Political Cleavages over Supply Chains: Rules of Origin and Preferential Liberalization

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Abstract

Rules of origin are one of the core policy provisions used by governments to restrict the depth of liberalization in preferential trade agreements (PTAs). Despite the importance of rules of origin in global supply chains and PTA negotiations, scholars have a limited understanding of the political cleavages that emerge over these rules. This article provides a theory of firm preferences over rules of origin that underscores input customization and heterogeneity in firm networks. Customized inputs and differences in global sourcing strategies cause restrictive rules of origin to impose asymmetric costs on global firms. Heterogeneity in adjustment costs shifts profits toward firms with relatively strong production linkages in the PTA market and induces support for restrictive rules of origin. In short, some global firms support strict rules because they raise the price of preferential access for rivals in the PTA market. I provide support for this argument using a novel dataset on corporate position-taking over the rules of origin in eleven US PTAs. My findings imply that key political cleavages over rules of origin emerge between global firms within industries that intensively use customized inputs. This article illustrates how the proliferation of PTAs has created new fault lines over global production.

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Preferential trade agreements (PTAs), such as the North American Free Trade Agreement (NAFTA), are a defining feature of the current era of globalization (Baccini, 2019). While multilateral negotiations at the World Trade Organization (WTO) have experienced prolonged gridlock since the 1994 Uruguay Round, governments have shifted toward PTAs as a core policy instrument to reduce tariffs and liberalize trade.[1] Alongside the spread of PTAs, recent decades have witnessed the rapid fragmentation of production processes and the emergence of complex global supply chains. Across industries, firms rely on close-knit and long-term relationships with foreign suppliers for parts and components customized to the design of specific products. Existing research argues that the shift toward PTAs and the globalization of the supply chain undermine protectionist interests and empower a pro-trade coalition of global firms (Osgood, 2018).[2] Rather than the traditional "protection for sale" framework (Grossman and Helpman, 1994), scholars suggest it is now "liberalization for sale" where core political cleavages emerge within industries between global and domestic firms (Kim, 2017; Plouffe, 2017; Blanga-Gubbay et al., 2018).

This article is motivated by the inherent tension between the global structure of supply chains and the proliferation of PTAs. For PTAs to function, they must be able to differentiate between goods originating within member countries and those originating outside the PTA market. However, the growth in global sourcing makes it difficult to objectively define the origin of a good (Bhagwati, 1995). As Antras (2015, 5) notes, standard "Made in" labels are an archaic symbol of an older era. Today, most goods are "Made in the World." Nevertheless, the reliance on preferential liberalization means every good still requires a country of origin. PTAs include rules of origin to determine when a good originates in a member country. These rules specify the sourcing and production requirements that must be satisfied for the good to qualify for preferential treatment.

In principle, rules of origin are technical and objective policies designed to ensure only

[1] While PTAs cover various issues, trade liberalization through lower tariffs remains a key objective.

[2] See also Chase (2003); Manger (2009); Baccini et al. (2017); Osgood (2017a,b); Baccini et al. (2018); Kim and Osgood (2019); Baccini (2019); Osgood (2021); Zeng and Li (2021).

goods that genuinely originate in the PTA market benefit from lower preferential tariffs. In practice, these rules are also a powerful barrier to trade because they constrain firms' sourcing decisions and influence the location of global supply chains (Krueger, 1993). From an economic standpoint, rules of origin reduce the benefits of preferential liberalization for exporting firms by raising input prices and introducing additional administrative burdens (Krishna and Krueger, 1995).

Importantly, choices about the design of rules of origin are political decisions shaped by lobbying and distributive politics. For example, while restrictive rules of origin raise production costs for global firms, a number of companies engaged in international trade actively lobby *in favor* of rules that impose sourcing restrictions on the goods they produce. Support for restrictive rules of origin can be found across a range of industries, from chemicals and textiles to transportation and electronics. For instance, during NAFTA negotiations, Xerox - a producer of office equipment - lobbied intensively for a rule of origin on photocopiers that effectively imposed an 80 percent regional value content (RVC) requirement (Jensen-Moran, 1996).

This support is puzzling for several reasons. On the one hand, early economic research suggests that rules of origin benefit part and component producers in the PTA market at the expense of global firms (Grossman, 1981; Belderbos and Sleuwaegen, 1997; Chung and Perroni, 2021).[3] Additionally, Xerox is a large multinational firm that depends on global supply chains. Recent firm-centered models of trade politics have difficulty explaining this support because such firms are the core advocates for liberalization and should oppose policies that restrict trade (Kim and Osgood, 2019).

To be sure, robust corporate support for more permissive rules of origin exists. A key feature underlying the politics of rules of origin is the relative divisiveness within industries. For instance, Canon - another large multinational firm that manufactures photocopiers - intensively lobbied against Xerox during NAFTA negotiations in favor of a more permis-

[3] Throughout this article I use part and component producers, intermediate suppliers, and upstream industries interchangeably.

sive rule (Jensen-Moran, 1996). These political cleavages between multinational firms differ markedly from the predictions of recent studies, which argue trade liberalization creates political divisions between large global firms and small domestic firms (Osgood, 2017a; Gulotty, 2020; Osgood, 2021).

Why do some global firms favor restrictive rules of origin while others support more permissive rules? How does the globalization of supply chains shape firm incentives to support sourcing restrictions in PTAs? I argue that some global firms support restrictive rules of origin because they provide a competitive advantage in the PTA market by imposing larger adjustment costs on rivals and raising the price of preferential access. In particular, I develop a supply network theory for the political economy of rules of origin that emphasizes two underappreciated facets of international trade: input customization and heterogeneity in firm networks.

First, a key characteristic of global sourcing is the exchange of highly customized parts and components tailored to firms' specific production processes. This type of trade requires relationship-specific investments and involves costly searches for suppliers (Antras and Helpman, 2004; Antras and Chor, 2021). Input customization alters the distributive effects of rules of origin by increasing the costs to establish or reconfigure supply chains. By creating lock-in effects between buyers and sellers, input customization prevents intermediate suppliers from using rules of origin as a form of upstream protection to capture the benefits of preferential liberalization. In such settings, customized inputs exacerbate (reduce) the costs imposed by a restrictive rule when firms rely on supply chains outside (inside) the PTA market.

Second, input customization also activates heterogeneity in firm networks. Specifically, firms leverage existing connections when selecting global sourcing strategies for customized inputs to minimize search frictions and market uncertainties (Rauch, 2001). As firm networks differ within an industry, firms gain sourcing advantages within particular markets, and global supply chains are likely to vary. Indeed, this is a critical, yet underappreciated, facet of firm-heterogeneity in international trade (Jensen et al., 2015; Osgood, 2021). Similarly sized firms in the same industry can differ markedly in where they establish global supply chains (Antras et al., 2017). For instance, although Xerox and Canon source inputs from abroad, their designs differ substantially. Xerox has stronger connections in North America and Europe, while Canon depends on East Asia.

The key implication is that with input customization and heterogeneity in firm networks, a restrictive rule of origin imposes asymmetric costs on global firms within an industry. Thus, while the rule may directly increase costs for all exporters and reduce the gains of preferential liberalization across the board, it also has an indirect effect on firm profits by causing a shift of market share in the PTA region toward global firms with relatively low adjustment costs. When the change in market share is significant, it creates strong incentives for low-cost firms with a comparative sourcing advantage in the PTA market to support restrictive rules of origin. In short, my argument suggests that Xerox favors restrictive rules of origin during NAFTA negotiations because it raises the price of preferential access for rivals (Canon) and provides a competitive advantage in the PTA market.

To test this theory, I construct a novel dataset on corporate position-taking over the design of rules of origin in eleven US PTAs, ranging from NAFTA to the recently negotiated United States-Mexico-Canada Agreement (USMCA). The empirical evidence provides robust support that core political cleavages over rules of origin emerge between global firms in industries that intensively use customized inputs. I find that support for permissive rules of origin increases as firm linkages extend beyond the PTA market and the degree of input customization increases. Further, global firms are more likely to support restrictive rules of origin when they have a competitive sourcing advantage for customized inputs within the PTA market relative to rivals. Finally, I show that industries are more likely to be internally divided over rules of origin when they intensively use customized inputs and global sourcing strategies diverge.

This article provides several notable contributions. First, it adds to the extensive literature on the political economy of PTAs. While trade experts have long emphasized the importance of rules of origin for global supply chains and the distributive effects of liberalization (Grossman, 1981; Conconi et al., 2018), these rules are largely ignored by political scientists because of their arcane and technical nature. For example, in a recent article in the *Annual Review of Political Science* on the politics of PTAs (Baccini, 2019), rules of origin are not mentioned. This study provides the first systematic evidence of the political importance of rules of origin across US PTA negotiations. Moreover, it illustrates how these rules are central to understanding the broader political economy of preferential liberalization.

Second, this article contributes to research on firm-heterogeneity and global supply chains (Kim, 2017; Osgood, 2018; Gulotty, 2020; Kennard, 2020; Perlman, 2023). While previous studies underscore the political implications resulting from differences between global and domestic firms, this study focuses on the political cleavages that emerge between global firms. It demonstrates how intraindustry differences in global sourcing strategies and the reliance on preferential liberalization can induce certain firms engaged in international trade to adopt protectionist preferences. In this regard, this article relates to several studies that draw on the industrial organization literature and argue that firms leverage regulatory policy to gain a competitive advantage.[4] However, this research continues to emphasize the differences between global and domestic firms. The key insight of this study is to illustrate how political cleavages emerge between global firms.

Finally, this article adds to the nascent literature on the politics of rules of origin. While several studies connect global supply chains and the design of rules of origin, previous research suffers from theoretical and empirical limitations (Chase, 2008; Manger, 2009; Eckhardt and Lee, 2018; Çınar and Gulotty, 2022). Theoretically, existing studies ignore how rules of origin affect input prices and alter the bargaining dynamic between firms along the supply chain. Scholars do not provide a mechanism for why part and component suppliers cannot simply leverage the rule to capture the gains from preferential liberalization through higher

[4] See Gulotty (2020); Kennard (2020); Perlman (2023).

markups. This article elucidates how input customization severs the link between restrictive rules of origin and the incentives of upstream protection (Belderbos and Sleuwaegen, 1997; Chung and Perroni, 2021; Laaker, 2023). Empirically, existing evidence relies on case studies of specific industries. This project provides a systematic analysis of corporate preferences over rules of origin across industries and PTAs.

The remainder of this article is organized as follows. The first section highlights the political and economic importance of rules of origin in PTAs and discusses the limits of existing studies. The second section develops a theory for how input customization and heterogeneity in firm networks alter the political economy of rules of origin. The following sections introduce the dataset on corporate position-taking over rules of origin, the research design, and the empirical results. The final section concludes with a discussion of the broader implications of rules of origin and preferential liberalization.

1 Rules of Origin and Gaps in Existing Models of Trade Politics

The proliferation of PTAs has dramatically increased the importance of rules of origin. Every PTA must include some form of these rules and they often account for a substantial portion of the agreement's actual text (Alschner et al., 2018). These rules are at the very heart of PTAs because they ensure only goods that "originate" in member countries are granted preferential treatment. Since PTAs allow partners to maintain different most-favored nation (MFN) tariffs for non-members, they create the potential for trade deflection. Non-members can ship a good to the partner with the lowest MFN tariff and then transship the good across the now duty-free border to the member country with a higher MFN tariff.

In theory, PTAs include rules of origin to reduce these perverse incentives. However, recent research demonstrates that the profitability of trade deflection is minimal because tariffs between partner countries are similar and transportation costs are non-negligible (Felbermayr et al., 2019). There is also limited evidence that the design of negotiated rules of origin are influenced by the incentives of trade deflection (Laaker, 2020). Perhaps surprisingly, little consensus exists on the appropriate design of rules of origin. While the WTO constrains the use of retaliatory tariffs and non-tariff remedies, international institutions place few limits on how governments can use rules of origin in PTAs (Inama, 2022). Moreover, the globalization of supply chains makes it difficult to objectively define the origin of a good. For example, in the 1950s, it was clear that the Boeing 707 was made in the US since only about 2 percent of the aircraft was built in other countries (Gapper, 2007). It is much more challenging to identify the origin of the Boeing 787 because offshore production accounts for over 70 percent of the parts used in assembly (Grossman and Rossi-Hansberg, 2011). Therefore, it is hard to rationalize rules of origin as a purely functional tool.

In practice, these rules can easily be abused as a mechanism to alter the redistributive effects of preferential liberalization (Krueger, 1993). At their core, rules of origin condition preferential treatment on satisfying certain sourcing and production requirements. In this sense, rules of origin include a carrot and hoop element (Krishna, 2015). Where the carrot (benefits of compliance) is access to lower preferential tariffs and the hoop (costs of compliance) is the sourcing restrictions required to obtain preferential access. Intuitively, firms only satisfy the rule if the benefits of preferential treatment are larger than the costs of compliance. Thus, by imposing additional restrictions, rules of origin can serve as a powerful form of protection that reduces the benefits of preferential liberalization (Krishna and Krueger, 1995). Indeed, manufacturing firms consistently cite rules of origin as the most problematic non-tariff trade barrier (ITC, 2015). This aligns with research that demonstrates rules of origin reduce the utilization of preferential tariffs (Hayakawa et al., 2014), decrease trade creation of final goods (Anson et al., 2005), and create trade diversion in intermediate inputs (Conconi et al., 2018).[5] In sum, rules of origin fundamentally alter the distributive consequences of PTAs because they determine the cost of preferential access and influence

[5]On the theory, see Grossman (1981); Krueger (1993); Krishna and Krueger (1995); Head et al. (2022). On the empirics, see Cadot et al. (2006); Carrére and de Melo (2006); Sytsma (2022); Kim and Zhang (2023).

the design of global supply chains.

Existing frameworks of trade politics provide limited insights into the political economy of rules of origin because they overlook the complex production linkages between factor owners, industries, and firms (Rogowski, 1987; Grossman and Helpman, 1994; Hiscox, 2002; Gawande et al., 2012; Kim and Osgood, 2019). While a growing literature underscores the importance of global supply chains in the politics of trade, scholars primarily focus on the extent to which firms import or export intermediate inputs and ignore the substantial variation in firm-to-firm linkages. Canonical models assume that firms use anonymously supplied inputs which are transformed into products and sold to consumers (Bernard and Moxnes, 2018). In such settings, the costs of switching to new partners within the market are low for all firms. Input prices are driven by market clearing conditions and firms are able to easily replace partners when presented with a better offer. Buyer-seller relationships are shallow because suppliers do not need to tailor parts to individual customers. Further, firms can find or sell inputs through anonymous markets, such as the Chicago Mercantile Exchange, or through intermediaries (Petropoulou, 2008).

Low switching costs between firms generate distinct distributive effects for the sourcing restrictions imposed by rules of origin. Specifically, a rule of origin increases the price of the restricted input sourced from the PTA market, which raises production costs and reduces the benefits of preferential liberalization for exporting firms (Sytsma, 2022). This price distortion operates through two channels. First, by conditioning access to lower tariffs on satisfying certain sourcing requirements, a rule of origin induces additional firms to use the PTA sourced input and causes its price to rise (Grossman, 1981; Krishna and Krueger, 1995). Second, by limiting the outside options of firms, rules of origin also increase the market power and bargaining leverage of the upstream industry (Belderbos and Sleuwaegen, 1997; Chung and Perroni, 2021). This allows intermediate suppliers to charge higher price markups and capture the benefits of preferential liberalization. In short, rules of origin attach a price premium to inputs sourced from the PTA market which exporting firms are willing to pay because of access to lower preferential tariffs.[6]

The political implications are straightforward. As Belderbos and Sleuwaegen (1997) argue, it is rare for downstream firms engaged in exporting to ever profit from a restrictive rule of origin because the gains are captured by intermediate suppliers.[7] Thus, key political cleavages over the design of rules of origin should emerge along the supply chain between upstream and downstream firms. Indeed, recent research finds that, on average, firms in downstream industries are more likely to support permissive rules of origin while intermediate suppliers favor restrictive rules (Laaker, 2023).

Empirically, several studies demonstrate that the modal firm-to-firm relationship is short-lived, which suggests that firm linkages quickly respond to changes in price. Using French data, Martin et al. (2022) find that roughly 40 percent of firm matches only last a month.[8] However, this neglects a prominent characteristic of input trade. That is, intermediate input purchases often entail the exchange of highly customized inputs that require relationship-specific investments and involve costly searches (Martin et al., 2022). These frictions vary substantially across markets, industries, and firms. For some, it is relatively easy to find suppliers because of low levels of input customization and the presence of large intermediaries. Though, for others, finding efficient and reliable partners in a global economy can be a costly and lengthy process because of search frictions and relational contracting.[9] The previous literature provides limited insights into how input customization alters the political cleavages that emerge over trade policy (Antras and Helpman, 2004; Antràs and Staiger, 2012).

Furthermore, existing studies ignore the substantial intraindustry variation in where firms

[6]These price effects align with research that shows expanding access to imported inputs increases firm efficiency (Goldberg et al., 2010; Halpern et al., 2015; Bombarda and Gamberoni, 2013; Sytsma, 2022).

[7]Critically, this dynamic undermines insights from previous research that connects regional supply chains to support for restrictive rules of origin (Manger, 2009; Chase, 2008; Çınar and Gulotty, 2022). Specifically, the sourcing restrictions imposed by rules of origin create negative externalities for all firms within the PTA market, even when supply chains are local (Belderbos and Sleuwaegen, 1997; Chung and Perroni, 2021).

[8]Monarch and Schmidt-Eisenlohr (2020) show that 62 percent of firm linkages in the US each year are new.

[9]The fixed market-entry costs incorporated into existing models partly reflect these frictions (Kim and Osgood, 2019), but they miss critical features. In particular, firms reach individual suppliers/customers rather than the entire market. While these costs are fixed with respect to production, they are variable in the optimization of expenditures by firms. Paying higher costs allows a firm to search longer, which results in finding more efficient partners and, thus, reduces marginal production costs (Bernard et al., 2019).

establish supply networks (Osgood, 2021). Similarly sized firms in the same industry can differ markedly in where they source core parts. Some firms minimize production costs by leveraging supply chains in China or South Korea, while other firms in the industry source from Europe.[10] Below, I draw on recent advances in international trade and industrial organization to examine how input customization and heterogeneity in global supply networks alter the adjustment costs imposed by rules of origin and the preferences of global firms.

2 Input Customization, Firm Networks, and the Political Economy of Rules of Origin

This section develops a model of firm preferences over rules of origin that emphasizes the importance of customized inputs and heterogeneity in firm networks. In particular, I focus on the preferences of large firms engaged in international trade. This is because these firms have higher stakes (in absolute terms), have greater resources to lobby, and are more politically experienced and informed over trade issues (Osgood, 2018). In short, relative to small domestic firms, these firms have a larger incentive and ability to lobby. Indeed, previous research finds that large global firms are more likely to lobby over trade policy than small domestic firms (Weymouth, 2012; Kim and Osgood, 2019; Blanga-Gubbay et al., 2018).

2.1 Customized Inputs, Global Production, and the Prohibitive Costs of Restrictive Rules of Origin

Previous studies on the distributive effects of rules of origin overlook the importance of input customization. When firms intensively rely on inputs that are highly customized to indi-

[10]Formally, existing models assume that fixed entry costs are constant across firms within an industry, which implies a strict hierarchical pecking order in the extensive margin of exporting, input sourcing, and multinational production. Empirically, this prediction is often violated (Eaton et al., 2011; Antras et al., 2017). Less productive firms frequently export, source, or produce in markets from which more productive firms do not. These fixed costs are firm-specific and driven by differences in firm networks.

vidual production processes, the costs to establish and alter supply chains increase. This creates lock-in effects between firms and causes production linkages to be relatively sticky. I emphasize two features of customized inputs. On the one hand, input customization introduces search and information frictions. Firms must invest resources to gather information about the technical capabilities of potential suppliers, past business conduct, the legal system, and general market conditions. Research finds that firms frequently face challenges in establishing initial contacts in new foreign markets (Benguria, 2021).

On the other hand, input customization also requires firms to make relationship-specific investments in physical assets and technology that are tailored to the specific product. In an environment with imperfect contracting, this exposes both firms to substantial risks. Firms can guard against these risks by writing contracts, but it is infeasible to predict every potential problem that may arise during the course of the relationship. The nature of imperfect contracting requires firms to invest in relational capital to reduce contractual insecurities between participants. Firms rely on repeated interactions with one another to establish a form of governance that provides implicit contract enforcement (Antràs, 2020).

The costly process of finding efficient and reliable partners in a global economy increases the value of long-term relationships (Antras and Chor, 2021). This is for two reasons. First, search frictions and relationship-specific investments are sunk in nature, meaning they are likely forfeited when a firm decides to abandon an existing relationship. Second, establishing efficient supply chains for customized inputs takes significant time. For example, for Sea Eagle Boats Inc. - who produces inflatable kayaks, canoes, and fishing boats - it took 20 years to fully build up its supply chain with various contract manufacturers in China (Hufford and Tita, 2019). Research demonstrates that with customized inputs firm relationships become more efficient overtime as trust increases and uncertainty over reliability decreases (Egan and Mody, 1992; Monarch and Schmidt-Eisenlohr, 2020). Indeed, while most firm-to-firm matches in a given year are new, the value of trade is driven by long-term relationships. Monarch and Schmidt-Eisenlohr (2020) find that 80 percent of the value of US imports occur in preexisting firm-to-firm matches. These insights suggest that with high levels of input customization, supply chains are relatively sticky (Monarch, 2022; Martin et al., 2022). In such settings, firms cannot easily substitute partners without incurring substantial costs.

The lock-in effects of input customization have two key implications for the distributive effects of rules of origin. First, input customization increases the adjustment costs imposed by restrictive rules of origin when supply chains are located outside the PTA market. In the short-term, firms are unlikely to comply with the rule because input customization increases the time required to establish reliable and efficient supply chains (Lim, 2020). This logic is consistent with evidence that shows compliance with rules of origin increases overtime (Krishna et al., 2021). In the long-term, firms may find suitable suppliers in the PTA market. However, marginal production costs are likely still higher compared to more permissive rules of origin. This is because the efficiency of supply networks increases overtime for customized inputs. Further, firms are unlikely to recreate the level of efficiency of previous supply chains in different markets (Mair et al., 1988).

Second, input customization limits the leverage rules of origin provide to intermediate suppliers in the PTA market. This is because customized inputs increase the costs to abandon existing connections, which creates lock-in effects between firms within a production network. The price of the input is determined by bilateral bargaining between firms instead of market clearing conditions (Antràs and Staiger, 2012). Thus, the gains from preferential liberalization are divided depending on the outside options of each firm (Antras, 2015, 98-106). While sourcing restrictions increase the bargaining leverage of the upstream firm, its outside options are still limited.[11] In other words, input customization aligns the interests of firms within a production network over the design of rules of origin. The simple upshot is that input customization decreases the costs imposed by restrictive rules of origin when firms and industries depend on supply chains within the PTA market.

The political implications of are straightforward. Firms engaged in international trade

[11]This bargaining advantage for upstream firms may increase aggregate profits for the downstream firm if it alleviates the hold-up problem and underinvestment (Thoenig and Verdier, 2006).

should be more likely to lobby in favor of permissive rules of origin as production linkages extend beyond the PTA market and the degree of input customization increases. The key benefit of PTAs for global firms is expanded market-access through lower tariffs. Existing models suggest these firms support liberalization because lower tariffs allow them to gain market share in member countries at the cost of smaller less competitive firms. However, these gains depend on global firms qualifying for preferential access, which is only possible with relatively lax rules of origin. Sourcing restrictions would disrupt long global supply chains where products cross multiple borders (Baldwin, 2006; Chase, 2008). Moreover, these firms favor policies with flexibility which allow them to alter sourcing decisions in response to demand shocks and currency fluctuations.[12]

Input customization serves as a critical moderator that intensifies support for permissive rules of origin as supply chains extend outside the PTA market and minimizes opposition to restrictive rules when supply chains are local. In this sense, customized inputs may also induce firm-centric patterns of lobbying since the benefits of permissive rules of origin are highly concentrated. Overall, global firms have strong incentives to maintain current supplier relationships and avoid the costs of either reorganizing supply chains or forfeiting preferential access. This discussion suggests the following hypothesis:

Hypothesis 1: *A firm should be more likely to express support for permissive rules of origin when global supply chains extend beyond the PTA market and inputs are customized.*

Large firms with global supply chains vigorously protect their interests during negotiations for rules of origin. For example, US negotiators originally proposed a rule in NAFTA for computers, an industry with a high degree of input customization, that required two of three key components (motherboard, flat panel display, and hard disc drive) to be sourced from member countries (Jensen-Moran, 1996). The rule was equivalent to a 60 percent RVC

[12] See Kogut and Kulatilaka (1994).

requirement. The International Business Machine Corporation (IBM) strongly opposed the rule because it would require a complete reorientation of its supply chain for the North American market (half of its total sales). As an IBM spokesperson put it, *"to use the rule of origin as an instrument of industrial policy for flat panels is a misuse of the rules"* (Davis, 1992, 1). In the end, IBM successfully lobbied the US, Canada, and Mexico to dramatically alter the rule. The final version only required the motherboard to be made in member countries and only for the first 10 years.

Broadly, my argument suggests the political implications of input customization align with recent studies which argue global supply chains shift firm preferences in a pro-trade direction (Osgood, 2018). Importantly, a key contribution of this article is to illustrate how input customization intensifies the effect of global sourcing on support for trade liberalization. Firms that source highly customized parts and components from abroad have strong incentives to engage in political activities to prevent trade barriers that may threaten existing supplier relationships.

2.2 Heterogeneity in Firm Networks and the Asymmetric Costs of Restrictive Rules of Origin

Input customization also activates heterogeneity in firm networks and generates intraindustry variation in firms' global sourcing strategies. Specifically, when establishing global supply chains for customized inputs, firms leverage existing connections in markets to minimize search and contracting frictions (Rauch, 2001). These contacts emerge from a variety of sources, such as management, employees, trade associations, previous transactions, or neighboring firms. Existing connections can provide reliable information about trading opportunities, potential suppliers, and market structure, which reduces the costs to establish or expand linkages within particular countries (Combes et al., 2005). Further, firm networks can reduce opportunism and contracting frictions by providing information on the history and reliability of suppliers (Greif, 1989; Greif et al., 1994).

A vast literature in economics finds that firms' existing social and business networks reduce search and information frictions, decrease contractual insecurities, and lead to larger productivity gains - especially for customized products (Rauch and Trindade, 2002; Garmendia et al., 2012; Chaney, 2014). Further, research demonstrates that reducing these frictions allows firms to find more efficient partners within a market and, thus, decreases marginal production costs (Bernard et al., 2019). Importantly, firm networks are also critical in facilitating trade and developing global supply chains (Antràs et al., 2022; Conconi et al., 2022). For example, studies find that firms are more likely to enter foreign markets when neighboring firms or members in business groups are already present (Belderbos and Sleuwaegen, 1998; Head and Ries, 2001).

As firm networks differ within an industry, global supply chains are likely to vary. Indeed, a growing body of evidence indicates substantial differences exist between firms' global sourcing strategies within the same industry (Eaton et al., 2011; Antras et al., 2017).[13] This intraindustry variation in supply chains is clearly evident in the automotive sector and firms' sourcing decisions for engines and transmissions. Table 1 uses 2011 data published under the American Automobile Labeling Act and shows for each manufacturer the percentage of vehicle models assembled in NAFTA that source engines or transmissions from within the region. There are stark differences between vehicle manufacturers. For example, 78 (11) percent of Volkswagen-Audi's models assembled in NAFTA use engines (transmissions) sourced from member countries. For Hyundai Motor Company, 67 percent of models assembled in NAFTA either use a transmission or engine sourced from NAFTA countries.

Intraindustry differences in global sourcing strategies for customized inputs have critical implications for the distributive effects of rules of origin. As discussed above, input customization either mitigates or exacerbates the adjustment costs imposed by a restrictive rule, depending on the location of global supply chains. However, differences in global sourcing strategies for customized inputs within an industry indicate that the costs imposed by a

[13] See also Munch and Nguyen (2014); Bernard et al. (2011); De Gortari (2019).

Table 1: Sourcing Decisions of Vehicle Manufacturers in NAFTA Region for 2011.

Manufacturer	**Proportion of Models with NAFTA Sourced Engines**	**Proportion of Models with NAFTA Sourced Transmissions**	**Number of Models**
Ford Motor	0.84	0.63	43
General Motors	0.97	0.97	32
Chrysler LLC	1.00	1.00	20
Toyota Motor	1.00	0.69	13
American Honda	1.00	0.64	11
Nissan North America	0.55	0.18	11
Volkswagen-Audi	0.78	0.11	9
Mazda Motor Corp.	0.80	0.40	5
BMW AG	0.00	0.00	3
Fuji Heavy Industries	0.00	0.00	3
Hyundai Motor Co.	0.67	0.67	3
Mercedes Benz	0.00	0.00	3
Mitsubishi Motors	0.00	0.00	3
American Suzuki	1.00	0.00	1
Kia Motors Corp.	1.00	1.00	1
Think	0.00	0.00	1
Wheego	1.00	0.00	1

restrictive rule of origin are asymmetric across internationalized firms within the PTA market. On the one hand, firms with strong linkages in the PTA market face minimal adjustment costs when complying with a relatively strict rule and can easily access lower preferential tariffs on imported inputs and exports (low-cost firms). On the other hand, the costs of compliance with a restrictive rule are substantially larger when firms have weak linkages in the PTA market and depend on suppliers located in third-party countries (high-cost firms).

Heterogeneity in adjustment costs between global firms within an industry causes a restrictive rule of origin to also have an *indirect* effect on firm profits by shifting market share toward low-cost firms that enjoy a comparative sourcing advantage within the PTA region (Salop and Scheffman, 1983, 1987; Kennard, 2020). When the shift in market share is large, it compensates for the direct effect of a restrictive rule of origin on production costs. My central claim is that this competitive dynamic creates a strategic incentive for a global firm with relatively low adjustment costs to lobby in favor of restrictive rules of origin because it raises the price of preferential access for rivals and provides a competitive advantage in the PTA market. In short, while a strict rule may increase production costs on all exporting firms and reduce the benefits of lower tariffs, a firm may still support the rule because it imposes larger costs on rivals and allows the firm to capture market share.

Importantly, support for restrictive rules of origin emerges only if there exists significant heterogeneity in adjustment costs. The costs imposed by restrictive rules of origin are likely to differ between global firms within an industry when inputs are highly customized and global sourcing strategies vary. On the one hand, if firm networks and global supply chains are similar, the adjustment costs imposed by a restrictive rule of origin do not differ. In such settings, the *direct* effect of the restrictive rule on a firm's production costs dominates the *indirect* effect since the shift in market share is relatively small. On the other hand, this competitive dynamic also is unlikely to exist when the degree of input customization is low. This is because switching costs are minimal, which reduces the variation in input prices between firms. In sum, heterogeneity in firm networks and customized inputs cause restrictive rules of origin to impose asymmetric adjustment costs on global firms within an industry. This discussion suggests the following hypothesis:

Hypothesis 2: *A firm should be more likely to express support for restrictive rules of origin when it has a relative sourcing advantage within the PTA market and uses customized inputs.*

The logic of my argument also suggests that input customization and heterogeneity in firm networks have empirical implications for internal divisions that emerge within an industry over rules of origin. Specifically, industries are more likely to be divided over rules of origin as global sourcing strategies diverge and the degree of input customization increases.

Hypothesis 3: *An industry is more likely to be internally divided over the design of rules of origin when inputs are customized and firms' global sourcing strategies within and outside the PTA market diverge.*

2.3 An Illustrative Example: Televisions, Variation in Global Supply Chains, and Rules of Origin

To understand this logic in action, consider the rules of origin for color televisions in NAFTA. At the time, large TV producers that operated in the US market also had assembly plants located in northern Mexico.[14] However, the structure of supply chains for cathode-ray (picture) tubes, which accounted for about 40 percent of component costs, differed significantly (OTA, 1992). Sanyo, Hitachi, and Matsushita primarily relied on sourcing materials from Asian suppliers while Zenith had consolidated most of its production to Mexico and the US during the 1980s (OTA, 1992). Prior to NAFTA, special border programs allowed an Asian picture tube to be incorporated duty-free into televisions produced in Mexico. When shipped to the US, the tubes only faced a 5 percent duty derived from the rate charged on the value-added in Mexico for completed TVs. The special border programs allowed firms to avoid paying the 15 percent tariff typically imposed by the US.

During NAFTA negotiations, Zenith and its suppliers secured a rule of origin that restricted the use of non-member picture tubes in color televisions. A firm that sourced Asian picture tubes would have to pay the 15 percent tariff or reorient supply chains toward North America. Both would substantially raise costs. In the low-margin consumer electronics industry, this dramatically affected a firm's bottom-line. Estimates suggested the rule would increase costs by 11 to 14 percent (Consumer Electronics, 1993). Zenith wanted the rule to gain a competitive advantage against its rivals. As Jerry Pearlman, the chairman of Zenith, put it *"television sets using foreign tubes will get clobbered under NAFTA"* and *"we'll pick up market share"* (Davis, 1992, 1). Indeed, surprising industry analysts, Zenith turned a $9.4 million profit during the third quarter in 1994 (Dishneau, 1994). For the same period in the previous year, Zenith recorded a $14.1 million loss. It was the first time since 1988

[14] They were part of the maquiladora industry, which exempted firms from duties on imported materials used to assemble products or sub-assemblies for export. Additionally, these plants benefited from the US's outward-processing programs that only imposed duties on the value-added in Mexico.

that Zenith had turned a profit and Pearlman attributed the gains directly to the rules of origin in NAFTA (Dishneau, 1994).

Altering supply networks also proved challenging for firms. Picture tubes required different specifications depending on the type of television. Further, production required highly skilled workers because of the complexity of equipment and the need to constantly tune machine components (OTA, 1992). In other words, picture tubes are highly customized inputs. Industry analysts predicted the rule would cause a severe picture tube shortage as firms tried to switch to North American suppliers (Consumer Electronics, 1993). Furthermore, in interviews, managers emphasized the difficulty of finding suppliers in Mexico that were comparable to those in Asia.[15] They eventually started to encourage their Asian suppliers to setup plants in Mexico, but many were reluctant (OTA, 1992). New picture tube plants could cost upwards of $200 million.

Existing models of trade politics explain Zenith's support for NAFTA by emphasizing the firm's size and its engagement in international markets (Osgood, 2018). Specifically, NAFTA would decrease the tariffs on televisions Zenith exported to the US from Mexico and also decrease the tariffs on the inputs Zenith imported to Mexico from the US. This allows Zenith to reduce marginal production costs and capture market share from smaller domestic firms in the PTA region unable to engage in international trade. However, this story ignores the rules of origin within NAFTA that determine which goods qualify for preferential access. Absent rules of origin, all television exporters in Mexico would gain from NAFTA with minimal costs. Zenith leveraged differences in the sourcing of highly customized inputs and used the rules of origin in NAFTA to prevent its rivals from cheaply accessing lower tariffs. In other words, the rules of origin in the agreement raised the price of preferential access for rival firms and provided Zenith with a competitive advantage that allowed it to capture market share within the PTA region.

This account differs substantially compared to existing models of trade politics. Specifi-

[15]They pointed to a poorly qualified workforce, poor infrastructure, and language barriers.

cally, support for trade liberalization is predicated on the inclusion of protectionist policies that alter the relative competitiveness of exporting firms within the PTA market. Further, political differences that emerge are between large global firms. My theory emphasizes how the reliance on preferential liberalization and the globalization of supply chains can induce typically "pro-trade" firms to develop protectionist preferences. Thus, the political economy of rules of origin and PTAs are driven by cleavages over firms' supply chains. By ignoring rules of origin, scholars overlook a key policy provision included in all PTAs that firms can exploit to extract rents.

The logic of my argument also applies even if all existing supply chains are global, so long as there is sufficient variation in the adjustment costs to comply with the rule. The rule of origin for battery powered electric vehicles (EVs) in the recent EU-UK trade agreement demonstrates this idea. The specific rule requires that 55 percent of the value of EVs be created in the PTA market by 2027. On face value, this rule does not appear particularly restrictive when comparing to the rules for vehicles in NAFTA and the USMCA. However, the battery makes up between 50 to 60 percent of the total value of a car. This is particularly challenging for automotive firms because European battery production is limited and many source batteries from Asia and the US. For example, in 2018 only 1 percent of the demand for these batteries was supplied by European companies (Lowe, 2020). While investment has substantially increased in recent years, UK firms have lagged behind.

Support for these rules largely depended on the ability of firms to satisfy the rule by 2027. Broadly, automotive firms in the UK opposed the rule of origin because they had not invested in battery production within the EU market. However, Nissan provided an exception. Nissan, who produces its Leaf model in Sunderland, UK, reacted positively to the new rule. While the firm currently sources batteries from the US, it could easily alter its supply network because of strong connections with Envision, a battery producer that was previously owned by Nissan and is located right next to their plant in Sunderland (Bailey, 2021). Nissan was able to reach a lucrative deal with Envision to produce batteries for the Leaf model. This partnership allows Nissan to easily meet the new rules of origin requirements in the EU-UK trade deal. Ashwani Gupta, the Chief Operating Officer at Nissan, noted that the rules of origin created a competitive environment for their Sunderland plant (Hancke and Mathei, 2021). Industry analysts contributed this competitive edge to the rules having a larger negative impact on rival firms and expected Nissan to capture market share as a result (Bailey, 2021).

3 Empirical Analysis

This section presents the main empirical results that establish the effects of input customization and the structure of global supply chains on firm and industry-level preferences over rules of origin. I begin with a description of the data on corporate position-taking over rules of origin used for the analysis. I then present my empirical finding that firms with supply chains outside the PTA market are more likely to support permissive rules, especially as the level of input customization increases (Hypothesis 1). In addition, I find that firms are more likely to support restrictive rules when they intensively use customized inputs and have a relative sourcing advantage in the PTA market compared to rivals (Hypothesis 2). Next, I show that internal divisions within industries over the design of rules of origin are driven by input customization and heterogeneity in global sourcing strategies (Hypothesis 3). In the Appendix, I also present case-study evidence on the US automotive industry across PTAs.

3.1 Data on Corporate Position-Taking over Rules of Origin

To test the empirical implications of my argument, I construct a new dataset on corporate support for restrictive and permissive rules of origin in US trade agreements, ranging from NAFTA to the USMCA.[16] The ideal empirical test would use data on firm and association

[16] The US provides an important and ideal empirical setting for several reasons. First, the US is commonly used as a testing ground for the trade politics literature. Second, the US simply provides better data on lobbying activities and trade (Bombardini and Trebbi, 2020). Finally, the political strategy pursued by US officials and firms toward the design of rules of origin in the early 1990s was quickly adopted by other

preferences over value content requirements or specific input restrictions across PTAs that are then matched with formal lobbying reports. However, there are several limitations which suggest collecting data at this level of detail is infeasible. First, negotiations over rules of origin are conducted in secret behind closed doors. While officials provide general updates throughout the negotiation process, the specifics on the individual rules are usually not released until the final text of the agreement is made public. Further, specific positions and the influence of key stakeholders in negotiations are not made public by negotiators unless done so by the firm or organization. Second, detailed information on preferences over the design of these rules is unlikely to exist in official firm and association lobbying reports. These disclosures typically do not provide details on specific policy preferences or the direction of lobbying.[17] Moreover, formal lobbying disclosures do not capture the various ways firms and associations can influence negotiations over rules of origin. Third, survey methods are unlikely to adequately measure preferences at a highly detailed level because of the complexity of rules of origin. Understanding the economic implications of rules of origin requires in-depth knowledge of complex and long supply chains, which most managers do not know or easily able to express in a survey response. This is further complicated when differentiating preferred designs of rules of origin across various agreements.

Given these constraints, I follow previous studies and collect data on the *public* position-taking of firms and associations over the design of rules of origin.[18] Specifically, I focus on public statements of associations and individual firms concerning rules of origin. In this sense, I treat public expressions by firms and associations as a form of outside lobbying intended to (1) influence policy and public perceptions over rules of origin and (2) to inform policymakers about the stakes and potential economic consequences of specific rules. The core assumption being made is that private and public preferences over rules of origin are closely linked.

countries after NAFTA in a domino like effect (Inama, 2022, 400).

[17]It is not clear whether firms must identify lobbying activity over rules of origin specifically or simply lobbying over the broader PTA.

[18]See Chase (2003); Osgood (2017a,b, 2018, 2021) for similar approaches to trade policy.

There are several reasons why this assumption holds. Public statements are based on internal deliberations of the economic effects of the specific rules and, thus, are likely to reflect meaningful discussions and the actual interests at stake. These statements are also present within many industries and across US PTAs. Moreover, the US government spends significant resources to provide a forum for firms and industries to express their views and concerns over rules of origin. Specifically, they have established Industry Trade Advisory Committees (ITAC) to receive feedback on a variety of trade-related issues, including rules of origin. They also invite firms and associations to testify and publicly comment during hearings in Congress and the US International Trade Commission (ITC). Recall, rules of origin are technically and legally complex. These opportunities serve as a critical juncture to inform policymakers about the stakes and the intricate economic effects of specific rules.

Additionally, on-the-record statements can be costly if there is intraindustry disagreement or if interests are misapprehended. Thus, it is unlikely that they will made in haste or erroneously formulated. For example, during CAFTA negotiations when a report mistakenly stated that Parkdale Mills supported a compromise agreement that included more permissive textile rules of origin, the CEO of the company quickly corrected the record (WWD, 2003).[19] In sum, these public positions are good proxies for the private interests and ultimate stakes.

To code firm and association positions, I rely on a variety of sources: Congressional and ITC testimony and submissions, USTR comments, ITAC reports, press releases and website statements, and news media reports. Importantly, positions need to be clear and concrete. These sources require careful reading to determine if an unambiguous position is taken on the rules of origin in a particular PTA. Many firm and association positions are repeated across multiple venues, improving confidence that they are meaningful and accurately measured.

I measure position-taking using a simple dichotomy: firms and associations either support permissive or restrictive rules of origin. This strategy is preferable because firms and

[19]While it is possible public positions can generate unwanted attention and firms may face social constraints that influence their preferences or whether they publicly take a position, these concerns are limited, especially as the stakes grow larger.

associations vary in the level of detail in their stated positions. While some are very specific about the products, inputs, and restrictions they prefer, others provide less detail and discuss rules of origin in a broader context of trade strategy and supply chains. I rely on common phrasing used by firms and associations to code position-taking over rules of origin. Specifically, I code firms and associations as supporting permissive rules of origin if statements included support for flexible or simple rules, the use of multiple tests to prove origin, diagonal cumulation, rules that acknowledge the global nature of industry supply chains, and/or the importance of global sourcing for certain inputs and opposition to rules that prevent or hinder liberalization. For example, consider the comments submitted the USTR by the Toy Association during the USMCA negotiations.

> *"The current NAFTA product-specific rule of origin on toys, which applies to HS subheadings 9503.00 through 9505.90, is the result of an industry proposal to amend the original NAFTA origin rules for toys... The amended NAFTA rule of origin on toys has proven satisfactory to the toy industry. Nonetheless, we would support a further liberalization in the product-specific rule of origin on toys such as that adopted in the TPP agreement as a further improvement on the existing NAFTA rule. Any tightening of regional content requirements or other increased rule of origin restrictions will undermine U.S. toy companies' ability to utilize the NAFTA."* - **The Toy Association**

Not only did the Toy Association support liberalization of the rule of origin for toys in 2004, it makes clear that it also supports further liberalization of the rules in the USMCA. Thus, I code the Toy Association as supporting permissive rules of origin for the USMCA. I code firms and associations as supporting restrictive rules of origin if statements supported rules that prevented screwdriver plants, rules that only benefited PTA members, rules that benefited firms invested in the PTA market, strong or strict rules of origin, rules with high regional content requirements, rules that only allowed regional inputs, or rules that restricted specific inputs. For example, consider the Congressional testimony of a representative from the Whirlpool Corporation during NAFTA negotiations.

> *"NAFTA provides many positive provisions which will enhance the business opportunities of U.S. companies against global competition. For example, significant appliance rules of origin would require major investment in North America by foreign competitors planning to set up manufacturing operations."* **- Whirlpool Corporation**

The testimony makes clear that Whirlpool views the rule of origin as beneficial because it requires substantial regional content and forces competitors to make major investments in the US, Canada, or Mexico in order to qualify for preferential access. Thus, I code Whirlpool as supporting restrictive rules of origin for NAFTA. Table A1 in the Appendix provides additional excerpts taken from statements over rules of origin for various PTAs. Across the examples, it is clear that firms and associations carefully craft their positions over rules of origin and view them as economically important.

Table 2 shows the number of firms and associations that supported permissive or restrictive rules of origin for each US agreement and the average number of sources used to document each position. These descriptive statistics underscore several key patterns. First, rules of origin are politically important. Across PTAs, *both* firms and associations appear to spend substantial resources in an attempt to influence the design of rules of origin. Moreover, for larger agreements, the number of associations and firms that stake out positions increase. Second, there is substantial support for restrictive rules of origin across PTAs from firms and associations. This pattern is in stark contrast to Osgood (2018) who finds that pro-trade firms dominate the politics of trade policy and few lobby against preferential liberalization. The relative support for restrictive rules of origin suggests that firms and associations may actively try to use these rules as a form of protection. Overall, while trade experts regularly emphasize the political importance of rules of origin, this is the first study to empirically document the frequency and intensity of this political activity.

Finally, it is worth noting that a substantial portion of associations publicly comment on the design of rules of origin. This is perhaps surprising because previous evidence demonstrates the prevalence of firm-level lobbying. Due to space considerations this article does not examine why firms may opt to lobby by themselves or through associations. However,

Table 2: Counts of firm and association position-taking on US agreements.

Agreement	*# of assoc. that support*		*# of firms that support*		*Total*	*Avg. # Sources*
	Permissive Rules	*Restrictive Rules*	*Permissive Rules*	*Restrictive Rules*		
NAFTA	21	71	64	61	217	1.31
Singapore	28	36	35	22	121	1.02
Chile	30	34	34	20	118	1.03
CAFTA	38	33	53	28	152	1.35
Australia	36	29	43	22	130	1.02
Colombia	36	31	58	40	165	1.07
Peru	22	31	53	36	142	1.05
Panama	26	34	52	38	150	1.05
South Korea	31	36	61	40	168	1.21
TPP	41	50	63	35	189	1.61
USMCA	54	40	76	52	222	1.30

the emphasis placed on input customization and firm networks provides some theoretical insights. That is, input customization increases the importance of long-term relationships and the tacit sharing of information. Thus, firms with similar production networks for customized inputs may find it profitable to collectively lobby over trade policy.

Indeed, associations typically form over supply chains. On the one hand, the American Automotive Policy Council is a trade association for the Big Three (Ford, General Motors, and Stellantis), which have strong production linkages in North America. On the other hand, automotive firms with stronger global connections have analogous associations, such as the International Organization of Motor Vehicle Manufacturers and the Association of Global Automakers. The idea that input customization and firm networks may reduce the costs of collective action connects to an older literature on strategic groups within industries where firms are grouped based on similar competitive strategies (Newman, 1978; Porter, 1979; Milner and Yoffie, 1989). Importantly, while this dynamic cannot be captured in a firm-level analysis since data on the historical membership of associations is lacking, the analysis at the industry-level does account for the possibility that some global firms lobby over rules of origin through associations.

3.2 Firm-Level Preferences over Rules of Origin

This section examines the effect of input customization and the structure of global supply chains on firm-level preferences over the design of rules of origin. The main empirical analysis focuses on firms located in goods producing industries (NAICS codes 11, 21, 31-33). I construct the sample of firms using Orbis, a database produced by Bureau Van Dijk, which provides financial information for both public and private corporations worldwide.[20] The sample includes all firms that have publicly stated a position over rules of origin. I also include firms classified as very large by Orbis as a comparison set of politically inactive firms.[21] I exclude smaller firms since the theory and the existing literature underscore the importance of the largest firms in trade politics.[22] Crucially, the results are robust to including a larger subset of firms (see Appendix A.5).

Of the 5,770 firms included in the sample, there are 339 unique firms that have publicly stated a position over the design of rules of origin in at least one PTA.[23] The unit of analysis is at the firm-agreement level ($N = 46,405$).[24] For easier interpretation, the main analysis collapses the dependent variable into two separate binary measures.[25] $Permissive_{fp}$ ($Restrictive_{fp}$) equals 1 if firm f expresses support for permissive (restrictive) rules of origin for agreement p and 0 otherwise. For all firms, I also identify their primary (six-digit NAICS) industries,[26] which is denoted by i.[27]

I measure the location of firms' global supply chains using data on foreign affiliates provided by Orbis. This approach is advantageous for several reasons. First, while several

[20] The key benefit of Orbis over other databases, such as Compustat, is that it has the most comprehensive data on private firms. This is important since many firms that stake out positions are not publicly traded.

[21] This strategy broadly follows the approach in Cory et al. (2021); Osgood (2021); Lee and Osgood (2022).

[22] Additionally, for smaller firms, there are issues with firms have multiple IDs, missing data on when they enter or exit the market, and industry codings.

[23] This is similar to the number of unique firms that have lobbied over trade related bills (Kim, 2017).

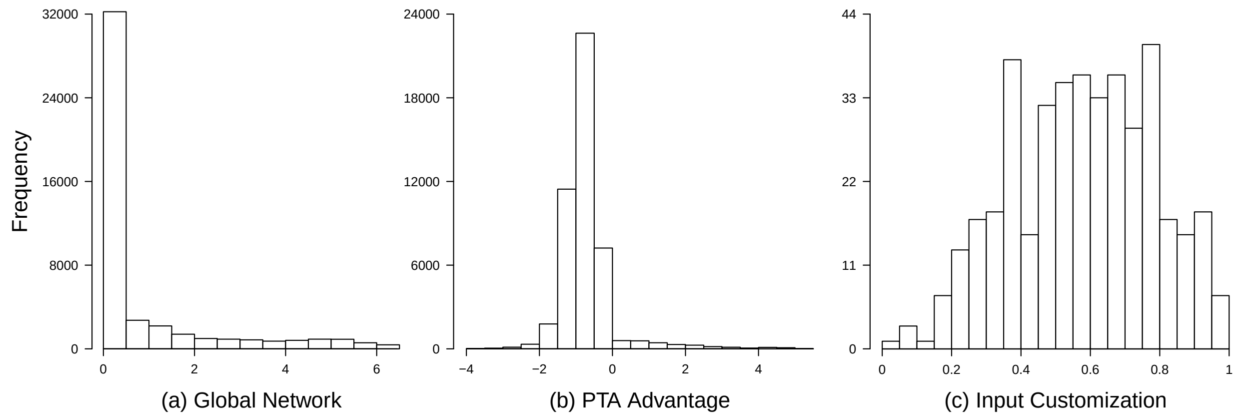
[24] 971 of the observations in the sample express a position toward rules of origin. Importantly, the dataset is not balanced since some firms enter the market after NAFTA or exit before the USMCA.

[25] The proportional odds assumption for ordered logistic regression is violated. See Appendix A.4.

[26] The six-digit NAICS industry is a relatively fine-grained level of aggregation and consistent with previous trade politics research (Osgood, 2017a, 203).

[27] Only 333 firms included in the sample have multiple six-digit NAICS industries. For variables measured at the industry-level, I take the average across a firm's respective industries.

Figure 1: *Global Network, PTA Advantage, and Input Customization Distributions*



Panel (a) summarizes the distribution of the global network measure across all firms. Panel (b) presents the distribution of the measure for PTA Advantage across all firms. Panel (c) displays the distribution of input customization across all goods producing NAICS six-digit industries based on Nunn (2007).

datasets on firm-to-firm transactions exist, they are typically limited in scope and geographic coverage. For instance, using US customs data does not capture trade between partner and third-party countries. Further, while Compustat and FACSET provide data on supplier connections for publicly traded firms, the coverage of private firms is severely limited.[28] Second, subsidiaries provide a useful proxy for the latent underlying supply network of a firm. A firm with a greater number of affiliates in a country not only has deeper connections, contacts, and suppliers but also can easily shift production in response to demand shocks or policy changes. Recall, Nissan did not source electric batteries from the EU prior to Brexit but still supported the restrictive rule on EVs because it had existing connections in the market that reduced adjustment costs relative to rivals. A measure that uses firm-to-firm transactions would fail to capture these latent supplier linkages. Finally, this strategy aligns with recent evidence that demonstrates firms are significantly more likely to import from countries where their affiliates are located (Antràs et al., 2022; Conconi et al., 2022).

To capture the extent of a firm's supply chain that extends beyond the PTA market, I use $Global\ Network_{fpi}$, which equals the number of affiliates for firm f that are located outside the PTA market for agreement p. Firms with a larger number of connections in third-

[28]The location of the firm is also always coded as their headquarter country.

party countries should experience higher adjustment costs when faced with a restrictive rule of origin. This should be the case even when the firm has relatively strong connections in the PTA market because the sourcing restrictions imposed by the rule constrain the firm's ability to respond to demand shocks or currency fluctuations. Thus, the expectation is that a firm with a greater number of connections outside the PTA market should be more likely to express support for permissive rules during PTA negotiations, especially when they intensively use customized inputs. In this sense, $Global\ Network_{fpi}$ captures how a restrictive rule of origin *directly* affects the potential benefits of preferential liberalization for the individual firm. The final measure is logged. Panel (a) in Figure 1 displays the distribution of the *Global Network* measure. Note, the highly skewed shape of the distribution is consistent with the stylized fact that only a handful of firms engage in international trade.

Importantly, the key theoretical mechanism driving firm support for restrictive rules of origin is the competitive sourcing advantage within the PTA market relative to rival firms. I operationalize this concept with $PTA\ Advantage_{fpi}$, which equals the difference between the number of affiliates firm f has in partner markets and the median number of affiliates in partner markets for very large firms in industry i.[29] The resulting measure varies between firms within industries and across PTAs for individual firms. Higher values indicate that firm f has a sourcing advantage relative to top rivals for agreement p. Panel (b) in Figure 1 displays the distribution of *PTA Advantage* across firms included in the analysis.[30]

The measure of input customization for each industry i is based on Nunn (2007). Specifically, using input-output tables from the Bureau of Economic Analysis, I calculate the proportion of inputs used for industry i that are differentiated. $Input\ Customization_i$ ranges from 0 to 1, where higher values indicate a larger reliance on customized inputs in production

[29] Both measures are logged.

[30] *Global Network* and *PTA Advantage* are constructed using subsidiaries incorporated prior to the implementation of the PTA. To reduce potential problems of missingness, I draw on mergers and acquisition data from Thomas Reuters. I also use this data to remove any subsidiaries that incorporated prior to the PTA but acquired by the firm after implementation.

processes.[31] Panel (c) in Figure 1 displays the distribution of the input customization measure across NAICS six-digit industries. The upper-end of the distribution includes industries such as computer, vehicle, and aircraft manufacturing. On the lower end of the distribution, industries like flour milling, petroleum refineries, and aluminum manufacturing (sheet, plate, and foil) are observed.

The baseline specification also includes several control variables to account for confounding explanations. At the firm-level, I include a measure of vertical integration following the approach in Alfaro et al. (2016). This is particularly important because vertically integrated firms may support restrictive rules of origin due to control over input production (Belderbos and Sleuwaegen, 1997). Crucially, this should alleviate concerns that the main independent variables are simply capturing the extent of vertical integration. I also include measures for whether the firm is public, and whether the firm has a non-US parent. At the industry level, I control for the average US and partner MFN tariffs; the incentives for trade deflection; the number of tariff lines; the degree of upstreamness; and the total value of imports and exports between the US and partner countries.[32] Finally, I include industry (NAICS two-digit) and agreement fixed effects.

Table 3 presents the main results for the firm-level analysis from logistic regressions.[33] I use logistic regression to account for nonlinearity at the tail of the covariate distribution, which is critical given the skewed distribution of the main variables. I find that the effect of global supply chains on firm position-taking over the design of rules of origin is conditional on the degree of input customization, as shown in the interaction terms in rows 1 and 2 of the table. First, firm-level support for permissive rules of origin increases as global supply chains extend beyond the PTA market and input customization increases (Hypothesis 1). Second,

[31] Formally, $Input\ Customization_i = \frac{1}{u_i} \sum_j u_{ij} I_j$, where u_{ij} is the value of input j used to produce goods in industry i; u_i is the total value of all inputs used in industry i, and I_j is the proportion of inputs from industry j that are classified as differentiated by Rauch (1999). Data on product differentiation and concordance tables are from Liao et al. (2020). Importantly, the measure of input customization is constant across time for specific industries.

[32] See Appendix A.2 for a detailed description of the control variables.

[33] See the Appendix A.3 for the full results.

Table 3: Firm-Level Support for Restrictive and Permissive Rules of Origin

	Support for Permissive Rules				*Support for Restrictive Rules*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Input Customization x Global Network		0.53*	0.55*	0.42*			−0.34*	−0.29+
		(0.11)	(0.12)	(0.11)			(0.14)	(0.16)
Input Customization x PTA Advantage			−0.07	0.01		1.39*	1.75*	1.59*
			(0.24)	(0.23)		(0.29)	(0.32)	(0.31)
Global Network	0.78*	0.48*	0.47*	0.55*	0.28*	0.26*	0.41*	0.30*
	(0.05)	(0.08)	(0.09)	(0.08)	(0.06)	(0.06)	(0.09)	(0.10)
PTA Advantage	0.17*	0.17*	0.21	0.18	0.29*	−0.41*	−0.55*	−0.47*
	(0.06)	(0.06)	(0.16)	(0.15)	(0.08)	(0.17)	(0.18)	(0.17)
Input Customization	2.62*	1.72*	1.70*	2.18*	−0.72*	−0.65+	−0.34	0.11
	(0.29)	(0.33)	(0.34)	(0.33)	(0.34)	(0.35)	(0.37)	(0.39)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Agreement FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,405	46,405	46,405	41,815	46,405	46,405	46,405	41,815
Akaike inf. crit.	4984.90	4957.96	4959.87	4811.90	3686.28	3662.22	3660.50	3062.10

$^{+}p < 0.10$ $^{*}p < 0.05$. Results are based on the positions of 5,770 firms in agriculture, mining, and manufacturing industries across 11 PTAs. Models 4 and 8 report the results when including additional controls for skill and capital intensity. Standard errors are clustered at the firm-level.

a firm is more likely to favor restrictive rules of origin when it intensively uses customized inputs and enjoys a sourcing advantage in the PTA market relative to rivals (Hypothesis 2). As a robustness check, models 4 and 8 report the results when including controls for skill and capital intensity at the six-digit NAICS level.[34] These measures help account for the incentives to use rules of origin to prevent market-entry that may dilute the benefits of preferential access. Appendix A reports the results from additional robustness checks.[35]

To focus on the quantity of interest for Hypothesis 1, I examine the predicted probability of support for permissive rules of origin by simulating over different observed values of *Global Network* for industries with high and low input customization. Panel (a) in Figure 2

[34]Data is from the NBER-CES database (Becker et al., 2021) and only available for manufacturing industries.

[35]First, I demonstrate the results are robust when using alternative samples of politically inactive firms. I also present results when only analyzing firms that have taken a position over the design of rules of origin. Second, I show the results are similar when using multinomial logistic regressions and a correction for rare events. Third, I illustrate the results are robust when including six-digit NAICS-PTA fixed effects, firm fixed effects, and when separating *PTA Advantage* into its two separate components (*PTA Network* and *PTA Industry Median*). Fourth, I demonstrate that the results are robust to alternative measures of input customization and global supply chains. Finally, I show the results are not driven by extreme outliers.

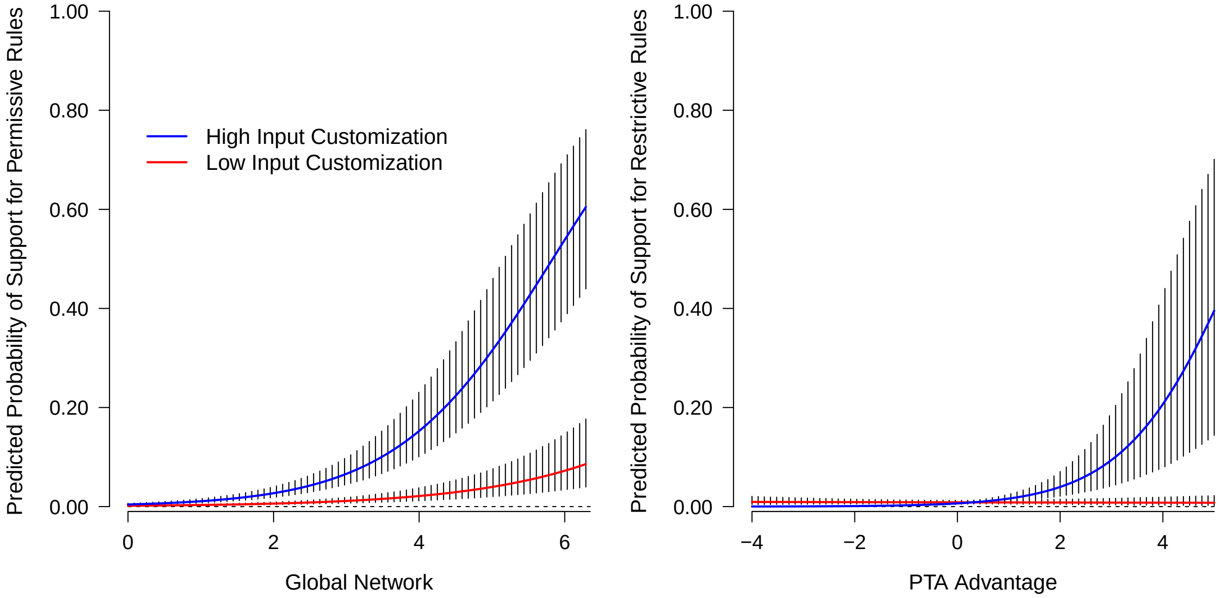
shows that as supply chains extend beyond the PTA market firms are more likely to express support for permissive rules of origin. Additionally, the estimated probability of support is substantially larger when firms compete in industries that rely on customized inputs. The result aligns with the theoretical expectation that sourcing restrictions impose larger adjustment when global supply chains are located outside the PTA market and inputs are customized. Large adjustment costs reduce the benefits of preferential liberalization and create strong incentives for these firms to lobby for rules that account for global sourcing.

Broadly, this finding is consistent with recent literature that argues the globalization of supply chains shifts firm preferences toward liberalization (Osgood, 2018; Kim and Osgood, 2019). Importantly, this article illustrates how input customization strengthens the link between global supply networks and support for trade. Firms that intensively source customized inputs from around the world are particularly vulnerable to trade barriers which threaten existing supplier relationships. Thus, these firms have large incentives to engage in political activities to maintain access to these sourcing locations.

Panel (b) in Figure 2 examines Hypothesis 2 and displays the predicted probability of support for restrictive rules of origin when simulating over different values of *PTA Advantage* for industries with high and low input customization. It shows that firms with a sourcing advantage in the PTA market relative to rivals are more likely to support restrictive rules of origin when they compete in industries that intensively use customized inputs. This is markedly different compared to the political behavior of firms in industries with low levels of input customization. The result is consistent with my argument that both customized inputs and a relative sourcing advantage in the PTA market are necessary conditions to induce support for restrictive rules of origin. When input customization is low, the sourcing restrictions imposed by rules of origin simply shift the benefits of preferential liberalization to upstream suppliers.

It is important to underscore how this finding differs from recent research on trade politics that highlights the pro-trade nature of global firms and how global sourcing liberalizes

Figure 2: *Predicted Probability of Support for Permissive and Restrictive Rules of Origin.*



High (Low) input customization is defined at the 90th (10th) percentile (0.84 and 0.30, respectively). Panel (a) displays the simulation result where firms with global supply chains outside the PTA market are more likely to support permissive rules of origin when inputs are highly customized (Model 3 of Table 3). Panel (b) shows the result from a simulation where firms with a sourcing advantage in the PTA market are more likely to support restrictive rules of origin only when they compete in industries with customized inputs (Model 7 of Table 3).

preferences. Specifically, this result illustrates how differences in the structure of global supply chains within industries can incentivize support for policies that hinder liberalization. Some global firms are willing to support sourcing restrictions that reduce the direct benefits of preferential liberalization because they impose larger adjustment costs on rivals and provide a competitive advantage in the PTA market. In the conclusion, I discuss how this profit-shifting effect of restrictive rules of origin may alter firm preferences over broader liberalization and create stumbling blocs to multilateral negotiations at the WTO. Overall, these results provide strong evidence that while the form of protection has significantly changed since the early 1990s, it is still very much for sale.

3.3 Intraindustry Divisions over the Design of Rules of Origin

An important limitation of the analysis in the previous section is that it does not directly demonstrate political cleavages over rules of origin emerge within industries between global firms. Further, it cannot capture firms who select to lobby through associations. As noted above, the costs of collective action may be lower for firms within an industry that rely on similar supply networks for customized inputs. Since there is limited availability of membership data and contributions to association budgets, it is nearly impossible to identify firms who lobby collectively through an association. To overcome these limitations, I test an additional implication of my argument at the industry-level. Specifically, divisions within industries should be more likely to occur over the design of rules of origin when inputs are customized and differences in firms' global supply networks exist (Hypothesis 3).

I focus on 404 good-producing industries in the agriculture, mining, and manufacturing sectors (NAICS 11, 21, 31-33). I match every firm and association that took a position over rules of origin to individual six-digit NAICS industries. For associations, I rely on previous NAICS codings identified in Cory et al. (2021). For firms, I use the NAICS codings from Osgood (2018), FACTSET, and Orbis. The unit of analysis is at the industry-agreement level. The main outcome is $Divided_{ip}$ which equals 1 if industry i has support for both restrictive and permissive rules of origin for PTA p and 0 otherwise.

To capture the differences of global sourcing strategies between firms within an industry, I rely on two measures. First, I follow Osgood (2017b, 2018) and estimate the total import dependence of a given industry from partners and third-party countries. Specifically, this measure combines input-output tables, along with data on sales and imports, to construct estimates of the quantity of an industry's inputs that are attributable to imports from partners and the rest of world. I use these measures to create a dissimilarity index for the global supply chains of an industry, $GSC\ Fragmentation_{ip} = 1 - \frac{|InputsP_{ip} - InputsW_{ip}|}{InputsP_{ip} + InputsW_{ip}}$, where $InputsP_{ip}$ ($InputsW_{ip}$) is the value of imported inputs for industry i from partner (third-party) countries for agreement p. The intuition behind the measure is that values closer to 0 suggest that an industry sources inputs exclusively either from partners or from non-member countries while values closer to 1 indicate that the industry sources an equal amount from each. The variable has a mean of 0.18 and a standard deviation of 0.28.

Second, *Network Divergence*$_{ip}$, uses the Jaccard Similarity Distance based on data from Orbis on the number of affiliates of very large firms in industry i that are located inside and outside the PTA market p. Specifically, for every unique pair of firms classified as very large in industry i, I calculate the Jaccard Similarity distance, $J(X_1, X_2) = 1 - \frac{min(X_{1r}, X_{2r}) + min(X_{1g}, X_{2g})}{max(X_{1r}, X_{2r}) + max(X_{1g}, X_{1g})}$. Where X_r (X_g) equals the number of affiliates located inside (outside) the PTA market for the respective firm. I then take the average across all pairs for industry i in agreement p. The intuition behind the measure is straightforward. Values closer to 0 indicate that the supply linkages of the largest firms within an industry are similar inside and outside the PTA market. As the measure increases and approaches 1, differences in the supply networks between these firms increase. This approach is useful because it captures the underlying differences in supply chains for the largest firms in the PTA market. The average across all industries and PTAs is 0.09 with a standard deviation of 0.19. The correlation between *Network Divergence* and *GSC Fragmentation* is 0.57, which provides confidence in the measurement strategy.

The measure for input customization is based on Nunn (2007) and analogous to the firm-level analysis. The baseline specification includes several control variables to account for potential confounding explanations. I include measures for US and partner MFN tariffs, the degree of upstreamness, the extent of vertical integration within an industry, and the number of tariff lines. Additionally, following (Osgood, 2017b), I include measures for imported inputs from abroad and related-party trade, which are core drivers of industrial fragmentation over trade policy. Finally, I include industry fixed effects at the two-digit NAICS level.[36]

Table 4 reports the main results from logistic regressions with robust standard errors.[37] Broadly, the results provide support for Hypothesis 3. Intraindustry disagreement over the design of rules of origin increases as global sourcing strategies differ within industries and when inputs are highly customized, as shown in the interaction terms of rows 1 and 2. Models 3 and 6 report the results when including additional controls for skill and capital intensity.

[36] I do not include PTA fixed effects because there is limited variation between industries within agreements.
[37] See the Appendix B.2 for the full results.

Table 4: Intraindustry Cleavages over the Design of Rules of Origin

	Divided Industry					
	(1)	(2)	(3)	(4)	(5)	(6)
Input Customization x GSC Fragmentation		1.93* (0.78)	1.97* (0.83)			
Input Customization x Network Divergence					2.47* (1.12)	2.67* (1.21)
GSC Fragmentation	1.72* (0.17)	0.67 (0.46)	0.82 (0.51)			
Network Divergence				2.16* (0.24)	0.73 (0.69)	0.91 (0.75)
Input Customization	2.26* (0.38)	1.69* (0.43)	1.97* (0.50)	2.02* (0.38)	1.60* (0.42)	1.79* (0.49)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,444	4,444	3,409	4,444	4,444	3,409
Akaike inf. crit.	2246.19	2242.67	1780.36	2262.12	2259.29	1788.67

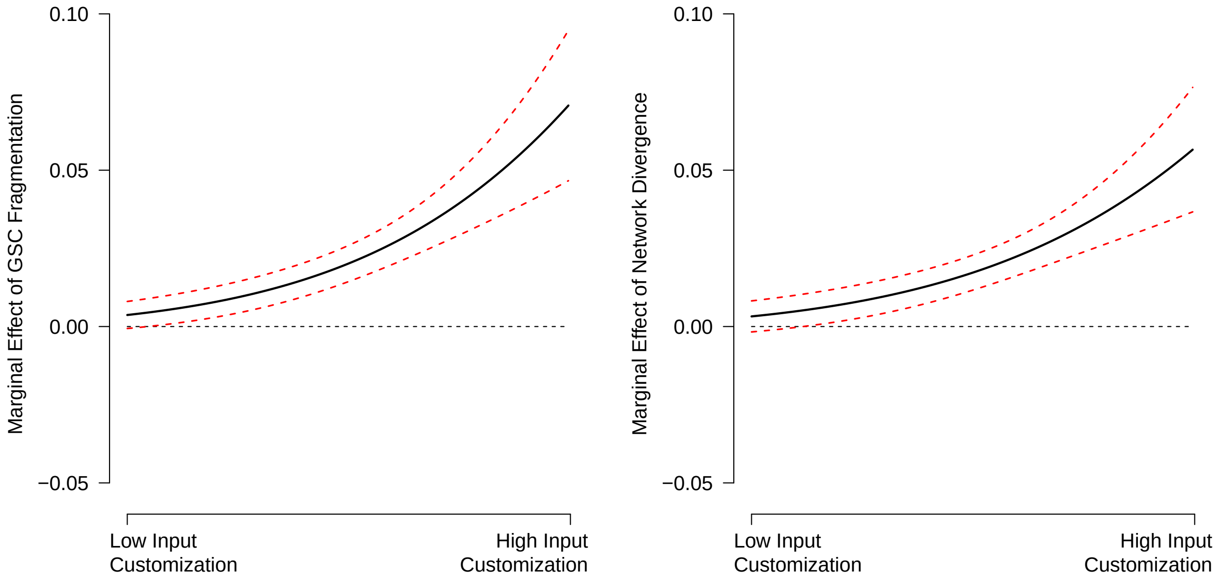
$^{+}p < 0.10$, $^{*}p < 0.05$. Results are based on the positions of firms and associations in 404 agriculture, mining, and manufacturing industries across 11 PTAs. Columns 3 and 6 report the results when including additional industry controls for skill and capital intensity.

Appendix B contains the results of additional robustness checks.[38]

To focus on the quantities of interest, I examine the estimated marginal effects of a one standard deviation increase for *Network Divergence* and *GSC Fragmentation* on the probability of intraindustry divisions over the design of rules of origin across observed values of input customization. Figure 3 shows that at low levels of input customization, differences in global supply chains do not create disagreements within industries over the design of rules of origin. However, as inputs becoming highly customized, the effects of *Network Divergence* and *GSC Fragmentation* on intraindustry divisions increase. This result is consistent with the theoretical expectation that differences in global supply chains cause rules of origin to impose asymmetric costs only when input customization is relatively high. The estimated effects are also meaningful. For instance, at high levels of input customization, a one standard deviation increase in *GSC Fragmentation* increases the likelihood that an industry is internally divided

[38]First, I illustrate the results are similar when using alternative measures of intraindustry divisions. Second, I demonstrate the results are robust to alternative measurements of global supply chains. Finally, I show the results are similar when using different measures for input customization.

Figure 3: *Marginal effect of Network Divergence and GSC Fragmentation on intraindustry divisions over rules of origin at different levels of input customization.*



Estimated effects are for a one standard deviation increase in *Network Divergence* and *GSC Fragmentation* on industry divisions. Based on models 2 and 5 in Table 4. Red lines are 95 percent confidence intervals based on robust standard errors.

by about 7 percentage points.

Overall, these findings complement the results in the previous section, as they demonstrate that internal divisions within industries are driven by input customization and differences in global sourcing strategies. Recent insights suggest that political cleavages over trade liberalization should exist within industries between small domestic firms and large global firms (Kim and Osgood, 2019). However, previous research overlooks the substantial differences between firms engaged in international markets. The results here illustrate how heterogeneity in global supply chains can cause large global firms to develop distinct preferences over the particular design of liberalization and fragment the pro-trade coalition.

4 Conclusion

The shift toward preferential liberalization and the emergence of global supply chains has drastically increased the importance of rules of origin. Yet, scholars have a limited understanding of the political economy behind these regulations. In this article, I have attempted to alleviate the dearth of theoretical and empirical research by examining corporate lobbying and the political behavior of global firms over rules of origin.

Drawing on recent advances in industrial organization and international trade, I argued that core political cleavages over rules of origin emerged within industries between global firms. While these firms are often viewed as the key advocates of liberalization that should favor permissive rules, I show that input customization and heterogeneity in firm networks induce different political incentives among global firms within the same industry. Establishing supply chains for customized inputs is costly because of search frictions and relational contracting. These costs vary between firms within an industry because of differences in firms' international social networks. The key implication is that while a restrictive rule of origin imposes costs on all exporting firms in the PTA market, these adjustment costs differ among firms, even within the same industry, due to each firm's distinct sourcing advantage. When the preferential margin is large, restrictive rules provide a competitive advantage to firms with relatively low adjustment costs and cause a shift in PTA market share. If this shift is substantial, it creates strong incentives for firms with extensive linkages inside the PTA market to lobby for restrictive rules of origin.

I tested these predictions using a novel dataset on corporate position-taking over rules of origin in eleven US PTAs, ranging from NAFTA to the USMCA. The results of my analysis revealed three key findings. First, as the level of input customization increases and production linkages extend beyond the boundaries of the PTA market, firms are more likely to express support for permissive rules of origin. Second, firms are more likely to support restrictive rules of origin when they have a competitive sourcing advantage for customized inputs within the PTA market compared to rival firms. Finally, I showed that industries are more likely to be internally divided over the design of rules of origin as input customization increases and global sourcing strategies diverge.

This article has several important implications for the broader politics of trade policy. First, it provides theoretical insights on whether PTAs facilitate or undermine multilateral liberalization. While existing empirical evidence on this question is mixed (Limão, 2006; Estevadeordal et al., 2008), previous research has solely focused on preferential tariff cuts and ignored rules of origin as an alternative mechanism. My argument suggests that restrictive rules of origin can shift firm preferences away from multilateral liberalization by allowing firms to capture market share in the PTA region that would be lost through lower MFN tariffs. In this sense, restrictive rules of origin serve as a distinct channel in which PTAs are stumbling blocs that undermine multilateral negotiations.

Second, this article provides insights on the political implications of global supply chains. An emerging consensus in the trade politics literature argues that the growth in global sourcing has fragmented traditional protectionist interests and privileged a new pro-trade coalition of global firms (Osgood, 2018, 2021). Rather than the traditional "protection for sale" framework, research suggests it is now "liberalization for sale" (Blanga-Gubbay et al., 2018). While support for standard forms of protection has certainly dissipated in recent decades, protectionism is not dead. This article illustrates how the shift toward preferential liberalization has given rise to novel and more obscure forms of protection. Moreover, it demonstrates how the emergence of global supply chains has created new fault lines over trade policy within this coalition of global firms. Future research should further examine how differences in global sourcing strategies alter the political economy of trade.

Finally, this article highlights the potential implications stemming from scholars' tendency to equate PTAs with the idea of free trade (Rodrik, 2018). Despite mixed empirical evidence (Caliendo and Parro, 2015), PTAs are often assumed to enhance aggregate welfare because they counter the influence of protectionist interests and improve economic efficiency. Firms that lobby in favor of these agreements are characterized as "vanguards of globalization" and the "resistance to protectionism" because they pressure political leaders to commit to freer trade (Milner, 1988; Osgood, 2021). However, the results in this article demonstrate that global firms actively lobby for protectionist provisions during PTA negotiations. This finding aligns with several recent studies examining how global firms leverage different types of trade barriers and information advantages to extract rents (Gulotty, 2020; Perlman, 2023). In this sense, these firms are not defenders of globalization but rather just another set of special interests that engage in self-interested and rent-seeking behavior. Broadly, the conflation between PTAs and free trade provides firms cover to increase rents at the expense of aggregate welfare. These incentives are especially prevalent considering that governments rely on firms' knowledge and expertise when designing trade policy (Rodrik, 2018).

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Appendix: Political Cleavages over Supply Chains: Rules of Origin and Preferential Liberalization

May 23, 2024

Contents

Appendix A Firm-Level Analysis

A.1 Additional Examples of Corporate Position-Taking

Table A1: Examples of firm and association position-taking over the design of rules of origin in various US trade agreements.

"We are writing to encourage your team to work to modify the rules of origin (ROOs) in the NAFTA renegotiations for products classified under Harmonized Tariff System (HTS) subheading 3921.19.00, which includes many of our breathable, waterproof membranes. NAFTA's ROOs require goods classified under HTS Subheading 3921.19.00, which includes our breathable, waterproof membranes to be made entirely from materials that originate in one of the three countries, or, to meet a 60 or 50 percent regional value content threshold to be eligible for preferential treatment. The raw material inputs are for these membranes are classified primarily in Chapters 39 and 27, and are not produced or available from a NAFTA country, and thus must be imported into the United States for further processing. Once in its final form, we are unable to qualify the product because of this restrictive rule of origin." **- Comments submitted to the USTR from W.L. Gore & Associates Inc. during USMCA negotiations. Coded as support for permissive rules of origin.**
"The current rule of origin to receive tariff preferences for U.S. preferential trade agreements is a chapter shift from any chapter into Chapter HTS 2204. Japanese regulations allow wine producers to import bulk wine in HS Chapter 2204.29 and 2204.30 to blend with Japanese wine and claim Japanese origin. Such wine should not receive any tariff preference if it is shipped to the U.S. See the import substitution discussion above under tariff elimination." **- Comments submitted to the USTR from the Wine Institute during TPP negotiations. Coded as support for restrictive rules of origin.**
"Implement one set of commercially viable preferential rules of origin for products of Chapter 18 for all members of the TPP including Malaysia to ensure that intermediate cocoa inputs, chocolate and chocolate confectionery will benefit fully from tariff preferences, and allow for regional cumulation among all countries of the TPP." **- Comments submitted to the USTR from the National Confectioners Association during TPP negotiations. Coded as support for permissive rules of origin.**
"Regarding other textile issues concerning Japan, NCTO would like to reiterate that a yarn forward rule of origin is essential for textiles, apparel, and other finished products made of textiles. Such a rule requires that textile inputs originate in the U.S. or partner countries. The U.S. has incorporated this rule for the last two decades to the tremendous benefit of the U.S. textile industry and to the nearly two million textile and apparel workers in the Western Hemisphere." **- Comments submitted to the USTR from the National Council of Textile Organizations during TPP negotiations. Coded as support for restrictive rules of origin.**
"But American businesses, many of which advocate unrestricted free trade in all but their own industries, said they were pleased. "One man's wart is another man's beauty mark," said Timothy Regan, a trade official at Corning Inc., a glass manufacturer based in Corning, N.Y. The company said it hoped to sell more glass for use in television sets when manufacturers have an incentive to use North American television screens, and has been lobbying strenuously for passage of the pact. "We are contributing money and we are contributing time and energy – we are probably contributing as much as anybody," Mr. Regan said. The strict rules of origin have helped the Bush and Clinton Administrations win broad corporate backing for the agreement." **- Public comments from the Corning Corporation in the New York Times during NAFTA negotiations. Coded as support for restrictive rules of origin.**

A.2 Description of Independent Variables

Global Supply Chains

This main paper proxies for the location of global supply chains using data on affiliates from Orbis. This strategy aligns with robust evidence that firms are significantly more likely to trade with countries where affiliates are located (Antràs et al., 2022; Conconi et al., 2022). This section provides further details on the construction of these measures. All measures only include affiliates that were incorporated prior to the start of negotiations of the specific PTA. To reduce issues of missing in incorporation dates, I also use data on mergers and acquisition from Thomas Reuters.

Global Network. To measure supply chains located outside the PTA market, I use the number of affiliates for firm f located outside the PTA market for agreement p. The final measure $Global\ Network_{fpi}$ is the log of this count.

PTA Advantage. To capture the relative sourcing advantage of a firm f in the PTA market p for industry i, I use $PTA\ Advantage_{fpi}$. Formally, this measure equals the difference between $PTA\ Network_{fpi}$ and $PTA\ Industry\ Median_{pi}$. $PTA\ Network_{fpi}$ equals the number of affiliates for firm f that are located in partner countries for agreement p.[1] $PTA\ Industry\ Median_{pi}$ equals the median number of affiliates in partner countries for very large firms in industry i for agreement p. Both $PTA\ Network_{fpi}$ and $PTA\ Industry\ Median_{pi}$ are logged.

Input Customization

The measure of input customization is based on Nunn (2007). Formally, $Input\ Customization_i = \frac{1}{u_i}\sum_j u_{ij} I_j$, where u_{ij} is the value of input j used to produce goods in industry i; u_i is the total value of all inputs used in industry i, and I_j is the proportion of inputs from industry j that are classified as differentiated by Rauch (1999). I calculate measures separately using BEA tables for 2002, 2007, and 2012, and then take the average across those measures. This ensures the results are not an artifact of specific input-output tables. I also set the diagonals to 0 to remove inputs used from the same industry.

[1]This excludes any affiliates located in the US.

Control Variables

This section discusses the construction of the control variables used in the firm-level analysis of the paper.

Vertical Integration. Data used to construct the measures for vertical integration are from Orbis. Broadly, I follow the strategy discussed in Alfaro et al. (2016). First, for all firms, I identify all primary, secondary, and subsidiary six-digit NAICS classifications. Second, for each primary industry, I calculate a measure of forward and backward integration. Formally, $Backward_{fi} = \frac{1}{DR_i} \sum_j DR_{ij} I_{fj}$ where DR_{ij} is the direct requirement coefficient from BEA input-output tables, which is the amount of input j that is required to produced \$1 of output i. I_{fj} is an indicator variable equal to 1 if firm f is associated with industry j. DR_i is the sum of the direct requirement coefficients for industry i. This typically sums to 1, but I exclude the diagonals where $i = j$. For firms classified with multiple primary industries, I take the highest value of $Backward_{fi}$. The variable has a mean of 0.04 and a standard deviation of 0.09.

$Forward_{fi}$ is a similar calculation but focuses on industry i as the upstream industry. Formally, $Forward_{fi} = \sum_d DR_{id} I_{fd}$ where DR_{id} is the direct requirement coefficient from input-output tables for input i and output d, which is the amount of input i that is required to produce \$1 for output d. I_{fd} is an indicator variable equal to 1 if firm f is associated with industry d. I do not divide by the total sum of DR_i since by construction is can be larger than 1 when input i is important across multiple downstream industries. Again, for firms classified with multiple primary industries, I take the highest value of $Forward_{fi}$. The variable has a mean of 0.05 and a standard deviation of 0.16.

Upstreamness. The measure is constructed using input-output tables from the BEA and based on (Antràs and Staiger, 2012) with data from Liao et al. (2020). The measure captures the economic distance of an industry from final use. This measure can also be interpreted as the position of an industry's output in the supply chain or as the share of an industry's output that is sold to upstream industries. I take the average across the values calculated from the 2002, 2007, and 2012 input-output tables. The variable has a mean of 2.18 and a standard deviation of 0.86.

Foreign Parents. Data is from Orbis. *Foreign Parent* equals 1 if firm f is a subsidiary of a company located outside the US and 0 otherwise.

Listed. Data is from Orbis. *Listed* equals 1 if the firm is publicly listed and 0 otherwise. *Delisted* equals 1 if the company is not publicly listed and 0 otherwise. Comparison category is firms that are unlisted.

MFN Tariffs. Data on US MFN tariffs is from the USITC. Data on partner country tariffs is from the WTO tariff database. The raw tariff data is based on the harmonized tariff system. The measure uses the average tariff for each product across three years prior to the start of negotiations to reduce issues of missingness. *US MFN* equals the average MFN tariff for all six-digit HS products that are included in industry i. An analogous measure is constructed for *Partner MFN*. To classify products from the harmonized system to the NAICS nomenclature, I use concordance tables from (Pierce and Schott, 2012). Importantly, since these concordance tables are based on traded products, they are unable to capture products which are not traded. Thus, some industries will likely be missing from the concordance table. I follow (Antras, 2015, 299-313) for industries with missing tariff data and use the average value across the five or four digit NAICS industries.

Deflection. I construct a measure of trade deflection based on product-level tariff data at the six-digit level. This reduces the potential that industry-level averages obscure meaningful differences in product-level tariffs between member countries. Specifically, *Deflection* equals the maximum of the absolute difference between *US MFN* and *Partner MFN* for all six-digit products included in industry i. Concordance tables are based on (Pierce and Schott, 2012) and I use the same strategy discussed above to address missingness at the industry level.

Tariff Lines. Total number of six-digit products that are included in industry i. Based on concordance tables from (Pierce and Schott, 2012).

International Trade Data. All trade data is from the USITC. Similar to the tariff data, the measure uses an average across three years prior to the start of negotiations for each agreement.

Capital/Skill Intensity. The measure is based on Antras (2015) and uses data from Becker et al. (2021). *Capital Intensity* is the log of total real capital stock divided by total employment. *Skill Intensity* "is the log of the number of non-production workers divided by total employment" (Antras, 2015, 308).

A.3 Full Results

Table A2 reports the full results of the control variables from Table 3 in main text. Consistent with theoretical expectations, firms in industries with higher average MFN tariffs are more likely to express a position over rules of origin. Moreover, industries located in more upstream industries are more likely to support restrictive rules of origin.

Table A2: Full results from Table 3 of the main text.

	Support for Permissive Rules				*Support for Restrictive Rules*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Input Customization x Global Network		0.53^{*} (0.11)	0.55^{*} (0.12)	0.42^{*} (0.11)			-0.34^{*} (0.14)	-0.29^{+} (0.16)
Input Customization x PTA Advantage			-0.07 (0.24)	0.01 (0.23)		1.39^{*} (0.29)	1.75^{*} (0.32)	1.59^{*} (0.31)
Global Network	0.78^{*} (0.05)	0.48^{*} (0.08)	0.47^{*} (0.09)	0.55^{*} (0.08)	0.28^{*} (0.06)	0.26^{*} (0.06)	0.41^{*} (0.09)	0.30^{*} (0.10)
PTA Advantage	0.17^{*} (0.06)	0.17^{*} (0.06)	0.21 (0.16)	0.18 (0.15)	0.29^{*} (0.08)	-0.41^{*} (0.17)	-0.55^{*} (0.18)	-0.47^{*} (0.17)
Input Customization	2.62^{*} (0.29)	1.72^{*} (0.33)	1.70^{*} (0.34)	2.18^{*} (0.33)	-0.72^{*} (0.34)	-0.65^{+} (0.35)	-0.34 (0.37)	0.11 (0.39)
Upstreamness	0.12 (0.08)	0.13 (0.08)	0.13 (0.08)	0.02 (0.09)	1.15^{*} (0.08)	1.16^{*} (0.08)	1.16^{*} (0.08)	1.13^{*} (0.11)
US MFN	2.77^{*} (0.91)	3.11^{*} (0.89)	3.11^{*} (0.89)	2.53^{*} (0.91)	4.50^{*} (0.58)	4.71^{*} (0.56)	4.67^{*} (0.56)	5.25^{*} (0.80)
Partner MFN	-0.46 (0.76)	-0.54 (0.74)	-0.54 (0.74)	-1.62^{*} (0.82)	0.69 (0.80)	0.76 (0.79)	0.76 (0.80)	-3.08^{*} (1.27)
Deflection	-0.32 (0.25)	-0.30 (0.24)	-0.30 (0.25)	-0.15 (0.23)	-0.42^{*} (0.19)	-0.42^{*} (0.18)	-0.43^{*} (0.18)	-0.30 (0.25)
Partner Trade	-0.02^{+} (0.01)	-0.02^{+} (0.01)	-0.02^{+} (0.01)	-0.02 (0.01)	0.00 (0.01)	-0.01 (0.01)	0.00 (0.01)	0.03^{+} (0.01)
Tariff Lines	0.12^{*} (0.03)	0.13^{*} (0.04)	0.13^{*} (0.04)	0.10^{*} (0.04)	0.24^{*} (0.05)	0.23^{*} (0.05)	0.23^{*} (0.05)	0.12^{*} (0.05)
Backward Integration	3.23^{*} (0.28)	3.30^{*} (0.26)	3.30^{*} (0.26)	3.01^{*} (0.27)	2.84^{*} (0.44)	2.82^{*} (0.43)	2.78^{*} (0.44)	3.03^{*} (0.46)
Forward Integration	0.76^{*} (0.19)	0.95^{*} (0.18)	0.95^{*} (0.18)	0.81^{*} (0.17)	0.62^{*} (0.14)	0.69^{*} (0.14)	0.65^{*} (0.14)	0.75^{*} (0.13)
Foreign Parent	-1.17^{*} (0.21)	-1.17^{*} (0.22)	-1.17^{*} (0.22)	-1.22^{*} (0.22)	-0.69^{*} (0.23)	-0.67^{*} (0.23)	-0.70^{*} (0.23)	-0.48^{+} (0.26)
Unlisted	0.81^{*} (0.10)	0.87^{*} (0.11)	0.87^{*} (0.11)	0.76^{*} (0.11)	0.42^{*} (0.14)	0.46^{*} (0.14)	0.45^{*} (0.14)	0.29^{*} (0.14)
Delisted	0.16 (0.13)	0.23^{+} (0.13)	0.23^{+} (0.13)	0.21^{+} (0.13)	-0.35^{+} (0.20)	-0.32 (0.20)	-0.33 (0.20)	-0.75^{*} (0.22)
Capital Intensity				0.19^{*} (0.06)				-0.23^{*} (0.10)
Skill Intensity				-0.84^{*} (0.13)				-2.11^{*} (0.19)
Intercept	-7.82^{*} (0.58)	-7.55^{*} (0.58)	-7.54^{*} (0.58)	-6.84^{*} (1.35)	-7.09^{*} (0.43)	-7.23^{*} (0.44)	-7.35^{*} (0.44)	-7.26^{*} (2.32)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Agreement FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,405	46,405	46,405	41,815	46,405	46,405	46,405	41,815
Akaike inf. crit.	4984.90	4957.96	4959.87	4811.90	3686.28	3662.22	3660.50	3062.10

$^{+}p < 0.10$ $^{*}p < 0.05$. Results are based on the positions of 5,770 firms in agriculture, mining, and manufacturing industries across 11 PTAs. Models 4 and 8 report the results when including additional controls for capital intensity. Standard errors are clustered at the firm-level.

A.4 Multinomial Logistic Regressions

The main analysis collapses the dependent variable into two separate binary measures. This section demonstrates the results are robust when using multinomial logistic regressions where the DV equals support for permissive rules, support for restrictive rules, and no position. I avoid ordered logistic regressions because the proportional odds assumptions is severely violated.[2] This is clear from the analysis in the paper and from Figure A1. The results from the multinomial logistic regression are reported in Table A3 where the baseline category is no position.

For easier interpretation of these results, Figure A1 displays the simulated predicted probability for each position outcome for industries with high and low levels of input customization. Broadly, the results are consistent with the main analysis. First, global supply chains outside the PTA market increases the probability a firm supports permissive rules of origin. The effect is substantially larger for firms that compete in industries with customized inputs. Additionally, *Global Network* has the opposite effect on the probability a firm takes no position. Importantly, the *Global Network* measure has no discernible effect on support for restrictive rules of origin.

Second, the probability a firm supports restrictive rules of origin increases as it gains a larger sourcing advantage in the PTA market, but only for industries with high levels of input customization. When examining the effect of *PTA Advantage* on the probability a firm takes no position, the results are the opposite. That is, *PTA Advantage* decreases the probability a firm takes no position for industries that intensively use customized inputs. Though, *PTA Advantage* has no effect for industries with low levels of input customization. Importantly, *PTA Advantage* also has no effect on the probability a firm supports permissive rules.

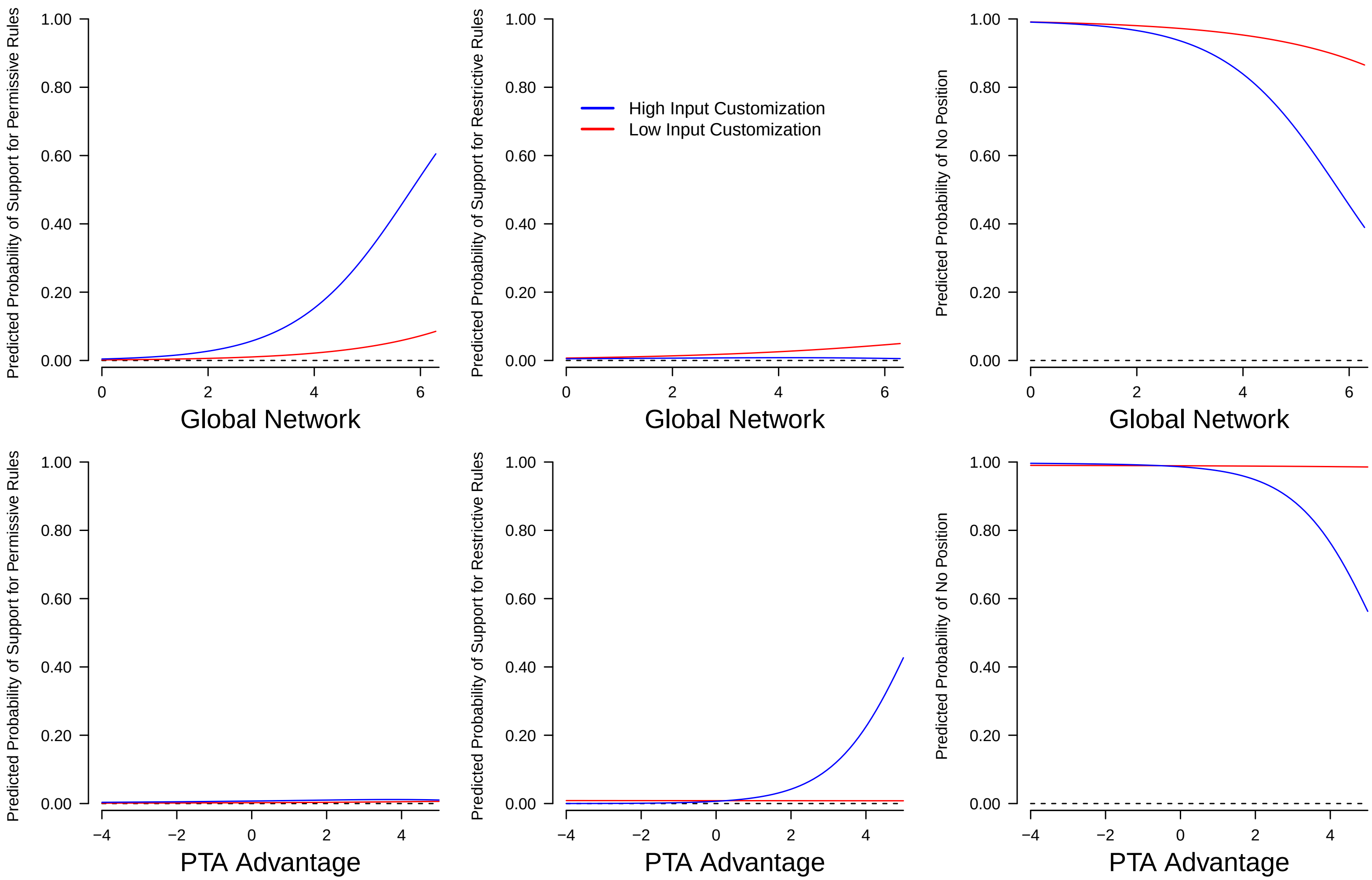
[2] Likelihood ratio tests of model terms are significant for *Input Customization*, *Global Network*, *PTA Advantage*, and most of the control variables. Results are based on the nominal_test function from the ordinal package.

Table A3: Results from multinomial Logistic regression

	Baseline: No Position	
	Support for Permissive Rules	*Support for Restrictive Rules*
Intercept	−7.32	−7.71
	(0.61)	(0.49)
Input Customization x Global Network	0.54	−0.31
	(0.11)	(0.18)
Input Customization x PTA Advantage	−0.01	1.77
	(0.22)	(0.33)
Global Network	0.48	0.43
	(0.08)	(0.10)
PTA Advantage	0.19	−0.54
	(0.14)	(0.19)
Input Customization	1.70	−0.28
	(0.33)	(0.36)
Upstreamness	0.14	1.17
	(0.08)	(0.09)
US MFN	3.19	4.78
	(0.81)	(0.89)
Partner MFN	−0.53	0.78
	(0.84)	(0.79)
Deflection	−0.30	−0.44
	(0.23)	(0.22)
Partner Trade	−0.02	−0.01
	(0.01)	(0.01)
Tariff Lines	0.13	0.23
	(0.04)	(0.05)
Backward Integration	3.32	2.94
	(0.32)	(0.44)
Forward Integration	1.00	0.68
	(0.19)	(0.14)
Foreign Parent	−1.18	−0.75
	(0.19)	(0.25)
Delisted	−0.22	0.32
	(0.14)	(0.19)
Unlisted	0.65	0.78
	(0.13)	(0.18)
Agreement FE	Yes	
Industry FE	Yes	
Observations	53,513	

The table reports the results from a multinomial logistic regression. See Figure A1 for simulated predicted probabilities of quantities of interest.

Figure A1: *Predicted Probability of Firm Position.*



High (Low) input customization is defined at the 90th (10th) percentile (0.84 and 0.30, respectively). The Figure displays the simulation result based on the multinomial logistic regression in Table A3. Consistent with the main analysis, *Global Network* increases support for permissive rules of origin, especially for firms that compete in industries with customized inputs. Moreover, *PTA Advantage* only increases support for restrictive rules of origin only when inputs are highly customized.

A.5 Alternative Samples of Politically Inactive Firms

The main analysis uses firms categorized as very large as a comparison set of politically inactive firms. The focus on very large firms is theoretically motivated since my argument underscores the political cleavages between global firms. Additionally, as firm size decreases the formal definition of a firm as an entity is obscured. Nevertheless, this section demonstrates the results are robust when using alternative samples. Table A4 reports the results when including all firms categorized as large or very large. Table A5 reports the results when using all firms categorized as very large, large, medium, and a random sample of 100,000 small firms. Across the models, the interaction terms are in the expected directions and statistically significant.

Table A4: Firm-level support for restrictive and permissive rules of origin when using large and very large firms as comparison set of politically inactive firms.

	Support for Permissive Rules				*Support for Restrictive Rules*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Input Customization x Global Network		0.63*	0.64*	0.52*			−0.22	−0.17
		(0.11)	(0.13)	(0.11)			(0.14)	(0.16)
Input Customization x PTA Advantage			−0.05	0.04		1.47*	1.71*	1.61*
			(0.26)	(0.25)		(0.28)	(0.32)	(0.31)
Global Network	1.04*	0.67*	0.66*	0.75*	0.43*	0.40*	0.50*	0.38*
	(0.08)	(0.11)	(0.11)	(0.11)	(0.08)	(0.08)	(0.10)	(0.11)
PTA Advantage	0.18*	0.18*	0.21	0.18	0.27*	−0.46*	−0.55*	−0.46*
	(0.06)	(0.06)	(0.17)	(0.16)	(0.08)	(0.16)	(0.18)	(0.17)
Input Customization	2.07*	1.03*	1.01*	1.68*	−1.34*	−1.29*	−1.08*	−0.25
	(0.29)	(0.32)	(0.33)	(0.32)	(0.32)	(0.33)	(0.36)	(0.41)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Agreement FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	482,261	482,261	482,261	438,640	482,261	482,261	482,261	438,640
Akaike inf. crit.	6420.57	6382.03	6383.98	6167.11	5142.82	5114.56	5114.97	4174.28

$^{+}p < 0.10$ $^{*}p < 0.05$. This table replicates the results from the main analysis but also includes all firms categorized as very large or large as the comparison set of politically inactive firms. The results are consistent with the main analysis. Models 4 and 8 report the results when including additional controls for skill and capital intensity.

Table A5: Firm-level support for restrictive and permissive rules of origin when using all firms as the comparison set of politically inactive firms.

	Support for Permissive Rules				*Support for Restrictive Rules*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Input Customization x Global Network		0.75^{*}	0.77^{*}	0.66^{*}			-0.12	0.00
		(0.12)	(0.13)	(0.12)			(0.14)	(0.16)
Input Customization x PTA Advantage			-0.06	0.04		1.58^{*}	1.71^{*}	1.58^{*}
			(0.27)	(0.26)		(0.29)	(0.33)	(0.31)
Global Network	1.10^{*}	0.67^{*}	0.66^{*}	0.75^{*}	0.45^{*}	0.41^{*}	0.47^{*}	0.32^{*}
	(0.10)	(0.13)	(0.13)	(0.12)	(0.09)	(0.09)	(0.12)	(0.12)
PTA Advantage	0.17^{*}	0.17^{*}	0.21	0.19	0.24^{*}	-0.54^{*}	-0.59^{*}	-0.46^{*}
	(0.06)	(0.06)	(0.17)	(0.16)	(0.08)	(0.17)	(0.18)	(0.17)
Input Customization	1.84^{*}	0.59^{+}	0.57^{+}	1.20^{*}	-1.47^{*}	-1.42^{*}	-1.30^{*}	-0.83^{*}
	(0.29)	(0.32)	(0.34)	(0.32)	(0.30)	(0.31)	(0.35)	(0.41)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Agreement FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,465,747	3,465,747	3,465,747	2,911,648	3,465,747	3,465,747	3,465,747	2,911,648
Akaike inf. crit.	7470.13	7416.48	7418.42	7138.31	6172.98	6141.21	6142.69	4911.93

$^{+}p < 0.10$ $^{*}p < 0.05$. This table replicates the results from the main analysis but uses all firms as the comparison set of politically inactive firms. The results are consistent with the main analysis. Models 4 and 8 report the results when including additional controls for skill and capital intensity.

A.6 Politically Active Firms

This section reports additional results when only focusing on firms that expressed a position over rules of origin for at least one PTA. In other words, among firms that are politically active over rules of origin, what drives support for permissive and restrictive rules of origin? Table A6 reports the results, which replicate the model specifications from Table 3 in the main text. The results align with theoretical expectations. Firms are more likely to express support for permissive rules of origin when they rely on global supply chains outside the PTA market and compete in industries with customized inputs. Further, firms are more likely to support restrictive rules of origin when they have a sourcing advantage in the PTA market compared to rivals and intensively use customized inputs. The consistency of the results across different samples of firms provides further confidence in the core findings reported in the main text.

Table A6: Firm-level support for restrictive and permissive rules of origin among politically active firms.

	Support for Permissive Rules				*Support for Restrictive Rules*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Input Customization x Global Network		0.32^{*}	0.35^{*}	0.28^{*}			-0.74^{*}	-0.69^{*}
		(0.13)	(0.14)	(0.14)			(0.17)	(0.19)
Input Customization x PTA Advantage			-0.10	-0.01		1.02^{*}	1.69^{*}	1.66^{*}
			(0.28)	(0.28)		(0.29)	(0.32)	(0.33)
Global Network	0.26^{*}	0.08	0.07	0.10	-0.20^{*}	-0.21^{*}	0.15	0.13
	(0.06)	(0.09)	(0.10)	(0.10)	(0.08)	(0.08)	(0.12)	(0.14)
PTA Advantage	-0.02	-0.02	0.04	-0.01	0.13	-0.41^{*}	-0.68^{*}	-0.72^{*}
	(0.08)	(0.08)	(0.18)	(0.18)	(0.08)	(0.17)	(0.18)	(0.19)
Input Customization	1.71^{*}	1.17^{*}	1.15^{*}	1.86^{*}	-0.84^{*}	-0.80^{*}	-0.04	0.31
	(0.33)	(0.39)	(0.40)	(0.45)	(0.35)	(0.36)	(0.41)	(0.57)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Agreement FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,997	2,997	2,997	2,804	2,997	2,997	2,997	2,804
Akaike inf. crit.	2582.67	2577.25	2579.10	2509.14	2043.44	2033.23	2021.92	1747.32

$^{+}p < 0.10$ $^{*}p < 0.05$. This table replicates the main results when only including firms that expressed a position over rules of origin for at least one PTA. Models 4 and 8 report the results when including additional controls for skill and capital intensity.

A.7 Disaggregating the PTA Advantage Measure

The theory developed in this article posits that a firm is more likely to support restrictive rules of origin when it has a sourcing advantage in the PTA market relative to rivals and it competes in an industry with customized inputs. In the main text, I proxied for the relative sourcing advantage of a firm using the difference between the number of a firm's affiliates in partner markets (*PTA Network*) and the median number of affiliates in partner markets for very large firms in a specific industry (*PTA Industry Median*). In this section, I report the results when disaggregating the measure into its separate components.

The theoretical expectation is that the probability a firm expresses support for restrictive rules of origin should increase as *PTA Network* increases and decrease as *PTA Industry Median* increases. Moreover, this effect should only exist for industries that intensively use customized inputs. When *PTA Industry Median* is high, global firms have similar sourcing capabilities within partner countries and the potential benefits derived from sourcing restrictions are minimal. Thus, there are no incentives for global firms to support restrictive rules, even if they have strong linkages within the market.

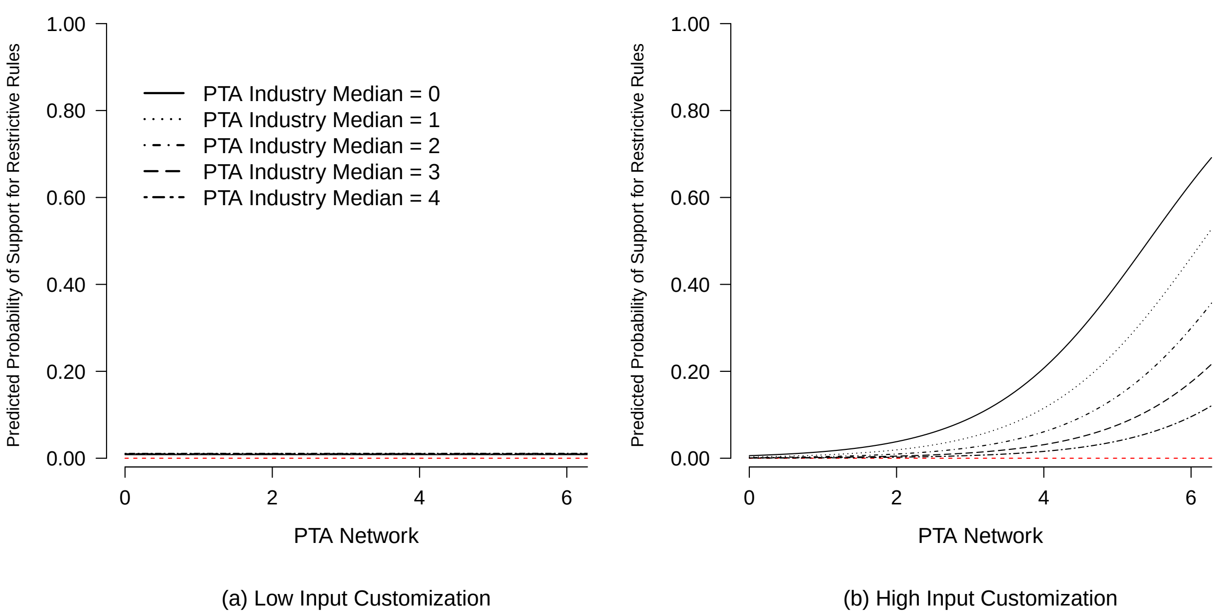
Table A7 reports the results from logistic regressions. For easier interpretation, Figure A2 displays the predicted probability of support for restrictive rules of origin when simulating over different values of *PTA Network*, *PTA Industry Median*, and *Input Customization*. Broadly, the results align with theoretical expectations. First, when input customization is low, *PTA Network* and *PTA Industry Median* have no effect on the probability a firm supports restrictive rules of origin. Second, when firms compete in industries with customized inputs, *PTA Network* increases support for restrictive rules of origin, but only when *PTA Industry Median* is sufficiently low. In other words, *PTA Network* drives support for restrictive rules of origin when other rivals have limited connections in the PTA market. For instance, when *PTA Industry Median* equals 0, there is steep rise in the probability that a firm expresses support for restrictive rules as *PTA Network* increases. Alternatively, when *PTA Industry Median* equals 4, *PTA Network* only increases support for restrictive rules when it exceeds the industry median. This evidence provides support for the core theoretical tenet of my argument that strong linkages in the PTA market are not sufficient to induce support for restrictive rules of origin. A firm must have comparative sourcing advantage relative to rival firms. Otherwise the benefits the sourcing restrictions provide are limited.

Table A7: Firm-level support for restrictive rules of origin when separating PTA Network and PTA Industry Median

	Support for Restrictive Rules	
	(1)	(2)
Input Customization x PTA Network		1.74*
		(0.36)
Input Customization x PTA Industry Med.		−1.44*
		(0.55)
PTA Network	0.35*	−0.52*
	(0.09)	(0.22)
PTA Industry Med.	−0.08	0.51+
	(0.14)	(0.26)
Input Customization	−0.68*	−0.40
	(0.34)	(0.41)
Control Variables	Yes	Yes
Industry FE	Yes	Yes
Agreement FE	Yes	Yes
Observations	46,405	46,405
Akaike inf. crit.	3685.94	3663.83

$^{+}p < 0.10$ $^{*}p < 0.05$. This table reports the results when disaggregating the *PTA Advantage* measure into its separate components, *PTA Network* and *PTA Industry Median*.

Figure A2: Predicted Probability of Support for Restrictive Rules of Origin.



High (Low) input customization is defined at the 90th (10th) percentile (0.84 and 0.30, respectively). The figure reports the simulated results of the effect of *PTA Network* on support for restrictive rules of origin across different levels of *PTA Industry Median* and *Input Customization*. It shows that firms are more likely to support restrictive rules of origin when they compete in industries with high levels of *Input Customization* and *PTA Industry Median* is low.

A.8 Industry-Agreement Fixed Effects

An alternative modeling strategy to capture the effect of relative sourcing advantages on firm support for restrictive rules of origin is to include six-digit NAICS-PTA fixed effects. That is, to leverage variation in *PTA Network* between firms within an industry for a particular PTA. In the main text, I opt for a less demanding specification for several reasons. First, there are potential issues with complete separation when using conditional logistic regressions with extensive fixed effects. Second, the effect of *Global Network* on support for permissive rules of origin in a particular agreement should not depend on other firms within an industry. Put another way, a firm that heavily relies on global supply chains outside the PTA market should have strong incentives to support permissive rules of origin whether or not other firms in the industry also have strong linkages outside the PTA market. Finally, it is not straightforward how to appropriately handle the 333 firms that are matched to multiple six-digit industries. Nevertheless, in this section, I demonstrate the core results reported in the main text are substantively similar when including more demanding fixed effects and directly comparing firms within an industry for a specific PTA.

Table A8 reports the results from ordinary least squares (top panel) regressions and conditional logistic regressions (bottom panel) when including six-digit NAICS-PTA fixed effects.[3] Industry-level controls are excluded since they do not vary between firms within an industry for a specific agreement. Additionally, estimated interactions with input customization exclude the main effect for similar reasons. For the 333 firms matched to multiple six-digit NAICS industries, I select the first primary industry identified. I include the results when using support for permissive rules of origin as the dependent variable to further demonstrate the robustness of the main findings.

Overall, the results are consistent with the main analysis. First, relative to other firms within the same industry that intensively uses customized inputs, global supply chains outside the PTA market increase the probability a firm supports permissive rules of origin for a particular agreement. While the estimated effects for *Global Network* on support for permissive rules of origin are only significant at the $p < 0.10$, they are in the expected direction. Further, it is worth underscoring again that there are strong theoretical reasons why the effect of *Global Network* should *not* depend on other firms within an industry. Second, a firm is more likely to express support for restrictive rules of origin in an agreement when it has strong connections within the PTA market relative to other rivals in the same industry and intensively uses customized inputs.

[3]The models are estimated using the fixest package in R.

Table A8: Ordinary least squares regressions and conditional logistic regressions with six-digit NAICS-PTA fixed effects.

	Support for Permissive Rules		*Support for Restrictive Rules*	
	(1)	(2)	(3)	(4)
Ordinary Least Squares Regressions				
Input Customization x Global Network		0.010^{+}		-0.004^{+}
		(0.005)		(0.002)
Input Customization x PTA Network		0.002		0.026^{*}
		(0.013)		(0.012)
Global Network	0.013^{*}	0.007^{*}	0.001	0.003^{+}
	(0.001)	(0.003)	(0.000)	(0.001)
PTA Network	0.011^{*}	0.010	0.004^{+}	-0.011^{+}
	(0.003)	(0.007)	(0.002)	(0.006)
Firm-Level Controls	Yes	Yes	Yes	Yes
Industry-Agreement FE	Yes	Yes	Yes	Yes
Observations	46,405	46,405	46,405	46,405
Adj. R^2	0.132	0.132	0.202	0.203
Conditional Logistic Regressions				
Input Customization x Global Network		0.35^{+}		-0.43
		(0.20)		(0.28)
Input Customization x PTA Network		-0.58		2.56^{*}
		(0.44)		(0.64)
Global Network	0.79^{*}	0.59^{*}	0.33^{*}	0.49^{*}
	(0.08)	(0.15)	(0.08)	(0.15)
PTA Network	0.28^{*}	0.61^{*}	0.30^{+}	-0.93^{*}
	(0.10)	(0.27)	(0.17)	(0.33)
Firm-Level Controls	Yes	Yes	Yes	Yes
Industry-Agreement FE	Yes	Yes	Yes	Yes
Observations	9,890	9,890	3,734	3,734
Akaike inf. crit.	3593.54	3592.50	2386.25	2363.70

$^{+}p < 0.10$ $^{*}p < 0.05$. The table reports the results from ordinary least squares and conditional logistic regressions which include six-digit NAICS-PTA fixed effects. Columns 1-2 show that relative to other firms within the same industry, a firm with a greater number of supply linkages outside the PTA market is more likely to express support for permissive rules of origin for that particular agreement. Columns 3-4 demonstrate that relative to rivals within the same industry, stronger connections in the PTA market increase support for restrictive rules of origin for that particular agreement. Standard errors are clustered at the industry-agreement level.

A.9 Firm Fixed Effects

An alternative question is how does a firm's position over the design of rules of origin change across PTAs with different partners. An implication of my argument is that firms should only support restrictive rules of origin for certain agreements where it has a relative sourcing advantage. Agreements negotiated with different partners likely alter the relative sourcing advantages between firms and thus should impact the incentives for a firm to support restrictive rules of origin. To shed light on this question, I leverage variation at the firm-level across PTAs and estimate models with firm fixed effects.

I focus on the effect of *PTA Advantage* on support for restrictive rules of origin because there is limited within firm variation in *Global Network*. Figure A3 illustrates the differences in variation across all firms included in the main analysis and among firms that have expressed a position over rules of origin in at least one agreement. Specifically, the figure displays the distribution of the estimated within firm variances in *Global Network* and *PTA Advantage*. While the average variance in *Global Network* is only 0.033 across all firms, it is 0.213 for *PTA Advantage*. Among firms that have expressed a position over rules of origin, the average within-firm variance for *Global Network* is 0.059 and 0.493 for *PTA Advantage*. This makes sense considering that a firm's global connections located in third-party countries should be relatively similar across different PTAs if its supply chains are not concentrated in a specific country. Moreover, the sourcing advantage of an individual firm within a particular PTA market should vary depending on its own connections and the connections of rival firms.

Table A9 reports the results from ordinary least squares regressions (top panel) and conditional logistic regressions (bottom panel) when including firm fixed effects. The models only include industry-level controls that vary across different PTAs (US MFN, Partner MFN, Deflection, and Partner Trade). I report the results for *Global Network* and permissive rules of origin for transparency. While the estimated coefficients for *Global Network* are in the right direction and meaningful, they are imprecise, which is likely due to the limited variation across PTAs for individual firms. Importantly, when analyzing support for restrictive rules of origin, the estimated coefficients for the interaction terms between *PTA Advantage* and *Input Customization* are statistically significant and in the expected directions.

Figure A3: Distribution of Within-Firm Variances for Global Network and PTA Advantage.

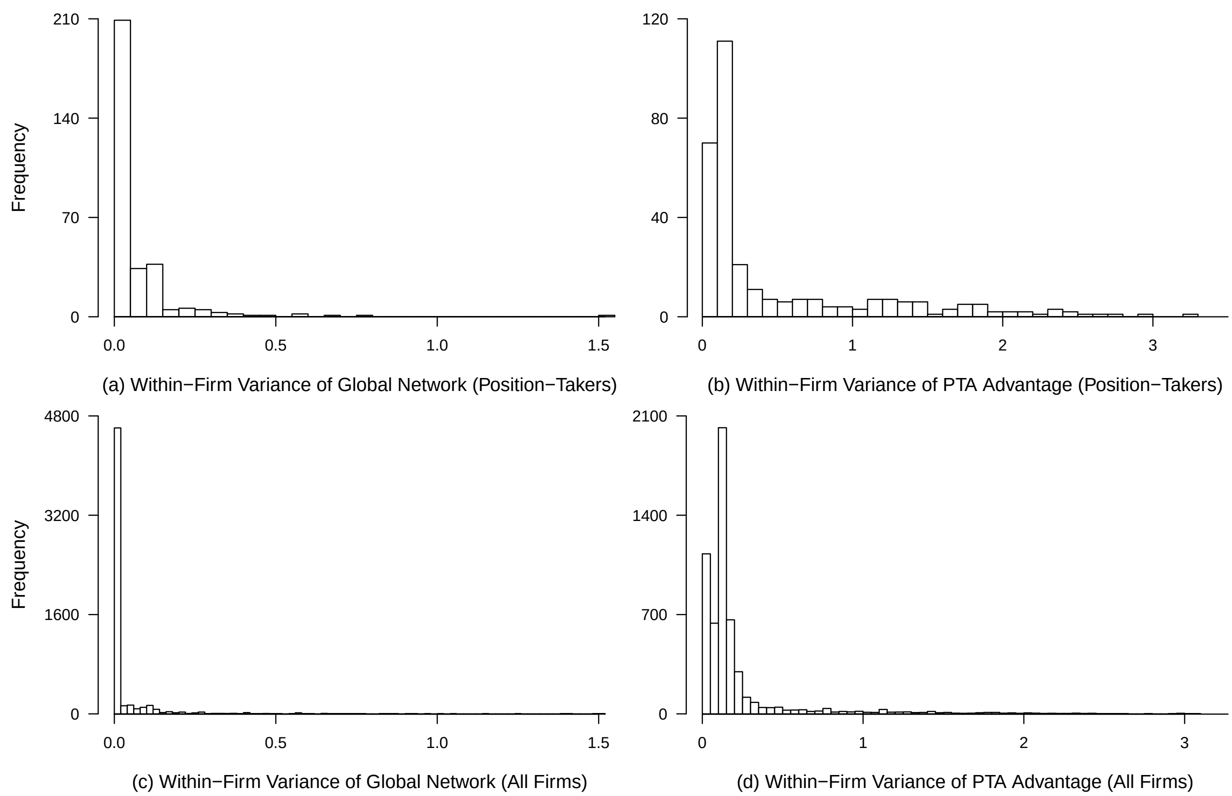


Table A9: Ordinary least squares regressions and conditional logistic regressions with firm fixed effects..

	Support for Permissive Rules		*Support for Restrictive Rules*	
	(1)	(2)	(3)	(4)
Ordinary Least Squares Regressions				
Input Customization x Global Network		0.036		−0.023
		(0.027)		(0.019)
Input Customization x PTA Advantage		0.005		0.015*
		(0.011)		(0.006)
Global Network	0.003	−0.015	−0.009*	0.003
	(0.006)	(0.015)	(0.004)	(0.011)
PTA Advantage	0.001	−0.001	0.002	−0.006+
	(0.003)	(0.005)	(0.001)	(0.003)
Industry-Level Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Observations	46,405	46,405	46,405	46,405
Adj. R^2	0.505	0.505	0.435	0.436
Conditional Logistic Regressions				
Input Customization x Global Network		2.73		−3.21
		(1.86)		(2.19)
Input Customization x PTA Advantage		0.50		1.37*
		(0.73)		(0.61)
Global Network	0.42	−1.00	−1.35*	0.32
	(0.55)	(0.98)	(0.53)	(1.23)
PTA Advantage	−0.11	−0.40	0.16	−0.53
	(0.16)	(0.44)	(0.16)	(0.36)
Industry-Level Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Observations	1,720	1,720	1,326	1,326
Akaike inf. crit.	1891.36	1889.02	1403.68	1392.16

$^{+}p < 0.10$ $^{*}p < 0.05$. The table reports the results from ordinary least squares and conditional logistic regressions which include firm fixed effects. While the estimated coefficients for *Global Network* are not statistically significant, they are in the expected direction. Moreover, as Figure A4 illustrates, there is limited variation in *Global Network* across PTAs at the firm-level. Importantly, the estimated interaction term between *PTA Advantage* and *Input Customization* is statistically significant and consistent with the main analysis. Standard errors are clustered at the firm-level.

A.10 Alternative Measures of Input Customization

The results reported in the main paper use a popular measure of input customization based on Nunn (2007). Formally, $Input\ Customization_i = \frac{1}{u_i}\sum_j u_{ij} I_j$, where u_{ij} is the value of input j used to produce goods in industry i; u_i is the total value of all inputs used in industry i, and I_j is the proportion of inputs from industry j that are classified as differentiated by Rauch (1999). This section demonstrates the main findings are robust to alternative measures of input customization.

First, I calculate a measure of input customization that replaces I_j with the inverse of the demand elasticities estimated in Broda and Weinstein (2006) at the SITC three-digit. As Antras (2015, 310) points out, "these elasticities were estimated in part off the substitution seen across HS10 product codes that fall under each SITC three-digit heading." And thus, "contain information on the degree of substitution across inputs under the assumption that the constituent HS10 products in each SITC three-digit category are typically used together as inputs in production." *Sigma Customization* has a mean of 0.29 and a standard deviation of 0.06. The correlation between *Sigma Customization* and *Input Customization* is 0.69. The results are reported in Table A10 and are consistent with the main analysis.

Second, I use a binary measure of product differentiation based on Rauch (1999). Specifically, *Rauch Customization* equals 1 if the proportion of products classified in industry i as differentiated is larger than 0.50. This measure is a popular approach to capture product differentiation and consumer love of variety in the trade politics literature. Two points are worth emphasizing. First, input customization and product differentiation are empirically similar. However, theoretically, they are distinct. Product differentiation underscores consumer love of variety in final goods while input customization focuses on the microeconomic linkages between firms. Second, the focus of Rauch (1999) in his seminal article is on networks and search effects, which are a core motivation of his classifications. The results are reported in Table A11 and are consistent with the main analysis.

Table A10: Alternative measure of input customization based on Broda and Weinstein (2006).

	Support for Permissive Rules			Support for Restrictive Rules		
	(1)	(2)	(3)	(4)	(5)	(6)
Sigma Customization x Global Network		0.63^{+}	0.74^{+}			0.15
		(0.36)	(0.45)			(0.60)
Sigma Customization x PTA Advantage			−0.46		4.33^{*}	4.19^{*}
			(0.98)		(1.07)	(1.16)
Global Network	0.76^{*}	0.57^{*}	0.54^{*}	0.25^{*}	0.24^{*}	0.20
	(0.05)	(0.12)	(0.14)	(0.06)	(0.06)	(0.18)
PTA Advantage	0.21^{*}	0.21^{*}	0.34	0.26^{*}	-0.96^{*}	-0.93^{*}
	(0.06)	(0.06)	(0.29)	(0.08)	(0.30)	(0.32)
Sigma Customization	4.75^{*}	3.57^{*}	3.41^{*}	2.99^{*}	3.61^{*}	3.49^{*}
	(0.94)	(1.04)	(1.10)	(1.25)	(1.24)	(1.36)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Agreement FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,405	46,405	46,405	46,405	46,405	46,405
Akaike inf. crit.	5064.33	5063.59	5065.34	3695.52	3685.68	3687.65

$^{+}p < 0.10$ $^{*}p < 0.05$. This table reports the results when using an alternative measure of input customization based on the estimated demand elasticities from Broda and Weinstein (2006).

Table A11: Alternative measure of input customization based on Rauch (1999).

	Support for Permissive Rules			Support for Restrictive Rules		
	(1)	(2)	(3)	(4)	(5)	(6)
Rauch Customization x Global Network		0.21^{*}	0.17^{*}			-0.25^{*}
		(0.05)	(0.06)			(0.08)
Rauch Customization x PTA Advantage			0.17		0.29^{*}	0.53^{*}
			(0.13)		(0.13)	(0.15)
Global Network	0.77^{*}	0.62^{*}	0.65^{*}	0.27^{*}	0.27^{*}	0.40^{*}
	(0.05)	(0.06)	(0.07)	(0.06)	(0.06)	(0.08)
PTA Advantage	0.22^{*}	0.22^{*}	0.10	0.27^{*}	0.09	−0.02
	(0.06)	(0.06)	(0.11)	(0.08)	(0.10)	(0.11)
Rauch Customization	0.49^{*}	0.10	0.16	−0.11	−0.06	0.15
	(0.12)	(0.13)	(0.14)	(0.16)	(0.17)	(0.18)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Agreement FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,405	46,405	46,405	46,405	46,405	46,405
Akaike inf. crit.	5068.76	5050.64	5050.46	3701.39	3699.57	3692.26

$^{+}p < 0.10$ $^{*}p < 0.05$. This table reports the results when using an alternative measure of input customization based on a dichotomous measure of product differentiation from Rauch (1999).

A.11 Alternative Measures of Global Supply Chains

The main analysis measures global supply chains by using the number of affiliates outside the PTA market and inside partner countries. This section demonstrates the results are robust to alternative measurement strategies.

First, I create a similar measure but based on the length of time a firm has operated in a particular market. $Global\ Network\ (Time)_{fp} = max(Y_p - Inc_{fpa})$, where Y_p is the start of negotiations for agreement p, Inc_{fpa} is the incorporation year for subsidiary a for firm f located outside the PTA market for agreement p. The final measure is logged. The variable has a mean of 0.85 and a standard deviation of 1.65. The correlation between the *Global Network (Time)* and *Global Network* is 0.90. This makes sense since firms that operate longer in a market are likely to expand. A similar measure is constructed for *PTA Advantage (Time)* but using the affiliates located in partner markets. *PTA Advantage (Time)* has a mean of -1.13 and a standard deviation of 1.55. The correlation between *PTA Advantage (Time)* and *PTA Advantage* is 0.71. The results are reported in Table A12 and are broadly consistent with the main analysis.

Second, I create a time-weighted measure. Specifically, $Global\ Network\ (Weighted)_{fp} = \sum^{a} Y_p - Inc_{fpa}$ for affiliates located outside the PTA market prior to the start of negotiations. Higher values indicate that firm f has operated more affiliates outside the PTA market for agreement p for a longer period of time. The final measure is logged. *Global Network (Weighted)* has a mean of 1.17 and a standard deviation of 2.40. I create analogous measure using affiliates located in the PTA market and median value for very large firms within an industry and both are logged. *PTA Advantage (Weighted)* has a mean of -1.17 and a standard deviation of 1.80. The results are reported in Table A13 and are similar to the main analysis.

Table A12: Using an alternative measure for global supply chains.

	Support for Permissive Rules			*Support for Restrictive Rules*		
	(1)	(2)	(3)	(4)	(5)	(6)
Input Customization x Global Network (Time)		0.46*	0.47*			0.24+
		(0.11)	(0.11)			(0.14)
Input Customization x PTA Advantage (Time)			−0.05		0.60*	0.50*
			(0.14)		(0.14)	(0.15)
Global Network (Time)	0.41*	0.16*	0.15*	0.25*	0.25*	0.14*
	(0.03)	(0.07)	(0.07)	(0.04)	(0.04)	(0.07)
PTA Advantage (Time)	0.11*	0.11*	0.14+	0.07+	−0.18*	−0.14+
	(0.03)	(0.03)	(0.08)	(0.04)	(0.07)	(0.08)
Input Customization	2.63*	1.63*	1.56*	−0.67+	−0.10	−0.56
	(0.28)	(0.36)	(0.39)	(0.34)	(0.38)	(0.46)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Agreement FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,405	46,405	46,405	46,405	46,405	46,405
Akaike inf. crit.	5135.83	5113.68	5115.52	3691.44	3677.40	3676.07

$^{+}p < 0.10$ $^{*}p < 0.05$. This table reports the results when using an alternative measurement strategy for global supply chains based on length in market prior to the start of negotiations. Robust standard errors are reported.

Table A13: Using an alternative measure for global supply chains.

	Support for Permissive Rules			*Support for Restrictive Rules*		
	(1)	(2)	(3)	(4)	(5)	(6)
Input Customization x Global Network (Weighted)		0.33*	0.35*			0.06
		(0.07)	(0.07)			(0.08)
Input Customization x PTA Advantage (Weighted)			−0.07		0.53*	0.49*
			(0.11)		(0.12)	(0.13)
Global Network (Weighted)	0.37*	0.19*	0.18*	0.17*	0.17*	0.14*
	(0.02)	(0.04)	(0.05)	(0.03)	(0.03)	(0.05)
PTA Advantage (Weighted)	0.07*	0.07*	0.11+	0.08*	−0.15*	−0.13*
	(0.03)	(0.03)	(0.07)	(0.03)	(0.06)	(0.06)
Input Customization	2.58*	1.47*	1.36*	−0.69*	−0.23	−0.39
	(0.29)	(0.36)	(0.39)	(0.34)	(0.37)	(0.43)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Agreement FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,405	46,405	46,405	46,405	46,405	46,405
Akaike inf. crit.	5019.60	4989.74	4991.23	3691.20	3673.86	3675.39

$^{+}p < 0.10$ $^{*}p < 0.05$. This table reports the results when using an alternative measurement strategy for global supply chains based on the time-weighted number of affiliates located inside and outside the PTA market. Robust standard errors are reported.

A.12 Excluding Extreme Outliers

This section reports the results from several robustness checks to demonstrate the main findings are not an artifact of extreme outliers. First, Table A14 reports the results when excluding observations in the top 1 percent of *Global Network* or *PTA Advantage*. The results are consistent with the main analysis

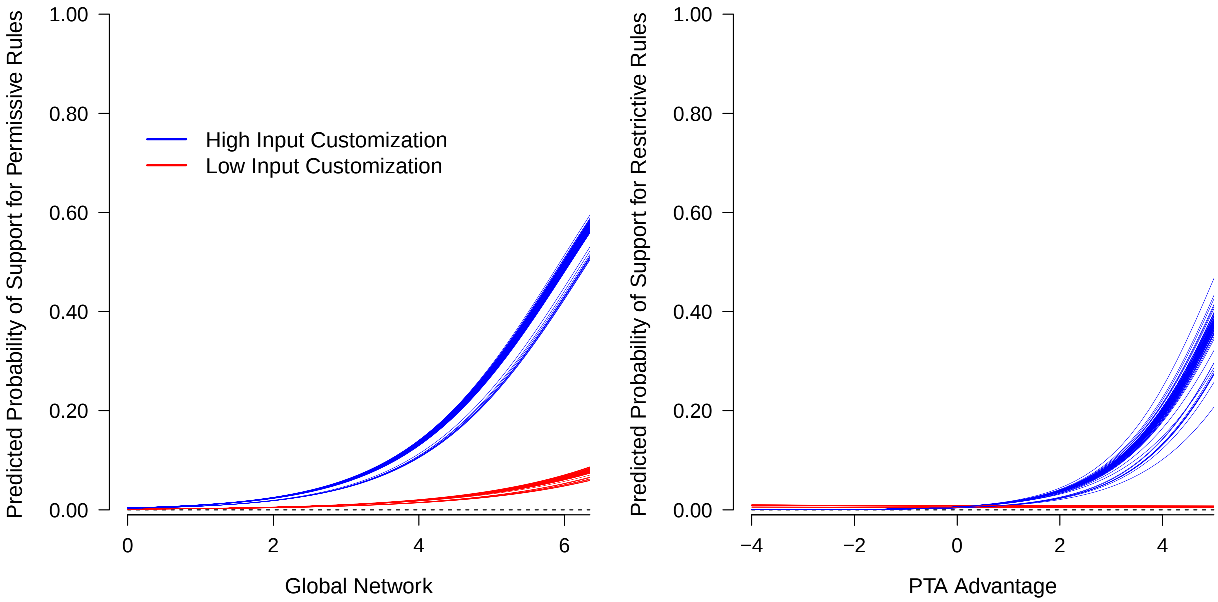
Second, I estimate individual models which separately exclude all firms within specific NAICS-Agreement pairs. That is, for each agreement p, I remove all firms located in industry i for every agreement-industry pair. Figure A4 displays the predicted probabilities across these models. Across the different specifications, the results are similar to the main analysis.

Table A14: Removing outliers.

	Support for Permissive Rules			*Support for Restrictive Rules*		
	(1)	(2)	(3)	(4)	(5)	(6)
Input Customization x Global Network		0.51^{*} (0.13)	0.56^{*} (0.14)			-0.51^{*} (0.15)
Input Customization x PTA Advantage			-0.38 (0.42)		1.65^{*} (0.44)	2.24^{*} (0.48)
Global Network	0.70^{*} (0.06)	0.42^{*} (0.10)	0.39^{*} (0.10)	0.32^{*} (0.07)	0.31^{*} (0.07)	0.52^{*} (0.09)
PTA Advantage	0.28^{*} (0.10)	0.29^{*} (0.10)	0.49^{+} (0.25)	0.32^{*} (0.12)	-0.40^{+} (0.23)	-0.61^{*} (0.24)
Input Customization	2.50^{*} (0.30)	1.87^{*} (0.33)	1.76^{*} (0.35)	-0.94^{*} (0.36)	-0.72^{+} (0.37)	-0.28 (0.40)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Agreement FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	45,067	45,067	45,067	45,067	45,067	45,067
Akaike inf. crit.	4289.49	4273.35	4274.39	3523.07	3511.28	3506.50

$^{+}p < 0.10$ $^{*}p < 0.05$. This table reports the results when removing observations in the top 1 percent of *Global Network* or *PTA Advantage*. The results demonstrate that the main findings are not an artifact of extreme outliers.

Figure A4: Predicted probability of support for permissive and restrictive rules of origin when separating excluding firms located in each industry-agreement pair.



High (Low) input customization is defined at the 90th (10th) percentile (0.84 and 0.30, respectively). The figure displays the simulated predicted probabilities when separately excluding all firms in each industry-agreement pair.

A.13 Rare Events Correction

Consistent with the lobbying literature, position-taking over rules of origin is a relatively rare-event. This section demonstrates that the main findings are robust when accounting for potential biases that result from the relatively rarity of position-taking over rules of origin. Table A15 reports the results from these models and closely align with those reported in the main text.

Table A15: Firm-Level support for restrictive and permissive rules of origin when correcting for rare-events

	Support for Permissive Rules			*Support for Restrictive Rules*		
	(1)	(2)	(3)	(4)	(5)	(6)
Input Customization x Global Network		0.53^{*}	0.55^{*}			-0.34^{+}
		(0.10)	(0.11)			(0.18)
Input Customization x PTA Advantage			-0.07		1.39^{*}	1.74^{*}
			(0.22)		(0.27)	(0.33)
Global Network	0.78^{*}	0.48^{*}	0.47^{*}	0.27^{*}	0.26^{*}	0.40^{*}
	(0.05)	(0.07)	(0.08)	(0.07)	(0.07)	(0.10)
PTA Advantage	0.17^{*}	0.17^{*}	0.21	0.29^{*}	-0.40^{*}	-0.54^{*}
	(0.06)	(0.06)	(0.14)	(0.08)	(0.17)	(0.19)
Input Customization	2.61^{*}	1.71^{*}	1.69^{*}	-0.72^{*}	-0.65^{*}	-0.34
	(0.27)	(0.32)	(0.33)	(0.32)	(0.33)	(0.36)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Agreement FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,405	46,405	46,405	46,405	46,405	46,405
Akaike inf. crit.	4984.90	4957.96	4959.87	3686.28	3662.22	3660.50

$^{+}p < 0.10$ $^{*}p < 0.05$. Results are based on the positions of 5,770 firms in agriculture, mining, and manufacturing industries across 11 PTAs. Rare events correction implemented using the Zelig package in R.

Appendix B Industry-Level Analysis

B.1 Full Results

Table B1 reports the full results of the control variables from Table 4 in main text. Consistent with theoretical expectations, industries with higher average MFN tariffs in the US are more likely to be divided over the design of rules of origin. Importantly, the extent that an industry relies on imported inputs is not related to internal divisions over rules of origin. Only when differences emerge in global sourcing strategies are firms within an industry divided over the design of rules.

Table B1: Full results from Table 4 of the main text.

	Divided Industry					
	(1)	(2)	(3)	(4)	(5)	(6)
Input Customization x GSC Fragmentation		1.93*	1.97*			
		(0.78)	(0.83)			
Input Customization x Network Divergence					2.47*	2.67*
					(1.12)	(1.21)
GSC Fragmentation	1.72*	0.67	0.82			
	(0.17)	(0.46)	(0.51)			
Network Divergence				2.16*	0.73	0.91
				(0.24)	(0.69)	(0.75)
Input Customization	2.26*	1.69*	1.97*	2.02*	1.60*	1.79*
	(0.38)	(0.43)	(0.50)	(0.38)	(0.42)	(0.49)
US MFN	20.84*	20.62*	25.42*	21.03*	21.04*	25.88*
	(2.29)	(2.28)	(2.64)	(2.30)	(2.29)	(2.65)
Partner MFN	0.18	0.17	−0.34	0.38	0.38	0.31
	(0.94)	(0.93)	(1.22)	(0.90)	(0.89)	(1.19)
Imported Inputs (Total)	0.08	0.08	0.07	0.03	0.03	0.02
	(0.05)	(0.05)	(0.07)	(0.05)	(0.05)	(0.07)
Multinational	0.02	0.01	0.05*	0.01	0.01	0.04*
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)
Upstreamness	0.66*	0.66*	0.78*	0.66*	0.67*	0.81*
	(0.09)	(0.09)	(0.12)	(0.09)	(0.09)	(0.12)
Forward Integration	−4.03	−4.19	−3.94+	−4.34	−4.39	−3.96+
	(2.54)	(2.59)	(2.16)	(2.87)	(2.87)	(2.35)
Backward Integration	2.72	2.79	2.94	3.05	3.27	3.16
	(3.56)	(3.56)	(4.00)	(3.54)	(3.54)	(3.99)
Skill Intensity			0.32*			0.27*
			(0.07)			(0.07)
Capital Intensity			−0.34+			−0.49*
			(0.18)			(0.17)
Tariff Lines	0.35*	0.35*	−0.06	0.32*	0.32*	−0.07
	(0.06)	(0.06)	(0.09)	(0.06)	(0.06)	(0.09)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,444	4,444	3,409	4,444	4,444	3,409
Akaike inf. crit.	2246.19	2242.67	1780.36	2262.12	2259.29	1788.67

$^{+}p < 0.10$, $^{*}p < 0.05$. This table reports the full results of the control variables from the main analysis.

B.2 Alternative Measures of Industry Division

The main analysis defined intraindustry divisions over rules of origin if any support for restrictive and permissive rules of origin existed within the industry. This section demonstrates that the findings are result to alternative definitions of intraindustry disagreement. First, I construct an indice of internal disagreement that equals $1 - \frac{|P_{ik} - R_{ik}|}{P_{ik} + R_{ik}}$ where P_{ik} (R_{ik}) is the total number of firms and associations in an industry that expressed support for permissive (restrictive) of origin. The measure captures the intensity of support for permissive and restrictive rules of origin. When the measure equals zero, all firms and associations within the industry have similar preferences over the design of rules of origin. When the measure equals 1, the industry is equally split. Importantly, the measure is undefined for industries where no position was recorded. Table B2 reports the results from ordinary least squares regression when using the measure. Consistent with the main analysis, intraindustry divisions over rules of origin are more likely when input customization is high and global supply chains diverge.

As additional robustness check, I also construct a binary measure of industry fragmentation over rules of origin that focuses on disagreement between firms and associations within an industry. Specifically, the measure equals 1 if there was any internal disagreement between associations and firms or if only firms expressed positions over the design of rules of origin. This measure captures the more subtle ways that industry fragmentation may manifest in patterns of position-taking over rules of origin. The estimated coefficients from logistic regressions are reported in Table B3. Overall, the results are consistent with the main analysis. To focus on the quantities of interest, Figure B1 displays the estimated marginal effects of a one standard deviation increase in *Network Divergence* and *GSC Fragmentation* across observed values of *Input Customization.*

Table B2: Results when using alternative measures for industry divisions.

	Division Indice					
	(1)	(2)	(3)	(4)	(5)	(6)
Input Customization x GSC Fragmentation		0.175^{*}	0.173^{+}			
		(0.088)	(0.092)			
Input Customization x Network Divergence					0.233^{+}	0.276^{*}
					(0.126)	(0.136)
GSC Fragmentation	0.123^{*}	0.030	0.037			
	(0.020)	(0.050)	(0.055)			
Network Divergence				0.170^{*}	0.036	0.043
				(0.030)	(0.076)	(0.082)
Input Customization	0.091^{*}	0.052	0.078^{*}	0.081^{*}	0.052	0.071^{+}
	(0.031)	(0.032)	(0.036)	(0.032)	(0.033)	(0.038)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,469	2,469	1,997	2,469	2,469	1,997
Adj. R^2	0.072	0.073	0.094	0.070	0.072	0.099

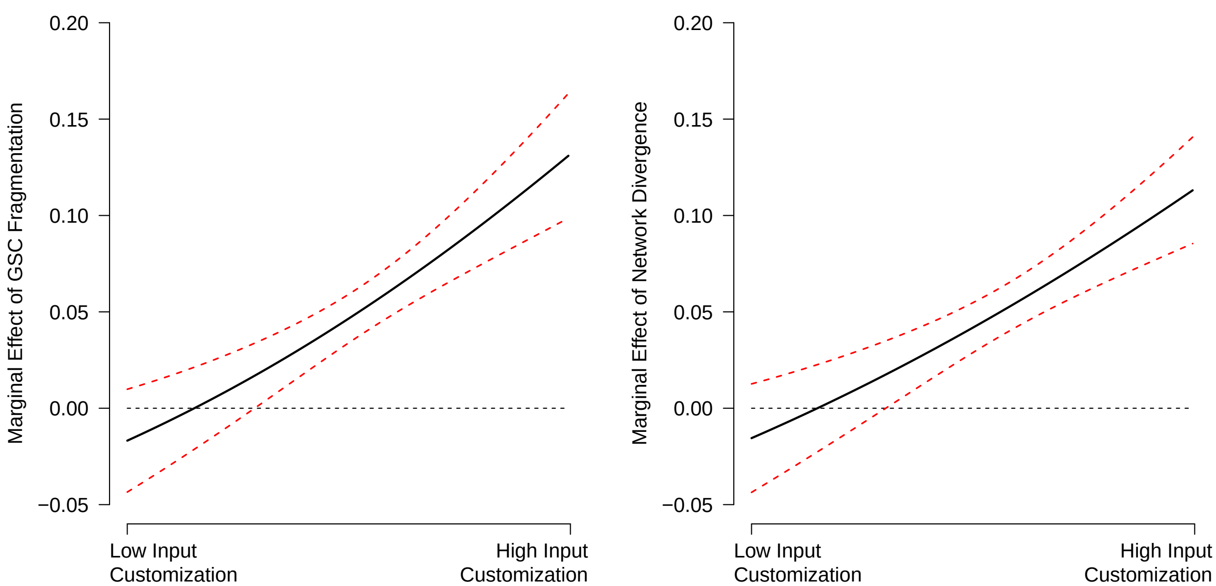
$^{+}p < 0.10$, $^{*}p < 0.05$. This table reports the results when using an alternative measure of industry divisions over rules of origin based on the intensity of support for permissive and restrictive rules of origin. Columns 3 and 6 report the results when including additional industry controls for skill and capital intensity.

Table B3: Results when using alternative measures for industry divisions.

	Divided Industry (Firm-Association Measure)					
	(1)	(2)	(3)	(4)	(5)	(6)
Input Customization x GSC Fragmentation		2.96*	2.83*			
		(0.60)	(0.63)			
Input Customization x Network Divergence					3.90*	3.82*
					(0.84)	(0.88)
GSC Fragmentation	1.08*	−0.57	−0.42			
	(0.12)	(0.36)	(0.39)			
Network Divergence				1.59*	−0.74	−0.68
				(0.19)	(0.53)	(0.56)
Input Customization	0.75*	0.09	−0.29	0.61*	0.12	−0.28
	(0.25)	(0.28)	(0.32)	(0.25)	(0.27)	(0.30)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,444	4,444	3,409	4,444	4,444	3,409
Akaike inf. crit.	4361.39	4337.02	3606.42	4356.27	4335.35	3615.60

$^{+}p < 0.10$, $^{*}p < 0.05$. This table reports results when using an alternative definition of industry divisions based on differences in firm and association positions. Columns 3 and 6 report the results when including additional industry controls for skill and capital intensity.

Figure B1: Marginal effect of Network Divergence and GSC Fragmentation on intraindustry divisions over rules of origin at different levels of input customization.



Estimated effects are for a one standard deviation increase in *Network Divergence* and *GSC Fragmentation* on industry divisions. Based on models 2 and 5 in Table B3. Red lines are 95 percent confidence intervals based on robust standard errors.

B.3 Alternative Measures of Supply Chain Fragmentation

The main analysis captures the differences of global sourcing strategies between firms following Osgood (2017, 2018). Specifically, the measure combines input-output tables, along with data on sales and imports, to construct estimates of the quantity of an industry's inputs that are attributable to imports from partners and the rest of world. I use these measures to create a dissimilarity index for the global supply chain of an industry,

$$GSC\ Fragmentation_{ip} = 1 - \frac{|InputsP_{ip} - InputsW_{ip}|}{InputsP_{ip} + InputsW_{ip}},$$

where $InputsP_{ip}$ ($InputsW_{ip}$) is the value of imported inputs for industry i from partner (third-party) countries for agreement p. I briefly cover the construction of these variables, but for an excellent and detailed discussion see Osgood (2018).

$$InputsP_{ip} = \sum_j p_{jp}^{impP} I_{ij}.$$

p_{jp}^{impP} represents the percentage of imports for input j from partner countries and equals $\frac{ImpP_{jp}}{S_j + ImpT_j}$ where $ImpP_{jp}$ is the value of imports of input j from partners, S_j is the total revenue of industry j in the US, and $ImpT_j$ is the total imports of j. I_{ij} represents the total value of input j used in industry i and equals $IO_{ij}S_i$ where IO_{ij} is the direct requirement coefficient (the importance of input j for industry i) and S_i is the total revenue of industry i. $InputsW_{ip}$ is constructed in an analogous way but using trade data from third-party countries.

$$InputsW_{ip} = \sum_j p_{jp}^{impW} I_{ij},$$

where p_{jp}^{impW} represents the percentage of imports for input j from third-party countries and equals $\frac{ImpW_{jp}}{S_j + ImpT_j}$. This section demonstrates that main results are robust to alternative definitions of global supply chain fragmentation.

First, I construct a similar measure to the main analysis, but only for input industries classified as differentiated by Rauch (1999).

$$GSC\ Fragmentation\ (Diff.) = 1 - \frac{|InputsPD_{ip} - InputsWD_{ip}|}{InputsPD_{ip} + InputsWD_{ip}},$$
$$InputsPD_{ip} = \sum_j p_{jp}^{impP} I_{ij} D_j,$$
$$InputsWD_{ip} = \sum_j p_{jp}^{impW} I_{ij} D_j,$$

where D_j equals 1 if industry j is classified as differentiated and 0 if not. This measure explicitly captures the fragmentation of global supply chains for customized inputs in a given industry. The results from logistic regressions are reported in columns 1-2 of Table B4. Overall, the results are consistent with the findings reported in the main text.

Second, I construct a measure that accounts for explicit sourcing differences of individual differentiated inputs rather than aggregate-level differences.

$$GSC\ Fragmentation\ (Diff.\ Specific)_{ip} = \sum_j I_{ij} D_j |p_{jp}^{impW} - p_{jp}^{impP}|.$$

The results are reported in columns 3-4 in Table B4 and align with the conclusions in the main analysis.

Table B4: Results when using alternative measures for global supply chain fragmentation.

	Divided Industry			
	(1)	(2)	(3)	(4)
GSC Fragmentation (Diff.)	1.83*	1.94*		
	(0.18)	(0.20)		
GSC Fragmentation (Diff. Specific)			3.68*	4.00*
			(0.36)	(0.40)
Input Customization	2.06*	2.35*	1.23*	1.37*
	(0.38)	(0.45)	(0.39)	(0.46)
Control Variables	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	4,444	3,409	4,444	3,409
Akaike inf. crit.	2251.91	1793.85	2251.46	1787.82

$^{+}p < 0.10$, $^{*}p < 0.05$. This table reports the results when using alternative definitions of global supply chain fragmentation. Columns 3 and 6 report the results when including additional industry controls for skill and capital intensity.

Table B5: Alternative measure of input customization based on Rauch (1999).

	Divided Industry					
	(1)	(2)	(3)	(4)	(5)	(6)
Rauch Customization x GSC Fragmentation		0.99*	0.80*			
		(0.35)	(0.41)			
Rauch Customization x Network Divergence					1.91*	1.69*
					(0.51)	(0.58)
GSC Fragmentation	1.62*	0.97*	1.22*			
	(0.16)	(0.28)	(0.35)			
Network Divergence				2.15*	0.79+	1.19*
				(0.24)	(0.44)	(0.51)
Rauch Customization	0.23	−0.04	−0.13	0.24	−0.03	−0.18
	(0.15)	(0.18)	(0.21)	(0.15)	(0.17)	(0.20)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,444	4,444	3,409	4,444	4,444	3,409
Akaike inf. crit.	2279.32	2273.93	1817.54	2287.56	2276.19	1811.73

$^{+}p < 0.10$, $^{*}p < 0.05$. This table reports the results when using an alternative measure of input customization based on a dichotomous measure of product differentiation from Rauch (1999). Columns 3 and 6 report the results when including additional industry controls for skill and capital intensity.

B.4 Alternative Measures of Input Customization

The main text uses a measure of input customization developed from Nunn (2007). This section reports the main results for industry agreement are robust to alternative measures. Similar to the firm-level analysis, I use measures of product differentiation from Rauch (1999) and the inverse of the demand elasticities from Broda and Weinstein (2006). The results are reported in Tables B5 and B6 and are consistent with the main findings.

Table B6: Alternative measure of input customization based on Broda and Weinstein (2006).

	Divided Industry					
	(1)	(2)	(3)	(4)	(5)	(6)
Sigma Customization x GSC Fragmentation		9.07*	7.63*			
		(2.54)	(2.82)			
Sigma Customization x Network Divergence					13.66*	11.28*
					(3.86)	(4.13)
GSC Fragmentation	1.63*	−0.81	−0.26			
	(0.17)	(0.71)	(0.80)			
Network Divergence				2.12*	−1.73	−0.74
				(0.24)	(1.12)	(1.20)
Sigma Customization	2.12*	−0.60	1.97	1.41	−0.63	2.05
	(0.98)	(1.13)	(1.38)	(0.99)	(1.09)	(1.32)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,444	4,444	3,409	4,444	4,444	3,409
Akaike inf. crit.	2277.88	2269.57	1802.72	2288.49	2279.53	1804.25

$^{+}p < 0.10$, $^{*}p < 0.05$. This table reports the results when using an alternative measure of input customization based on a dichotomous measure of product differentiation from Broda and Weinstein (2006). Columns 3 and 6 report the results when including additional industry controls for skill and capital intensity.

Table C1: Automotive Industry (NAICS 336111).

Agreement	RVC	Industry Divided	*Restrictive Rules* # of firms	*Restrictive Rules* # of assoc.	*Permissive Rules* # of firms	*Permissive Rules* # of assoc.	GSC Frag.
NAFTA	62.5	Yes	4	1	2	1	High
Singapore	30.0	No	0	0	3	0	Low
Chile	30.0	No	0	0	3	0	Low
CAFTA	35.0	No	0	0	4	1	Low
Australia	50.0	No	0	0	4	1	Low
Colombia	35.0	No	0	0	4	1	Low
Peru	35.0	No	0	0	4	1	Low
Panama	35.0	No	0	0	4	1	Low
South Korea	35.0	No	0	0	6	1	Low
TPP	45.0	No	0	0	5	2	Mod-High
USMCA	75.0	Yes	3	1	5	3	High

Appendix C Case-Study: Rules of Origin and the US Automotive Industry

Finally, I examine corporate position-taking in the automobile manufacturing industry (NAICS 336111) across US PTAs to demonstrate how the structure of global supply chains and customized inputs shape firm preferences over the design of rules of origin. The US auto sector is a critical case for several reasons. First, the rules of origin for the automotive industry were core issues during PTA negotiations. As one NAFTA negotiator put it, *"The success of NAFTA would be judged by what each country got in autos. And in autos, we knew it would be judged by the rule itself and the regional value content, the number"* (Robert, 2000, 189). Further, the auto rules were key to the failure of the TPP and the eventual renegotiation of the USMCA (Phillip, 2016). Second, vehicle manufacturing in the US is a relatively downstream industry (99th percentile) with a high level of input customization (99th percentile) that intensively relies on global supply chains (99th percentile). By all metrics, existing firm-centered models of trade politics predict that the automotive industry should strongly support trade liberalization and oppose restrictive rules of origin.

Table C1 shows firm and association position-taking data for the automotive industry alongside the RVC requirements in each major US PTA for passenger vehicles. While the industry was unified in support of permissive rules of origin across most agreements, several prominent divisions emerged. Moreover, the design of the automotive rules varies substantially across PTAs. For example, NAFTA included an RVC requirement of 62.5 percent, which increased to 75 percent in the recent USMCA.[4] However, the content requirement in

[4]The rules in NAFTA and the USMCA included a variety of additional requirements.

other US agreements is substantially lower (30-35 percent).[5] My claim is that the structure of global supply chains and the importance of customized inputs best explain this variation.

Consider the automotive rule of origin in NAFTA. The RVC requirement divided global firms.[6] On the one hand, the Big Three - General Motors, Ford, and Chrysler (now Stellantis) - lobbied intensively for an RVC requirement of 65 percent.[7] On the other hand, firms like Toyota and Honda strongly favored a lower threshold. What explains the preference divergence between these global firms within the automotive industry?

Toyota's and Honda's support for relatively permissive rules of origin during NAFTA negotiations is driven by their dependence on supply networks outside the PTA market. While Toyota and Honda had established supply chains in Canada and the US, they still relied on key partners in East Asia for core components. A high content requirement would impose large adjustment costs on Toyota and Honda because it would require either forfeiting preferential access or shifting supply chains toward the PTA market. The importance of customized inputs in vehicle manufacturing exacerbated the costs to alter existing supply chains. Specifically, Honda and Toyota placed significant value on long-term relationships with suppliers who actively participated in research and development (USITC, 1987, 120). However, these firms encountered substantial difficulties when trying to find suppliers in North America with similar levels of efficiency and quality (OTA, 1992, 143).[8] Mexico also proved challenging. At the time, managers believed that Mexican factories lacked the technological capability to produce core parts (Kenney and Florida, 1994). Toyota's and Honda's inexperience in the Mexican market served as a large deterrent. As one automotive industry analyst put it, *"They don't know the territory, they don't know the language, they don't know the culture and they don't really want to be there"* (Gates, 1993, 1).[9]

Notably, during NAFTA negotiations, the Big Three enjoyed a relative sourcing advantage in the Mexican market because of strong supply linkages developed during the 1970s and 1980s.[10] As Hecht and Morici (1993) note, by the early 1990s, the productivity and quality of the Big Three's Mexican suppliers rivaled US and global competitors.[11] Unlike other automotive firms, the Big Three had easy access to efficient sourcing strategies in Mexico.

[5]Note, calculations for RVC requirements slightly differ across PTAs, but only on the margins.

[6]Negotiations centered on increasing the RVC requirement from 50 percent adopted in the 1965 Auto Pact and the 1989 trade agreement between the US and Canada.

[7]Ford and Chrysler initially proposed a content requirement upwards of 75 percent.

[8]This was despite the fact that Toyota and Honda were quite agile compared to other firms in the US market because they avoided unionization and employed a young workforce (Howes, 1991).

[9]By 1998, while there were 487 auto part plants connected with Toyota and Honda in North America only 78 were located in Mexico (Chappell, 1998). Further, while Toyota explored expanding into Mexico in 1988, 1992, 1994, and 2001, it did not enter the market until 2004 after Mexico signed a PTA with Japan.

[10]While Nissan and Volkswagen were present in Mexico at the time, they lagged behind.

[11]See also Krafcik (1988).

Table C2: Automotive Firm Profits from 1989 to 1997.

	Annual Profits (USD Billions)								
	1989	1990	1991	1992	1993	1994	1995	1996	1997
Chrysler	0.36	0.07	−0.80	0.72	−2.55	3.71	2.03	3.53	2.81
Ford	3.84	0.86	−2.26	−7.39	2.53	5.31	4.14	4.45	6.92
General Motors	4.22	−1.99	−4.45	−23.45	2.47	4.90	6.88	4.96	6.70
Honda	0.74	0.54	0.57	0.56	0.36	0.23	0.67	1.78	1.96
Toyota	3.20	2.98	1.77	1.39	1.13	1.29	2.73	3.55	3.75

Strong linkages in the PTA market paired with customized inputs reduced the adjustment costs imposed by a higher RVC requirement by creating lock-in effects with upstream suppliers. If core parts, likes engines and transmissions, were standardized across vehicles, all global firms would have access to the same suppliers in the Mexican market as the Big Three. Moreover, low-switching costs between firms would allow auto parts suppliers to leverage the rule and capture the benefits of preferential liberalization through higher markups. However. search frictions and relationship-specific investments prevented this dynamic from emerging by increasing the costs to abandon existing partners and minimized the rule's negative effects for the Big Three. Importantly, a higher content requirement was not without additional costs for the Big Three. The rule itself mandated process-tracing requirements that increased administrative red tape. Further, these firms still had extensive global connections across Europe, Latin America, and Asia. A higher content requirement in NAFTA would further constrain their ability to leverage these global linkages in the future.

Heterogeneity in adjustment costs between global automotive firms was critical to the Big Three's support for a higher RVC requirement during NAFTA negotiations. While the rule reduced the benefits of liberalization for the Big Three to some degree, the costs imposed on Toyota, Honda, and other firms were substantially larger. These asymmetric adjustment costs provided the Big Three with a competitive advantage in the PTA market by raising the price of preferential access for rivals. The rule allowed the Big Three to exploit a sourcing advantage in Mexico while reducing the efficiency of competitors. Indeed, the higher RVC requirement in NAFTA proved profitable. Table C2 shows annual profits for the Big Three, Toyota, and Honda between 1989 and 1997.[12] While the Big Three faced sharp downturns in the early 1990s, profits rapidly increased compared to Toyota and Honda in 1994 after NAFTA came into force. This aligns with the expectation that the rule provided a significant advantage to the Big Three relative to other global automotive firms.

A similar story emerged during the renegotiation of NAFTA under the Trump admin-

[12]Estimates at the time suggested that the new rule provided the Big Three with a $500-600 cost advantage per vehicle compared to rival firms (Manger, 2009, 128).

istration, culminating in the USMCA, which increased the RVC requirement for passenger vehicles to 75 percent. While most global automotive firms opposed the higher content requirement, the Big Three eventually supported the rule. Similar to NAFTA, heterogeneity in adjustment costs across global firms was critical to these divisions. In testimony, the Big Three emphasized the substantial differences between automotive firms' global sourcing strategies and variation in the degree of exposure to the new rules. Specifically, they anticipated the higher RVC requirements would impose larger adjustment costs on rivals, especially those with relatively weak linkages in member countries.

My argument also provides a compelling explanation for the Big Three's support of low RVC requirements and the lack of divisions between global firms in subsequent PTAs - such as Singapore, Chile, Panama, South Korea, Peru, Colombia, and CAFTA. Global automotive firms relied intensively on supply chains outside the PTA market for customized inputs. High RVC requirements would increase compliance costs and reduce the benefits of preferential liberalization. Moreover, within each partner country no firm had an outright advantage, which limited the competitive benefits of restrictive rules. Thus, across these PTAs, global automotive firms were unified and strongly favored low RVC requirements.[13]

The structure of global supply chains and input customization also help explain the puzzling support for permissive rules of origin during TPP negotiations. Specifically, by expanding the PTA market, the TPP included a broader segment of automotive firms' supply networks, which reduced the competitive benefits derived from restrictive rules of origin. The direct costs of the administrative burdens and the constraints placed on global supply chains outside the PTA market dominated any competitive advantage a higher RVC requirement provided. Thus, the Big Three were open to more permissive rules, even though the TPP included NAFTA partners.[14] Broadly, this case demonstrates that support for restrictive rules of origin is not simply a function of supply chains located in member countries. Moreover, it undermines explanations that suggest restrictive rules of origin are used as a mechanism to prevent export-platforms from developing in partner countries.

Importantly, the Big Three required substantial concessions to give up the gains secured under NAFTA. For example, tariff phaseouts on vehicle imports to the US market were over 25 years with reductions only in the last 5 years.[15] Moreover, the Big Three demanded

[13]Support for permissive rules in the South Korean PTA undermine explanations that argue the Big Three supported restrictive rules to prevent Mexico from becoming an export platform into the US (Chase, 2005, 39-41). During negotiations, South Korea had a highly competitive automotive industry which could easily become an export platform for foreign firms to the US market.

[14]Explanations that only underscore the importance of regional supply network fail to explain the Big Three's support for permissive rules of origin in the TPP (Manger, 2009).

[15]This is markedly different from earlier PTAs where US tariff phaseouts for most vehicles were immediate.

immediate access to Japan's market with special attention to address non-tariff barriers.[16] Finally, a key issue for the Big Three was provisions to address currency manipulation. The lackluster mechanisms included in the final text to combat this issue were a core reason why Ford eventually opposed the agreement. In the end, even with substantial concessions, giving up the gains from NAFTA proved difficult for the Big Three.[17]

This discussion provides insights into how my argument connects corporate preferences over rules of origin to policy outcomes. Specifically, by dividing global firms, differences in sourcing strategies fragments the core coalition in support of liberalization. While intermediate suppliers, labor unions, and political leaders have strong incentives to use rules of origin to shift production and profits to the PTA market, global firms in downstream industries are often the bulwark against these protectionist forces. Divisions among these firms undermine the effectiveness of the pro-trade coalition. Moreover, it creates strong political support in favor of restrictive rules of origin along the supply chain. A coalition of intermediate suppliers, downstream firms, and labor is difficult to counter. Thus, my argument predicts that input customization and the structure of global supply chains should strongly map onto the design of negotiated rules of origin. This helps explain the variation in the RVC requirements adopted for the automotive industry across US PTAs.

[16] See "Appendix between Japan and the United States on Motor Vehicle Trade."

[17] Two points are worth emphasizing. First, expanding the membership of PTAs can reduce the incentives for global firms to support restrictive rules of origin. Second, by doing so, it likely creates stronger opposition among other key stakeholders. Indeed, the lax automotive rules in the TPP generated substantial opposition among labor unions, auto parts firms, the steel industry, and with Democrats and Republicans. This was key to the TPP's failure. For example, when Secretary of State Hillary Clinton reversed her position on the agreement, she specifically pointed to the weak rules of origin negotiated for the automotive sector.

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