the ratification struggle for particularly controversial

agreements. In some cases this may be an effort to secure ratification of an agreement that PhRMA firms find to be acceptable. In at least the case of the TPP, however, this was an effort to secure changes in the treaty after it had been signed and to hold up ratification to put pressure on USTR.

We employ two additional groups of firms to further investigate the motivations and mechanisms of lobbying over trade policy. Firms affiliated with ACTPN are chosen because they are expected to focus on shaping the provisions of trade agreements, and firms with investments in negotiating countries are chosen because they are expected to focus on securing ratification.

Firms that have representation on the ACTPN are part of the statutory management of USTR, and we theorized that firms that enjoy temporary representation capitalize on their privileged access by lobbying USTR to shape the terms of trade agreements. As expected, ACTPN members increase their lobbying of USTR more than similarly-sized firms during the negotiation phase. In addition, ACTPN firms receive increased media attention in conjunction with trade negotiations, which provides textual evidence that links their lobbying to trade agreements with particular countries. The incentives provided by temporary ACTPN membership are expected to be limited to USTR and to the negotiation phase, so lobbying Congress and lobbying after treaty signature serve as mechanism checks. ACTPN firms do not increase their lobbying of Congress more than other firms, and they do not engage more than other firms during the ratification stage. This reinforces our interpretation that the effects we find are attributable to their privileged access to USTR.

Firms with investment in a country that predates the beginning of trade negotiations participate more actively than other firms at the ratification stage and concentrate on lobbying Congress. Indeed, the majority of the increased lobbying effort by invested firms comes four or five years after negotiations are initiated, by which time all but a few PTAs had been completed and signed. This suggests that their primary interest was to lower US trade barriers rather than to influence trade partners' policies. This is consistent with the intuition that many of these firms prefer low US tariffs because they maintain affiliates abroad in order to conduct related-party trade in intermediate goods (Osgood, 2018). We

find no evidence that invested firms that are not members of PhRMA or represented on ACTPN respond to trade negotiations by lobbying USTR, which is consistent with the same interpretation.

The evidence is consistent with the interpretation that an important set of influential firms engages in trade lobbying in the hope of leveraging US market power to change behind-the-border regulations in US trade partners in order to expand their market share or constrain competition. ACTPN membership defines a class of firms that distinguish themselves from their peers by focusing their attention on lobbying USTR during the negotiation stage; PhRMA firms lobby USTR and Congress at the negotiation stage, and we have direct knowledge that their objectives are to strengthen protection for intellectual property rights. There is no rigorous way to distinguish these lobbying efforts from rent seeking. There is also substantial evidence that suggests that invested firms predominantly focus their efforts on lobbying for ratification, which is consistent with the interpretation that they categorically support PTAs with the countries in which they have invested. As highly productive firms that benefit from the reduction of trade barriers, these MNCs lobby for PTAs with particular countries in order to lower the barriers to related-party trade. In contrast to lobbying over behind-the-border policies, this advocacy of lowered US trade barriers is generally welfare enhancing, although it may shift trade in ways that are disadvantageous to other US trade partners.

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