Mergers and the Demand for Protectionism

Felix Montag
NYU Stern, CEPR*

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Abstract

Current enforcement practice does not consider how mergers alter the merging parties' incentives to petition for trade protection. I document mergers between domestic producers across jurisdictions that are followed by tariff petitions. I develop a model to characterize the trade-policy channel of mergers. Theoretically, a domestic merger raises the profitability of tariffs when offshoring is unavailable; once offshoring is possible, the effect becomes ambiguous. I apply this framework to a merger between domestic producers in the U.S. appliance industry. Empirically, I find that when import competition is weak, the merging parties prefer to lower their own costs through offshoring; when import competition is strong, the merger makes it more profitable for them to raise their foreign rivals' costs through tariffs. The resulting consumer harm is comparable in magnitude to the direct market-power effect. A hypothetical cross-border merger reduces the profitability of tariffs in this market.

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1 Introduction

Antitrust enforcement in most jurisdictions, including the European Union and the United States, applies a consumer-welfare standard. This standard is administered separately from trade policy, keeping antitrust focused on consumer welfare and insulated from trade-policy considerations (Bradford and Chilton, 2021). As trade costs fall, lowering costs through offshoring becomes more profitable for domestic incumbents and increases their support for free trade. At the same time, if domestic producers are subject to intense import competition, domestic consolidation may raise their demand for protectionism.

Antidumping (AD) and countervailing duty (CVD) petitions are the most common ways domestic producers seek trade protection. The investigating authority subjects imports to tariffs if it determines that they are sold at less than fair value or subsidized by a foreign government, and that the domestic industry is materially injured by those imports. The mandate of the investigating authority can conflict with the competition authority's consumer-welfare standard.[1] Despite this potential conflict, the trade-policy implications of mergers remain unexamined in clearance decisions. Across multiple jurisdictions, I identify high-profile horizontal mergers between domestic producers followed by tariff petitions. In many of the corresponding merger clearance decisions, imports are mentioned as a competitive constraint on the merging parties.

In this paper, I study how merger control affects domestic incumbents' incentives to petition for tariffs. I develop a framework to estimate whether a proposed merger lowers or raises the profitability of tariffs to the merging parties, and hence their propensity to file. I apply this framework to the Whirlpool–Maytag merger in the U.S. appliance industry, specifying and estimating a structural model of demand and supply following Montag (2026), with which I quantify the effect of the domestic merger across counterfactual production-location scenarios. To examine the effect of cross-border mergers, I also quantify how a hypothetical merger between Whirlpool and LG changes the profitability of tariff petitions.

The paper's central contribution is to identify and quantify a trade-policy channel through which mergers between domestic producers can harm consumers beyond direct market-power effects. Theoretically, when offshoring is unavailable, a domestic merger strictly raises the profitability of tariffs to the merging parties; when offshoring is available,

[1] Recognizing this tension, in 2022 the U.S. Senate Subcommittee on Competition Policy, Antitrust, and Consumer Rights asked the U.S. Government Accountability Office to review AD/CVD processes and domestic market competition considerations, particularly focusing on "how aspects of market competition factor into the AD/CVD process" (U.S. Government Accountability Office, 2022).

the sign becomes ambiguous. Empirically, I find that for the Whirlpool–Maytag merger, offshoring is more profitable than petitioning for tariffs in years when import competition is weak, while petitioning becomes more profitable than offshoring in years when import competition is strong. Even holding the likelihood of tariffs fixed, the merger raises tariff-induced consumer harm by more than 10 percent; in total, the consumer harm through the trade-policy channel is of the same order of magnitude as the harm from unilateral market power. A hypothetical cross-border merger reduces the profitability of tariffs in the same market.

I specify a three-stage model to analyze the effect of mergers on the incentives to petition for tariffs. In Stage 1, the competition authority adjudicates a horizontal merger involving a domestic incumbent that faces import competition. In Stage 2, given the competition authority's decision, the incumbent chooses among offshoring production to lower marginal costs, petitioning for tariffs to raise foreign rivals' costs, or maintaining the status quo.[2] Stage 3 embeds a differentiated-demand, oligopolistic-supply model in which firms set prices and consumers choose products.

Most directly, the paper relates to a literature concerned with the stringency of merger control. Nocke and Whinston (2022) show that current concentration thresholds are too lax in the absence of large efficiency gains. Retrospective analyses of consummated mergers found mixed results (Ashenfelter, Hosken, and Weinberg, 2013; Kwoka, 2015; Bhattacharya, Illanes, and Stillerman, forthcoming). Asker and Nocke (2021) and Shapiro and Yurukoglu (2026) review this literature and conclude that the estimated price effects vary widely and that the evidence is mixed. Breinlich, Nocke, and Schutz (2018) study optimal merger policy for international mergers in settings where multiple national agencies can block a transaction across jurisdictions.[3] Montag (2026) extends the scope of merger analysis by studying how the Whirlpool–Maytag merger affects total domestic welfare (consumers and workers) when potential acquirers for Maytag differ in their offshoring plans.

I extend this literature by identifying a channel through which mergers affect consumers via trade policy: by changing the merging parties' incentives to raise rivals' costs through tariff petitions.[4] Furthermore, I provide a quantitative framework that allows competition authorities to assess how a merger changes the profitability of tariffs for the merging parties and the resulting consumer harm. I show that imports impose weaker competitive discipline

[2]Igami (2018) studies the relationship between import competition and offshoring in the Hard Disk Drive Industry, showing that offshoring is pro-competitive and benefits consumers.

[3]Horn and Levinsohn (2001) and De Stefano and Rysman (2010) develop models in which a country chooses the level of domestic concentration through merger policy and show that when firms are exporters, national authorities may prefer a level of concentration that is excessive from a global perspective.

[4]Salop, Scheffman, and Schwartz (1984) discuss how tariffs can be used to raise the cost of rivals.

on a merged domestic incumbent than equivalent domestic rivals would: because imports can be restricted through trade remedies but domestic rivals cannot, the discipline-from-imports defense for merger clearance can be weaker than it appears.[5] The stronger the competitive constraint from imports, the stronger the incentive to petition for trade remedies. Merger control should therefore discount the competitive constraint from imports when this can be restricted post-merger.

The paper also contributes to a literature on market structure and lobbying. Classic political-economy models predict that organized sectors obtain protection (Grossman and Helpman, 1994; Goldberg and Maggi, 1999), and firm size predicts participation and intensity (Bombardini, 2008). Kang (2016) finds that while lobbying has a small effect on policy enactment, the returns to lobbying are high. Recent evidence indicates that consolidation raises lobbying across (Cowgill, Prat, and Valletti, 2024) and within industries (Moshary and Slattery, 2024).

I contribute to this literature in two ways. First, I extend it beyond traditional political lobbying. AD/CVD petitions are a quasi-judicial channel, relatively insulated from direct political bargaining, that present incumbents with a distinct choice set (petition, offshore, or maintain the status quo). I show that mergers between domestic producers raise the profitability of tariffs for the merging parties. Second, I decompose the merger effect into two channels: the *appropriation effect* (the acquirer internalizes the benefits of tariffs to the target) and the *strategic effect* (the tariff raises the profit of the merged firm by more than the sum of standalone profits).[6] Distinguishing them matters because the two channels respond differently to the merger structure.

A related literature studies how AD/CVD cases can raise market power (Nieberding, 1999; Konings and Vandenbussche, 2005; Pierce, 2011; Rovegno, 2013) and facilitate collusion (Staiger and Wolak, 1989). Because dumping margins depend on foreign pricing, the option value of a petition can induce higher foreign prices even before a case is filed. Blonigen et al. (2013) find that binding quotas increased market power in the U.S. steel industry, whereas tariffs did not, which is consistent with strong domestic competition from minimill producers disciplining outcomes. Flaaen, Hortaçsu, and Tintelnot (2020) show that the initial AD/CVD actions on large residential washers primarily induced tariff jumping, whereas the 2018 global safeguards raised U.S. washer prices.

I extend this literature to show that when there are few domestic competitors, tariffs

[5]This limits the widely held presumption, formally examined by Neven and Seabright (1997), that trade liberalization can substitute for domestic competition policy.

[6]While domestic producers could overcome the collective-action problem by petitioning together, in practice, they often do not. Bombardini and Trebbi (2012) find that firms in more concentrated industries are more likely to lobby on trade issues individually rather than through a trade association.

can generate substantial consumer harm. Whereas the literature focuses on how protection changes competition, I focus on how mergers alter the likelihood and harm from tariffs.

The Draghi (2024) report argues that European economic growth requires scale economies, prompting calls to relax EU merger control.[7] The European Commission's April 2026 Draft Merger Guidelines also emphasize the enablement of scale economies. My results do not imply that merger control should be tightened across the board. Instead, mergers between domestic firms facing strong import competition should be scrutinized more closely; cross-border consolidation, by contrast, can deliver scale economies without raising incumbents' returns to tariff petitions.

The remainder is structured as follows: Section 2 reviews measures to protect against import competition and their relation to merger control, Section 3 specifies the model, Section 4 describes the appliance industry, Section 5 details the empirical model and estimation, Section 6 presents the parameter estimates, Section 7 simulates counterfactuals, and Section 8 concludes.

2 Trade Protection and Merger Control

AD and CVD measures are the most commonly used trade-defense instruments worldwide. Since these are grounded in World Trade Organization (WTO) rules, the criteria and procedures for AD/CVD are codified in WTO agreements and apply across WTO members. Global safeguards (GS) are also WTO-authorized but used much less frequently. While the following discussion focuses on the institutional implementation in the United States, it should be understood as applying to other jurisdictions as well.

In the United States, the most commonly used alternative trade-defense tools are Section 232 actions (national security-based trade measures) and Section 301 actions (retaliatory trade measures). In the U.S., AD/CVD measures accounted for 97 percent of all trade actions initiated between 2002 and 2024 and in 2022 resulted in tariffs covering $37.4 billion of imports (Liu, 2026). AD/CVD almost always originate from a petition filed by a domestic stakeholder. In contrast, Section 232 and Section 301 actions are initiated by the government and are not grounded in WTO authorized procedures. Based on interviews with practitioners, Liu (2026) reports that AD/CVD petitions remain the first tool of choice for domestic producers seeking protection from import competition.

AD duties are imposed on imports that are determined to be sold at less than fair value and that materially injure a domestic industry. Selling at less than fair value typically

[7]Even earlier, France and Germany urged approval of the Siemens/Alstom merger to create a "European champion" in rail equipment; the European Commission nonetheless blocked the transaction in 2019.

refers to a situation in which a firm sells a product at a lower price in the importing country than in its home market (Blonigen and Prusa, 2016). If the exporter's home market is deemed unsuitable for comparison, its sales price in a third country may be used instead. Since products destined for home and export markets often differ, defining the foreign-like product affords the Department of Commerce considerable leeway in AD cases. An alternative standard used in many AD cases is sales below cost. Although allocating fixed costs to products is notoriously difficult and standard economic theory shows that firms may rationally sell below average total cost (but above average variable cost), a price below average total cost is considered dumping.[8]

While the U.S. International Trade Commission (USITC) may solicit downstream purchaser information during its investigations, AD/CVD laws do not allow the USITC to consider the economic effects of exporters' behavior on downstream purchasers or on the national interest (U.S. Government Accountability Office, 2022). In practice, the Department of Commerce determines whether the product is sold at less than fair value, and the USITC determines whether a domestic industry is materially injured by reason of the imports. In making the injury determination, the USITC cannot take into account any potential harm that AD/CVD duties may impose on downstream industries or consumers. This constraint lies at the core of the tension between trade law and competition law. While federal agencies, including the Department of Justice (DOJ) and the Federal Trade Commission (FTC), can submit statements of interest in AD/CVD cases, the DOJ has done so only once and promptly withdrew its statement. No other federal agency has submitted a statement in recent decades (U.S. Government Accountability Office, 2022). WTO rules do not impose this constraint. Australia, Brazil, Canada, and the European Union all have some form of public-interest provisions that can lower or eliminate duties if doing so benefits downstream users.

AD is popular among domestic petitioners for several reasons. First, AD is a particularly effective instrument against import competition because it discourages exporters from competing aggressively: the lower the exporter's price, the more likely a domestic rival can establish that the product is sold at less than fair value. Since the tariff rate increases with the exporter's productivity, Ruhl (2014) shows that AD is particularly distortionary. Second, investigations last at most 18 months and the clear criteria and quasi-judicial framework make them predictable and more insulated from political interference (Blonigen and Prusa, 2016). Third, while AD duties require periodic review, many remain in effect for decades.

[8]Blonigen and Prusa (2016) explain that although the U.S. Antidumping Act of 1916 was originally designed to protect domestic producers from predatory pricing, the required predatory intent was soon dropped from the law, and it has since become an ordinary protection tool.

CVD measures address cases in which imports are found to benefit from foreign subsidies. As with AD, the imports must materially injure, or threaten to materially injure, a domestic industry. Although the trade practices targeted by AD and CVD differ, the procedures and underlying concerns are often similar, and petitioners frequently seek protection under both measures simultaneously (Liu, 2026).

Unlike AD/CVD, global safeguards can be imposed on fairly traded imports from all countries if a domestic industry is found to be seriously injured by a surge in imports; they do not require evidence of dumping or foreign subsidization. In the U.S., they are imposed at the discretion of the President for an initial duration of up to four years. They are therefore also more subject to the political process.

AD/CVD petitions occur frequently. According to data compiled by Bown et al. (2025), between 1980 and 2024 the EU initiated 440 AD, 77 CVD, and 7 GS investigations, while India initiated 517, 24, and 48, respectively. U.S. authorities initiated 747 AD, 453 CVD, and 15 GS investigations during the same time period. Between 2011 and 2021, 74 percent of AD/CVD petitions in the U.S. resulted in orders (U.S. Government Accountability Office, 2022). At the same time, preparing a petition is costly, requiring legal counsel, expert economic analysis, participation in administrative hearings, as well as periodic sunset reviews. Practitioners interviewed by Liu (2026) estimate that the cost of a simple AD/CVD petition ranges between $1 million and $3 million, and can be substantially higher for complex cases involving multiple products or origin countries.

Petitions for trade remedies are typically initiated by domestic firms or industry associations that claim injury from foreign competition. Liu (2026) reports 789 petitioner appearances in AD/CVD cases between 2002 and 2024, representing 528 unique entities. Of these, 14 were labor unions, 217 were trade associations or coalitions, and the remaining 297 (56%) were individual domestic producers. In many cases, only a subset of domestic producers participate in a petition. Although 55 percent of petitioners are connected to the steel or chemicals industries, petitions arise in many tradable-goods sectors.

While any domestic producer may petition for trade remedies, smaller producers often cannot meet the statutory industry-support thresholds required for filing and therefore cannot petition alone. According to the WTO Antidumping Agreement's industry-support thresholds, a petition is deemed "on behalf of the industry" if its supporters account for at least 25 percent of total domestic production of the domestic like product and more than 50 percent of the production of those expressing a view. When these thresholds are met, Commerce may initiate without polling producers, thereby reducing procedural frictions and the risk of standing challenges (United States Code, 2025b, 2025a; Code of Federal Regulations, 2025; U.S. International Trade Commission, 2015).

To understand whether mergers are associated with trade-remedy petitions, I assemble a non-representative sample of nine horizontal mergers affecting 16 antitrust markets, where the merging parties have domestic production capacity in the relevant antitrust markets and where AD/CVD petitions were filed in at least one antitrust market within five years post-merger.[9]

A more systematic descriptive analysis is constrained by data availability. While data on AD/CVD petitions is publicly available and aggregated by Bown et al. (2025), information about market shares and the number of domestic producers at the antitrust-market level is generally not disclosed. For mergers that competition authorities scrutinize more heavily, redacted versions of this information sometimes appear in the published decisions.[10] Crucially, the same producer-share information is not available for the "control markets" needed to construct a comparison group.[11]

In many of these cases, the clearance decision explicitly cites import competition as a competitive constraint on the merging parties. Two of the sample cases illustrate the pattern. In its *Owens Corning / Saint Gobain Vetrotex* conditional approval, the European Commission cites customer reports claiming that imports are a viable alternative to domestic producers for certain types of rovings (European Commission, 2007). Two years after the merger, a group of domestic producers, including Owens Corning, filed an AD petition on continuous glass fibre from China, which includes rovings. In the United States, the DOJ cleared the Whirlpool–Maytag merger on the grounds that foreign manufacturers posed a sufficiently large competitive constraint to prevent post-merger price increases (Department of Justice, 2006). Once these foreign manufacturers gained significant market shares, Whirlpool filed for AD and CVD on large residential washers from Korea and Mexico.

While AD/CVD are sometimes discussed in merger cases, this is usually in the context of how they shape the competitive environment. For example, in its *ArcelorMittal / Ilva* decision, the European Commission writes "As the trade defence measures on certain [...] products cover some of the major steel producing and steel exporting countries, any assessment of the extent to which imports of HR, CR and HDG products may exert competitive pressure on EEA-based flat carbon steel producers and, in particular the merged entity post-Transaction, must be made in light of the situation as restored by anti-dumping duties" (European Commission, 2018, p. 56). The Commission thus treats the trade-defense envi-

[9]The mergers span aluminium extrusions in Australia; thermoplastic resins in Brazil; oil country tubular goods in Canada and the United States; continuous filament glass fibre, stainless steel, and graphic paper in the European Union; flat-rolled carbon steel in India; and appliances in the United States.

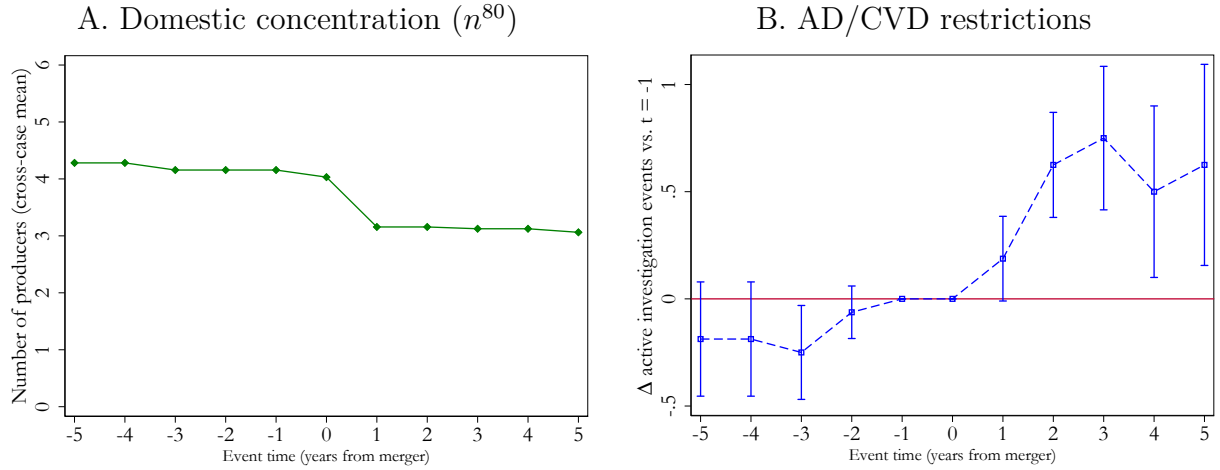
[10]This is especially true for the European Commission, which publishes detailed merger decisions that include lengthy discussions of market definition for Phase II merger investigations.

[11]Section 4.3 takes an alternative approach, exploiting variation across U.S. appliance markets where some experience a fall in the number of domestic producers and others do not.

ronment as an exogenous input to merger analysis, rather than considering how the merger itself may alter the incentives to petition for new measures.

Figure 1 plots the number of domestic producers that together account for at least 80% of domestic production (n_{jt}^{80}), as well as the average within-market deviation of the number of active AD/CVD cases from its pre-merger ($t = -1$) baseline, for the nine horizontal mergers across 16 markets.[12] It shows that while the cross-case mean number of major domestic producers decreases post-merger, the count of active AD/CVD investigations increases.

Figure 1: Concentration and AD/CVD restrictions around domestic mergers



Notes: Panel A. Cross-case-product mean of n_{jt}^{80}, the number of domestic producers accounting for at least 80% of domestic production in the affected product market in a particular year. Panel B. Cross-case-product mean of the within-market deviation of the active-restriction count in a particular year from its $t = -1$ baseline. Whiskers show 95% CIs. Mergers occur at $t = 0$.

Although this relationship is purely descriptive and could be caused by other market trends affecting concentration and AD/CVD petitions, it shows that in some mergers that are heavily scrutinized by antitrust authorities, increases in domestic production concentration are followed by increases in trade-remedy petitions.

In summary, AD/CVD cases are pervasive across the economy. The administrative structure of the process makes petition outcomes predictable, and success rates are higher when the foreign competitor prices aggressively. Petitions are costly and are often filed by a single domestic firm. Filing a petition therefore requires the petitioner to expect sufficiently large increases in profits to offset the cost of petitioning. Finally, mergers between domestic producers are sometimes followed by trade-remedy petitions. The remainder of the paper develops a model of merger-induced petitioning informed by these facts, estimates it on the Whirlpool–Maytag case, and quantifies the resulting consumer-welfare consequences.

[12] Appendix I reports the per-case concentration changes, restriction counts, and source documentation.

3 Stylized Model

I specify a stylized model illustrating the link between mergers and the demand for protectionism.

3.1 Setup

Consider a market with three firms. Firm 1 is a domestically producing incumbent, firm 2 is a domestic acquisition target, and firm 3 is a foreign rival. Each firm produces a single, horizontally differentiated product and sells exclusively in the domestic market. Demand is generated by a unit mass of consumers with heterogeneous preferences following a standard logit specification.

Each consumer derives utility from purchasing a single product or an outside good. Products differ in product-specific deterministic utility δ_j. The utility that a consumer obtains from product $j \in \{1, 2, 3\}$ and from the outside option is

$$U_j = \delta_j - \alpha p_j + \varepsilon_j, \qquad U_0 = \varepsilon_0, \tag{1}$$

where p_j denotes the price of product j, $\alpha > 0$ governs price sensitivity, and $\varepsilon_j, \varepsilon_0$ are i.i.d. Type I extreme value.

Marginal cost depends on the location of production. Marginal cost is c_D for domestic production and c_F for foreign production, with $c_D > c_F$. Initially, firms 1 and 2 produce domestically at c_D, and firm 3 produces abroad at c_F. Relocation is a firm-level decision: firm f can relocate all of its production at a fixed cost $R_f > 0$, paid once regardless of the number of products it relocates. R_2 is assumed to be high enough such that firm 2 never relocates; R_1 is finite. If firm 1 acquires firm 2, it controls both products and, paying R_1 once, may relocate any subset.

Firm 1 may petition for tariffs on all imports at petitioning cost $L > 0$. If filed, the tariff is imposed with certainty. The level of the ad valorem tariff $\kappa > 0$ is exogenously determined by the trade commission and scales foreign marginal costs to $(1 + \kappa)c_F$.

3.2 Stage 1: merger control

The domestic incumbent (firm 1) proposes a horizontal merger; let $\mathcal{M}$ denote the proposed configuration. The competition authority (CA) applies a policy rule to decide whether to clear or challenge. The CA's baseline rule clears the merger whenever the predicted change in consumer surplus from unilateral market-power effects, $\Delta^{MP}CS(\mathcal{M})$, exceeds a policy

threshold $\bar{\Delta} \leq 0$, the largest tolerated reduction in consumer surplus:

$$\Delta^{MP} CS(\mathcal{M}) \;\geq\; \bar{\Delta}. \tag{2}$$

In settings where horizontal mergers can alter firms' demand for trade protection, which translates into consumer surplus through tariffs and prices, there is an additional trade-policy channel of consumer surplus change, $\Delta^{TP} CS(\mathcal{M})$, computed from the equilibrium petitioning, offshoring, and pricing decisions specified in Stages 2 and 3 below. If the CA evaluates mergers on consumer welfare regardless of channel, it should apply the threshold to the total effect, $\Delta^{MP} CS(\mathcal{M}) + \Delta^{TP} CS(\mathcal{M})$.

3.3 Stage 2: petitioning and offshoring

Following the merger control decision, firm 1 decides whether to offshore production, petition for tariffs, or maintain its current production structure without petitioning. It chooses the option that maximizes static profits net of fixed costs. Firm 1 never optimally chooses to petition and offshore, because petitioning while offshoring would raise firm 1's own costs through the tariff.

If the merger is cleared, firm 1 prices products 1 and 2 jointly and internalizes relocation and tariff effects across both products. If the merger is blocked, firm 2 remains a separate domestic single-product firm with cost c_D and never relocates (since R_2 is sufficiently high).

3.4 Stage 3: pricing and demand

In the third stage, firms simultaneously choose prices in a Bertrand-Nash equilibrium and consumers make discrete purchase decisions.

Let $s_j(\mathbf{p})$ denote the logit market share of product j implied by the utility specification above; $s_0(\mathbf{p})$ is the outside share. Given realized marginal costs $c_j \in \{c_D, c_F, (1+\kappa)c_F\}$ from Stage 2, each firm f chooses prices to maximize $\sum_{j \in \mathcal{J}_f} (p_j - c_j) s_j(\mathbf{p})$, where $\mathcal{J}_f$ is the firm's product set. For a single-product firm j, the standard logit FOC gives

$$p_j = c_j + \frac{1}{\alpha(1 - s_j)}. \tag{3}$$

If firm 1 is multiproduct post-merger, prices solve the following system of first-order conditions

$$\mathbf{p} = \mathbf{c} - \left(\frac{\partial \mathbf{s}}{\partial \mathbf{p}} \circ \Omega \right)^{-1} \mathbf{s}(\mathbf{p}), \qquad \frac{\partial s_j}{\partial p_k} = \begin{cases} -\alpha s_j (1 - s_j), & j = k, \\ \alpha s_j s_k, & j \neq k, \end{cases} \tag{4}$$

where $\mathbf{p}$, $\mathbf{c}$, and $\mathbf{s}(\mathbf{p})$ are the stacked vectors of prices, costs, and shares, $\partial\mathbf{s}/\partial\mathbf{p}$ is the matrix of own- and cross-price share derivatives, Ω is the ownership matrix with $\Omega_{jk} = 1$ if the same firm owns products j and k, and $\circ$ denotes the Hadamard (element-wise) product.

The consumer surplus change between two equilibria is the compensating variation (Small and Rosen, 1981):

$$\Delta CS = \frac{1}{\alpha}\Big[\log\Big(1+\textstyle\sum_j \exp(\delta_j - \alpha p_j^{\text{after}})\Big) - \log\Big(1+\textstyle\sum_j \exp(\delta_j - \alpha p_j^{\text{before}})\Big)\Big]. \tag{5}$$

3.5 Mergers, offshoring, and trade protection

I now analyze the firms' strategic choices in light of the merger decision and the availability of trade-policy instruments. I focus on how a merger between firms 1 and 2 affects firm 1's incentive to offshore production versus petition for trade protection, and how these choices interact with market structure and consumer welfare. Proofs can be found in Appendix II.

Let $\pi^r_{f,\mathcal{C}}$ denote firm f's variable profit in regime $r \in \{\text{off}, \text{pet}, \text{sq}\}$ chosen by firm 1, under merger configuration $\mathcal{C} \in \{\mathcal{S}, \mathcal{M}\}$. $\Pi^r_{f,\mathcal{C}}$ denotes total profit, net of the relevant fixed cost. When the merger is cleared, firm 1 owns products 1 and 2; when blocked, it owns only product 1. For the merged entity I drop the firm subscript and write $\pi^r_{\mathcal{M}}$ and $\Pi^r_{\mathcal{M}}$.

Proposition 1. *Assume offshoring is more profitable than petitioning at $\kappa = 0$, and petitioning is more profitable than offshoring at some $\hat{\kappa} > 0$. Then there exists a unique cutoff $\kappa^* \in (0, \hat{\kappa})$ such that firm 1 prefers petitioning over offshoring iff $\kappa > \kappa^*$.*

A higher tariff raises foreign costs only, shifts shares toward firm 1, and increases its markups; offshoring leaves foreign costs unchanged and lowers firm 1's own costs. There is a unique κ^* at which firm 1 is indifferent, above which it petitions and below which it offshores. The petitioning payoff is monotonically increasing in κ while the offshoring payoff is independent of κ, giving a unique crossing κ^*.

To see how this threshold κ^* evolves with the competitiveness of the foreign rival, comparative statics of κ^* in δ_3 are most transparent in a two-product reduction (firms 1 and 3 only).

Proposition 2. *In a two-product reduction (eliminate firm 2 and product 2), the comparative static $d\kappa^*/d\delta_3$ has no fixed sign: depending on the remaining primitives, the indifference cutoff $\kappa^*(\delta_3)$ can rise or fall as the foreign product becomes more attractive.*

As δ_3 rises, the foreign product becomes more appealing. The relative effect on firm 1's profits differs by regime. Under petitioning, the tariff has two opposing effects: by handicapping the foreign rival it shrinks the rival's share and insulates firm 1, but by making

firm 1 the dominant domestic producer it widens firm 1's markup and leaves more profit exposed to a more appealing rival. When the duty is large enough to nearly eliminate the rival, the first effect dominates and petitioning insulates firm 1 more than offshoring, so $\kappa^*(\delta_3)$ falls; when the foreign rival remains strong even under the duty, the second effect dominates and offshoring insulates more, so $\kappa^*(\delta_3)$ rises.[13]

I first compare firm 1's gain from petitioning for a given κ, with and without the merger, against a status-quo baseline.

Proposition 3. *Let*

$$\Delta^{pet}_{1,\mathcal{M}} \equiv \Pi^{pet}_{\mathcal{M}} - \Pi^{sq}_{\mathcal{M}}, \qquad \Delta^{pet}_{1,\mathcal{S}} \equiv \Pi^{pet}_{1,\mathcal{S}} - \Pi^{sq}_{1,\mathcal{S}}, \tag{6}$$

be firm 1's petitioning premium with and without the merger. Then the merger's impact admits the exact decomposition

$$\Delta^{pet}_{1,\mathcal{M}} - \Delta^{pet}_{1,\mathcal{S}} = \underbrace{\left(\pi^{pet}_{2,\mathcal{S}} - \pi^{sq}_{2,\mathcal{S}}\right)}_{\text{appropriation}} + \underbrace{\left[(\pi^{pet}_{\mathcal{M}} - \pi^{sq}_{\mathcal{M}}) - (\pi^{pet}_{1,\mathcal{S}} + \pi^{pet}_{2,\mathcal{S}} - \pi^{sq}_{1,\mathcal{S}} - \pi^{sq}_{2,\mathcal{S}})\right]}_{\text{strategic}}. \tag{7}$$

Both the appropriation and the strategic effect are strictly positive, so the merger strictly increases firm 1's gains from tariffs.

The appropriation effect captures the fact that the merger internalizes a petitioning externality: firm 1 can now appropriate the rents from tariff protection that would otherwise accrue to firm 2. The strategic effect captures the fact that the merger raises how much firms 1 and 2 jointly gain from tariffs. Intuitively, the merged firm has already internalized domestic competition, so the foreign rival constitutes a proportionally larger part of its competitive environment; weakening the foreign firm via the tariff therefore benefits the merged entity more than the standalone firms. The aggregative-games framework of Nocke and Schutz (2018, 2025) underpins this result.

While I rely on logit demand, the result that the merger increases firm 1's gains from tariffs is true under mild assumptions on demand (downward-sloping demand, substitutability across products, and standard regularity conditions). In particular, while the strategic effect is zero under CES demand with monopolistic competition, the appropriation effect, and thus the overall effect, remain positive.

Next, I switch the baseline from status quo to offshoring.

[13]This is not true for any demand system. Under CES demand with monopolistic competition (where each firm takes the price index as given), markups are constant and the price of firm 1 does not react to the quality of product 3. In a finite-firm CES oligopoly, markups depend on market shares and some strategic interaction is restored, but it remains weaker than under logit demand.

Proposition 4. *Let*

$$\Delta^{pet}_{1,\mathcal{M}} \equiv \Pi^{pet}_{\mathcal{M}} - \Pi^{off}_{\mathcal{M}}, \qquad \Delta^{pet}_{1,\mathcal{S}} \equiv \Pi^{pet}_{1,\mathcal{S}} - \Pi^{off}_{1,\mathcal{S}}, \tag{8}$$

be firm 1's petitioning premium with and without the merger. Then the merger's impact admits the exact decomposition

$$\Delta^{pet}_{1,\mathcal{M}} - \Delta^{pet}_{1,\mathcal{S}} = \underbrace{\left(\pi^{pet}_{2,\mathcal{S}} - \pi^{off}_{2,\mathcal{S}}\right)}_{\text{appropriation}} + \underbrace{\left[(\pi^{pet}_{\mathcal{M}} - \pi^{off}_{\mathcal{M}}) - (\pi^{pet}_{1,\mathcal{S}} + \pi^{pet}_{2,\mathcal{S}} - \pi^{off}_{1,\mathcal{S}} - \pi^{off}_{2,\mathcal{S}})\right]}_{\text{strategic}}. \tag{9}$$

The appropriation effect is strictly positive. The strategic effect is strictly increasing in κ, and there is a unique threshold $\kappa^{SE} \in [0, \infty]$ such that it is positive if and only if $\kappa > \kappa^{SE}$. The threshold is strictly positive whenever the merger raises the joint gains from offshoring, and it is infinite when the merger's excess offshoring gain exceeds its gain from a prohibitive tariff.

The strategic effect reflects two competing forces. First, by Proposition 3, the tariff raises the merged entity's profit by strictly more than the sum of standalone profits. So the *tariff gain* is larger with the merger, and increasingly so as κ rises. Second, offshoring lowers costs, and the merger uniquely enables offshoring of product 2. So the *offshoring gain* is also larger with the merger, independently of κ. The strategic effect is the difference between these two forces. When the cost gap $c_D - c_F$ is small, the threshold κ^{SE} is low and even moderate tariffs make the strategic effect positive. When the offshoring option is sufficiently valuable, the tariff gain falls short at every duty level and the strategic effect is negative throughout: protection, however high, cannot compensate the merged firm for the cost savings it forgoes.

Even if a merger makes petitioning relatively more attractive (i.e., decreases κ^*), firm 1 will not petition for tariffs if the tariff rate κ that the trade commission sets in the event of a petition is below the post-merger κ^*.

Finally, I consider how the consumer harm from a given tariff changes with a domestic merger.

Proposition 5. *A domestic merger raises the consumer harm from a given tariff κ.*

The marginal consumer harm from the tariff is affected by the merger through two channels. The merger raises the foreign share s_3 (higher domestic prices shift demand to the foreign product). The merger also concentrates domestic production into a single firm. Pooling the domestic firms into one raises the strategic-complementarity multiplier that grows with each firm's market share. The merger increases consumer harm regardless of s_3.

3.6 Foreign-rival response in a two-period model

To assess the robustness of these results, I consider a two-period extension in which firm 3 can respond to the tariff by relocating production to the domestic market. Firm 1 maximizes the discounted sum of profits $\Pi_1 = \Pi_1^{t=1} + \beta\Pi_1^{t=2}$, where $\beta \in [0, 1]$.

In the first period, marginal costs are determined as in the static model. In the second period, if a tariff is in place, firm 3 may choose to pay a fixed cost R_3 to relocate. A necessary condition for firm 3 to relocate to D is that the tariff is high enough that $c_D < (1 + \kappa)c_F$. I focus on the case where R_3 is small enough that tariff jumping is firm 3's best response.

Tariff jumping strictly reduces the incentive to petition relative to offshoring: it erodes the future rents from protection while leaving the offshoring payoff unchanged. However, petitioning can remain optimal even with perfect patience ($\beta = 1$) and certainty of tariff jumping in $t = 2$, provided the short-run windfall from the tariff is sufficiently large. The appropriation and strategic effects from Propositions 3 and 4 operate in full during the period of tariff protection.

In the second period, the comparison across merger regimes is more complex: tariff jumping equalizes the foreign rival's costs, but the merger also changes the offshoring counterfactual by enabling relocation of product 2 and alters equilibrium pricing through joint ownership. The net second-period effect is parameter-dependent, but the first-period mechanism through which the merger increases the incentive to petition remains intact.

3.7 Cross-border mergers

The previous results highlighted how a merger between domestic producers can create demand for protectionist policies and magnify their harm to consumers. A natural question is whether cross-border mergers generate the same forces.

To analyze this, I extend the setup to four firms. Firm 4 is a second foreign producer with marginal cost c_F, acquired by firm 1 in a cross-border merger $\mathcal{X} = \{1, 4\}$. Firms 2 and 3 remain independent. I impose the following institutional constraint: if the merged entity petitions for tariffs on foreign imports, it must relocate product 4's production from F to D at cost R_1, raising its marginal cost from c_F to c_D. The rationale is that a firm cannot credibly petition for duties on foreign-produced goods while itself importing the same goods, since AD/CVD standing requires the petitioner to represent domestic production. Offshoring remains available only for product 1 (product 4 is already produced abroad), again at cost R_1.

Proposition 6. *Let*

$$\Delta^{pet}_{1,\mathcal{X}} \equiv \Pi^{pet}_{\mathcal{X}} - \Pi^{sq}_{\mathcal{X}}, \qquad \Delta^{pet}_{1,\mathcal{S}} \equiv \Pi^{pet}_{1,\mathcal{S}} - \Pi^{sq}_{1,\mathcal{S}}, \tag{10}$$

be firm 1's petitioning premium (relative to status quo) with and without the cross-border merger, where $\Pi^{pet}_{\mathcal{X}} = \pi^{pet}_{\mathcal{X}} - L - R_1$ *includes both petitioning costs and the cost of relocating product 4. Then the merger's impact admits the exact decomposition*

$$\Delta^{pet}_{1,\mathcal{X}} - \Delta^{pet}_{1,\mathcal{S}} = \underbrace{\left(\pi^{pet}_{4,\mathcal{S}} - \pi^{sq}_{4,\mathcal{S}}\right)}_{\text{appropriation}} + \underbrace{\left[(\pi^{pet}_{\mathcal{X}} - \pi^{sq}_{\mathcal{X}}) - (\pi^{pet}_{1,\mathcal{S}} + \pi^{pet}_{4,\mathcal{S}} - \pi^{sq}_{1,\mathcal{S}} - \pi^{sq}_{4,\mathcal{S}})\right]}_{\text{strategic}} - \underbrace{R_1}_{\text{relocation cost}}. \tag{11}$$

The appropriation effect is strictly negative; the relocation cost is strictly positive; and the strategic effect can take either sign.

The contrast with the domestic merger under the status quo baseline (Proposition 3) is stark. In the domestic case, both the appropriation and strategic effects are strictly positive. The merger internalizes a positive externality, since the domestic target benefits from the tariff. In the cross-border case, the target is a victim of the tariff. Internalizing its profit change means internalizing a loss. The appropriation effect flips sign, and the merged entity must additionally bear the relocation cost R_1 to petition credibly. The strategic effect in the cross-border case conflates two channels — joint pricing under the merger and the variable cost restructuring from relocating product 4 — so it does not isolate the pure joint-pricing surplus as in Proposition 3, and its sign can go either way.

When the baseline is offshoring instead of status quo, the same decomposition structure applies. The appropriation term becomes $\pi^{\text{pet}}_{4,\mathcal{S}} - \pi^{\text{off}}_{4,\mathcal{S}}$, which is ambiguous in sign: when κ is small, firm 4 may prefer the petitioning world (firm 1 remains a weak competitor at c_D); when κ is large, the direct cost penalty on firm 4 dominates. The strategic effect is also ambiguous in sign, and the relocation cost R_1 is still strictly positive. By contrast, in the domestic merger (Proposition 4), the appropriation effect is strictly positive.

While the overall effect of a cross-border merger on petitioning incentives remains parameter-dependent, the decompositions suggest that cross-border mergers are less likely to increase the demand for protectionism. I quantify these channels for a specific empirical application in Section 7.

4 Institutional Setting, Data, and Descriptive Evidence

To study the interplay between mergers, concentration, and the demand for trade protection in a concrete setting, and to illustrate how the trade-policy channel of mergers could be incorporated into merger policy, I focus on the household appliance industry.

4.1 Household Appliance Industry

In 2000, the import share for most major appliances in the EU and U.S. was below 10 percent. By 2018, it exceeded 30 percent for most categories and approached 50 percent for some, such as clothes washers, dryers, and refrigerators.

European manufacturers such as BSH and Electrolux had established a presence in the U.S. by the 1990s, and U.S. firms such as Whirlpool were similarly active in Europe. However, these firms produced locally rather than exporting across regions. The U.S. market saw new entry from LG and Samsung in the mid-2000s, and from Haier, which first attempted to acquire Maytag in 2005 and later entered successfully by acquiring GE Appliances in 2016. European markets experienced a similar pattern, with entry from Arçelik and Vestel (Turkey), followed by LG and Samsung (Korea), and later Haier and Hisense (China).

In 2006, Whirlpool, the leading U.S. appliance manufacturer, acquired Maytag, its main domestically producing rival. The Department of Justice cleared the merger on the grounds that foreign manufacturers posed a sufficiently large competitive constraint to prevent post-merger price increases (Department of Justice, 2006).

The rise in import share reflects both foreign entrants producing abroad and domestic incumbents shifting production overseas. Some incumbents offshore part of their previously domestic output; others relocate all of it.

Although product market concentration increased modestly across most markets, the key variation between markets lies in the decline of major domestic producers. By 2015, the U.S. market for clothes washers and bottom-mount refrigerators had only two domestic producers remaining, compared to at least four for EU washers and U.S. dishwashers. The markets with few domestic producers are also those where Whirlpool filed for AD/CVD.

While the U.S. petition for bottom-mount refrigerators was ultimately unsuccessful,[14] large residential washers (LRWs) were subject to multiple rounds of tariffs. Preliminary antidumping duties were first imposed on imports from Korea and Mexico in 2012, followed by antidumping duties on washers produced in China in 2016, and culminating in a global safeguard in 2018 (Flaaen, Hortaçsu, and Tintelnot, 2020).

[14] See U.S. International Trade Commission, Investigation Nos. 701-TA-477 and 731-TA-1180-1181, 2012.

4.2 Data

The primary data source is the TraQline household survey, described in detail in Montag (2026). TraQline surveys approximately 600,000 U.S. households annually on major appliance purchases, including product characteristics, prices, second-choice brands, the retailer, and household demographics. I observe survey responses for 2005–2015. The product scope includes refrigerators, dishwashers, clothes washers, dryers, and freestanding ranges. I define products as brand-retailer-characteristic combinations, using brand identity and retailer as proxies for unobserved differentiation. I define a market as a product category in a given country or region, for example U.S. clothes washers.

For the descriptive analysis, I extend the market share series through 2023, using OpenBrand data provided by Dewey Data (OpenBrand, 2022).[15] This extended dataset does not include non-price product characteristics other than brand, so the structural analysis cannot be extended beyond 2015.

To measure product market concentration in the European washer industry, I use washing machine sales for most European countries between 2000 and 2018 from *Gesellschaft für Konsumforschung*.

To measure the number of major domestic producers by market and year, I combine production data from Appliance Magazine, Euromonitor, and hand-collected information on production locations for the years 2000 through 2023, subject to availability. For U.S. clothes washers in 2005–2015, I use hand-collected production location data from Montag (2026).

Finally, I compute import shares for each market and year using trade data from the USITC and COMTRADE.

4.3 Descriptive analysis

The stylized model in Section 3 suggests that mergers between domestic producers are particularly likely to generate demand for trade protection, implying that petitions should be more common in markets with few domestic producers.

To examine which market characteristics are associated with domestic producers petitioning for trade protection, I estimate a linear probability model at the market-year level for the household appliance industry. The dependent variable is an indicator for whether a petition for AD/CVD or global safeguards was filed in a given market and year. Whirlpool filed AD/CVD petitions on bottom-mount refrigerator imports into the U.S. from Korea and Mexico on March 30, 2011 and on large residential washers into the U.S. from Korea and

[15] TraQline has been part of OpenBrand since 2024.

Table 1: Descriptive correlates of trade remedy petitions

	(1)	(2)	(3)	(4)	(5)	(6)
Import share	0.90***	0.98***	0.26	−0.35*	0.06	−1.14
	(0.23)	(0.35)	(1.46)	(0.19)	(0.14)	(1.20)
Market HHI	−2.14	−4.81***	−6.41**	0.35	−1.55	0.57
	(1.31)	(1.79)	(2.44)	(0.35)	(1.35)	(1.76)
# of domestic producers	−0.05***	−0.14***	−0.24***			
	(0.01)	(0.03)	(0.05)			
$\mathbb{1}\{\#$ dom. prod. $> 2\}$				−0.86***	−0.81***	−0.80***
				(0.08)	(0.10)	(0.11)
Market FE	No	Yes	Yes	No	Yes	Yes
Year FE	No	No	Yes	No	No	Yes
Observations	72	72	72	72	72	72

Notes: Each column reports coefficients from a linear probability model at the market-year level. The outcome is an indicator for whether a trade remedy petition was filed. Heteroskedasticity-robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Mexico on December 30, 2011.[16] The analysis is descriptive and does not claim to identify causal effects.

The linear probability model relates petition incidence to three key market-level variables: the import share, the degree of domestic product market concentration, and the number of domestic producers. I estimate the parameters of the following specification:

$$\mathbb{1}\{\text{Petition}_{it}\} = \beta_1 \,\text{impshare}_{it} + \beta_2 \,\text{prodmkthhi}_{it} + \beta_3 \,\text{domprod}_{it} + \delta_i + \gamma_t + \varepsilon_{it}, \tag{12}$$

where i indexes product markets and t denotes years. The model includes market fixed effects δ_i and year fixed effects γ_t.

The outcome $\mathbb{1}\{\text{Petition}_{it}\}$ is an indicator for whether a trade remedy petition was filed in market i in year t. The variable impshare_{it} measures the import share in the market, prodmkthhi_{it} is the Herfindahl-Hirschman Index based on each producer's (foreign and domestic) sales share in the domestic market, and domprod_{it} is the number of domestic producers or an indicator equal to one if there are more than two domestic producers.

The data span the years 2000 through 2023 and include five product markets: U.S. clothes washers, U.S. clothes dryers, U.S. dishwashers, U.S. bottom-mount refrigerators, and EU clothes washers. Each of these markets is observed at annual frequency; however, data are not available for all product markets in all years, resulting in an unbalanced panel.

The descriptive estimates of equation (12) in Table 1 indicate that higher product

[16]The results are insensitive to moving the filing date of the washer petition from 2011 to 2012.

market concentration, as measured by the HHI, is not positively associated with petition filing. If anything, the association is negative or indistinguishable from zero. In contrast, the number of domestic producers is strongly and negatively associated with the likelihood of a petition. In particular, markets with two or fewer domestic producers are substantially more likely to see a filing. This pattern may reflect that petitions typically arise only after most domestic competitors have already exited. Alternatively, it may indicate that petitioners expect greater benefit from trade protection when fewer domestic firms remain to share the resulting market expansion. The following sections evaluate this second channel quantitatively in the case of the U.S. clothes washer market.

5 Empirical Model and Estimation

The stylized model in Section 3 showed that assessing whether a merger harms consumers through the trade-policy channel requires estimating the merging parties' variable profits under different merger, tariff, and production-location scenarios. To estimate these objects, I specify a model of demand and supply tailored to the U.S. washer market.[17]

5.1 Consumer Demand

Let utility for household i from purchasing product j be:

$$u_{ijt} \;=\; x_{jt}\beta \;+\; \sigma^{\mathrm{FL}}\nu_i^{\mathrm{FL}}x_{jt}^{\mathrm{FL}} \;-\; \alpha_i\, p_{jt} \;+\; \xi_{jt} \;+\; \varepsilon_{ijt}, \qquad \alpha_i \equiv \exp(\alpha + \kappa_\alpha \iota_i), \tag{13}$$

where x_{jt} is a vector of observed non-price characteristics, x_{jt}^{FL} is a front-loader indicator, $\nu_i^{\mathrm{FL}} \sim \mathcal{N}(0,1)$ is a random taste draw that captures heterogeneous preferences for front-loaders, ι_i is income, and ε_{ijt} is an idiosyncratic shock drawn from a Type I extreme value distribution.

The utility of the outside good is normalized to zero. Each consumer purchases the single product, or the outside good, that yields the highest utility.

Given the distributional assumptions, the market share of product j is

$$s_{jt}(\mathbf{p}) \;=\; \int \frac{\exp\Big(\delta_{jt} + \mu_{ijt}\Big)}{1 + \sum_{k\in J}\exp\Big(\delta_{kt} + \mu_{ikt}\Big)}\, dP(\iota_i, \nu_i), \tag{14}$$

where

$$\delta_{jt} = x_{jt}\beta + \xi_{jt}, \qquad \mu_{ijt} = \sigma^{\mathrm{FL}}\nu_i^{\mathrm{FL}}x_{jt}^{\mathrm{FL}} - \alpha_i p_{jt}.$$

[17] The empirical model closely follows Montag (2026).

Demand is estimated by combining aggregate and household moments as outlined in Berry, Levinsohn, and Pakes (2004). I split the demand parameters into a linear component θ_1, the coefficients β on product characteristics, and a nonlinear component $\theta_2 = (\sigma^{\text{FL}}, \alpha, \kappa_\alpha)$. The nonlinear parameters are estimated by the method of simulated moments using three moment conditions: two match household-level moments between the simulated and observed data, and the third is the orthogonality condition implied by excluding the real exchange rate, a cost shifter, from utility. With as many moments as parameters, θ_2 is exactly identified. Conditional on the estimate $\hat{\theta}_2$, the linear parameters θ_1 are obtained by ordinary least squares. The data, estimation procedure, and moment conditions are the same as in Montag (2026). I refer readers to that paper for further details.

5.2 Marginal Costs and Pricing

Let $j \in J_{ft}$ denote a product offered by firm f in market t with price p_{jt} and marginal cost mc_{jt}. The firm's variable profit is:

$$\pi_{ft} = \sum_{j \in J_{ft}} (p_{jt} - mc_{jt}) \cdot s_{jt}(\mathbf{p}) \cdot M_t, \tag{15}$$

where $s_{jt}(\mathbf{p})$ is the market share of product j as a function of all prices $\mathbf{p}$, and M_t is market size.

Markups are pinned down by the derivatives of market shares with respect to prices. The Bertrand-Nash equilibrium prices solve:

$$\mathbf{p} = \mathbf{mc} - \left(\frac{\partial \mathbf{s}}{\partial \mathbf{p}} \circ \Omega \right)^{-1} \mathbf{s}, \tag{16}$$

where Ω is the ownership matrix and $\circ$ denotes the Hadamard product.

Let $c(j)$ denote the country of origin of product j; baseline (tariff-exclusive) marginal cost is

$$mc_{jt} \;=\; \lambda_{1f(j)} r_{f(j)t} \;+\; \lambda_2 w_{c(j)t} \;+\; \lambda_{3j} m_t \;+\; \omega_{jt}, \tag{17}$$

where $r_{f(j)t}$, $w_{c(j)t}$, and m_t are input prices for capital, labor, and materials; and ω_{jt} is a product-level marginal-cost shock realized after production and sourcing decisions. Offshoring modifies $c(j)$ and thus affects the labor-cost component.

Alternatively, the incumbent may petition for an ad valorem tariff $\kappa > 0$ on imports from an origin set O. Tariff-origin pairs are indexed by (κ, O).[18] Tariffs modify marginal

[18] I assume that petitions always lead to tariffs. This does not affect the sign of the comparison between merger and no-merger petitioning incentives: a common petition success probability $\rho < 1$ multiplies each

costs multiplicatively:

$$mc_{jt}^{(\kappa,O)} \;=\; \Big[1+\kappa\cdot\mathbb{1}\{c(j)\in O\}\Big]\, mc_{jt}. \tag{18}$$

Marginal costs are recovered by inverting firms' first-order pricing conditions using observed market shares and prices. To estimate how marginal costs change with input costs, I estimate:

$$mc_{jt} = FE_f + \gamma_1 RER_{c(j)t} + \gamma_2 x_j + \omega_{jt}\,. \tag{19}$$

Firm fixed effects FE_f capture differences in capital intensity across firms. The real exchange rate $RER_{c(j)t}$ is a product-level cost shifter capturing local wage and nominal exchange rate fluctuations. The non-price characteristics x_j capture material cost differences across products, while ω_{jt} denotes transitory marginal-cost shocks.

5.3 Trade-Policy Channel of Mergers

With the tools to estimate firm profits under different merger, offshoring, and tariff scenarios, I can now connect the empirical model to the propositions in Section 3. The model shows that assessing how a merger changes the merging parties' incentives to petition for tariffs requires estimating the *appropriation* and *strategic* effects in equations (7) and (9).

Let $\pi_{f,t,\mathcal{S}}(\kappa, O; \ell)$ denote the variable profits of firm f in year t under separate ownership ($\mathcal{S}$), and $\pi_{t,\mathcal{M}}(\kappa, O; \ell)$ the variable profits of the merged entity ($\mathcal{M}$), which owns both merging firms' products. Profits are evaluated at tariff-origin pair (κ, O) and pre-petition production-location regime $\ell \in \{\text{off}, \text{sq}, \text{dom}\}$ (offshore, status quo, domestic). When evaluating profits under a tariff petition, I take the with-tariff regime for the incumbent to be domestic production, i.e., $\ell = \text{dom}$. For simplicity, in the remainder I denote the acquirer as $f = 1$ and the acquisition target as $f = 2$.

Then the appropriation effect of a merger can be written as

$$\text{Appropriation}_t(\kappa, O, \ell) = \pi_{2,t,\mathcal{S}}(\kappa, O; \text{dom}) - \pi_{2,t,\mathcal{S}}(0, O; \ell) \tag{20}$$

and the strategic effect can be written as

$$\begin{aligned}\text{Strategic}_t(\kappa, O, \ell) = &\Big[\pi_{t,\mathcal{M}}(\kappa, O; \text{dom}) - \pi_{1,t,\mathcal{S}}(\kappa, O; \text{dom}) - \pi_{2,t,\mathcal{S}}(\kappa, O; \text{dom})\Big] \\ &- \Big[\pi_{t,\mathcal{M}}(0, O; \ell) - \pi_{1,t,\mathcal{S}}(0, O; \ell) - \pi_{2,t,\mathcal{S}}(0, O; \ell)\Big]\,.\end{aligned} \tag{21}$$

firm's expected petitioning premium by ρ, while the filing cost L cancels in the merger-vs-no-merger difference. The decomposition into appropriation and strategic effects is therefore preserved, with both terms scaled by ρ.

Finally, I quantify the consumer-surplus effect of a given tariff. For a tariff-origin pair (κ, O), the change in consumer surplus under ownership structure $m \in \{\mathcal{M}, \mathcal{S}\}$ is (Small and Rosen, 1981)

$$CS^m(\kappa, O) \;=\; \int \frac{1}{\alpha_i}\left[\ln\Big(\sum_{j=0}^{J} e^{V_{ij}^{(\kappa,O;\,m)}}\Big) - \ln\Big(\sum_{j=0}^{J} e^{V_{ij}^{(0,O;\,m)}}\Big)\right] dP(\iota_i, \nu_i), \tag{22}$$

where $V_{ij}^{(\kappa,O;\,m)} = \delta_{jt} + \mu_{ijt}^{(\kappa,O;\,m)}$ uses the equilibrium prices implied by m and (κ, O).

For a given tariff-origin pair (κ, O), the merger-induced change in consumer surplus from a tariff is

$$\Delta CS^{\mathcal{M}}(\kappa, O) \;:=\; CS^{\mathcal{M}}(\kappa, O) \;-\; CS^{\mathcal{S}}(\kappa, O), \tag{23}$$

so $\Delta CS^{\mathcal{M}}(\kappa, O) < 0$ indicates that the merger amplifies the consumer harm from a tariff.

6 Parameter Estimates

Table 2 summarizes the demand estimates. Column (1) shows that the real exchange rate is a strong instrument for price. The estimates in Column (4) imply that higher-income households are less price-sensitive (the income coefficient κ_α is negative) and that households differ in their taste for front-loaders (the unobserved-taste dispersion σ^{FL} is positive and significant). The average own-price elasticity in the full mixed-logit model is -2.54 at the product level.

Figure 2 displays the distribution of estimated marginal costs across all products.

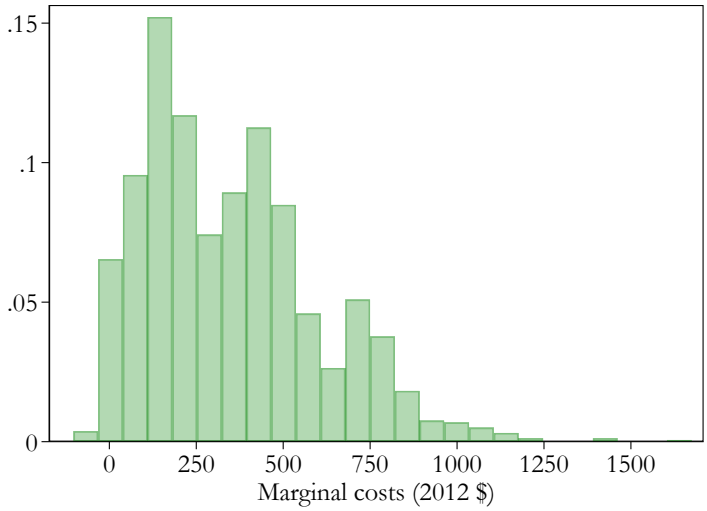
Finally, Table 3 quantifies how marginal costs depend on labor costs (captured by the deflated RER), product characteristics, and brand, retailer, and year fixed effects. As labor costs increase, the estimated marginal cost increases. Furthermore, top-loaders with an agitator have lower marginal costs than high-efficiency top-loaders and front-loaders.

Table 2: Demand estimates

	(1)	(2)	(3)	(4)
	First stage	Logit OLS	Logit IV	Mixed logit
Dependent variable:	Price	$\hat{\delta}_{jt}$	$\hat{\delta}_{jt}$	
Linear parameters				
Real exchange rate	2.033^{***}			
	(0.365)			
Price ('00 2012 $)		-0.164^{***}	-0.351^{**}	
		(0.062)	(0.178)	
Nonlinear parameters				
Common price coefficient α				-0.675^{***}
				(0.033)
Income effect κ_α				-0.210^{***}
				(0.024)
Unobserved taste σ^{FL}				2.493^{***}
				(0.068)
Characteristics	*Yes*	*Yes*	*Yes*	*Yes*
Retailer FE	*Yes*	*Yes*	*Yes*	*Yes*
Brand FE	*Yes*	*Yes*	*Yes*	*Yes*
Brand time trends	*Yes*	*Yes*	*Yes*	*Yes*
Year FE	*Yes*	*Yes*	*Yes*	*Yes*
Observations	1,590	1,586	1,590	1,590
Kleibergen–Paap F-statistic	31.041			
Avg. own-price elasticity		-0.964	-2.058	-2.542

Notes: Column (1) reports the first-stage regression results of prices on the real exchange rate. Column (2) presents estimates from the simple logit model without instrumentation. Column (3) shows estimates from the simple logit using the RER as an instrument for price. Column (4) displays results from the mixed logit model described in Section 5. Standard errors are clustered at the brand level. Own-price elasticities of residual demand are computed at the product level and averaged across products, weighting by sales volume. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure 2: Histogram of product-level marginal cost estimates



Notes: Histogram of estimated marginal costs (deflated to 2012 dollars) across all products in the sample.

Table 3: Marginal cost decomposition

	Marginal costs (2012 $)
Real Exchange Rate	199.324***
	(36.869)
Front-Loader	21.042
	(20.161)
Agitator	−244.397***
	(26.696)
Characteristics	*Yes*
Retailer FE	*Yes*
Brand FE	*Yes*
Brand time trends	*Yes*
Year FE	*Yes*
N	1,586

Notes: The table presents regression results of product-level marginal costs on proxies for labor and shipping costs, product characteristics, fixed effects, and brand-specific time trends. Standard errors are clustered at the brand level. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

7 Quantifying the Trade-Policy Channel for Whirlpool

In this section, I quantify the components of the trade-policy channel for Whirlpool's domestic acquisition of Maytag, assessing how the merger affected the profitability of petitioning across the different rounds of tariff actions observed between 2011 and 2018. To contrast this with the trade-policy channel of a cross-border merger, I perform the same analysis for a hypothetical merger between Whirlpool and LG.

7.1 Trade-Policy Channel of a Domestic Merger

To assess how acquiring Maytag affected Whirlpool's incentives to petition for tariffs, I quantify the appropriation and strategic effects (equations (20) and (21)) for different tariff-origin scenarios. I also estimate the corresponding consumer surplus effect $\Delta CS^{\mathcal{M}}(\kappa, O)$ defined in equation (23).

While I observe realized tariff outcomes and relocation responses by LG and Samsung, the simulations do not incorporate this ex post information. Ex ante, petitioners cannot perfectly predict final tariffs or rivals' immediate relocation strategies; for instance, preliminary AD margins on LRW imports from China were substantially revised downward between preliminary and final determinations (LG: 49.88% $\rightarrow$ 32.12%; Samsung: 111.09% $\rightarrow$ 52.51%). I instead simulate uniform ad valorem tariffs of $\kappa = 50\%$ applied to three origin groups,

$$O \in \{\text{Korea+Mexico},\ \text{China+Korea+Mexico},\ \text{Global}\},$$

which mirror the historical sequence (2011 Korea and Mexico; 2015 China; 2018 global safeguards).[19]

For each calendar year t, I recompute the Bertrand-Nash pricing equilibrium under explicit production-location assumptions. Under a tariff (κ, O), Whirlpool and Maytag reshore any remaining foreign washer production to the U.S. in year t, while all other firms' production locations are held at their year-t–1 configuration. This mirrors the domestic incumbents' ex ante decision problem: rivals' locations are expected to persist in the near term, and securing protection is anticipated to require reshoring by the petitioner.

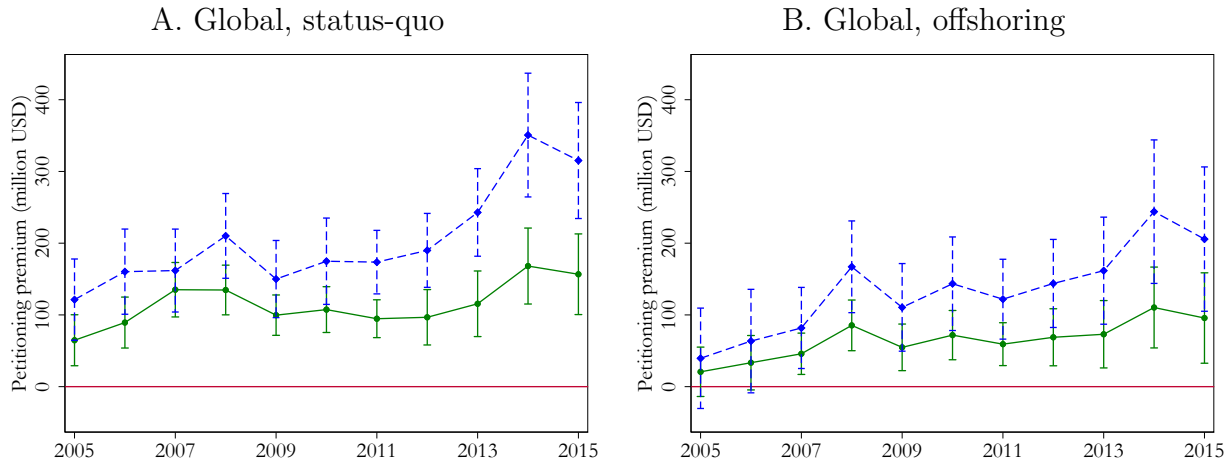
I compare tariff scenarios to two no-tariff baselines. In the *status-quo baseline*, Maytag and Whirlpool's production locations remain at where they were in year $t-1$. In the *incumbent-offshoring baseline*, Whirlpool and Maytag additionally offshore front-loader production to Mexico in year t (top-loaders are not offshored).[20] All rivals' production locations

[19] AD/CVD petitions on imports from Korea and Mexico, as well as China, were filed in 2011 and 2015, respectively. Final duty determinations were made in 2013 and 2016, respectively.

[20] Top-loader offshoring is never observed in the data.

always remain at their locations in year $t-1$.

Figure 3: Domestic merger: petitioning versus its no-tariff alternative, $\kappa = 50\%$, global tariffs



Notes: The figure plots Whirlpool's variable profit from a 50% global import tariff relative to its no-tariff alternative (the status-quo production configuration in Panel A, offshoring in Panel B), by year, without the merger (solid green) and under the Whirlpool–Maytag merger (dashed blue). Positive values indicate that petitioning is more profitable than the alternative in variable-profit terms. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

Figure 3 reports the profitability of petitioning relative to its no-tariff alternative for Whirlpool in each year, with and without the Maytag acquisition, under two baselines. Panel A shows the premium of petitioning over the status quo, $\pi^{\text{pet}} - \pi^{\text{sq}}$. It becomes immediately clear that if the alternative is the status quo, then petitioning is highly profitable in variable profit terms and the merger increases its profitability. However, since the status quo is dominated by offshoring, the relevant comparison to petitioning should also be offshoring.

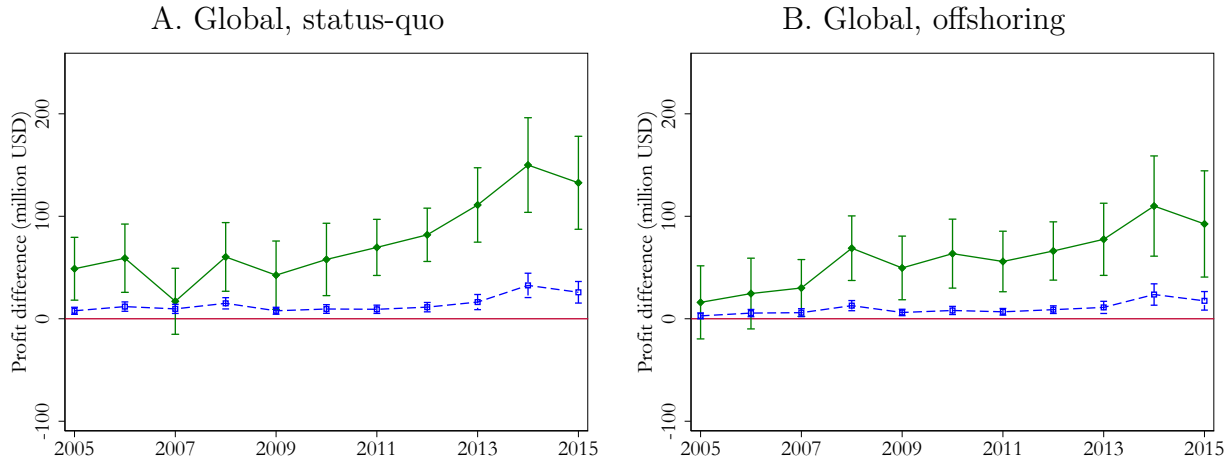
Panel B shows the premium of petitioning over offshoring, $\pi^{\text{pet}} - \pi^{\text{off}}$. Two patterns emerge. First, the premium rises as import competition intensifies, from about \$20 million in 2005 to about \$95 million in 2015 absent the merger. As the combined market share of LG and Samsung grows over the period, a tariff that raises foreign costs becomes more valuable relative to lowering Whirlpool's own costs through offshoring. Second, the merger shifts the premium upward in every year. The gap between the two lines is the merger's effect on the incentive to petition, which I decompose into an appropriation and a strategic effect below.

This comparison is in variable profits and abstracts from the fixed costs of each option. A 50% global tariff is a strong instrument, so the premium is positive throughout the sample. The figure therefore overstates how early petitioning becomes worthwhile. Petitioning requires paying the filing cost and reshoring production to establish standing, whereas offshoring, already under way by the late 2000s, entailed no further fixed cost. The duties actually sought in the first rounds were also smaller and narrower than a 50% global tar-

iff. Net of these costs, the rising premium is consistent with Whirlpool turning to trade protection only as import competition strengthened, filing its first petition in 2011.

Figure 4 plots the appropriation and the strategic effect of acquiring Maytag for Whirlpool from a 50% global tariff on imports of large residential washers. The panels compare results against the *status-quo baseline* and the *incumbent-offshoring baseline*.

Figure 4: Domestic merger: appropriation and strategic effects, $\kappa = 50\%$, global tariffs



Notes: The figure shows how for a Whirlpool–Maytag merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% global tariff. 95% bootstrap confidence intervals are obtained by re-sampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

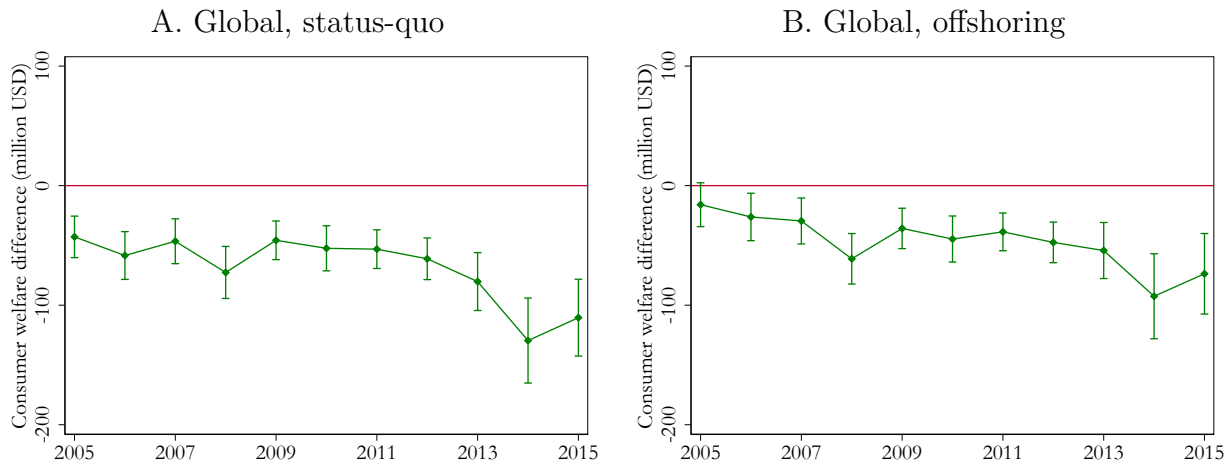
The merger increases the profitability of global import tariffs for Whirlpool. While both the appropriation and strategic effects increase the profitability of petitioning for trade protection, most of the trade-policy channel comes through the appropriation effect. The strategic effect is about five times smaller than the appropriation effect.

Figure 5 shows the merger-induced increase in consumer surplus losses from a 50% global tariff. The merger amplifies the consumer harm from tariffs. Depending on the year, the merger-induced increase in annual consumer harm from a global tariff exceeds $100 million under the status-quo baseline. These figures do not account for any change in the probability of petitioning.[21]

Table 4 reports the estimates of the effect of introducing a 50% tariff for the different tariff scenarios in the year of filing (or the final year of the data in the case of global tariffs). The first column reports the tariff-induced change in profits for Whirlpool in the absence of the merger. The appropriation and strategic effects together give the merger-induced increase in Whirlpool's profits from tariffs. In most scenarios, acquiring Maytag more than doubles

[21] Results for tariffs on imports from Korea and Mexico or China, Korea and Mexico only are reported in Appendix III.A.

Figure 5: Domestic merger: consumer surplus effect, $\kappa = 50\%$, global tariffs



Notes: The figure shows how a Whirlpool–Maytag merger changes the consumer surplus effect of a 50% global tariff. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

Whirlpool's profits from tariffs. This suggests that the merger substantially increased the likelihood of a tariff petition.

The final two columns report the consumer surplus loss from a 50% tariff without the merger and the additional loss attributable to the merger. Two observations stand out. First, the consumer surplus loss from tariffs is substantial. Even in the absence of the merger, a 50% global tariff on washers decreases consumer surplus by around \$718 million if the alternative is offshoring. Second, the merger substantially increases the consumer harm from tariffs. For instance, in the global tariff scenario, the merger increases the consumer surplus loss from a 50% tariff by around \$74 million if the alternative is offshoring.[22]

The total effect of the trade-policy channel on consumers combines the harm induced by the increased likelihood of tariffs with the harm of the tariffs conditional on being imposed. Consider the 2015 global tariff relative to the offshoring baseline. The merger doubles Whirlpool's profits from the tariff, making a petition and the subsequent tariff substantially more likely.

To illustrate the magnitude of this channel, suppose the merger makes a petition and the subsequent tariff a certainty. If this reflects a 10 percentage-point increase over the no-merger baseline, consumers face an extensive-margin expected loss of $0.10 \times \$718\text{M} \approx$

[22]The total annual consumer surplus loss from the global import tariffs is of the same order of magnitude as the \$841 million annual consumer surplus loss from the actual global tariffs implemented in 2018 estimated by Flaaen, Hortaçsu, and Tintelnot (2020). They use a difference-in-differences design to estimate the price effect of the tariffs and multiply it by the total number of washing machines transacted pre-tariff. The environments differ in several respects: the actual tariff was 20% on the first 1.2 million washers and 50% only beyond that, and Samsung relocated production to the U.S. during their observation period.

Table 4: Trade-policy channel of a domestic merger, $\kappa = 50\%$

	Whirlpool profits			**Consumer surplus**	
	No merger	Appropriation	Strategic	No merger	$\Delta CS^{\mathcal{M}}$
Panel A: Korea+Mexico tariffs (Year: 2011)					
Status quo	\$82M [\$57M, \$107M]	\$58M [\$33M, \$84M]	\$8M [\$4M, \$12M]	−\$443M [−\$566M, −\$319M]	−\$46M [−\$61M, −\$31M]
Offshoring	\$47M [\$18M, \$76M]	\$45M [\$17M, \$73M]	\$6M [\$3M, \$8M]	−\$498M [−\$620M, −\$377M]	−\$31M [−\$46M, −\$16M]
Panel B: China+Korea+Mexico tariffs (Year: 2015)					
Status quo	\$154M [\$98M, \$209M]	\$130M [\$85M, \$175M]	\$25M [\$15M, \$35M]	−\$585M [−\$756M, −\$415M]	−\$108M [−\$139M, −\$76M]
Offshoring	\$93M [\$30M, \$155M]	\$90M [\$38M, \$141M]	\$17M [\$8M, \$26M]	−\$708M [−\$877M, −\$539M]	−\$71M [−\$104M, −\$38M]
Panel C: Global tariffs (Year: 2015)					
Status quo	\$157M [\$100M, \$213M]	\$133M [\$87M, \$178M]	\$26M [\$15M, \$36M]	−\$596M [−\$767M, −\$425M]	−\$110M [−\$143M, −\$78M]
Offshoring	\$96M [\$33M, \$159M]	\$93M [\$41M, \$144M]	\$18M [\$8M, \$27M]	−\$718M [−\$888M, −\$549M]	−\$74M [−\$107M, −\$40M]

Notes: Values in million USD per year. The table reports point estimates of the profitability of tariffs to Whirlpool without acquiring Maytag (no merger), and the merger-induced change decomposed into the appropriation and strategic effects. Consumer surplus columns report the change in consumer surplus from tariffs without the merger and the merger-induced additional consumer harm. 95% bootstrap confidence intervals in brackets. See Table A.2 for results treating Kenmore top-loaders as Whirlpool products and Kenmore front-loaders as LG products.

$72 million. Furthermore, because the post-merger tariff occurs with probability one under this assumption, consumers fully bear the $74 million in additional conditional harm. Adding these gives about $150 million per year in expected consumer harm through the trade-policy channel. For comparison, Montag (2026) estimates that the direct market-power related annual consumer harm from the Whirlpool–Maytag merger is $225 million for clothes washers. This shows that the magnitude of the trade-policy channel can be substantial.

7.2 Trade-Policy Channel of a Cross-Border Merger

Proposition 6 shows that in a cross-border merger, two of the three channels in the petitioning-premium decomposition unambiguously reduce the incentive to petition under the status-quo baseline, suggesting that cross-border mergers lower the demand for protectionism.

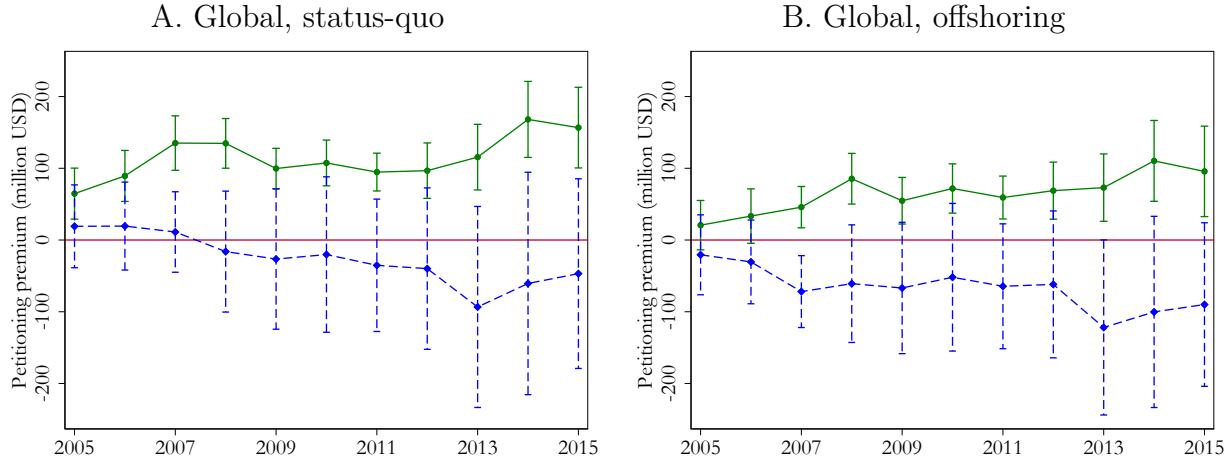
To illustrate this point, I repeat the previous simulations for a cross-border merger between Whirlpool and LG. To make this comparable to the domestic-merger simulations, I demerge all Maytag brands from Whirlpool across all years. I assume that Maytag always produces in the U.S., whereas in the absence of petitioning, Whirlpool and LG either keep their observed production locations or offshore wherever feasible. Since LG is only producing abroad throughout the sample and Whirlpool never produces top-loaders outside the U.S., the offshoring scenario simply moves Whirlpool's front-loader production to Mexico.

Figure 6 repeats the petitioning-premium comparison of Figure 3 for the cross-border Whirlpool–LG merger. Whereas the domestic merger raises the premium, the cross-border merger lowers it and pushes it below zero, so the merged firm strictly prefers offshoring to petitioning. The benefits of petitioning are limited, since the tariff now protects the merged entity only against Samsung, while the costs are substantial. In particular, petitioning requires the merged Whirlpool–LG to relocate LG's production to the U.S. and absorb the associated cost increase. Because the premium is measured in variable profits and omits this relocation cost, it understates how unattractive petitioning is for the merged firm.

Table 5 reports the corresponding point estimates and bootstrap confidence intervals for all three tariff scopes. Appendix Figure A.7 decomposes the merger's effect into the appropriation effect, now negative, and the strategic effect, and the results for the Korea+Mexico and China+Korea+Mexico tariffs are reported in Appendix III.B.

Figure 7 shows that the consumer harm from tariffs is consistently larger in the absence of a Whirlpool–LG merger. Although tariffs always reduce consumer welfare, it is a priori unclear whether the cross-border merger increases or decreases this harm. The results show that competition between Whirlpool and LG is particularly valuable if Whirlpool offshores its front-loader production and LG remains independent. The offshoring baseline tariffs are

Figure 6: Cross-border merger: petitioning versus its no-tariff alternative, $\kappa = 50\%$, global tariffs



Notes: The figure plots Whirlpool's variable profit from a 50% global import tariff relative to its no-tariff alternative (the status-quo production configuration in Panel A, offshoring in Panel B), by year, without the cross-border merger (solid green) and under the Whirlpool–LG merger (dashed blue). Positive values indicate that petitioning is more profitable than the alternative in variable-profit terms. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

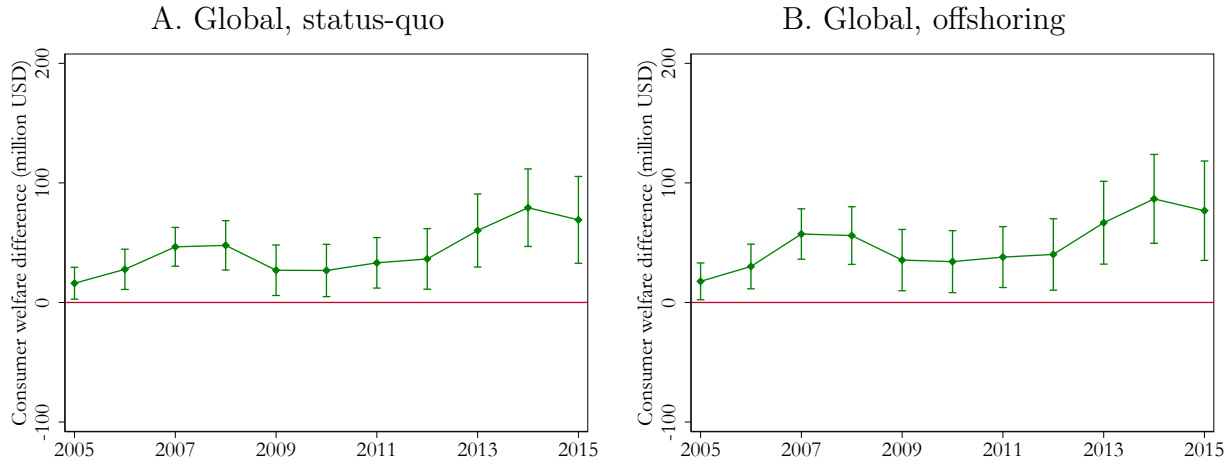
Table 5: Trade-policy channel of a cross-border merger, $\kappa = 50\%$

	Whirlpool profits			**Consumer surplus**	
	No merger	Appropriation	Strategic	No merger	$\Delta CS^{\mathcal{M}}$
Panel A: Korea+Mexico tariffs (Year: 2011)					
Status quo	\$82M [\$57M, \$107M]	−\$81M [−\$175M, \$14M]	−\$1M [−\$4M, \$2M]	−\$443M [−\$566M, −\$319M]	\$17M [−\$3M, \$38M]
Offshoring	\$47M [\$18M, \$76M]	−\$73M [−\$161M, \$15M]	−\$2M [−\$7M, \$2M]	−\$498M [−\$620M, −\$377M]	\$22M [−\$3M, \$47M]
Panel B: China+Korea+Mexico tariffs (Year: 2015)					
Status quo	\$154M [\$98M, \$209M]	−\$196M [−\$332M, −\$61M]	−\$8M [−\$15M, −\$1M]	−\$585M [−\$756M, −\$415M]	\$70M [\$33M, \$106M]
Offshoring	\$93M [\$30M, \$155M]	−\$176M [−\$299M, −\$53M]	−\$10M [−\$19M, −\$1M]	−\$708M [−\$877M, −\$539M]	\$77M [\$36M, \$119M]
Panel C: Global tariffs (Year: 2015)					
Status quo	\$157M [\$100M, \$213M]	−\$196M [−\$331M, −\$61M]	−\$8M [−\$14M, −\$1M]	−\$596M [−\$767M, −\$425M]	\$69M [\$33M, \$105M]
Offshoring	\$96M [\$33M, \$159M]	−\$176M [−\$299M, −\$53M]	−\$10M [−\$19M, −\$1M]	−\$718M [−\$888M, −\$549M]	\$77M [\$35M, \$118M]

Notes: Values in million USD per year. The table reports point estimates of the profitability of tariffs to Whirlpool without merging with LG (no merger), and the merger-induced change decomposed into the appropriation and strategic effects. Consumer surplus columns report the change in consumer surplus from tariffs without the merger and the merger-induced additional consumer harm. 95% bootstrap confidence intervals in brackets.

therefore more harmful without the merger.

Figure 7: Cross-border merger: consumer surplus effect, $\kappa = 50\%$, global tariffs



Notes: The figure shows how a Whirlpool–LG merger changes the consumer surplus effect of a 50% global tariff. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

8 Conclusion

This paper shows that domestic mergers can harm consumers through a trade-policy channel that operates over and above the merger's direct market-power effects.

I develop a three-stage model in which a competition authority adjudicates a merger, the domestic incumbent chooses among petitioning for tariffs, offshoring, or maintaining the status quo, and firms compete in prices. When offshoring is unavailable, a domestic merger strictly raises the profitability of petitioning through two channels: an appropriation effect, whereby the acquirer internalizes the trade-protection rents that would otherwise accrue to the domestic target, and a strategic effect, whereby joint pricing amplifies the merged firm's gains from weakening foreign rivals. When offshoring is available, the incumbent can raise profits by lowering its own costs rather than raising its rivals', and the sign of the merger's effect becomes ambiguous. Cross-border mergers generate the opposite forces: internalizing the foreign target's losses from tariffs and bearing the cost of relocating its production reduce the incentive to petition.

Using the U.S. washer industry as a case study, I find that the choice between offshoring and petitioning turns on the strength of import competition. When it is weak, the merging parties prefer to lower their own costs through offshoring; when it is strong, the merger makes it more profitable to raise their foreign rivals' costs through tariffs. This is exactly when

imports are most likely to be a pivotal competitive constraint in a merger clearance decision. A hypothetical cross-border merger, by contrast, reduces the profitability of petitioning and does not increase consumer harm from tariffs.

These findings have implications for merger control. In markets where imports can be restricted through trade remedies, competition authorities should place less weight on import competition as a constraint on the merged entity, since the merger itself can undermine that constraint. Mergers that reduce the number of domestic producers to one or two warrant particular scrutiny, whereas cross-border mergers can deliver scale economies without raising the incumbents' returns to tariff petitions.

References

Ashenfelter, Orley C., Daniel S. Hosken, and Matthew C. Weinberg. 2013. "The Price Effects of a Large Merger of Manufacturers: A Case Study of Maytag-Whirlpool." *American Economic Journal: Economic Policy* 5 (1): 239–261.

Asker, John, and Volker Nocke. 2021. "Collusion, Mergers, and Related Antitrust Issues." In *Handbook of Industrial Organization,* 5:177–279. Elsevier.

Berry, Steven, James Levinsohn, and Ariel Pakes. 2004. "Differentiated Products Demand Systems from a Combination of Micro and Macro Data: The New Car Market." *Journal of Political Economy* 112 (1): 68–105.

Bhattacharya, Vivek, Gastón Illanes, and David Stillerman. Forthcoming. "Merger Effects and Antitrust Enforcement: Evidence from US Consumer Packaged Goods." *American Economic Review.*

Blonigen, Bruce A., Benjamin H. Liebman, Justin R. Pierce, and Wesley W. Wilson. 2013. "Are All Trade Protection Policies Created Equal? Empirical Evidence for Nonequivalent Market Power Effects of Tariffs and Quotas." *Journal of International Economics* 89 (2): 369–378.

Blonigen, Bruce A., and Thomas J. Prusa. 2016. "Dumping and Antidumping Duties." In *Handbook of Commercial Policy,* edited by Kyle Bagwell and Robert W. Staiger, vol. 1B, 107–159. North-Holland.

Bombardini, Matilde. 2008. "Firm Heterogeneity and Lobby Participation." *Journal of International Economics* 75 (2): 329–348.

Bombardini, Matilde, and Francesco Trebbi. 2012. "Competition and Political Organization: Together or Alone in Lobbying for Trade Policy?" *Journal of International Economics* 87 (1): 18–26.

Bown, Chad, Milla Cieszkowsky, Aksel Erbahar, and Jose Signoret. 2025. *Temporary Trade Barriers Database.* https://www.worldbank.org/en/data/interactive/2021/03/02/temporary-trade-barriers-database. Washington, DC: World Bank.

Bradford, Anu, and Adam S. Chilton. 2021. "Regulating Antitrust Through Trade Agreements." *Antitrust Law Journal* 84 (1): 103–126.

Breinlich, Holger, Volker Nocke, and Nicolas Schutz. 2018. "Merger Policy in a Quantitative Model of International Trade." *Economic Journal* 128 (614): 2385–2417.

Code of Federal Regulations. 2025. *19 C.F.R. § 351.203(e): Determination of sufficiency of petition (industry support and polling).* eCFR. https://www.ecfr.gov/current/title-19/chapter-III/part-351/subpart-B/section-351.203.

Cowgill, Bo, Andrea Prat, and Tommaso M. Valletti. 2024. *Political Power and Market Power.* NBER Working Paper 33255. National Bureau of Economic Research.

De Stefano, Martino, and Marc Rysman. 2010. "Competition Policy as Strategic Trade with Differentiated Products." *Review of International Economics* 18 (5): 888–904.

Department of Justice. 2006. *Statement on the Closing of its Investigation of Whirlpool's Acquisition of Maytag.* Washington, DC: Author. https://www.justice.gov/archive/atr/public/press_releases/2006/215326.htm.

Draghi, Mario. 2024. *The Future of European Competitiveness: A Competitiveness Strategy for Europe.* Technical report. European Commission.

European Commission. 2007. *Case M.4828 – Owens Corning / Saint-Gobain Vetrotex.* Commission Decision of 26 October 2007, Article 6(2) of Regulation (EC) No 139/2004. https://ec.europa.eu/competition/mergers/cases/decisions/m4828_20071026_20212_en.pdf.

———. 2018. *Case M.8444 – ArcelorMittal/Ilva.* Commission Decision of 7 May 2018, C(2018) 2858 final, Article 8(2) of Regulation (EC) No 139/2004. https://ec.europa.eu/competition/mergers/cases/decisions/m8444_6740_3.pdf.

Flaaen, Aaron, Ali Hortaçsu, and Felix Tintelnot. 2020. "The Production Relocation and Price Effects of US Trade Policy: The Case of Washing Machines." *American Economic Review* 110 (7): 2103–2127.

Goldberg, Pinelopi Koujianou, and Giovanni Maggi. 1999. "Protection for Sale: An Empirical Investigation." *American Economic Review* 89 (5): 1135–1155.

Grossman, Gene M., and Elhanan Helpman. 1994. "Protection for Sale." *American Economic Review* 84 (4): 833–850.

Horn, Henrik, and James Levinsohn. 2001. "Merger Policies and Trade Liberalisation." *Economic Journal* 111 (470): 244–276.

Igami, Mitsuru. 2018. "Industry Dynamics of Offshoring: The Case of Hard Disk Drives." *American Economic Journal: Microeconomics* 10 (1): 67–101.

Kang, Karam. 2016. "Policy Influence and Private Returns from Lobbying in the Energy Sector." *The Review of Economic Studies* 83 (1): 269–305.

Konings, Jozef, and Hylke Vandenbussche. 2005. "Antidumping Protection and Markups of Domestic Firms." *Journal of International Economics* 65 (1): 151–165.

Kwoka, John E. 2015. *Mergers, Merger Control, and Remedies: A Retrospective Analysis of U.S. Policy.* Cambridge, MA: MIT Press.

Liu, Lawrence J. 2026. "Opening the Tariff Toolkit: The Demand for Administrative Trade Remedies in the United States." *New York University Law Review.*

Montag, Felix. 2026. "Mergers, Foreign Competition, and Jobs: Evidence from the U.S. Appliance Industry." *American Economic Review* 116 (6): 2085–2119.

Moshary, Sarah, and Cailin Slattery. 2024. "Consolidation and Political Influence in the Auto Retail Industry." Working paper, SSRN No. 4832068.

Neven, Damien J., and Paul Seabright. 1997. "Trade Liberalisation and the Coordination of Competition Policy." In *Competition Policy in the Global Economy: Modalities for Cooperation,* edited by Leonard Waverman, William S. Comanor, and Akira Goto, 334–356. London and New York: Routledge.

Nieberding, James F. 1999. "The Effect of U.S. Antidumping Law on Firms' Market Power: An Empirical Test." *Review of Industrial Organization* 14 (1): 65–84.

Nocke, Volker, and Nicolas Schutz. 2018. "Multiproduct-Firm Oligopoly: An Aggregative Games Approach." *Econometrica* 86 (2): 523–557.

———. 2025. "An Aggregative Games Approach to Merger Analysis in Multiproduct-Firm Oligopoly." *RAND Journal of Economics* 56 (3): 233–250.

Nocke, Volker, and Michael D. Whinston. 2022. "Concentration Thresholds for Horizontal Mergers." *American Economic Review* 112 (6): 1915–1948.

OpenBrand. 2022. *Major Appliances.* Dataset. https://doi.org/10.82551/VYTH-ZH96.

Pierce, Justin R. 2011. "Plant-level Responses to Antidumping Duties." *Journal of International Economics* 85 (2): 222–233.

Rovegno, Laura. 2013. "Trade Protection and Market Power: Evidence from US Antidumping and Countervailing Duties." *Review of World Economics* 149 (3): 443–476.

Ruhl, Kim J. 2014. "The Aggregate Impact of Antidumping Policies." Working Paper.

Salop, Steven C., David T. Scheffman, and Warren Schwartz. 1984. "A Bidding Model of Special Interest Regulation: Raising Rivals' Costs in a Rent-Seeking Society." In *The Political Economy of Regulation: Private Interests in the Regulatory Process.* Washington, DC: Federal Trade Commission.

Shapiro, Carl, and Ali Yurukoglu. 2026. "Trends in Competition in the United States: What Does the Evidence Show?" *Journal of Political Economy Microeconomics* 4 (1): 316–370.

Small, Kenneth A., and Harvey S. Rosen. 1981. "Applied Welfare Economics with Discrete Choice Models." *Econometrica* 49 (1): 105–130.

Staiger, Robert W., and Frank A. Wolak. 1989. *Strategic Use of Antidumping Law to Enforce Tacit International Collusion.* NBER Working Paper 3016. National Bureau of Economic Research.

U.S. Government Accountability Office. 2022. *Antidumping and Countervailing Duties: Process Design Helps Ensure Proceedings Are Based on Accurate and Complete Information.*

Technical report GAO-23-105794. Washington, D.C.: U.S. Government Accountability Office.

U.S. International Trade Commission. 2015. *Antidumping and Countervailing Duty Handbook.* Technical report Publication 4540. Staff publication, Office of Investigations. Washington, DC: U.S. International Trade Commission, June. https://www.usitc.gov/trade_remedy/documents/handbook.pdf.

United States Code. 2025a. *19 U.S.C. § 1671a(c)(4): Procedures for initiating a countervailing duty investigation (industry support).* Current version. https://www.law.cornell.edu/uscode/text/19/1671a.

———. 2025b. *19 U.S.C. § 1673a(c)(4): Procedures for initiating an antidumping duty investigation (industry support).* Current version. https://www.law.cornell.edu/uscode/text/19/1673a.

Appendix for Online Publication

I Appendix to Section 2: Cross-Case Documentation

I.A Data sources

AD/CVD cases. Case-level AD/CVD data, including the start date of an investigation, the identity of the petitioners, the affected HS codes, and the final outcome and duty revocation year, come from Bown et al. (2025).

Product markets and production concentration. Wherever possible, the definition of product markets comes directly from the decisions published by the respective competition authority at the time of merger clearance. Producer-share data are also taken from merger decisions whenever possible and complemented by information from AD/CVD investigations, as well as company 10-K and 20-F filings where available. Where an agency disclosure reports each producer's volume share as a bracketed range rather than a point estimate, I construct the implied bounds of the integer producer count as n^{80}_{low} and n^{80}_{high}. n^{80}_{low} is the smaller count of producers assuming each firm's share sits at the upper bound of its disclosed range (so fewer firms cumulate to 80%), while n^{80}_{high} is the larger count assuming each share sits at the lower bound. The midpoint of n^{80}_{low} and n^{80}_{high} is the value that enters the figure.

I.B Per-case overview

Table A.1 lists the 16 case-products used in Section 2. For each case-product the table reports the jurisdiction, merger year, acquirer and target names, and the spelled-out product market. It also reports n^{80}_{-1} and n^{80}_{+1}, whether the competition authority listed import competition as a competitive constraint on the merging parties post-merger, and the pre- and post-merger five-year averages of the number of AD/CVD active cases covering the relevant product market.

Table A.1: Cross-case sample: per-case overview

Jurisdiction	Year	Acquirer name	Target name	Product market	n^{80}_{-1}	n^{80}_{+1}	Imports cited at clearance	Avg. nr. active cases	
								Pre-merger	Post-merger
Australia	2005	Capral Alum.	Crane Alum.	Aluminium extrusions	3	2	+	0.0	0.4
Brazil	2010	Braskem	Quattor	Polyethylene	2	1	+	0.0	0.0
Brazil	2010	Braskem	Quattor	Polypropylene	2	1	+	0.2	1.8
Canada	2006	Tenaris	Prudential Steel	OCTG	4.5	3.5	n.a.	1.0	2.8
EU	2007	Owens Corning	Vetrotex	Glass fibre mats	3.5	2.5	+	0.0	0.8
EU	2007	Owens Corning	Vetrotex	Glass fibre rovings	3.5	2.5	+	0.0	0.8
EU	2012	Outokumpu	Inoxum	Stainless steel, hot-rolled	3.5	2.5	–	0.0	0.0
EU	2012	Outokumpu	Inoxum	Stainless steel, cold-rolled	3.5	2.5	–	0.4	0.8
EU	2008	Sappi	M-real	Wood-free coated fine paper	5.5	4.5	n.a.	0.0	0.8
EU	2008	Sappi	M-real	Coated mechanical magazine paper	5.5	4.5	n.a.	0.0	0.8
India	2018	Tata Steel	Bhushan Steel	Hot-rolled flat steel	5	4	+	2.4	2.6
India	2018	Tata Steel	Bhushan Steel	Cold-rolled flat steel	6.5	5.5	+	0.4	1.2
India	2018	Tata Steel	Bhushan Steel	Corrosion-resistant flat steel	6.5	5.5	+	0.4	1.8
U.S.	2007	U.S. Steel	Lone Star Tech.	OCTG	4	3	n.a.	1.0	1.8
U.S.	2006	Whirlpool	Maytag	Clothes washers	4	3	+	0.0	0.2
U.S.	2006	Whirlpool	Maytag	Clothes dryers	4	3	+	0.0	0.0

Notes: Where the underlying source reports producer shares as a bracketed range, the table lists the midpoint of $[n^{80}_{\text{low}}, n^{80}_{\text{high}}]$. n^{80}_t at event time t. The "Imports cited at clearance" column encodes whether import competition was cited as material to the antitrust clearance: "+" indicates the authority accepted imports as a clearance factor; "–" indicates the merging parties argued imports were a constraint but the authority did not accept it; "n.a." indicates clearance was via an expedited procedure (Competition Bureau ARC, FTC early termination, or EC short-form decision) with no detailed reasoning published. "Avg. nr. active cases" is the mean over $t \in [-5, -1]$ (Pre-merger) and $t \in [+1, +5]$ (Post-merger) of the count of distinct active AD/CVD cases in year t.

II Appendix to Section 3

Proof of Proposition 1. Define

$$F(\kappa) \;\equiv\; \pi_1^{\text{pet}}(\kappa) - L \;-\; \Big(\pi_1^{\text{off}} - R_1\Big).$$

A marginal increase in κ raises only foreign costs $(1+\kappa)c_F$. Via best responses, s_j shift toward firm 1 and its markups increase. Envelope and standard logit pass-through yield $\frac{d}{d\kappa}\pi_1^{\text{pet}}(\kappa) > 0$, and π_1^{off} is κ-invariant, so $F'(\kappa) > 0$. By the maintained assumption, $F(0) < 0$ and $F(\hat{\kappa}) > 0$. By continuity and the intermediate value theorem, there exists $\kappa^* \in (0, \hat{\kappa})$ with $F(\kappa^*) = 0$. Strict monotonicity gives uniqueness and the "iff" structure.

□

Proof of Proposition 2. In the two-product reduction (firms 1 and 3 only), let $\pi_1^{\text{pet}}(\kappa, \delta_3)$ and $\pi_1^{\text{off}}(\delta_3)$ denote firm 1's variable profits under petitioning and offshoring, respectively. Define

$$F(\kappa, \delta_3) \;\equiv\; \pi_1^{\text{pet}}(\kappa, \delta_3) - L \;-\; \Big(\pi_1^{\text{off}}(\delta_3) - R_1\Big),$$

and let $\kappa^*(\delta_3)$ solve

$$F(\kappa^*(\delta_3), \delta_3) = 0.$$

By Proposition 1, for fixed primitives the cutoff $\kappa^*(\delta_3)$ is unique and satisfies $F_\kappa(\kappa^*(\delta_3), \delta_3) > 0$ (since only π_1^{pet} depends on κ, and a higher duty strictly increases its profit). By the implicit function theorem,

$$\frac{d\kappa^*}{d\delta_3} = -\frac{F_{\delta_3}}{F_\kappa}, \qquad F_\kappa > 0,$$

so the sign of $\frac{d\kappa^*}{d\delta_3}$ is the sign of $-F_{\delta_3}$.

The exposure function Ψ. Consider a two-product logit duopoly with an outside good and costs (c_1, c_3). Here and in the remaining proofs I use the aggregative-games representation of the logit pricing game (Nocke and Schutz, 2018, 2025): each firm's profit depends on its rivals' prices only through the scalar aggregator $H \equiv 1 + \sum_{j \in \mathcal{J}} \exp(\delta_j - \alpha p_j)$, and the pricing game has a unique equilibrium (Nocke and Schutz, 2025, Proposition 1). Let (p_1, p_3) be this equilibrium. Standard logit algebra gives

$$s_j(p) = \frac{\exp(\delta_j - \alpha p_j)}{1 + \exp(\delta_1 - \alpha p_1) + \exp(\delta_3 - \alpha p_3)}, \qquad \frac{\partial s_1}{\partial \delta_3} = -\,s_1 s_3 \;<\; 0 \quad \text{for fixed prices.}$$

Equilibrium markups satisfy the single-product condition

$$p_j - c_j = \frac{1}{\alpha(1 - s_j)}.$$

Profits are $\pi_1 = (p_1 - c_1)s_1$. Differentiating with respect to δ_3 and using the envelope theorem ($\partial\pi_1^*/\partial p_1 = 0$) yields

$$\frac{d\pi_1^*}{d\delta_3} = (p_1 - c_1)\Big(\underbrace{\frac{\partial s_1}{\partial \delta_3}}_{(-)} + \underbrace{\frac{\partial s_1}{\partial p_3}}_{(+)}\underbrace{\frac{dp_3}{d\delta_3}}_{(+)}\Big).$$

The first term (direct share loss) is negative. The second term (strategic price response) is positive, as the rival raises price in response to higher quality ($\partial p_3/\partial\delta_3 > 0$), which softens the market share loss. Solving the two equilibrium pricing conditions for the price response and substituting back gives the closed form

$$\frac{d\pi_1^*}{d\delta_3} = -\Psi, \qquad \Psi \equiv (p_1 - c_1)\, s_1 s_3\, \frac{1 - s_3}{1 - D}, \qquad D \equiv \frac{(s_1 s_3)^2}{(1 - s_1)(1 - s_3)},$$

which is strictly negative at any interior equilibrium, since $D \le s_1 s_3 \le \frac{1}{4}$ when $s_1 + s_3 < 1$. A stronger foreign product always erodes firm 1's profit; the *exposure* $\Psi > 0$ measures by how much. For fixed α, the equilibrium shares, and hence Ψ, depend on the primitives only through $T_j \equiv \exp(\delta_j - \alpha c_j)$, each firm's *type* (Nocke and Schutz, 2025, Section 2). Write $\Psi(T_1, T_3)$. The two regimes evaluate Ψ at different points. Petitioning keeps firm 1 at the domestic cost and scales the foreign type down by the duty, so with $\varepsilon \equiv \alpha(c_D - c_F) > 0$ and $\Delta \equiv \alpha\kappa c_F > 0$,

$$F_{\delta_3} = \frac{d\pi_1^{\text{pet}}}{d\delta_3} - \frac{d\pi_1^{\text{off}}}{d\delta_3} = \Psi\Big(T_1^{\text{off}}, T_3^{\text{off}}\Big) - \Psi\Big(e^{-\varepsilon}\, T_1^{\text{off}},\ e^{-\Delta}\, T_3^{\text{off}}\Big),$$

where $T_j^{\text{off}} \equiv \exp(\delta_j - \alpha c_F)$.

Ψ vanishes at both extremes of T_3. Fix T_1. Combining the share formula with the markup condition, the equilibrium conditions read $s_j H = T_j\, e^{-1/(1-s_j)}$, the *fitting-in relation* of the aggregative framework. As $T_3 \to 0$, $H \ge 1$ gives $s_3 \le T_3/e \to 0$, while $s_1 e^{1/(1-s_1)} \le T_1$ bounds s_1 away from one, so $\Psi \le C(T_1)\, s_3 \to 0$. As $T_3 \to \infty$, write $u \equiv 1 - s_3$ and use the exact identity $1/s_3 = 1 + \Big(1 + T_1 e^{-1/(1-s_1)}\Big)\, e^{1/(1-s_3)}/T_3$, which forces $s_3 \to 1$ (if s_3 were bounded away from one along a sequence, the right-hand side would converge to one). Since $s_1 \le u$, $1 - s_1 \ge s_3$, and $1 - D \ge 1 - s_1 s_3 \ge 1 - u$,

$$\Psi \;\le\; \frac{1}{\alpha}\,\frac{u^2}{(1-u)^2} \;\longrightarrow\; 0.$$

In between, $\Psi(T_1, \cdot)$ is continuous and strictly positive.

Both signs of F_{δ_3} arise. Because $\Psi(T_1, \cdot)$ is strictly positive in the interior and vanishes in both limits, there are pairs $T_3^a < T_3^b$ with $\Psi(T_1, T_3^a) < \Psi(T_1, T_3^b)$ (fix T_3^b and take T_3^a close enough to zero) and pairs with the reverse ranking (fix T_3^a and take T_3^b large enough). Given such a pair, choose the primitives so that the two regimes sit at it: set $\kappa = \ln\left(T_3^b/T_3^a\right)/(\alpha c_F)$ and $\delta_3 = \ln T_3^b + \alpha c_F$, so that $T_3^{\text{off}} = T_3^b$ and $T_3^{\text{pet}} = T_3^a$. Then

$$F_{\delta_3} \;\longrightarrow\; \Psi\left(T_1, T_3^b\right) - \Psi\left(T_1, T_3^a\right) \neq 0 \qquad \text{as } \varepsilon \to 0,$$

and by continuity of the equilibrium in ε, the sign of F_{δ_3} equals the sign of $\Psi(T_1, T_3^b) - \Psi(T_1, T_3^a)$ once the cost gap $c_D - c_F$ is small enough. Finally, place the cutoff at the chosen duty. Setting $L - R_1 = \pi_1^{\text{pet}}(\kappa) - \pi_1^{\text{off}}$ (with R_1 large enough that both fixed costs are positive) gives $F(\kappa, \delta_3) = 0$, and since F is strictly increasing in the duty, $F(0, \delta_3) < 0$, so the maintained assumptions of Proposition 1 hold with $\kappa^* = \kappa$.

Conclusion. $d\kappa^*/d\delta_3 = -F_{\delta_3}/F_\kappa$ has no fixed sign with respect to δ_3. When the foreign rival is weak under the duty (the rising part of Ψ), a more attractive foreign product lowers the indifference duty κ^*; when the rival remains strong (the falling part), it raises κ^*. □

Proof of Proposition 3. Rearranging terms shows

$$\begin{aligned}\left[(\pi_{\mathcal{M}}^{\text{pet}} - L) - \pi_{\mathcal{M}}^{\text{sq}}\right] - \left[(\pi_{1,\mathcal{S}}^{\text{pet}} - L) - \pi_{1,\mathcal{S}}^{\text{sq}}\right] = \\ \left(\pi_{2,\mathcal{S}}^{\text{pet}} - \pi_{2,\mathcal{S}}^{\text{sq}}\right) + \left[(\pi_{\mathcal{M}}^{\text{pet}} - \pi_{\mathcal{M}}^{\text{sq}}) - (\pi_{1,\mathcal{S}}^{\text{pet}} + \pi_{2,\mathcal{S}}^{\text{pet}} - \pi_{1,\mathcal{S}}^{\text{sq}} - \pi_{2,\mathcal{S}}^{\text{sq}})\right].\end{aligned}$$

Appropriation effect. Standalone firm 2 sets p_2 to maximize π_2, so the envelope theorem eliminates the own-price channel. Two rival-price channels remain:

$$\frac{d\pi_2}{dc_3} = (p_2 - c_2)\left[\frac{\partial s_2}{\partial p_1}\frac{dp_1^*}{dc_3} + \frac{\partial s_2}{\partial p_3}\frac{dp_3^*}{dc_3}\right] = (p_2 - c_2)\cdot \alpha\, s_2\left[s_1\,\frac{dp_1^*}{dc_3} + s_3\,\frac{dp_3^*}{dc_3}\right] > 0.$$

Both terms are positive: $dp_3^*/dc_3 > 0$ by direct cost pass-through, and $dp_1^*/dc_3 > 0$ because prices are strategic complements in the logit Bertrand game (a higher c_3 raises p_3, which raises firm 1's best-response price). The duty raises c_3, so $\pi_{2,\mathcal{S}}^{\text{pet}} - \pi_{2,\mathcal{S}}^{\text{sq}} > 0$.

Strategic effect. I show that the tariff raises the merged firm's profit by strictly more than it raises the sum of standalone profits:

$$\left(\pi_{\mathcal{M}}^{\text{pet}} - \pi_{\mathcal{M}}^{\text{sq}}\right) \;>\; \left(\pi_{1,\mathcal{S}}^{\text{pet}} + \pi_{2,\mathcal{S}}^{\text{pet}} - \pi_{1,\mathcal{S}}^{\text{sq}} - \pi_{2,\mathcal{S}}^{\text{sq}}\right).$$

I use the aggregative-games framework of Nocke and Schutz (2018, 2025) introduced in the proof of Proposition 2. The uniqueness of equilibrium extends to multiproduct firms (Nocke and Schutz, 2025, Proposition 1). A multiproduct firm's portfolio is summarized by the sum of its product types, so the merged entity has type $T_{\mathcal{M}} = T_1 + T_2$ (Nocke and Schutz, 2025, Section 2).

The tariff raises c_3 to $(1+\kappa)c_F$, lowering T_3 while leaving T_1, T_2, and $T_{\mathcal{M}}$ unchanged. By Proposition 1 of Nocke and Schutz (2025), this strictly lowers the equilibrium aggregator H^* and strictly raises every rival's profit. I show that this profit increase is strictly larger for the merged entity than for the standalone firms combined. To establish this, it suffices to show that $d\pi_{\mathcal{M}}/dc_3 > d(\pi_{1,\mathcal{S}} + \pi_{2,\mathcal{S}})/dc_3$ at every $c_3 \in [c_F, (1+\kappa)c_F]$, since integrating over this interval yields the desired level comparison.

Let $S_f \equiv \sum_{j \in \mathcal{J}_f} s_j$ denote firm f's market share. The aggregative structure yields a uniform markup across all products of the same firm. The *ι-markup* (Nocke and Schutz, 2018, eq. 4) on product j is the product of the Lerner index and the perceived demand elasticity under monopolistic competition, which simplifies to:

$$\mu_j \;\equiv\; (p_j - c_j) \cdot \alpha,$$

where α is the marginal utility of income.[23] A key property is that all products of the same firm share a common ι-markup: $\mu_j = \mu_f$ for all $j \in \mathcal{J}_f$, where $\mu_f = 1/(1-S_f)$ (Nocke and Schutz, 2025, eq. 5). This implies $p_j - c_j = \mu_f/\alpha = 1/[\alpha(1-S_f)]$ for all $j \in \mathcal{J}_f$, consistent with the Bertrand-logit FOC.

For any firm $f \neq 3$, the tariff enters firm f's problem only through the aggregator H. Its own type T_f does not depend on c_3, and under the aggregative structure its equilibrium profit depends on rivals only through H. Let

$$\Phi \;\equiv\; -\frac{1}{\alpha H^*}\frac{dH^*}{dc_3} \;\geq\; 0$$

denote the common rate at which the tariff erodes the equilibrium aggregator. Then every such firm's equilibrium profit satisfies

$$\frac{d\pi_f}{dc_3} \;=\; g(S_f)\,\Phi, \qquad g(S) \equiv \frac{S}{1-S+S^2}.$$

To see this, the common ι-markup gives $\pi_f = S_f/[\alpha(1-S_f)]$, and firm f's share solves the same fitting-in relation as in the proof of Proposition 2, now at the firm level: $S_f H =$

[23] In the notation of Nocke and Schutz (2025) the logit scale parameter is λ, where $\lambda = \frac{1}{\alpha}$.

$T_f\, e^{-1/(1-S_f)}$. Differentiating the fitting-in relation at fixed T_f yields $\partial S_f/\partial H = -(1 - S_f)^2 g(S_f)/H$. Differentiating π_f with respect to H and substituting in $\partial S_f/\partial H$ yields

$$\frac{\partial \pi_f}{\partial H} = \frac{1}{\alpha(1-S_f)^2}\,\frac{\partial S_f}{\partial H} = -\frac{g(S_f)}{\alpha H}.$$

Multiplying this by the equilibrium response dH^*/dc_3 gives $\frac{d\pi_f}{dc_3}$. The entire cross-price feedback is absorbed into the single scalar dH^*/dc_3.

Applying this to the merged entity and to the two standalone domestic firms gives

$$\frac{d\pi_{\mathcal{M}}}{dc_3} = g(S_{\mathcal{M}})\,\Phi^{\mathcal{M}}, \qquad \frac{d(\pi_{1,\mathcal{S}} + \pi_{2,\mathcal{S}})}{dc_3} = \Big[g(s_1) + g(s_2)\Big]\,\Phi^{\mathcal{S}},$$

where $\Phi^{\mathcal{M}}$ and $\Phi^{\mathcal{S}}$ denote this aggregator-erosion rate in the merged and standalone equilibria. The pointwise inequality $d\pi_{\mathcal{M}}/dc_3 > d(\pi_{1,\mathcal{S}} + \pi_{2,\mathcal{S}})/dc_3$ is therefore

$$g(S_{\mathcal{M}})\,\Phi^{\mathcal{M}} \;>\; \Big[g(s_1) + g(s_2)\Big]\,\Phi^{\mathcal{S}}. \tag{A.1}$$

Because the merged firm enters only through its combined type $T_{\mathcal{M}} = T_1 + T_2$, the left-hand side of (A.1) depends on the domestic primitives only through $T_{\mathcal{M}}$. Hold $T_{\mathcal{M}}$ and T_3 fixed and let

$$\Xi(T_1, T_2) \;\equiv\; \Big[g(s_1) + g(s_2)\Big]\,\Phi^{\mathcal{S}}$$

be the standalone gain as the combined type is split between the two domestic firms, $T_1 + T_2 = T_{\mathcal{M}}$. When all of $T_{\mathcal{M}}$ is assigned to one firm, the other exits and the standalone market coincides with the merged market, so $\Xi(T_{\mathcal{M}}, 0) = g(S_{\mathcal{M}})\,\Phi^{\mathcal{M}}$. Proving inequality (A.1) is therefore equivalent to proving $\Xi(T_1, T_2) \;<\; \Xi(T_{\mathcal{M}}, 0)$. The intuition behind why the domestic gain of a tariff is strictly largest under full concentration is that the domestic merger leaves the foreign rival a proportionally larger part of the competitive environment, so weakening it through the tariff benefits the merged firm more.

To compare the effects of the merger on Ξ on a more gradual scale, we can consider shifting a marginal amount of type from the smaller to the larger domestic firm. In the standalone regime each domestic firm sells a single product, so its share s_i obeys the fitting-in relation $s_i H = T_i\, e^{-1/(1-s_i)}$. Taking logs, $\ln s_i + \ln H = \ln T_i - 1/(1 - s_i)$, and totally differentiating in its type T_i and the aggregator H,

$$\left(\tfrac{1}{s_i} + \tfrac{1}{(1-s_i)^2}\right) ds_i = d\ln T_i - d\ln H.$$

With $N(s) \equiv s(1-s)^2/(1-s+s^2)$, the bracket equals $1/N(s_i)$, so

$$ds_i = N(s_i)\Big(d\ln T_i - d\ln H\Big). \tag{A.2}$$

$N(s_i)$ is firm i's share response to its own type, holding H fixed.

The aggregator H then moves so that the market clears. With outside share $s_0 = 1/H$, clearing is $s_0 + s_1 + s_2 + s_3 = 1$; differentiating it ($ds_0 = -s_0\, d\ln H$) and substituting (A.2) for a transfer $dT_1 = -dT_2 > 0$ toward the larger firm ($s_1 \geq s_2$) gives

$$d\ln H = \frac{N(s_1)/T_1 - N(s_2)/T_2}{s_0 + N(s_1) + N(s_2) + N(s_3)}\, dT_1 < 0,$$

where the numerator is negative because $N(s_i)/T_i = \rho(s_i)/H$ with $\rho(s) \equiv N(s)/\varphi(s)$ and $\varphi(s) \equiv s\, e^{1/(1-s)}$, and ρ is strictly decreasing. Writing $d(s) \equiv 1 - s + s^2$, direct differentiation gives $(\ln\varphi)' = 1/N$ and $1 - N'(s) = s(2-s)/d(s)^2$, so $\Big(\ln\rho(s)\Big)' = -\,(2-s)/\Big[d(s)(1-s)^2\Big] < 0$. The aggregator falls for the familiar reason that a merger without efficiencies raises prices. Concentrating production in the larger, higher-markup firm pushes domestic prices up, shifting demand to the foreign product and the outside good.

Normalize the speed of the transfer so that $-\,d\ln H = 1$. Substituting back into (A.2) and clearing, the transfer moves shares by

$$ds_1 = a + N(s_1), \quad ds_2 = -\Big(a + s_0 + N(s_1) + N(s_3)\Big), \quad ds_3 = N(s_3), \quad ds_0 = s_0, \tag{A.3}$$

where, with $\Sigma \equiv s_0 + \sum_j N(s_j)$ and $\rho_i \equiv \rho(s_i)$,

$$a \;\equiv\; \frac{\Sigma\,\rho_1}{\rho_2 - \rho_1} \;>\; 0$$

because ρ is strictly decreasing and $s_1 > s_2$. Differentiating $\Xi = A\,N(s_3)/\Sigma$ with $A \equiv g(s_1) + g(s_2)$ along (A.3) and collecting terms,

$$d\Xi = \frac{N(s_3)}{\Sigma}\Big(a\,K + D_0\Big), \tag{A.4}$$

with

$$\begin{aligned} K &\equiv \Big[g'(s_1) - g'(s_2)\Big] - \frac{A}{\Sigma}\Big[N'(s_1) - N'(s_2)\Big], \\ D_0 &\equiv g'(s_1)N(s_1) - g'(s_2)\Big(s_0 + N(s_1) + N(s_3)\Big) + A\,N'(s_3) \\ &\qquad - \frac{A}{\Sigma}\Big[s_0 + N'(s_3)N(s_3) + N'(s_1)N(s_1) - N'(s_2)\Big(s_0 + N(s_1) + N(s_3)\Big)\Big]. \end{aligned}$$

The same construction applies to the erosion rate itself. Differentiating $\Phi = N(s_3)/\Sigma$ along (A.3),

$$d\Phi = \frac{N(s_3)}{\Sigma^2}\Big(D_0^{\Phi} + a\Big[N'(s_2) - N'(s_1)\Big]\Big),$$

with

$$D_0^{\Phi} \equiv N'(s_3)\Big(s_0 + N(s_1) + N(s_2)\Big) - s_0 - N'(s_1)N(s_1) + N'(s_2)\Big(s_0 + N(s_1) + N(s_3)\Big).$$

Neither D_0 nor D_0^{Φ} has a fixed sign, but the totals do: at every share vector with $0 < s_2 < s_1$ and $s_1 + s_2 + s_3 < 1$,

$$a\,K + D_0 \;>\; 0 \qquad \text{and} \qquad D_0^{\Phi} + a\Big[N'(s_2) - N'(s_1)\Big] \;>\; 0.$$

Both brackets are explicit functions of the share vector alone, and I verify the two inequalities numerically on this entire set.[24] Proposition 4 of Nocke and Whinston (2022) establishes the fixed-equilibrium version of this comparison for CES and logit demand. There, a sum-preserving concentration of rival shares raises the aggregator's responsiveness to a firm's type, holding the equilibrium fixed. The step here additionally tracks the equilibrium adjustment induced by a merger without synergies. Hence $d\Xi > 0$ and $d\Phi > 0$ at every point of the path with $s_1 > s_2$, so Ξ rises as type concentrates and is largest under full concentration. The proof of Proposition 5 uses the same monotonicity of the erosion rate Φ.

Therefore Ξ is maximized under full concentration, (A.1) holds at every c_3, and the strategic component is strictly positive. Combining the two parts,

$$\Big[(\pi_{\mathcal{M}}^{\text{pet}} - L) - \pi_{\mathcal{M}}^{\text{sq}}\Big] - \Big[(\pi_{1,\mathcal{S}}^{\text{pet}} - L) - \pi_{1,\mathcal{S}}^{\text{sq}}\Big] > 0.$$

□

Proof of Proposition 4. Expand and collect terms as in Proposition 3.

Appropriation effect. The same logic as in Proposition 3 applies. Logit demand implies $\partial s_2/\partial p_3 = \alpha s_2 s_3 > 0$, and Bertrand pass-through implies $dp_3/dc_3 > 0$, so a duty on firm 3 strictly raises firm 2's profit pre-merger: $\pi_{2,\mathcal{S}}^{\text{pet}} > \pi_{2,\mathcal{S}}^{\text{sq}}$. Conversely, pre-merger offshoring

[24] Every admissible primitive vector (qualities, costs, α, the duty, and any cost level c_3 on the integration path above) induces a vector of standalone equilibrium shares, and the two brackets depend on the primitives only through that vector. Checking every admissible share vector therefore covers the model's entire parameter space. I evaluate both brackets on a uniform grid of mesh 0.002 over this set (10,261,124 configurations with $s_1 > s_2$), on a boundary-refined grid with shares as small as 10^{-4}, and at 2×10^7 random draws with a fixed seed and find no violations.

by firm 1 lowers c_1 to c_F and reduces p_1. Since products are substitutes ($\partial s_2/\partial p_1 > 0$), this cannibalizes firm 2's demand, implying $\pi^{\text{off}}_{2,\mathcal{S}} < \pi^{\text{sq}}_{2,\mathcal{S}}$. Combining these inequalities yields $\pi^{\text{off}}_{2,\mathcal{S}} < \pi^{\text{sq}}_{2,\mathcal{S}} < \pi^{\text{pet}}_{2,\mathcal{S}}$. Hence the appropriation term is strictly positive:

$$\pi^{\text{pet}}_{2,\mathcal{S}} - \pi^{\text{off}}_{2,\mathcal{S}} > 0.$$

Strategic effect. Decompose each ownership structure's petitioning-over-offshoring gain by inserting $\pm\pi^{\text{sq}}$:

$$\pi^{\text{pet}}_f - \pi^{\text{off}}_f = \underbrace{\left(\pi^{\text{pet}}_f - \pi^{\text{sq}}_f\right)}_{\text{tariff gain}} - \underbrace{\left(\pi^{\text{off}}_f - \pi^{\text{sq}}_f\right)}_{\text{offshoring gain}},$$

where f denotes either the merged entity $\mathcal{M}$ or the sum of standalone firms $1,\mathcal{S}$ and $2,\mathcal{S}$. The strategic effect therefore decomposes as:

$$\begin{aligned}
&\left(\pi^{\text{pet}}_{\mathcal{M}} - \pi^{\text{off}}_{\mathcal{M}}\right) - \left(\pi^{\text{pet}}_{1,\mathcal{S}} + \pi^{\text{pet}}_{2,\mathcal{S}} - \pi^{\text{off}}_{1,\mathcal{S}} - \pi^{\text{off}}_{2,\mathcal{S}}\right) \\
&= \underbrace{\left[\left(\pi^{\text{pet}}_{\mathcal{M}} - \pi^{\text{sq}}_{\mathcal{M}}\right) - \left(\pi^{\text{pet}}_{1,\mathcal{S}} + \pi^{\text{pet}}_{2,\mathcal{S}} - \pi^{\text{sq}}_{1,\mathcal{S}} - \pi^{\text{sq}}_{2,\mathcal{S}}\right)\right]}_{\text{Term A: merger's excess tariff gain}} - \underbrace{\left[\left(\pi^{\text{off}}_{\mathcal{M}} - \pi^{\text{sq}}_{\mathcal{M}}\right) - \left(\pi^{\text{off}}_{1,\mathcal{S}} + \pi^{\text{off}}_{2,\mathcal{S}} - \pi^{\text{sq}}_{1,\mathcal{S}} - \pi^{\text{sq}}_{2,\mathcal{S}}\right)\right]}_{\text{Term B: merger's excess offshoring gain}}.
\end{aligned}$$

Term A is strictly positive. By Proposition 3, the tariff raises the merged entity's profit by strictly more than it raises the sum of standalone profits. Term A is exactly the strategic effect from Proposition 3, which is strictly positive.

Sign of the strategic effect. The sign depends on the relative magnitudes of Term A (the merger's excess tariff gain) and Term B (the merger's excess offshoring gain).

If $c_D = c_F$, offshoring offers no cost advantage, so $\pi^{\text{off}}_f = \pi^{\text{sq}}_f$ for all firms and Term B $= 0$. The strategic effect then equals Term A > 0. So the strategic effect can be positive.

If $\kappa = 0$, the tariff offers no protection, so $\pi^{\text{pet}}_f = \pi^{\text{sq}}_f$ for all firms and Term A $= 0$. The strategic effect equals $-$Term B. Two forces push Term B positive: the merger enables offshoring of product 2 ($c_2\colon c_D \to c_F$), an option unavailable to standalone firms, and standalone firm 2 is strictly hurt by firm 1's offshoring ($\partial s_2/\partial p_1 = \alpha s_1 s_2 > 0$ and $dp_1/dc_1 > 0$ imply $\pi^{\text{off}}_{2,\mathcal{S}} < \pi^{\text{sq}}_{2,\mathcal{S}}$). So the strategic effect can be negative.

Term A is continuous and strictly increasing in κ. Its derivative in κ is proportional to the pointwise inequality established in the proof of Proposition 3, evaluated at $c_3 = (1+\kappa)c_F$. It satisfies Term A$(0) = 0$ and is bounded above. As $\kappa \to \infty$, the foreign type tends to zero and every profit in Term A converges monotonically to its value in the market without firm 3 (Nocke and Schutz, 2025, Proposition 1), so Term A increases to a finite prohibitive-tariff limit $\bar{A}$. Term B does not depend on κ and equals zero at $c_D = c_F$. Hence SE$(\kappa) =$

Term A(κ)−Term B is strictly increasing with SE(0) = −Term B, and there is a unique threshold $\kappa^{SE} \in [0, \infty]$ such that SE(κ) > 0 if and only if $\kappa > \kappa^{SE}$. The threshold is strictly positive if and only if Term B > 0, that is, if and only if the merger strictly raises the joint gains from offshoring. It is finite if and only if $\bar{A}$ > Term B, which fails when the cost gap $c_D - c_F$ makes the offshoring option sufficiently valuable.

Therefore, the appropriation component is strictly positive, while the strategic component is positive precisely above the threshold κ^{SE}. The threshold is strictly positive whenever the merger raises the joint gains from offshoring, and infinite whenever the merger's excess offshoring gain exceeds its prohibitive-tariff gain. □

Proof of Proposition 5. Consumer surplus under logit demand is $CS = \frac{1}{\alpha} \log H^*$ (Small and Rosen, 1981), so the tariff's marginal consumer harm

$$-\frac{dCS}{dc_3} = -\frac{1}{\alpha H^*} \frac{dH^*}{dc_3}$$

is exactly the aggregator-erosion rate Φ from the proof of Proposition 3. As there, the merger raises total harm over $c_3 \in [c_F, (1+\kappa)c_F]$ if and only if it raises Φ at each c_3.

The proof of Proposition 3 shows that Φ strictly rises along the type transfer that concentrates the domestic side. Holding $T_{\mathcal{M}} = T_1 + T_2$ and T_3 fixed, $d\Phi > 0$ at every point of the path with $s_1 > s_2$. Thus $\Phi^{\mathcal{S}}$ is largest when all of $T_{\mathcal{M}}$ sits in a single firm, where the standalone market coincides with the merged one and $\Phi^{\mathcal{S}} = \Phi^{\mathcal{M}}$. Hence

$$\Phi^{\mathcal{M}} \;\geq\; \Phi^{\mathcal{S}} \qquad \text{at every } c_3,$$

with equality only in the degenerate limit $T_1 \to 0$ or $T_2 \to 0$. Integrating over c_3, the merger raises the total consumer harm from the tariff, for any pre-merger foreign share s_3. □

Proof of Proposition 6. Expand the petitioning premia, noting that $\Pi^{\text{pet}}_{\mathcal{X}} = \pi^{\text{pet}}_{\mathcal{X}} - L - R_1$, $\Pi^{\text{sq}}_{\mathcal{X}} = \pi^{\text{sq}}_{\mathcal{X}}$, $\Pi^{\text{pet}}_{1,\mathcal{S}} = \pi^{\text{pet}}_{1,\mathcal{S}} - L$, and $\Pi^{\text{sq}}_{1,\mathcal{S}} = \pi^{\text{sq}}_{1,\mathcal{S}}$:

$$\Delta^{\text{pet}}_{1,\mathcal{X}} - \Delta^{\text{pet}}_{1,\mathcal{S}} = \left(\pi^{\text{pet}}_{\mathcal{X}} - \pi^{\text{sq}}_{\mathcal{X}}\right) - \left(\pi^{\text{pet}}_{1,\mathcal{S}} - \pi^{\text{sq}}_{1,\mathcal{S}}\right) - R_1.$$

Add and subtract $(\pi^{\text{pet}}_{4,\mathcal{S}} - \pi^{\text{sq}}_{4,\mathcal{S}})$:

$$\begin{aligned}\Delta^{\text{pet}}_{1,\mathcal{X}} - \Delta^{\text{pet}}_{1,\mathcal{S}} = &\left(\pi^{\text{pet}}_{4,\mathcal{S}} - \pi^{\text{sq}}_{4,\mathcal{S}}\right) \\ &+ \left[(\pi^{\text{pet}}_{\mathcal{X}} - \pi^{\text{sq}}_{\mathcal{X}}) - (\pi^{\text{pet}}_{1,\mathcal{S}} + \pi^{\text{pet}}_{4,\mathcal{S}} - \pi^{\text{sq}}_{1,\mathcal{S}} - \pi^{\text{sq}}_{4,\mathcal{S}})\right] - R_1.\end{aligned}$$

Appropriation effect (< 0). The tariff raises the costs of all foreign-produced units. Standalone firm 4 faces cost $(1+\kappa)c_F$ under petitioning versus c_F under status quo. In the logit model, a single-product firm's equilibrium profit is $\pi_j = s_j/[\alpha(1-s_j)]$, which is strictly increasing in its market share s_j. The tariff raises firm 4's price, shifting demand toward domestic firms (1 and 2) and the outside good, strictly reducing s_4.

More precisely, the tariff raises the costs of both foreign firms (3 and 4) symmetrically, leaving their competitive position relative to each other unchanged but weakening both relative to domestic firms 1 and 2. The aggregate foreign share falls, and firm 4's profit strictly declines: $\pi^{\text{pet}}_{4,\mathcal{S}} < \pi^{\text{sq}}_{4,\mathcal{S}}$.

Relocation cost ($-R_1 < 0$). Immediate from $R_1 > 0$.

Strategic effect (no fixed sign). The strategic effect captures the net effect of joint pricing and cost restructuring. Under the merger with petitioning, product 4 operates at c_D (relocated), whereas standalone firm 4 operates at $(1+\kappa)c_F$. Both signs arise.

At $\kappa = 0$, petitioning and status quo coincide for the standalone firms, so the strategic effect equals $\pi^{\text{pet}}_{\mathcal{X}} - \pi^{\text{sq}}_{\mathcal{X}} < 0$. Relocation raises product 4's cost from c_F to c_D, which lowers the merged entity's type and hence its equilibrium profit (Nocke and Schutz, 2025, Proposition 1), with no offsetting duty on the rivals. By continuity, the strategic effect is strictly negative for κ small.

For the opposite sign, let the target dominate the market. Fix κ with $(1+\kappa)c_F > c_D$. By continuity of the equilibrium in types, it suffices to sign the limit market in which firms 2 and 3 are negligible ($\delta_2, \delta_3 \to -\infty$), so that only firm 1 (at c_D) and product 4 compete, and to let $\delta_4 \to \infty$. Firm 1's profit terms vanish in this limit, since its share vanishes in every configuration. For the firm owning product 4, write each profit difference as an integral of the own-cost derivative. By the aggregative apparatus from the proof of Proposition 3, a firm's equilibrium profit responds to its own type by $d\pi_f/d\ln T_f = g(S_f)\Big[1 - N(S_f)/\Sigma\Big]/\alpha$, while $d\ln T_f/dc_4 = -\alpha\,\omega_f$, where ω_f denotes product 4's weight in the owner's type ($\omega_f = 1$ for standalone firm 4). As $\delta_4 \to \infty$, the own-cost integrand $-d\pi_f/dc_4 = g(S_f)\Big[1 - N(S_f)/\Sigma\Big]\,\omega_f$ converges to one uniformly over the relevant cost range, because $S_4 \to 1$, $N(S_4)/\Sigma \to 0$, and $\omega_{\mathcal{X}} \to 1$ (the product-4 component of $T_{\mathcal{X}}$ diverges while the product-1 component is fixed).[25] Hence

$$\pi^{\text{sq}}_{4,\mathcal{S}} - \pi^{\text{pet}}_{4,\mathcal{S}} \;\longrightarrow\; \kappa c_F, \qquad \pi^{\text{sq}}_{\mathcal{X}} - \pi^{\text{pet}}_{\mathcal{X}} \;\longrightarrow\; c_D - c_F,$$

and the strategic effect converges to $\kappa c_F - (c_D - c_F) > 0$. When the target dominates, the

[25] S_4 is decreasing in product 4's cost, so uniform convergence over the compact cost range follows from pointwise convergence at the highest cost. For the second claim, $N(S) \le \frac{4}{3}(1-S)^2$ since $d(S) \ge \frac{3}{4}$, while $\Sigma \ge s_0 \ge (1-S_4)/(1+T_1/e)$, where $T_1 \equiv \exp(\delta_1 - \alpha c_D)$: every rival share satisfies $s_j/s_0 = T_j\, e^{-1/(1-s_j)} \le T_j/e$.

standalone benchmark loses the duty κc_F on firm 4's cost base, whereas the merged entity accepts only the relocation cost increase $c_D - c_F$; the strategic effect is positive precisely when the avoided duty exceeds the accepted cost increase.

□

III Appendix to Section 7

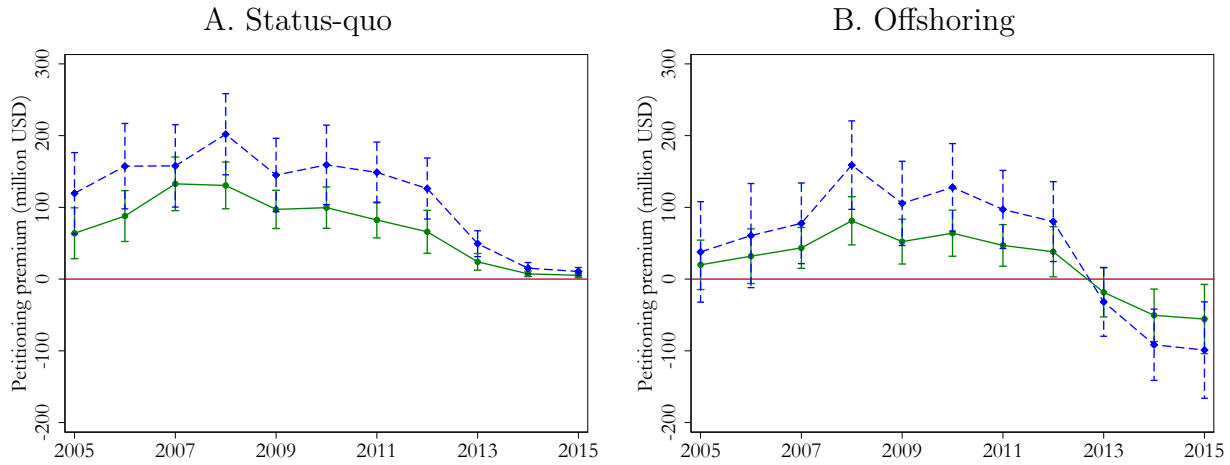
This appendix complements the global-tariff results in the main text. For each merger and each narrower tariff scope (Korea+Mexico and China+Korea+Mexico), it reports the petitioning premium, its decomposition into appropriation and strategic effects, and the consumer-surplus effect. It also reports the appropriation and strategic decomposition for the global cross-border merger, whose premium and consumer-surplus effects appear in the main text, and a sensitivity analysis treating Kenmore top-loaders as Whirlpool products and Kenmore front-loaders as LG products.

III.A Domestic Merger

III.A.1 Korea+Mexico

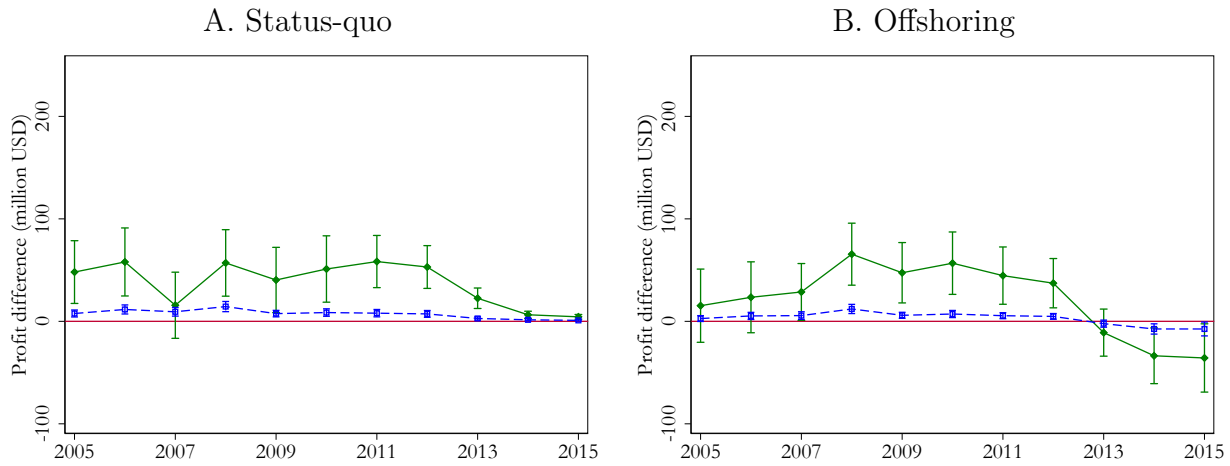
Figures A.1–A.3 report, for a 50% tariff on Korea and Mexico, the petitioning premium of the Whirlpool–Maytag merger, its appropriation and strategic decomposition, and its consumer-surplus effect. Relative to the global tariff, the premium is smaller and, absent the merger, turns negative in the later years, as imports shift toward untaxed origins and a narrow duty loses bite.

Figure A.1: Domestic merger: petitioning versus its no-tariff alternative, $\kappa = 50\%$, Korea+Mexico



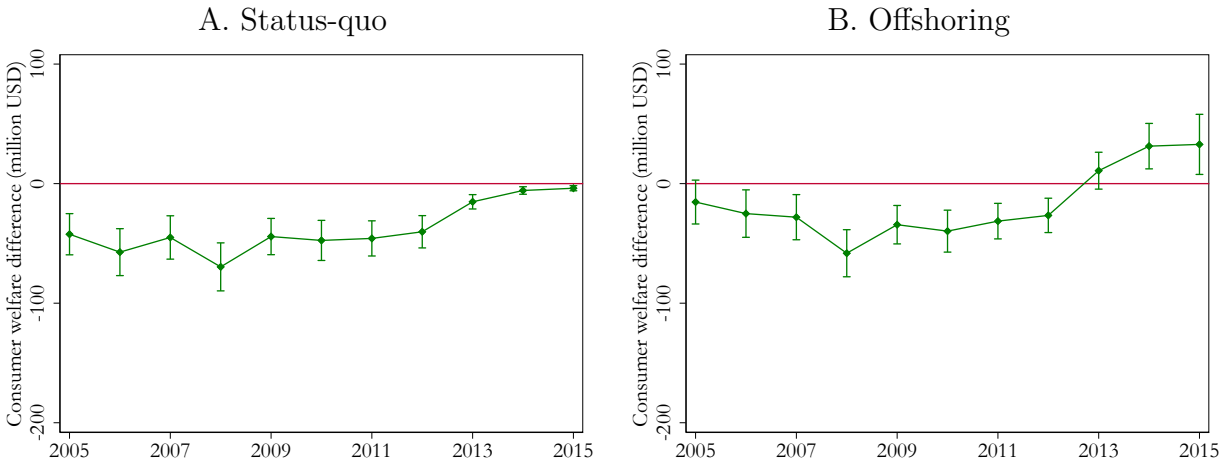
Notes: The figure plots Whirlpool's variable profit from a 50% tariff on imports from Korea and Mexico relative to its no-tariff alternative (the status-quo production configuration in Panel A, offshoring in Panel B), by year, without the merger (solid green) and under the Whirlpool–Maytag merger (dashed blue). Positive values indicate that petitioning is more profitable than the alternative in variable-profit terms. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

Figure A.2: Domestic merger: appropriation and strategic effects, $\kappa = 50\%$, Korea+Mexico



Notes: The figure shows how for a Whirlpool–Maytag merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% tariff on imports from Korea and Mexico. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

Figure A.3: Domestic merger: consumer surplus effect, $\kappa = 50\%$, Korea+Mexico

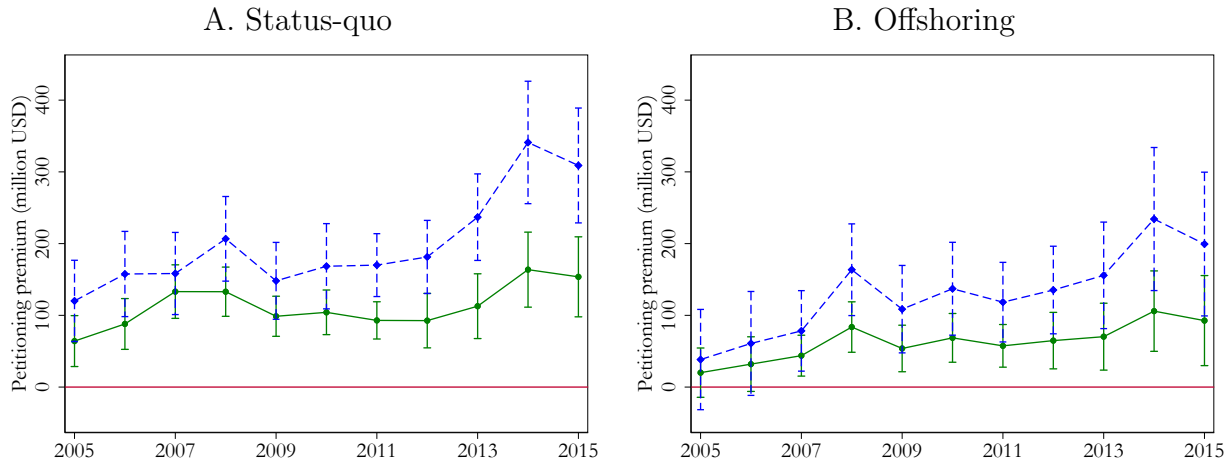


Notes: The figure shows how a Whirlpool–Maytag merger changes the consumer surplus effect of a 50% tariff on imports from Korea and Mexico. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

III.A.2 China+Korea+Mexico

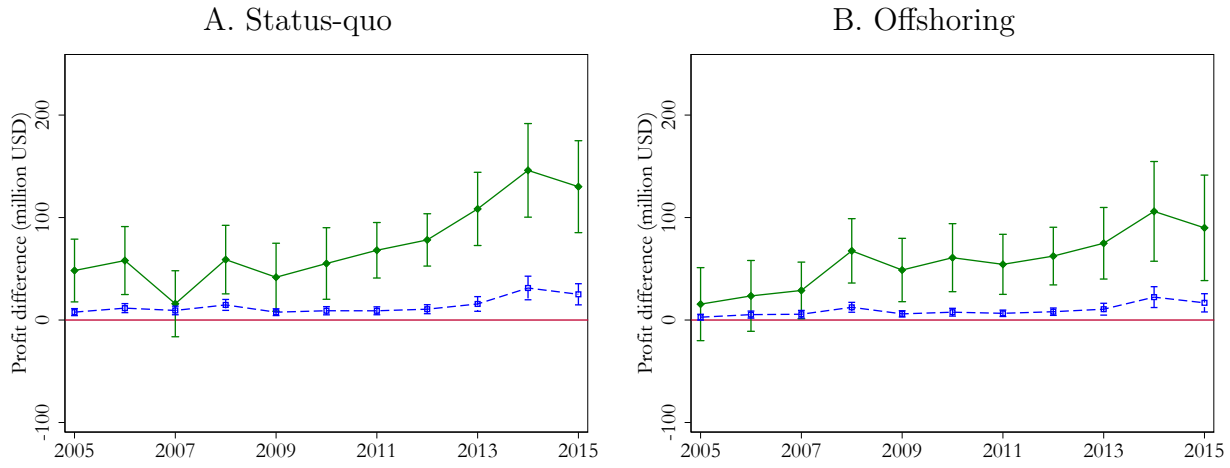
Figures A.4–A.6 report the same objects for a tariff on China, Korea, and Mexico. These origins account for most imports by the end of the sample, so the results closely track the global case.

Figure A.4: Domestic merger: petitioning versus its no-tariff alternative, $\kappa = 50\%$, China+Korea+Mexico



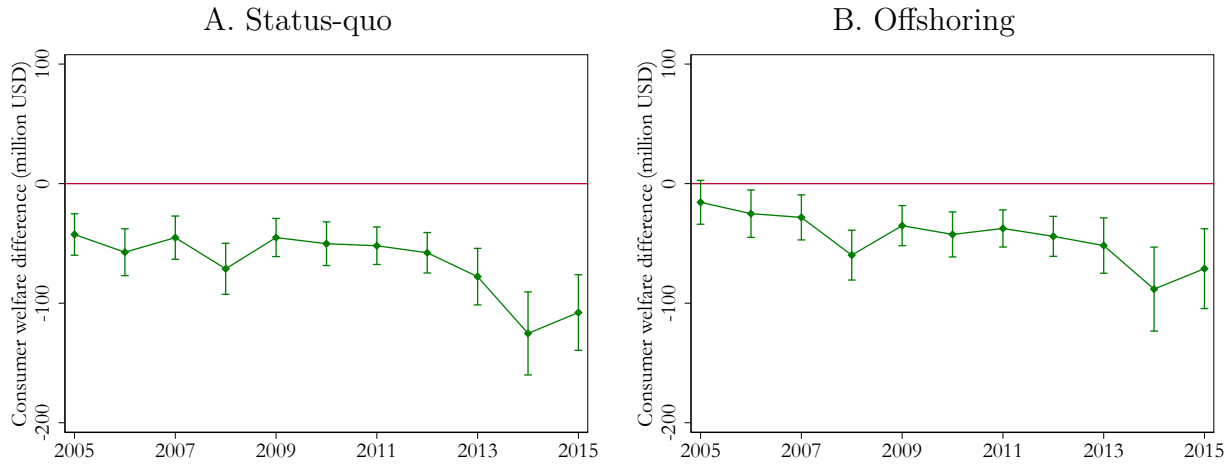
Notes: The figure plots Whirlpool's variable profit from a 50% tariff on imports from China, Korea, and Mexico relative to its no-tariff alternative (the status-quo production configuration in Panel A, offshoring in Panel B), by year, without the merger (solid green) and under the Whirlpool–Maytag merger (dashed blue). Positive values indicate that petitioning is more profitable than the alternative in variable-profit terms. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

Figure A.5: Domestic merger: appropriation and strategic effects, $\kappa = 50\%$, China+Korea+Mexico



Notes: The figure shows how for a Whirlpool–Maytag merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% tariff on imports from China, Korea, and Mexico. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

Figure A.6: Domestic merger: consumer surplus effect, $\kappa = 50\%$, China+Korea+Mexico



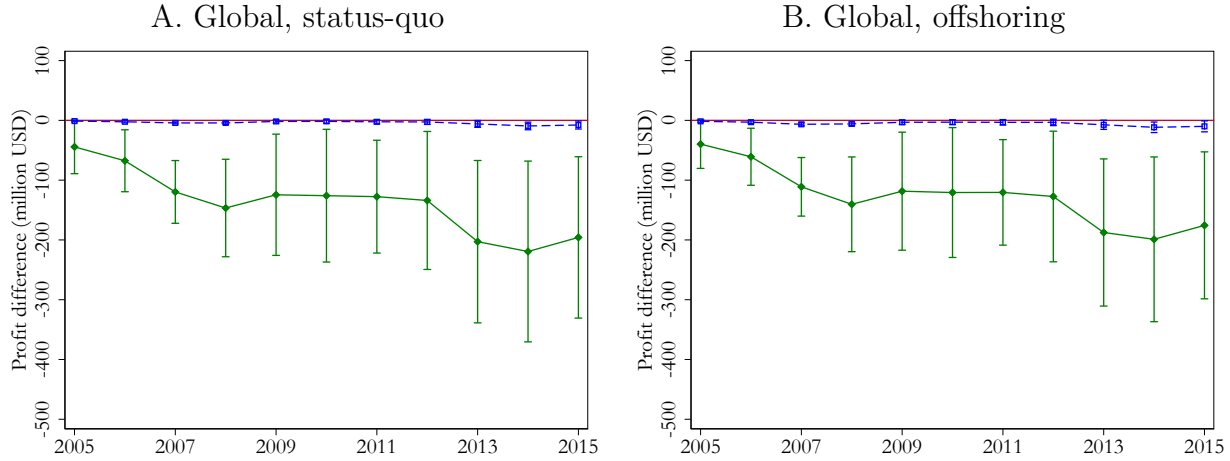
Notes: The figure shows how a Whirlpool–Maytag merger changes the consumer surplus effect of a 50% tariff on imports from China, Korea, and Mexico. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

III.B Cross-Border Merger

III.B.1 Global tariffs

Figure A.7 decomposes the global cross-border result into the appropriation and strategic effects. The petitioning-premium and consumer-surplus versions are in the main text (Figures 6 and 7).

Figure A.7: Cross-border merger: appropriation and strategic effects, $\kappa = 50\%$, global tariffs

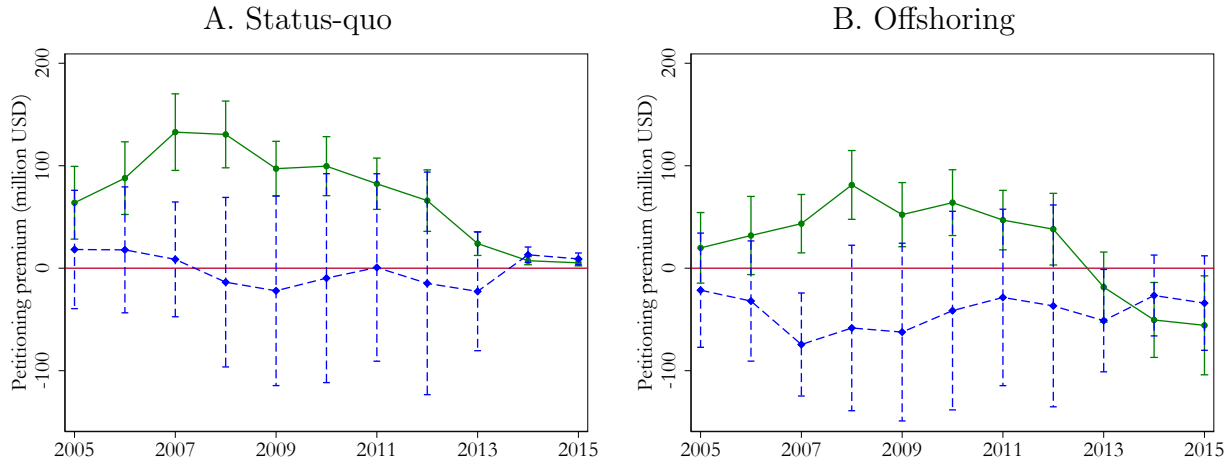


Notes: The figure shows how for a Whirlpool–LG merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% global tariff. 95% bootstrap confidence intervals are obtained by re-sampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

III.B.2 Korea+Mexico

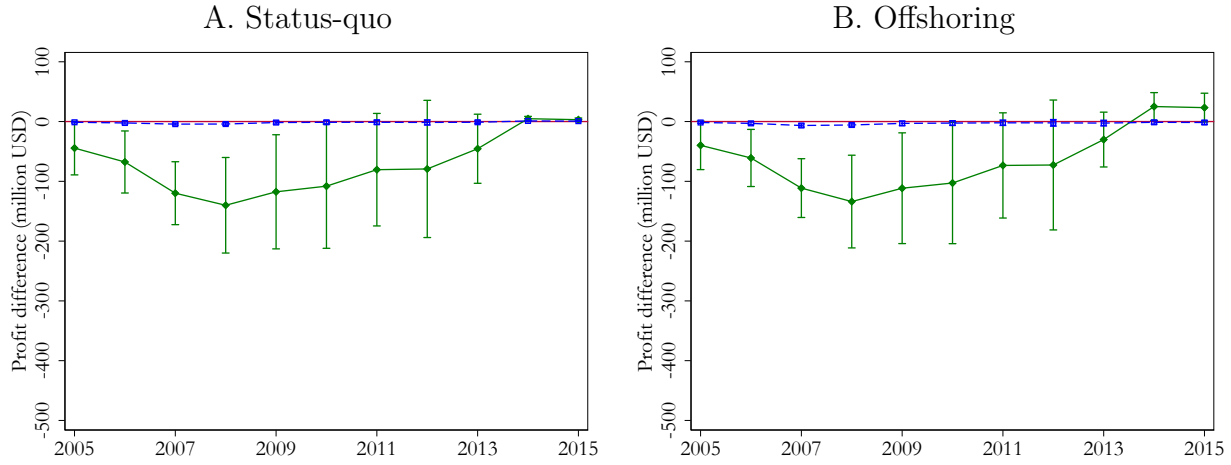
Figures A.8–A.10 report the petitioning premium, its decomposition, and its consumer-surplus effect for the cross-border Whirlpool–LG merger under a Korea+Mexico tariff. As under the global duty, the merger lowers the premium, though by less.

Figure A.8: Cross-border merger: petitioning versus its no-tariff alternative, $\kappa = 50\%$, Korea+Mexico



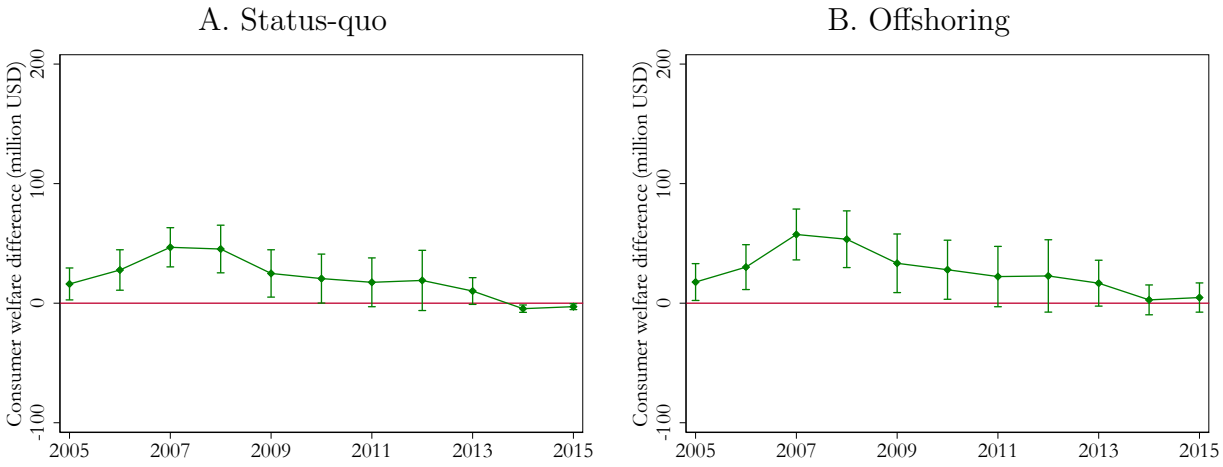
Notes: The figure plots Whirlpool's variable profit from a 50% tariff on imports from Korea and Mexico relative to its no-tariff alternative (the status-quo production configuration in Panel A, offshoring in Panel B), by year, without the merger (solid green) and under the Whirlpool–LG merger (dashed blue). Positive values indicate that petitioning is more profitable than the alternative in variable-profit terms. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

Figure A.9: Cross-border merger: appropriation and strategic effects, $\kappa = 50\%$, Korea+Mexico



Notes: The figure shows how for a Whirlpool–LG merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% tariff on imports from Korea and Mexico. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

Figure A.10: Cross-border merger: consumer surplus effect, $\kappa = 50\%$, Korea+Mexico

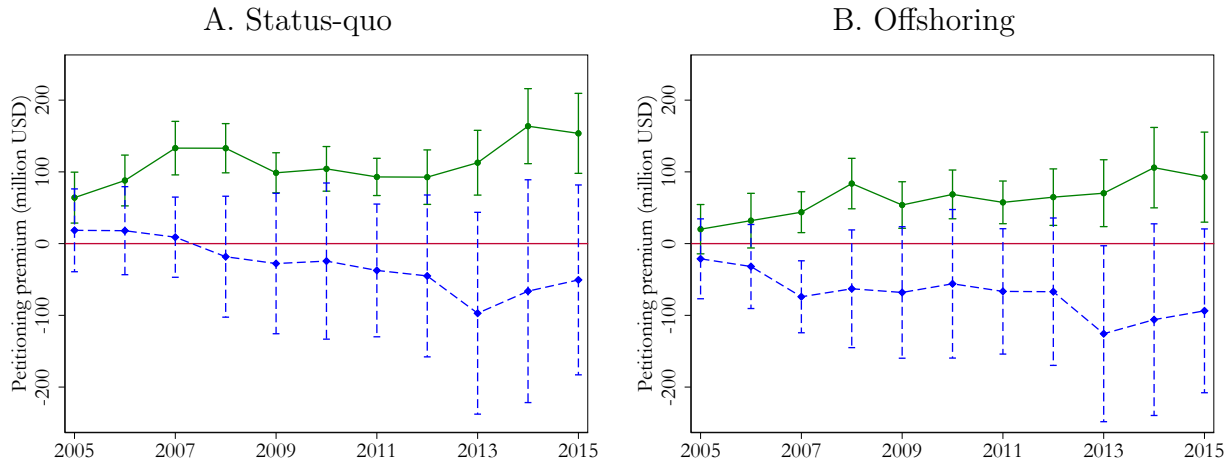


Notes: The figure shows how a Whirlpool–LG merger changes the consumer surplus effect of a 50% tariff on imports from Korea and Mexico. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

III.B.3 China+Korea+Mexico

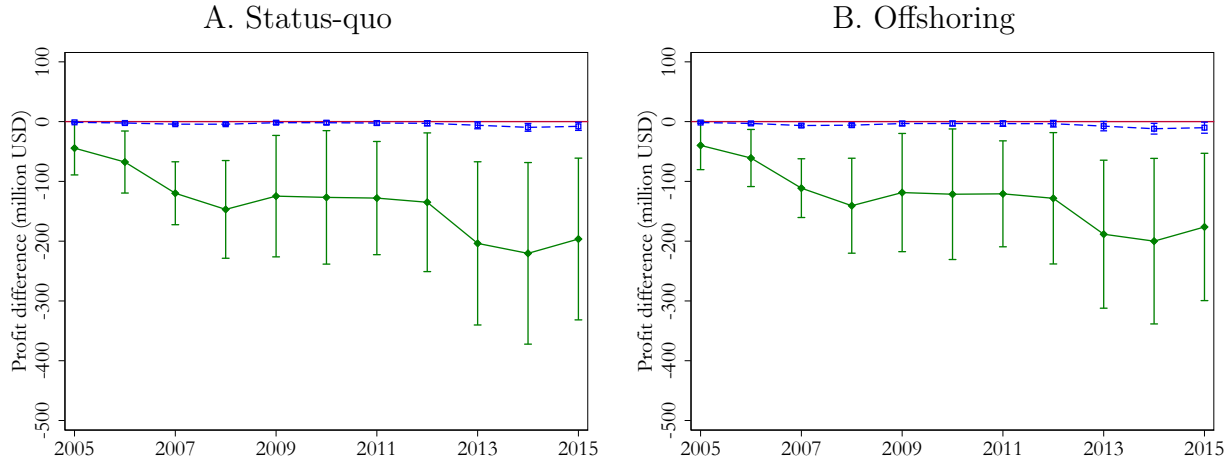
Figures A.11–A.13 report the China+Korea+Mexico case for the cross-border merger; the merger again lowers the premium and pushes it below zero, as in the global scenario.

Figure A.11: Cross-border merger: petitioning versus its no-tariff alternative, $\kappa = 50\%$, China+Korea+Mexico



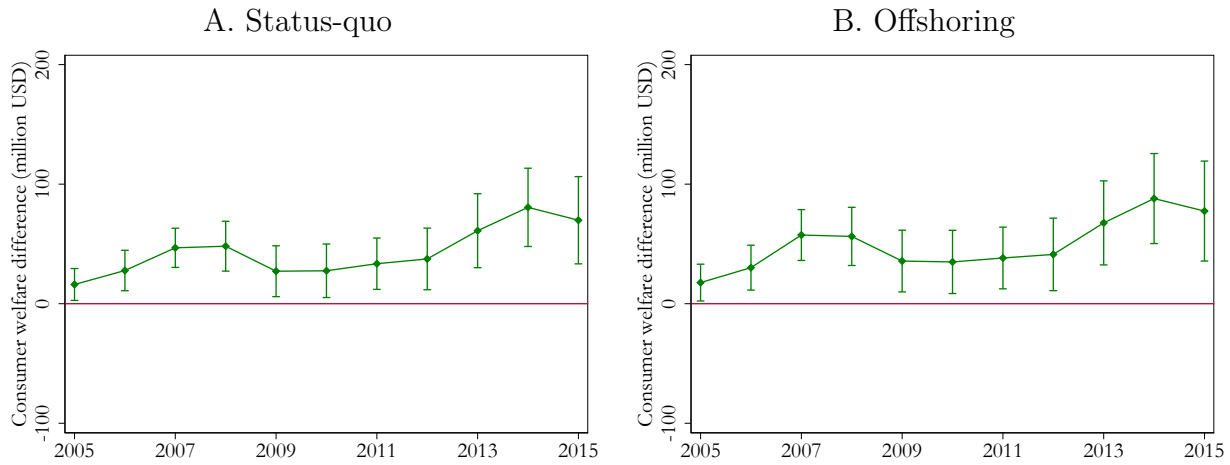
Notes: The figure plots Whirlpool's variable profit from a 50% tariff on imports from China, Korea, and Mexico relative to its no-tariff alternative (the status-quo production configuration in Panel A, offshoring in Panel B), by year, without the merger (solid green) and under the Whirlpool–LG merger (dashed blue). Positive values indicate that petitioning is more profitable than the alternative in variable-profit terms. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

Figure A.12: Cross-border merger: appropriation and strategic effects, $\kappa = 50\%$, China+Korea+Mexico



Notes: The figure shows how for a Whirlpool–LG merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% tariff on imports from China, Korea, and Mexico. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

Figure A.13: Cross-border merger: consumer surplus effect, $\kappa = 50\%$, China+Korea+Mexico



Notes: The figure shows how a Whirlpool–LG merger changes the consumer surplus effect of a 50% tariff on imports from China, Korea, and Mexico. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

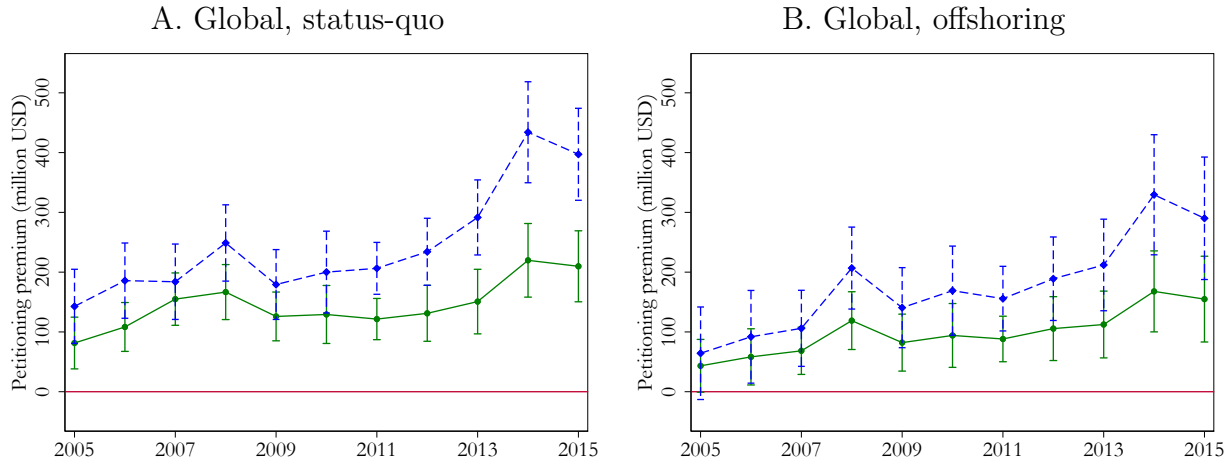
III.C Kenmore Sensitivity

The main analysis (Figure 4) treats Kenmore appliances as separate from other brand owners, even though Whirlpool manufactures top-loaders that are then sold by Sears under the Kenmore brand and LG manufactures front-loaders for Sears in most years. This assumes that Sears is the price setter for Kenmore products and that Whirlpool and LG do not account for how their decisions affect Kenmore sales when making their pricing decisions.

Figures A.14–A.16 repeat the analysis treating Kenmore top-loaders as fully integrated Whirlpool products and Kenmore front-loaders as fully integrated LG products. That is, Whirlpool and LG are the residual claimant of profits and have full control over price setting.

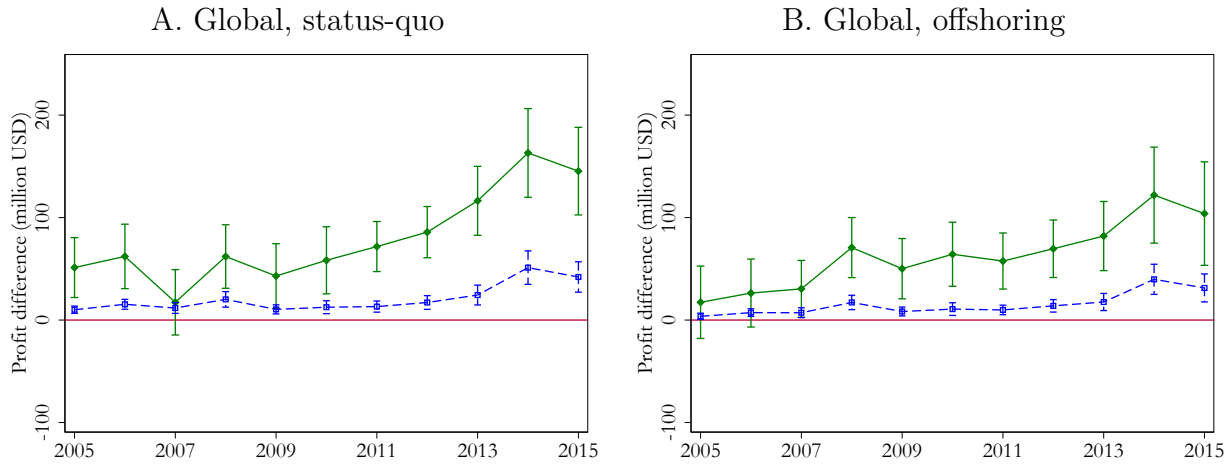
The results in Table A.2 show that while the magnitude of the effects increases under the alternative Kenmore ownership assumption, the sign and relative size of the effects does not change. This confirms that the results are not driven by this modeling choice.

Figure A.14: Domestic merger: petitioning versus its no-tariff alternative, $\kappa = 50\%$, global tariffs, Kenmore integrated



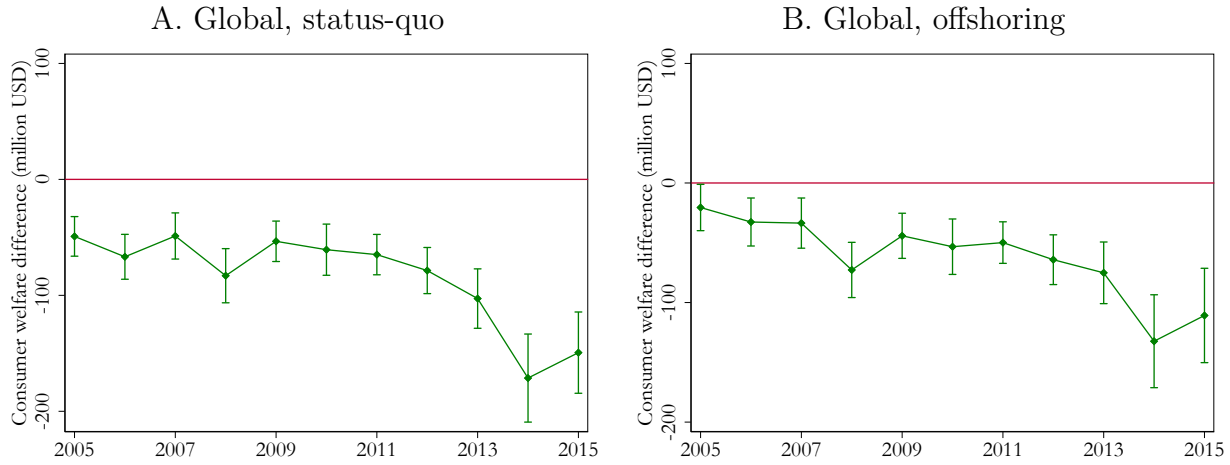
Notes: The figure plots Whirlpool's variable profit from a 50% global import tariff relative to its no-tariff alternative (the status-quo production configuration in Panel A, offshoring in Panel B), by year, without the merger (solid green) and under the Whirlpool–Maytag merger (dashed blue). The simulations treat Kenmore top-loaders as Whirlpool products and Kenmore front-loaders as LG products. Positive values indicate that petitioning is more profitable than the alternative in variable-profit terms. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

Figure A.15: Domestic merger: appropriation and strategic effects, $\kappa = 50\%$, global tariffs, Kenmore integrated



Notes: The figure shows how for a Whirlpool–Maytag merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% global tariff. The simulations treat Kenmore top-loaders as Whirlpool products and Kenmore front-loaders as LG products. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

Figure A.16: Domestic merger: consumer surplus effect, $\kappa = 50\%$, global tariffs, Kenmore integrated



Notes: The figure shows how a Whirlpool–Maytag merger changes the consumer surplus effect of a 50% global tariff. The simulations treat Kenmore top-loaders as Whirlpool products and Kenmore front-loaders as LG products. 95% bootstrap confidence intervals are obtained by resampling the demand and cost shocks (ξ and ω) from their empirical joint distribution within brand.

Table A.2: Trade-policy channel of a domestic merger, $\kappa = 50\%$, Kenmore integrated

	Whirlpool profits			**Consumer surplus**	
	No merger	Appropriation	Strategic	No merger	$\Delta CS^{\mathcal{M}}$
Panel A: Korea+Mexico tariffs (Year: 2011)					
Status quo	\$103M [\$71M, \$135M]	\$60M [\$37M, \$82M]	\$11M [\$6M, \$16M]	−\$441M [−\$543M, −\$338M]	−\$54M [−\$70M, −\$39M]
Offshoring	\$70M [\$34M, \$106M]	\$45M [\$19M, \$71M]	\$8M [\$4M, \$12M]	−\$496M [−\$601M, −\$392M]	−\$39M [−\$55M, −\$23M]
Panel B: China+Korea+Mexico tariffs (Year: 2015)					
Status quo	\$206M [\$147M, \$264M]	\$142M [\$100M, \$185M]	\$41M [\$26M, \$55M]	−\$610M [−\$767M, −\$454M]	−\$146M [−\$180M, −\$111M]
Offshoring	\$151M [\$79M, \$222M]	\$101M [\$51M, \$151M]	\$30M [\$17M, \$43M]	−\$735M [−\$895M, −\$575M]	−\$107M [−\$146M, −\$68M]
Panel C: Global tariffs (Year: 2015)					
Status quo	\$210M [\$150M, \$269M]	\$145M [\$103M, \$188M]	\$42M [\$27M, \$57M]	−\$622M [−\$779M, −\$465M]	−\$149M [−\$184M, −\$114M]
Offshoring	\$155M [\$83M, \$227M]	\$104M [\$53M, \$154M]	\$31M [\$18M, \$45M]	−\$747M [−\$907M, −\$587M]	−\$111M [−\$150M, −\$71M]

Notes: Values in million USD per year. The table reports point estimates of the profitability of tariffs to Whirlpool without acquiring Maytag (no merger), and the merger-induced change decomposed into the appropriation and strategic effects. Consumer surplus columns report the change in consumer surplus from tariffs without the merger and the merger-induced additional consumer harm. 95% bootstrap confidence intervals in brackets. Kenmore top-loaders are treated as Whirlpool products and Kenmore front-loaders as LG products.