Mergers and the Demand for Protectionism

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Abstract

When import competition is strong, domestic mergers can strengthen the incentives to seek trade protection. While intense foreign competition may support merger clearance under current practice, existing enforcement does not consider how mergers alter the merging parties' incentives to petition for tariffs against those imports. I develop a model to characterize the trade-policy channel of mergers: the effect on consumers that operates through tariff petitions. Mergers between domestic producers increase the merging parties' incentives to petition for tariffs and can generate additional consumer harm from tariffs, whereas cross-border mergers are unlikely to have this effect. I apply the framework to the Whirlpool–Maytag merger in the U.S. washer market and show that the merger substantially amplified the profitability of tariffs for Whirlpool, resulting in consumer harm via the trade-policy channel that is comparable in magnitude to the direct harm from increased market power.

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1 Introduction

The United States has maintained a strict separation between trade and antitrust law to keep antitrust focused on consumer welfare and insulated from trade policy considerations (Bradford and Chilton, 2021). Falling trade costs have intensified foreign competition for domestic incumbents, changing the environment in which merger decisions are made. In such settings, trade liberalization and antitrust can act as substitutes (Neven and Seabright, 1997). At the same time, recent evidence finds that consolidation increases lobbying (Cowgill, Prat, and Valletti, 2024; Moshary and Slattery, 2024). Greater domestic consolidation could therefore raise the demand for protectionism.

Antidumping (AD) and countervailing duties (CVD) are the most commonly used U.S. trade remedies. Petitions are typically filed by domestic producers and are often favored for their predictability and low political involvement (Liu, 2026). The Department of Commerce's International Trade Administration (ITA) determines whether imports are sold at *less than fair value* or are subsidized and calculates the tariff rate, while the U.S. International Trade Commission (USITC) determines whether the domestic industry is *materially injured* by those imports (Casey, 2020). These mandates can conflict with the competition authority's consumer-welfare standard.[1] As a result, more permissive merger control in response to foreign competition can raise the expected profitability of AD/CVD petitions for domestic incumbents and, unintentionally, harm consumers.

This paper studies how merger control affects domestic incumbents' incentives to petition for tariffs. I specify a three-stage model to analyze the effect of mergers between domestic producers and cross-border mergers on the incentives to petition for tariffs. In stage one, the competition authority adjudicates a horizontal merger involving a domestic incumbent that faces foreign competition. In stage two, 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. Stage three embeds a differentiated-demand, oligopolistic-supply model in which firms set prices and consumers choose products.

Using a stylized third stage, I show theoretically that a merger between domestic producers harms consumers through a trade-policy channel, which goes over and above the

[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).

direct market-power effects. This channel operates through two forces: increased incentives to petition for tariffs and greater consumer harm from a given tariff after the merger. The incentive to petition for tariffs strictly increases after a domestic merger when the alternative is maintaining status-quo production locations. This stems from the *appropriation effect* (the domestic acquirer internalizes the benefits of tariffs to the domestic target) and the *strategic effect* (the tariff raises the profit of the merged firm by more than it raises the sum of standalone profits). If the alternative to petitioning is lowering marginal costs through offshoring, the appropriation effect remains strictly positive, while the strategic effect is ambiguous in sign.

For cross-border mergers, I find that in many instances the post-merger internalization of the negative effect of a tariff on the foreign target decreases the incumbent's incentive to petition for tariffs. Since the exact effect is highly parameter-dependent, cross-border mergers do not yield robust, signable comparative statics in closed form.

I apply this framework to the EU and U.S. household appliance industries, which saw substantial entry by Asian manufacturers in the 2000s. The Whirlpool–Maytag merger (U.S., 2006) and subsequent trade actions illustrate the tension between the competition authority and the ITA/USITC. In clearing the merger, the Department of Justice argued that post-merger price increases were unlikely because "LG, Samsung, and other foreign manufacturers could increase their imports into the U.S." (Department of Justice, 2006). Import competition was therefore expected to discipline the merged entity. In 2011, Whirlpool filed AD/CVD petitions on bottom-mount refrigerator-freezers and, most prominently, large residential washers (LRW) from Korea and Mexico. The ITA/USITC subsequently found positive dumping margins for LRW imports and established that imports led to market share losses by domestic incumbents and prevented them from raising prices. AD/CVD orders followed and tariffs were imposed.

To motivate the empirical analysis, I document how industry structure relates to incumbents' responses to import competition. Whether a domestic incumbent seeks trade protection is strongly associated with whether there are two or fewer domestic producers, while there is no clear relationship with product-market concentration.

Next, I quantify the trade-policy channel of the domestic merger between Whirlpool and Maytag in the U.S. washing machine industry in the context of my three-stage model. For the third stage, I specify and estimate a model of demand and supply following Montag (2025), which allows me to quantify the appropriation and strategic effects of the domestic merger under different counterfactual production location scenarios. For reference, I also quantify how a hypothetical alternative cross-border merger between Whirlpool and LG changes the profitability of petitioning for tariffs.

The simulations show that when penetration by foreign rivals is modest, the domestic merger does not substantially raise the expected payoff from tariffs relative to offshoring. As import shares grow, however, the domestic merger substantially increases the profitability of tariffs compared with the available alternatives, implying a higher propensity to file. I show that while both the appropriation and strategic effects increase the profitability of tariffs, the appropriation effect is an order of magnitude larger. Furthermore, I find that when tariffs are imposed, the consumer harm is large and that the merger increases the tariff-induced harm by more than 10 percent. Taken together with the static market power related price effects estimated in Montag (2025), the additional harm operating through the trade-protection channel is of a comparable order of magnitude, underscoring the importance of accounting for this channel in merger control.

Finally, I find that a cross-border merger between Whirlpool and LG makes it less profitable for Whirlpool to petition for trade protection than in the absence of a merger. Whereas mergers between domestic producers can lead to consumer harm through a trade-policy channel that goes beyond the direct market-power effects, cross-border mergers are more likely to reduce the propensity of the domestic incumbent to petition for tariffs.

This paper relates to several strands of the literature. It contributes to work 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 industries (Cowgill, Prat, and Valletti, 2024) and within industries (Moshary and Slattery, 2024).

I add three points. First, I show that mergers increase the profitability of AD/CVD petitions, which are relatively insulated from direct political bargaining and present a different choice set for incumbents: petition for tariffs, offshore production, or maintain the status quo.[2] Second, I disentangle the mechanism by which mergers increase the profitability of tariff petitions by distinguishing between the appropriation (or collective-action) channel emphasized by Moshary and Slattery (2024) and the strategic channel.[3] Third, I find that when imports can be restricted through trade remedies, the competitive constraint from imports after a domestic merger is less effective than if the importers were domestic producers.

[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]While domestic producers could overcome the collective-action problem by petitioning together, in practice, they often do not. Consistent with this, 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.

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). In that work, the mechanism is that 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 show that when the number of domestic competitors is small, tariffs can generate substantial consumer harm. The focus here is less on how protection changes competition and more on how mergers alter both the likelihood and harm from tariffs.

Most directly, the paper relates to a literature concerned with the stringency of merger control. Nocke and Whinston (2022) show that current concentration thresholds in merger control 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.[4] Montag (2025) 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.[5] 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.

The results have direct policy implications. When imports can be restricted through trade remedies, merger control should place less weight on competitive constraints from imports. Mergers that leave one or two domestic producers facing strong import competition should be viewed more critically than cross-border mergers. For example, although the Draghi (2024) report has prompted calls to relax EU merger control to enable scale, the

[4]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.

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

results here caution against leniency toward mergers among domestic incumbents.[6] Cross-border consolidation can deliver scale economies without increasing the incumbents' returns to tariff petitions.

The remainder is structured as follows: Section 2 reviews measures to protect against import competition, Section 3 specifies the model, Section 4 describes the appliance industry and provides descriptive evidence, Section 5 details the empirical model and estimation, Section 6 presents the parameter estimates, Section 7 contains the counterfactual simulations, and Section 8 concludes.

2 Protective Measures Against Trade

In the United States, the majority of trade remedies used to shield domestic industries from import competition consist of AD/CVD measures, global safeguards (GS), Section 232 actions (national security–based trade measures), and Section 301 actions (retaliatory trade measures) (Liu, 2026).

Although in 2022 AD/CVD measures resulted in tariffs covering only $37.4 billion of imports, they accounted for 97 percent of all trade actions initiated between 2002 and 2024 (Liu, 2026). Unlike Section 232 and Section 301 cases, which are typically initiated by the government, AD/CVD and GS cases almost always originate from a petition filed by a domestic stakeholder. Moreover, whereas Section 232 and Section 301 actions are not grounded in World Trade Organization (WTO) authorized procedures, the criteria and procedures for AD/CVD and GS cases are codified in WTO agreements.[7] 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 refers to a situation in which a firm sells a product at a lower price in a foreign market than in its domestic market (Blonigen and Prusa, 2016). If the importer's domestic market is deemed unsuitable for comparison, its sales price in a third country may be used instead. Since products destined for domestic 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 that standard economic theory shows that firms

[6]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.

[7]While the discussion below focuses on the United States, more than 120 countries have AD/CVD laws.

may rationally sell below average total cost (but above average variable cost), a price below average total cost is considered dumping.[8]

While the USITC may solicit downstream purchaser information during its investigations, AD/CVD laws do not allow the USITC to consider the economic effects of importers' behavior on downstream purchasers or on the national interest (U.S. Government Accountability Office, 2022). In practice, this means that as long as an importer is found to sell the product at less than fair value and to materially injure a domestic producer, the USITC cannot take into account any potential harm that AD/CVD duties may impose on downstream industries or consumers when making its determination. This constraint lies at the core of the tension between trade law and competition law. While federal agencies, including the 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 such a statement in recent decades (U.S. Government Accountability Office, 2022).

AD is popular among domestic petitioners for several reasons. First, AD is a particularly effective instrument against import competition because it discourages importers from competing aggressively: the lower the importer's price, the more likely a domestic rival can establish that the product is sold at less than fair value. However, since the tariff rate increases with the importer's productivity, Ruhl (2014) shows that AD is particularly distortionary. Second, investigations typically last no more than 12–15 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.

CVD measures address cases in which imports are found to benefit from foreign subsidies. As with AD, the imports must also 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 and 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.

[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.

AD/CVD petitions occur frequently. According to data compiled by Bown et al. (2025), U.S. authorities initiated 747 AD, 453 CVD, and 15 GS investigations between 1980 and 2024. Between 2011 and 2021, 74 percent of AD/CVD petitions 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 (44 percent) were individual domestic producers. In many cases, only a subset of domestic producers participate in an AD/CVD petition. Although 55 percent of petitioners are connected to the steel or chemicals industries, petitions arise in many tradable goods sectors.

While theoretically any domestic producer may petition for trade remedies, in practice smaller producers often cannot meet the statutory industry-support thresholds required for filing and therefore cannot petition alone. A petition is deemed "on behalf of the industry" if its supporters account for at least 25% of total U.S. production of the domestic like product and more than 50% 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).

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. These facts inform the modeling decisions throughout the rest of the paper.

3 Stylized Model

In the following, I specify a stylized model to illustrate the key forces linking 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 drawn from the logit distribution.

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

$$U_j = \delta_j - \alpha p_j + \varepsilon_j,$$

and from the outside option:

$$U_0 = \varepsilon_0,$$

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.

There is a single domestic marginal cost c_D and a single foreign marginal cost c_F, 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 per firm, independent of the number of products it operates. Assume R_2 is sufficiently high that firm 2 never relocates; R_1 is finite. If firm 1 acquires firm 2, it controls both products and may relocate any subset by paying R_1 once.

Firm 1 may petition for tariffs on all foreign-produced units at petitioning costs $L > 0$. 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 baseline is to clear whenever the predicted change in consumer surplus from unilateral market-power effects associated with $\mathcal{M}$, denoted $\Delta^{MP}CS(\mathcal{M})$, exceeds a policy threshold $\bar{\Delta}$:

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

In settings where horizontal mergers can alter firms' demand for trade protection, and thus consumer surplus, there is an additional trade-policy channel of consumer surplus change associated with $\mathcal{M}$, denoted $\Delta^{TP}CS(\mathcal{M})$. 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 the difference between static profits in stage 3 and the fixed cost of relocating or petitioning in case it chooses either of these options. The decision is made simultaneously over petitioning and offshoring, but due to the cost structure and model assumptions, firm 1 will never optimally choose to do both.[9]

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 and consumers make purchase decisions.

Let $s_j(p)$ denote the logit market share of product j implied by the utility specification above; $s_0(p)$ 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 $\sum_{j\in\mathcal{J}_f}(p_j - c_j)s_j(p)$, where $\mathcal{J}_f$ is the firm's product set. For a single-product firm j,

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

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

$$p - c = \Big(\Omega \circ H(p)\Big)^{-1} s(p), \qquad H_{jk}(p) \equiv -\frac{\partial s_j}{\partial p_k} = \begin{cases} \alpha s_j(1-s_j), & j = k, \\ -\alpha s_j s_k, & j \neq k, \end{cases}$$

where Ω is the ownership matrix, with $\Omega_{jk} = 1$ if the same firm owns products j and k.

Consumer surplus changes from policies are measured by compensating variation (Small

[9] If firm 1 produces abroad and also petitions for tariffs, it would be raising its own costs.

and Rosen, 1981):

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

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.

Let π_f^{off} denote firm f's variable profit when it offshores (pays R_1) and does not petition and Π_f^{off} its total profit; let $\pi_f^{\text{pet}}(\kappa)$ denote its variable profit when it petitions (pays L) and does not relocate and $\Pi_f^{\text{pet}}(\kappa)$ its total profit; and let π_f^{sq} denote the status quo (i.e., neither offshoring, nor petitioning) variable profit and Π_f^{sq} the total profit. When the merger is cleared, firm 1 owns products 1 and 2; when blocked, it owns only product 1.

Proposition 1. *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.

To see how this threshold κ^* evolves with the competitiveness of the foreign rival, it is easiest to focus on a case where there is no firm 2 or product 2.

Proposition 2. *In a two-product reduction (eliminate firm 2 and product 2), the indifference cutoff $\kappa^*(\delta_3)$ has no fixed sign with respect to δ_3; it can increase or decrease with δ_3.*

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 already handicaps the foreign rival, so additional appeal may translate weakly into lost profit for firm 1; under offshoring, firm 1's own cost advantage may insulate it better against a stronger rival. When petitioning insulates firm 1 more than offshoring, $\kappa^*(\delta_3)$ falls; when offshoring insulates more than petitioning, $\kappa^*(\delta_3)$ rises.[10]

[10]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, so κ^* strictly increases in δ_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.

To understand how a merger between domestic competitors 1 and 2 changes firm 1's incentive to petition for tariffs, I first compare its increase in profits from petitioning for a given κ to the status quo baseline.

Proposition 3. *Let*

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

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

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

Since the appropriation and strategic effects are both strictly positive, 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 (see Nocke and Schutz, 2018; 2025, for the aggregative games framework underpinning 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 (negative own-price effects, positive cross-price elasticities, and regularity conditions). In particular, under CES demand the strategic effect is weaker (or zero with monopolistic competition) and the appropriation effect remains positive. The overall effect remains positive as well.

Next, I analyze how a merger between firms 1 and 2 changes firm 1's incentive to petition for tariffs as compared to offshoring production.

Proposition 4. *Let*

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

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

admits the exact decomposition

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

The appropriation effect is strictly positive. The strategic effect can take either sign and is positive if and only if κ is sufficiently large relative to $c_D - c_F$.

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. Second, offshoring lowers costs, and the merger uniquely enables offshoring of product 2. So the *offshoring gain* is also larger with the merger. The strategic effect is the difference between these two forces: when the tariff rate κ is large relative to the cost gap $c_D - c_F$, the tariff gain dominates and the strategic effect is positive; when the cost gap dominates, the offshoring gain prevails and the strategic effect is negative.

Even if a merger makes petitioning relatively more attractive (i.e., decreases κ^*), firm 1 might not petition for tariffs post-merger. This is the case if the tariff rate κ that firm 1 expects the trade commission to set is below the post-merger κ^*.

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

Proposition 5. *The consumer harm from a given tariff κ is smaller with a domestic merger if the pre-merger foreign share s_3 is sufficiently large. It can be larger if s_3 is small.*

The marginal consumer harm from the tariff can be written as $\Phi = N(s_3)/(1 - \sum_f \rho_f)$, where the numerator $N(s_3)$ is a hump-shaped function of the foreign share that captures the direct foreign cost pass-through, and the denominator is a strategic complementarity multiplier that grows with each firm's market share. The merger affects Φ by raising s_3 (higher domestic prices shift demand to the foreign product) and by changing the ownership structure that determines the multiplier.

When s_3 is large, the merger pushes s_3 further into the decreasing region of $N(s_3)$, while domestic shares are small enough that the multiplier is close to one in both regimes; the decline in N dominates and consumer harm falls. When s_3 is small, the merger raises the foreign share proportionally (the domestic aggregator is strictly lower under the merger), which can increase consumer harm.

These comparative statics compare the merger against status quo production locations. When the counterfactual is offshoring, the direction is further complicated, and understanding whether a merger increases or decreases consumer harm requires estimating the structural parameters and simulating the merger effects.

3.6 Foreign-rival response in a two-period model

A natural extension of the model is to add a second period ($t = 2$) in which the foreign rival 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 $c_D < (1 + \kappa)c_F$. Below, I focus on the case where R_3 is small enough that tariff jumping is the rational response for firm 3.

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. Offshoring remains available only for product 1 (product 4 is already produced abroad), again at cost R_1.

Proposition 6. *Let*

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

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*

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

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. Because the merged entity relocates product 4 to D under petitioning while standalone firm 4 operates at $(1+\kappa)c_F$, the strategic effect captures both joint-pricing effects and the variable cost restructuring from relocation. It does not isolate the pure joint-pricing surplus as cleanly as in Proposition 3 and therefore can take either sign.

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 this channel could be incorporated into merger policy, I focus on the household appliance industry.

4.1 Household Appliance Industry

In 2000, import penetration 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 like 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 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 or 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,[11] large residential clothes washers (LRWs) were subject to multiple rounds of tariffs. An initial round of tariffs was imposed on imports from Korea and Mexico in 2013, followed by a circumvention finding in 2016 targeting LRWs assembled in China, and culminating in a global safeguard in 2018 (Flaaen, Hortaçsu, and Tintelnot, 2020).

[11] 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 (2025). TraQline surveys approximately 600,000 U.S. households annually on major appliance purchases, including product characteristics, prices, second-choice brands, 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.

For the descriptive analysis, I extend the market share series until 2023, using OpenBrand data provided by Dewey Data (OpenBrand, 2022).[12] 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 (2025).

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. 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

[12] TraQline is part of OpenBrand since 2024.

Table 1: Descriptive correlates of trade remedy petitions

	(1)	(2)	(3)	(4)	(5)	(6)
Import share	0.87***	0.95***	-1.02	-0.15	0.18	-0.08
	(0.22)	(0.33)	(1.55)	(0.24)	(0.18)	(1.66)
Market HHI	-2.65***	-5.15***	-6.29**	-0.01	-2.35	-0.95
	(1.12)	(1.73)	(2.35)	(0.45)	(1.49)	(2.33)
# of domestic producers	-0.05***	-0.12***	-0.18***			
	(0.01)	(0.03)	(0.07)			
$\mathbb{1}\{\#\text{ dom. prod.} > 2\}$				-0.74***	-0.68***	-0.61***
				(0.13)	(0.14)	(0.20)
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. All specifications include the variables shown. Standard errors clustered at the market level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

number of domestic producers. I estimate the parameters of the following specification:

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

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 penetration 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 nrdomprod_{it} is the number of 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 results in Table 1 indicate that higher product market concentration, as measured by the HHI, is not positively associated with petition filing. If anything, the association is negative and in most specifications. 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.[13] However, the framework readily accommodates alternative demand and supply specifications.

5.1 Consumer Demand

Let utility for household i from purchasing product j be:

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

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. Consumers choose to purchase a single product or the outside good. They choose to purchase the product (or outside good) that gives them the highest utility, given the preferences and characteristics of the household and the characteristics of the products.

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

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

where

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

[13] The empirical model closely follows Montag (2025).

Demand is estimated by combining aggregate and household moments as outlined in Berry, Levinsohn, and Pakes (2004), using the same data, estimation procedure, and moment conditions as Montag (2025). 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:

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

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

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

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

where Λ 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

$$mc_{jt} \;=\; \lambda_{1f(j)}^{-1} r_{f(j)t} \;+\; \psi_1^{-1} w_{c(j)t} \;+\; \lambda_{3j}^{-1} m_t \;+\; \omega_{jt},$$

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 input-price components.

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).[14] Tariffs modify marginal costs multiplicatively:

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

Estimation of the supply side closely follows Montag (2025), where a more detailed discussion can be found. In a nutshell, marginal costs are recovered by inverting firms' first-

[14] 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 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.

order pricing conditions using observed market shares and prices. To estimate how marginal costs change with input costs, I estimate:

$$mc_{jt} = FE_f + \gamma_1 RER_{c(j)t} + \gamma_2 \mathbf{x}_j + \omega_{jt}\,.$$

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 nonprice characteristics $\mathbf{x}_j$ capture material cost differences across products, while ω_{jt} denotes transitory material 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.

Let $\pi_{j,t,m}(\kappa, O; \ell)$ denote the variable profits of firm j in year t under ownership $m \in \{\mathcal{M}, \mathcal{S}\}$, tariff-origin pair (κ, O), and pre-petition production-location regime $\ell \in \{\text{off}, \text{sq}, \text{dom}\}$. 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 $j = 1$ and the acquisition target as $j = 2$.

Then the appropriation effect of a merger can be written as

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

and the strategic effect can be written as

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

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

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

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

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

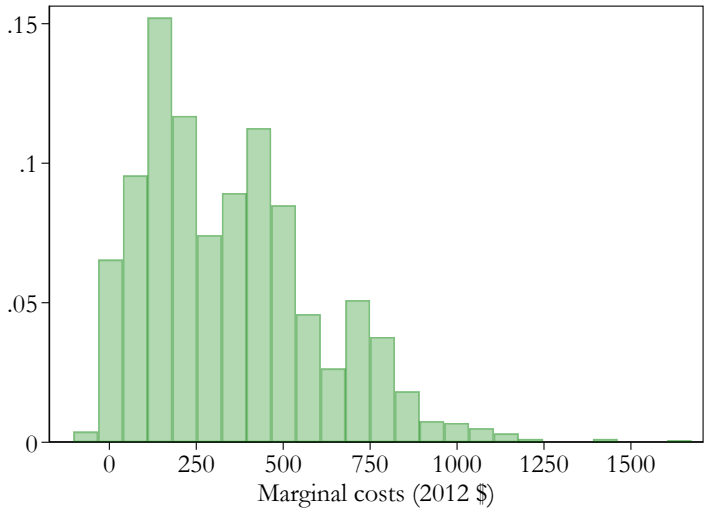
so $\Delta CS^{\mathcal{M}}(\kappa, O) < 0$ indicates that the merger amplifies the consumer harm from a tariff.

6 Parameter Estimates

Table 2 summarizes the demand estimates, which are identical to those in Montag (2025). Column (1) shows that the real exchange rate is a strong instrument for price. The average own-price elasticity in the full mixed-logit model is -2.54 at the product level.

Figure 1 displays the distribution of estimated marginal costs across all products.

Figure 1: Histogram of product-level marginal cost estimates



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

Finally, Table 3 quantifies how marginal costs depend on labor costs (captured by the deflated RER), product characteristics, and firm-specific 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				-0.676***
				(0.032)
Income effect κ_α				-0.210***
				(0.025)
Unobserved taste σ^{FL}				2.493***
				(0.066)
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: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

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.

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 2010 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 for different tariff-origin scenarios. I also estimate the corresponding consumer surplus effect, $\Delta CS^{\mathcal{M}}(\kappa, O)$.

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,

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

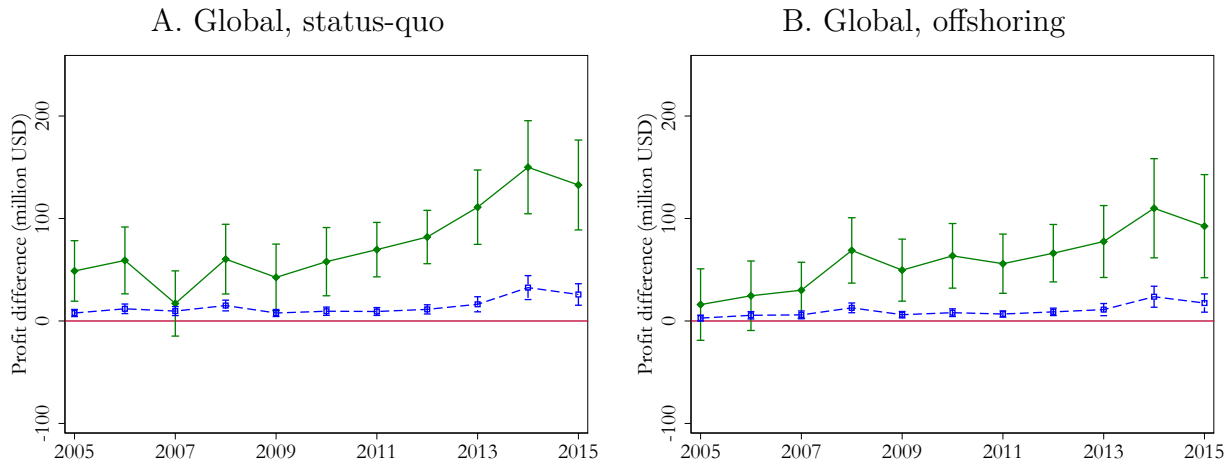
which mirror the historical sequence (2013 Korea and Mexico; 2016 China; 2018 global safeguards).

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).[15] All rivals' production locations always remain at their locations in year $t-1$.

Figure 2 plots the appropriation and the strategic effect of acquiring Maytag for Whirlpool from a 50% global tariff on imports of large residential clothes washers. The panels compare results against the *status-quo baseline* and the *incumbent-offshoring baseline*.

Figure 2: Domestic merger: appropriation and strategic effects, $\kappa = 50\%$, global tariffs



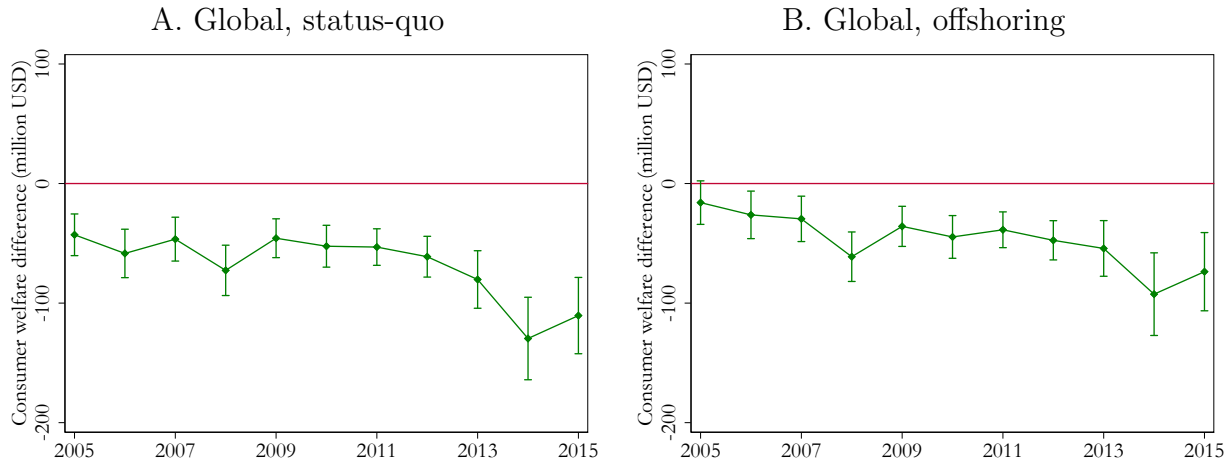
Notes: The figure shows how for a Whirlpool-Maytag merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% global tariff. 95% bootstrap confidence intervals are clustered at the brand level.

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

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 an order of magnitude smaller than the appropriation effect.

Figure 3 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 increase in the annual consumer harm from global import tariffs exceeds $100 million. These figures do not account for any change in the probability of petitioning.[16]

Figure 3: 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 clustered at the brand level.

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 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

[16]Results for tariffs on imports from Korea and Mexico or China, Korea and Mexico only are presented in Appendix Figures A.1–A.4.

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

	Whirlpool profits			**Consumer surplus**	
	No merger	Appropriation	Strategic	No merger	$\Delta^{\mathcal{M}}$
Panel A: Korea+Mexico tariffs (Year: 2011)					
Status quo	\$82M [\$58M, \$107M]	\$58M [\$34M, \$83M]	\$8M [\$5M, \$11M]	−\$443M [−\$568M, −\$317M]	−\$46M [−\$60M, −\$32M]
Offshoring	\$47M [\$19M, \$75M]	\$45M [\$17M, \$72M]	\$6M [\$3M, \$8M]	−\$498M [−\$623M, −\$373M]	−\$31M [−\$46M, −\$17M]
Panel B: China+Korea+Mexico tariffs (Year: 2015)					
Status quo	\$154M [\$98M, \$209M]	\$130M [\$87M, \$173M]	\$25M [\$15M, \$35M]	−\$585M [−\$748M, −\$423M]	−\$108M [−\$139M, −\$76M]
Offshoring	\$93M [\$32M, \$154M]	\$90M [\$40M, \$140M]	\$17M [\$8M, \$26M]	−\$708M [−\$873M, −\$543M]	−\$71M [−\$104M, −\$39M]
Panel C: Global tariffs (Year: 2015)					
Status quo	\$157M [\$101M, \$213M]	\$133M [\$89M, \$177M]	\$26M [\$15M, \$36M]	−\$596M [−\$759M, −\$433M]	−\$110M [−\$142M, −\$79M]
Offshoring	\$96M [\$34M, \$157M]	\$93M [\$42M, \$143M]	\$18M [\$9M, \$26M]	−\$718M [−\$884M, −\$553M]	−\$74M [−\$106M, −\$41M]

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.1 for results treating Kenmore top-loaders as Whirlpool products and Kenmore front-loaders as LG products.

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.[17]

The total effect of the trade-policy channel on consumers is the harm induced by the increased likelihood of tariffs and the harm of the tariffs conditional on being imposed. Comparing 2015 global tariffs to an offshoring baseline, an increase in the tariff likelihood by 10% (conservative, given that the merger doubled Whirlpool's profits from the tariffs), the Whirlpool-Maytag merger led to consumer harm of $150 million per year through the trade-policy channel. For comparison, Montag (2025) estimates that the direct market-power related 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, suggesting that cross-border mergers lower the demand for protectionism.

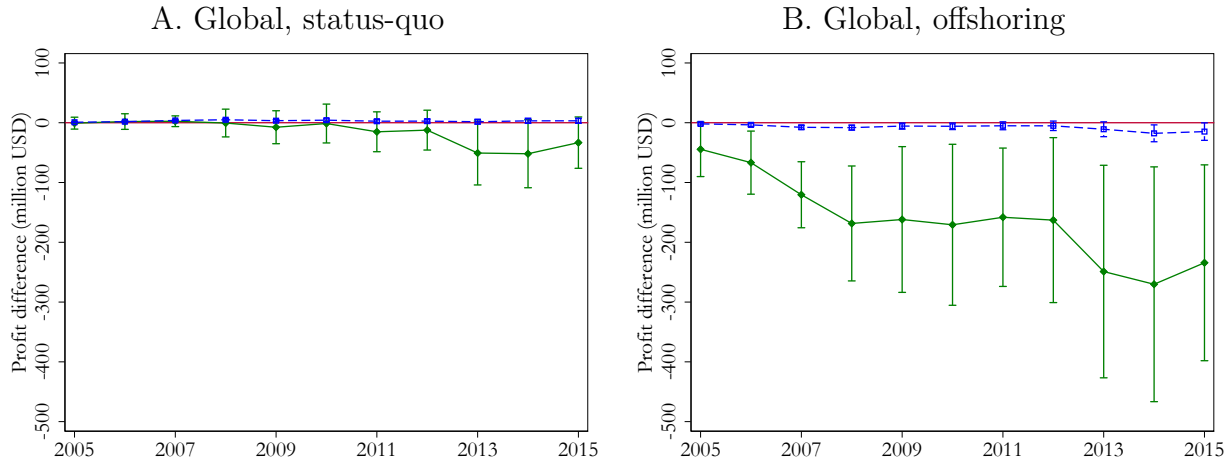
To illustrate this point, I repeat the previous simulations for a cross-border merger between Whirlpool and LG. To make this comparable to the domestic-merger simulations, I demerge all Maytag brands from Whirlpool across all years. I assume that Maytag always produces in the U.S., whereas in the absence of petitioning, Whirlpool and LG either keep their observed production locations (status quo) or offshore all production abroad. 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 4 shows that a cross-border merger between Whirlpool and LG lowers the profitability of petitioning for tariffs for Whirlpool. After this merger, the benefits of petitioning are limited (tariffs mainly protect the merged entity from Samsung), while the costs are substantial. In particular, petitioning requires the merged Whirlpool–LG to relocate all production to the U.S. and absorb the associated cost increases. Table 5 reports the corresponding point estimates and bootstrap confidence intervals for all three tariff scopes.

[17] The order of magnitude of the total consumer surplus loss from the global import tariffs is of the same order of magnitude as the $841 million 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 these by the total number of washing machines transacted pre-tariff. While there are differences in the environment, such as that the tariff was only 20% on the first 1.2 million washers and increased to 50% only for any imports beyond that and that Samsung responded by relocating production to the U.S. in their observation period, the similarity in the order of magnitude of the consumer surplus loss is reassuring.

Results for Korea+Mexico and China+Korea+Mexico tariffs are presented in Appendix Figures A.5–A.6.

Figure 4: 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 clustered at the brand level.

Figure 5 shows that the consumer harm from tariffs is similar with and without a Whirlpool–LG merger, and in some years larger in the absence of the 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. This is why in the offshoring baseline tariffs are more harmful in the absence of the merger.[18]

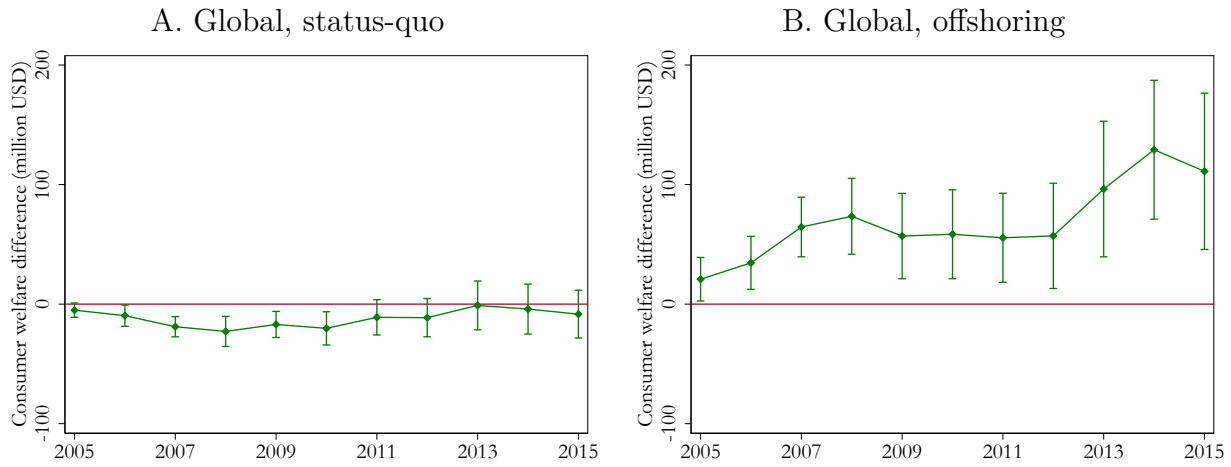
[18]Results for Korea+Mexico and China+Korea+Mexico tariffs are presented in Appendix Figures A.7–A.8.

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

	Whirlpool profits			Consumer surplus	
	No merger	Appropriation	Strategic	No merger	$\Delta^{\mathcal{M}}$
Panel A: Korea+Mexico tariffs (Year: 2011)					
Status quo	\$82M [\$58M, \$107M]	−\$81M [−\$175M, \$14M]	−\$1M [−\$4M, \$2M]	−\$443M [−\$568M, −\$317M]	\$17M [−\$3M, \$38M]
Offshoring	\$47M [\$19M, \$75M]	−\$73M [−\$161M, \$14M]	−\$2M [−\$7M, \$2M]	−\$498M [−\$623M, −\$373M]	\$22M [−\$3M, \$47M]
Panel B: China+Korea+Mexico tariffs (Year: 2015)					
Status quo	\$154M [\$98M, \$209M]	−\$196M [−\$329M, −\$63M]	−\$8M [−\$15M, −\$1M]	−\$585M [−\$748M, −\$423M]	\$70M [\$33M, \$106M]
Offshoring	\$93M [\$32M, \$154M]	−\$176M [−\$297M, −\$56M]	−\$10M [−\$19M, −\$1M]	−\$708M [−\$873M, −\$543M]	\$77M [\$36M, \$119M]
Panel C: Global tariffs (Year: 2015)					
Status quo	\$157M [\$101M, \$213M]	−\$196M [−\$329M, −\$63M]	−\$8M [−\$14M, −\$1M]	−\$596M [−\$759M, −\$433M]	\$69M [\$33M, \$105M]
Offshoring	\$96M [\$34M, \$157M]	−\$176M [−\$296M, −\$55M]	−\$10M [−\$19M, −\$1M]	−\$718M [−\$884M, −\$553M]	\$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.

Figure 5: 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 clustered at the brand level.

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 between petitioning for tariffs and offshoring production, and firms compete in prices. A domestic merger increases the profitability of petitioning through two channels: an appropriation effect, whereby the acquirer internalizes 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. 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. washing machine industry as a case study, I find that the appropriation effect accounts for most of the merger-induced increase in petitioning profitability; the strategic effect is an order of magnitude smaller. The consumer harm from tariffs is large, and the merger amplifies it. Accounting for the increased likelihood of tariffs, the consumer harm operating through the trade-policy channel is of the same order of magnitude as the direct market-power effects of the merger. In contrast, a hypothetical cross-border merger 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. Cross-border mergers, by contrast, can deliver scale economies without raising the incumbents' returns to tariff petitions.

The analysis has limitations that point to directions for future work. First, I do not model how the merger affects the probability of petition success. Endogenizing this margin would allow for a richer interaction between merger policy and trade policy. Second, I abstract from dynamic responses beyond a single period of tariff jumping and do not consider cross-country retaliation. In practice, tariffs can trigger sustained supply-chain reorganization that alters competitive conditions for years. Third, the quantitative results are specific to the U.S. washing machine industry. Extending the framework to other tradable-goods markets with few domestic producers would help assess the generality of the trade-policy channel.

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Appendix for Online Publication

I Appendix to Section 3

Proof of Proposition 1. Define

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

$F(\kappa)$ is strictly increasing in κ. There exists at most one cutoff $\kappa^* \in [0, \infty)$ such that $F(\kappa^*) = 0$. If $F(0) < 0$ and $\lim_{\kappa\to\infty} F(\kappa) > 0$, the cutoff exists and is unique; firm 1 prefers petitioning over offshoring iff $\kappa > \kappa^*$.

A marginal increase in κ raises only foreign costs $c_j = (1+\kappa)c_F$; via best responses, s_j shift toward firm 1 and its markups increase. Envelope and standard logit pass-through yield $\frac{d}{d\kappa}\pi_1^{\text{pet}}(\kappa) > 0$. π_1^{off} is κ-invariant. Hence $F'(\kappa) > 0$. Continuity implies at most one root. To verify that F changes sign: at $\kappa = 0$ the tariff offers no protection, so $\pi_1^{\text{pet}}(0) = \pi_1^{\text{sq}}$. Since offshoring is profitable ($\pi_1^{\text{off}} - R_1 > \pi_1^{\text{sq}}$), we have $F(0) = \pi_1^{\text{sq}} - L - (\pi_1^{\text{off}} - R_1) < -L < 0$. As $\kappa \to \infty$, $s_3 \to 0$ and $\pi_1^{\text{pet}}(\kappa)$ converges to firm 1's profit absent the foreign rival, denoted $\bar{\pi}_1$. The cutoff exists provided $\bar{\pi}_1 - L > \pi_1^{\text{off}} - R_1$, i.e., the prohibitive-tariff profit net of petitioning costs exceeds the offshoring profit. This holds whenever trade protection is a meaningful policy instrument; if it fails, petitioning is dominated by offshoring for all κ and there is no cutoff.

□

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 $-F_{\delta_3}$.

Consider a two-product logit duopoly with an outside good and costs (c_1, c_3), and let (p_1, p_3) be the unique interior Nash-Bertrand 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. However, in standard two-product logit demand with Bertrand competition, the direct effect dominates. Thus, there exists a continuous negative function $\Gamma(c_1, c_3, \delta_1, \delta_3)$ such that

$$\frac{d\pi_1^*}{d\delta_3} = \Gamma(c_1, c_3, \delta_1, \delta_3) \;<\; 0$$

whenever the equilibrium shares s_1, s_3 are interior. Moreover:

(i) Because every term in $\partial s_1 / \partial \delta_3$ and $\partial s_1 / \partial p_3$ is proportional to s_3, we have

$$\left|\frac{d\pi_1^*}{d\delta_3}\right| \to 0 \quad \text{whenever } s_3 \to 0.$$

(ii) On any compact set of primitives on which s_1, s_3 are uniformly bounded away from 0 and 1, continuity and strict negativity of Γ imply that there exists $\underline{c} > 0$ such that

$$\frac{\partial \pi_1^*}{\partial \delta_3} \;\le\; -\underline{c} \;<\; 0 \quad \text{throughout that set.}$$

I use these properties to construct two sets of primitives with opposite signs of F_{δ_3} at the cutoff.

A calibration with $d\kappa^*/d\delta_3 < 0$. Fix primitives (c_D, c_F, δ_1) and choose L, R_1 such that the unique cutoff κ^* lies in a *high–duty* region where the duty nearly eliminates the foreign

rival under petition. Concretely, pick $\bar{\kappa}$ large and then choose (L, R_1) so that

$$F(\bar{\kappa}, \delta_3) = 0,$$

and at the corresponding petition equilibrium $s_3^{\text{pet}}(\bar{\kappa}, \delta_3) \leq \varepsilon$ for some small $\varepsilon > 0$. In contrast, under offshoring $(c_1, c_3) = (c_F, c_F)$, so for suitable δ_1, δ_3 the equilibrium shares $s_1^{\text{off}}, s_3^{\text{off}}$ are interior and bounded away from 0 and 1.

At the cutoff $\kappa^* = \bar{\kappa}$,

$$F_{\delta_3} = \frac{d\pi_1^{\text{pet}}}{d\delta_3} - \frac{d\pi_1^{\text{off}}}{d\delta_3}.$$

By property (i) above, $\left| d\pi_1^{\text{pet}}/d\delta_3 \right| = O(\varepsilon)$; by property (ii) there exists $\underline{c} > 0$ such that $d\pi_1^{\text{off}}/d\delta_3 \leq -\underline{c} < 0$ in the offshoring regime. For ε small enough,

$$F_{\delta_3} \;=\; O(\varepsilon) - \frac{d\pi_1^{\text{off}}}{d\delta_3} \;>\; 0.$$

Since $F_\kappa > 0$, this implies

$$\frac{d\kappa^*}{d\delta_3} = -\frac{F_{\delta_3}}{F_\kappa} \;<\; 0\,.$$

When the cutoff lies in a high–duty region that nearly drives out the foreign rival, a stronger foreign product (higher δ_3) *lowers* the indifference duty κ^*.

A calibration with $d\kappa^*/d\delta_3 > 0$. Now construct a different set of primitives where the cutoff lies in a *low–duty* region and offshoring almost eliminates effective foreign competition, whereas petitioning leaves it more potent.

Choose $(c_D, c_F, \delta_1, \delta_3)$ and small $\bar{\kappa} > 0$ such that under offshoring, $(c_1, c_3) = (c_F, c_F)$ and firm 1 has a strong advantage in δ_1 over δ_3, making s_3^{off} arbitrarily small. Simultaneously, under the petition regime $(c_1, c_3) = (c_D, (1+\bar{\kappa})c_F)$ with $c_D > c_F$ and $\bar{\kappa}$ small, so firm 3 retains an interior share s_3^{pet} bounded away from zero. Then choose (L, R_1) so that $F(\bar{\kappa}, \delta_3) = 0$, i.e. $\kappa^*(\delta_3) = \bar{\kappa}$.

As before

$$F_{\delta_3} = \frac{d\pi_1^{\text{pet}}}{d\delta_3} - \frac{d\pi_1^{\text{off}}}{d\delta_3}.$$

By property (ii), in the petition regime the derivative satisfies $d\pi_1^{\text{pet}}/d\delta_3 \leq -\underline{c} < 0$ for some $\underline{c} > 0$ (since both shares are interior). By property (i), in the offshoring regime $|d\pi_1^{\text{off}}/d\delta_3|$ can be made arbitrarily small by choosing s_3^{off} small enough. Hence, for appropriate primitives,

$$F_{\delta_3} < -\underline{c} + o(1) \;<\; 0,$$

so

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

Conclusion. $\kappa^*(\delta_3)$ has no fixed sign with respect to δ_3. Depending on the underlying cost and taste parameters, it can increase or decrease when the foreign rival becomes more attractive. □

Proof of Proposition 3. Rearranging terms shows

$$\Big[(\pi^{\text{pet}}_{\mathcal{M}} - L) - \pi^{\text{sq}}_{\mathcal{M}}\Big] - \Big[(\pi^{\text{pet}}_{1,\mathcal{S}} - L) - \pi^{\text{sq}}_{1,\mathcal{S}}\Big] = \Big(\pi^{\text{pet}}_{2,\mathcal{S}} - \pi^{\text{sq}}_{2,\mathcal{S}}\Big) + \Big[(\pi^{\text{pet}}_{\mathcal{M}} - \pi^{\text{sq}}_{\mathcal{M}}) - (\pi^{\text{pet}}_{1,\mathcal{S}} + \pi^{\text{pet}}_{2,\mathcal{S}} - \pi^{\text{sq}}_{1,\mathcal{S}} - \pi^{\text{sq}}_{2,\mathcal{S}})\Big].$$

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 $dp_1^*/dc_3 > 0$ by strategic complementarity. The duty raises c_3, so $\pi^{\text{pet}}_{2,\mathcal{S}} - \pi^{\text{sq}}_{2,\mathcal{S}} > 0$.

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

$$\Big(\pi^{\text{pet}}_{\mathcal{M}} - \pi^{\text{sq}}_{\mathcal{M}}\Big) > \Big(\pi^{\text{pet}}_{1,\mathcal{S}} + \pi^{\text{pet}}_{2,\mathcal{S}} - \pi^{\text{sq}}_{1,\mathcal{S}} - \pi^{\text{sq}}_{2,\mathcal{S}}\Big).$$

I use the aggregative games framework of Nocke and Schutz (2018, 2025). Under logit demand, the pricing game is aggregative: each firm's profit depends on rivals' prices only through the scalar aggregator $H \equiv 1 + \sum_{j\in\mathcal{J}} \exp(\delta_j - \alpha p_j)$. The game has a unique equilibrium (Proposition 1 of Nocke and Schutz, 2025). Each firm's product portfolio is summarized by the type of its products. $T_j = \exp(\delta_j - \alpha c_j)$ for single-product firms and $T_{\mathcal{M}} = T_1 + T_2$ for the merged entity (Section 2 of Nocke and Schutz, 2025).

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 *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.[19] 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.

Merged entity. The merged entity's only rival is firm 3, so the envelope theorem leaves a single rival-price channel. Applying the common ι-markup ($p_j - c_j = \mu_{\mathcal{M}}/\alpha$) and the logit cross-derivative ($\partial s_j/\partial p_3 = \alpha\, s_j s_3$):

$$\frac{d\pi_{\mathcal{M}}}{dc_3} = \sum_{j \in \mathcal{J}_{\mathcal{M}}} (p_j - c_j)\, \frac{\partial s_j}{\partial p_3}\, \frac{dp_3^{*,\mathcal{M}}}{dc_3} = \mu_{\mathcal{M}}\, S_{\mathcal{M}}\, s_3^{\mathcal{M}} \cdot \frac{dp_3^{*,\mathcal{M}}}{dc_3} = \alpha\, \pi_{\mathcal{M}}\, s_3^{\mathcal{M}} \cdot \frac{dp_3^{*,\mathcal{M}}}{dc_3},$$

where the last equality uses $\mu_{\mathcal{M}} S_{\mathcal{M}} = \alpha\, \pi_{\mathcal{M}}$ (Nocke and Schutz, 2025, eq. 5, 6).

Standalone firms. Each standalone domestic firm sells a single product indexed by j and has two rival products: the other domestic product k and product 3. The envelope theorem eliminates the own-price term, leaving two rival-price channels:

$$\frac{d\pi_{f,\mathcal{S}}}{dc_3} = (p_j - c_j)\left[\frac{\partial s_j}{\partial p_k}\frac{dp_k^{*,\mathcal{S}}}{dc_3} + \frac{\partial s_j}{\partial p_3}\frac{dp_3^{*,\mathcal{S}}}{dc_3}\right] = \alpha\, \pi_{f,\mathcal{S}}\left[s_k^{\mathcal{S}}\, \frac{dp_k^{*,\mathcal{S}}}{dc_3} + s_3^{\mathcal{S}}\, \frac{dp_3^{*,\mathcal{S}}}{dc_3}\right],$$

where the first term captures cross-domestic feedback: an increase in c_3 raises p_3, which through strategic complementarity raises p_k, benefiting firm j.

To quantify the cross-domestic feedback, totally differentiate each standalone firm's FOC, $p_j = c_j + 1/[\alpha(1 - s_j)]$, with respect to c_3. Since $c_j = c_D$ is independent of c_3:

$$\frac{dp_j^*}{dc_3} = \frac{1}{\alpha(1 - s_j)^2}\, \frac{ds_j^*}{dc_3}.$$

The logit share s_j depends on all prices, so $\frac{ds_j^*}{dc_3} = \sum_\ell \frac{\partial s_j}{\partial p_\ell}\frac{dp_\ell^*}{dc_3}$. Using $\frac{\partial s_j}{\partial p_j} = -\alpha s_j(1 - s_j)$ and $\frac{\partial s_j}{\partial p_\ell} = \alpha s_j s_\ell$ for $\ell \neq j$:

$$\frac{ds_j^*}{dc_3} = \alpha s_j\left[-(1 - s_j)\frac{dp_j^*}{dc_3} + s_k\, \frac{dp_k^*}{dc_3} + s_3\, \frac{dp_3^*}{dc_3}\right].$$

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

Substituting and collecting dp_j^*/dc_3 on the left:

$$\frac{dp_j^*}{dc_3}\underbrace{\left[1+\frac{s_j}{1-s_j}\right]}_{=1/(1-s_j)} = \frac{s_j}{(1-s_j)^2}\left[s_k\,\frac{dp_k^*}{dc_3}+s_3\,\frac{dp_3^*}{dc_3}\right],$$

which simplifies to

$$\frac{dp_j^*}{dc_3} = \frac{s_j}{1-s_j}\left[s_k\,\frac{dp_k^*}{dc_3}+s_3\,\frac{dp_3^*}{dc_3}\right].$$

Define $x \equiv s_1\,\frac{dp_1^*}{dc_3}$, $y \equiv s_2\,\frac{dp_2^*}{dc_3}$, $z \equiv s_3\,\frac{dp_3^*}{dc_3}$, and let $a \equiv s_1^2/(1-s_1)$, $b \equiv s_2^2/(1-s_2)$. The two-equation system $x = a(y+z)$, $y = b(x+z)$ solves to

$$x = \frac{a(b+1)}{1-ab}\,z, \qquad y = \frac{b(a+1)}{1-ab}\,z.$$

Substituting into the sum of standalone derivatives:

$$\frac{d(\pi_{1,\mathcal{S}}+\pi_{2,\mathcal{S}})}{dc_3} = \frac{\alpha\,z^{\mathcal{S}}}{1-ab}\Big[\pi_{1,\mathcal{S}}(1+b)+\pi_{2,\mathcal{S}}(1+a)\Big] \equiv \alpha\,z^{\mathcal{S}}\,\Psi_{\mathcal{S}},$$

where $z^{\mathcal{S}} \equiv s_3^{\mathcal{S}}\,\frac{dp_3^{*,\mathcal{S}}}{dc_3}$. If c_3 did not affect domestic prices, the standalone derivative would equal $\alpha\,z^{\mathcal{S}}(\pi_{1,\mathcal{S}}+\pi_{2,\mathcal{S}})$. Cross-domestic feedback raises firm j's derivative by the factor $(1+b_k)/(1-ab)$, where $b_k \in \{a,b\}$ is the other domestic firm's pass-through parameter, so that $\Psi_{\mathcal{S}} > \pi_{1,\mathcal{S}}+\pi_{2,\mathcal{S}}$.

Comparison. The difference in derivatives is

$$\frac{d\pi_{\mathcal{M}}}{dc_3} - \frac{d(\pi_{1,\mathcal{S}}+\pi_{2,\mathcal{S}})}{dc_3} = \alpha\Big[\pi_{\mathcal{M}}\cdot z^{\mathcal{M}} - z^{\mathcal{S}}\,\Psi_{\mathcal{S}}\Big].$$

Three forces determine the sign:

1. *Profit level*: $\pi_{\mathcal{M}} > \pi_{1,\mathcal{S}}+\pi_{2,\mathcal{S}}$ (the merger is profitable).
2. *Foreign exposure*: $s_3^{\mathcal{M}} > s_3^{\mathcal{S}}$ (higher domestic prices shift demand to product 3).
3. *Cross-domestic amplification*: $\Psi_{\mathcal{S}} > \pi_{1,\mathcal{S}}+\pi_{2,\mathcal{S}}$ (standalone firms benefit from cross-domestic price feedback), which works *against* the inequality.

The cross-domestic amplification scales with $a = s_1^2/(1-s_1)$ and $b = s_2^2/(1-s_2)$, which are small when individual domestic shares are modest. Meanwhile, the merger profit premium is a first-order consequence of internalizing the pricing externality between products 1 and 2,

and the foreign-exposure advantage grows with the merger-induced price increase. As confirmed computationally, these two forces dominate the cross-domestic amplification across all parameter values.[20] Since this holds at every $c_3 \in [c_F, (1+\kappa)c_F]$, the result follows.

Combining the two parts, both the appropriation and the strategic components are strictly positive, so

$$\left[(\pi^{\text{pet}}_{\mathcal{M}} - L) - \pi^{\text{sq}}_{\mathcal{M}}\right] - \left[(\pi^{\text{pet}}_{1,\mathcal{S}} - L) - \pi^{\text{sq}}_{1,\mathcal{S}}\right] > 0.$$

□

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: $\pi^{\text{pet}}_{2,\mathcal{S}} > \pi^{\text{sq}}_{2,\mathcal{S}}$. Conversely, pre-merger offshoring 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

[20] Computational verification across 322,560 parameter combinations confirms zero violations of the level inequality $(\pi^{\text{pet}}_{\mathcal{M}} - \pi^{\text{sq}}_{\mathcal{M}}) > (\pi^{\text{pet}}_{1,\mathcal{S}} + \pi^{\text{pet}}_{2,\mathcal{S}} - \pi^{\text{sq}}_{1,\mathcal{S}} - \pi^{\text{sq}}_{2,\mathcal{S}})$. The parameter grid varies $\delta_1, \delta_2, \delta_3 \in \{-2, \ldots, 5\}$, $c_D \in \{0.5, 1, 2, 4\}$, $c_F \in \{0.1, \ldots, 2\}$, $\alpha \in \{0.3, \ldots, 4\}$, and $\kappa \in \{0.01, \ldots, 2\}$.

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 $\pi_f^{\text{off}} = \pi_f^{\text{sq}}$ for all firms and Term B $= 0$. The strategic effect then equals Term A > 0.

If $\kappa = 0$, the tariff offers no protection, so $\pi_f^{\text{pet}} = \pi_f^{\text{sq}}$ 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 $\pi_{2,\mathcal{S}}^{\text{off}} < \pi_{2,\mathcal{S}}^{\text{sq}}$). For sufficiently large $c_D - c_F$, these forces dominate and the strategic effect is negative.

By continuity, the strategic effect is positive if and only if κ is sufficiently large relative to $c_D - c_F$.

Therefore, the appropriation component is strictly positive, while the strategic component is positive if and only if κ is sufficiently large relative to $c_D - c_F$. □

Proof of Proposition 5. Consumer surplus under logit demand is $CS = \frac{1}{\alpha} \log H^*$, where $H^* \equiv 1 + \sum_j \exp(\delta_j - \alpha p_j^*)$ is the equilibrium aggregator (Small and Rosen, 1981). A tariff raises c_3, lowering H^* and consumer surplus. The merger increases consumer harm from a given tariff if and only if the consumer surplus loss is larger under the merger than under standalone ownership.

Marginal formulation. As in Proposition 3, I compare the marginal consumer harm at each $c_3 \in [c_F, (1+\kappa)c_F]$ across regimes. Differentiating $CS = \frac{1}{\alpha} \log H^*$ gives

$$-\frac{dCS}{dc_3} = \sum_j s_j \cdot \frac{dp_j^*}{dc_3} \;\equiv\; \Phi,$$

where dp_j^*/dc_3 denotes the full equilibrium price response, accounting for strategic complementarity feedback across all firms. The merger increases consumer harm if $\Phi^{\mathcal{M}} > \Phi^{\mathcal{S}}$ at each c_3.

Exact expression for Φ. I derive Φ by totally differentiating the system of first-order conditions with respect to c_3. Each firm f's FOC implies $p_j = c_j + 1/[\alpha(1 - S_f)]$ for $j \in \mathcal{J}_f$. Using the logit share derivatives $\partial s_j/\partial p_j = -\alpha s_j(1 - s_j)$ and $\partial s_j/\partial p_k = \alpha s_j s_k$ for $k \neq j$, the total equilibrium share response satisfies $ds_j^*/dc_3 = \alpha s_j(\Phi - dp_j^*/dc_3)$.

Substituting into the differentiated FOC of each domestic firm f and solving yields

$$\frac{dp_j^*}{dc_3} = \frac{S_f\,\Phi}{1 - S_f + S_f^2} \qquad \text{for } j \in \mathcal{J}_f,$$

so that each domestic firm's contribution to Φ is $\sum_{j\in\mathcal{J}_f} s_j \cdot dp_j^*/dc_3 = \rho_f\,\Phi$, where $\rho_f \equiv S_f^2/(1 - S_f + S_f^2)$. Firm 3's differentiated FOC gives

$$\frac{dp_3^*}{dc_3} = \frac{(1-s_3)^2 + s_3\,\Phi}{1 - s_3 + s_3^2},$$

and hence $s_3 \cdot dp_3^*/dc_3 = \rho_3\,\Phi + s_3(1-s_3)^2/(1 - s_3 + s_3^2)$. Summing all contributions, $\Phi = \sum_f \rho_f\,\Phi + s_3(1-s_3)^2/(1 - s_3 + s_3^2)$, which yields:

$$\Phi = \frac{N(s_3)}{1 - \sum_f \rho_f}, \qquad N(s_3) \equiv \frac{s_3(1-s_3)^2}{1 - s_3 + s_3^2}, \qquad \rho_f \equiv \frac{S_f^2}{1 - S_f + S_f^2}. \tag{1}$$

The numerator $N(s_3)$ captures direct foreign cost pass-through and depends only on the foreign share. The denominator $1 - \sum_f \rho_f$ is a strategic complementarity multiplier: each firm's ρ_f measures how much its pricing feedback amplifies aggregate consumer harm, with larger firms amplifying more.

Key tension. The merger affects Φ through two channels:

1. *Foreign share channel* ($N(s_3)$): The merger raises s_3 (higher domestic prices shift demand to product 3), changing $N(s_3)$. Since $N(s_3)$ is hump-shaped and vanishes at $s_3 = 0$ and $s_3 = 1$, this can increase or decrease the numerator depending on the level of s_3.

2. *Strategic complementarity multiplier* ($1/(1 - \sum_f \rho_f)$): The merger replaces standalone amplification terms $\rho_1 + \rho_2$ with a single $\rho_{\mathcal{M}}$ and changes all equilibrium shares. The net effect on the multiplier is ambiguous.

Case 1: Consumer harm is smaller (s_3 sufficiently large).

Suppose the structural parameters are such that the pre-merger foreign share satisfies $s_3^{\mathcal{S}} > 1/2$. The merger raises s_3, so $s_3^{\mathcal{M}} > s_3^{\mathcal{S}} > 1/2$. Since $N(s_3)$ is strictly decreasing for s_3 sufficiently close to 1, $N(s_3^{\mathcal{M}}) < N(s_3^{\mathcal{S}})$: the numerator falls. Meanwhile, when s_3 is close to 1, domestic shares $S_f = 1 - s_0 - s_3$ are small, so $\rho_f \approx S_f^2 \approx 0$ in both regimes and the multiplier $1/(1 - \sum_f \rho_f)$ is close to 1 in both. The decline in $N(s_3)$ dominates, so $\Phi^{\mathcal{M}} < \Phi^{\mathcal{S}}$: consumer harm is smaller after the merger.

Case 2: Consumer harm can be larger (s_3 small).

Consider the limit as $s_3 \to 0$ (the foreign product becomes unattractive). In this limit, $N(s_3) \approx s_3$ and the domestic equilibrium (prices, shares, ρ_f values) converges to the $s_3 = 0$ equilibrium in each regime. Write $\rho_f^{\omega,0}$ and H_{-3}^{ω} for the limiting ρ_f values and domestic aggregators in regime $\omega \in \{\mathcal{S}, \mathcal{M}\}$. Then the ratio of consumer harm converges to:

$$\frac{\Phi^{\mathcal{M}}}{\Phi^{\mathcal{S}}} \to \underbrace{\frac{H_{-3}^{\mathcal{S}}}{H_{-3}^{\mathcal{M}}}}_{>1} \cdot \frac{1 - \sum_f \rho_f^{\mathcal{S},0}}{1 - \sum_f \rho_f^{\mathcal{M},0}}.$$

The first ratio exceeds 1 because the merger raises domestic prices, lowering the domestic aggregator, so the foreign share is proportionally larger under the merger. Both ratios are fixed constants determined by the domestic equilibrium. To verify that $\Phi^{\mathcal{M}} > \Phi^{\mathcal{S}}$ can hold, consider symmetric merging firms ($\delta_1 = \delta_2$, $c_1 = c_2 = c_D$). Then the merger strictly raises markups, producing $H_{-3}^{\mathcal{S}}/H_{-3}^{\mathcal{M}}$ strictly above 1. Meanwhile, the strategic complementarity multiplier is also (weakly) larger under the merger, since the ownership consolidation effect on ρ tends to dominate the equilibrium share loss for symmetric firms. Both factors push toward $\Phi^{\mathcal{M}}/\Phi^{\mathcal{S}} > 1$: consumer harm is larger after the merger.

Conclusion. The consumer harm from a given tariff κ is smaller with the merger if s_3 is sufficiently large. It can be larger if s_3 is small.

□

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

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

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

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

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 $R_1 > 0$.

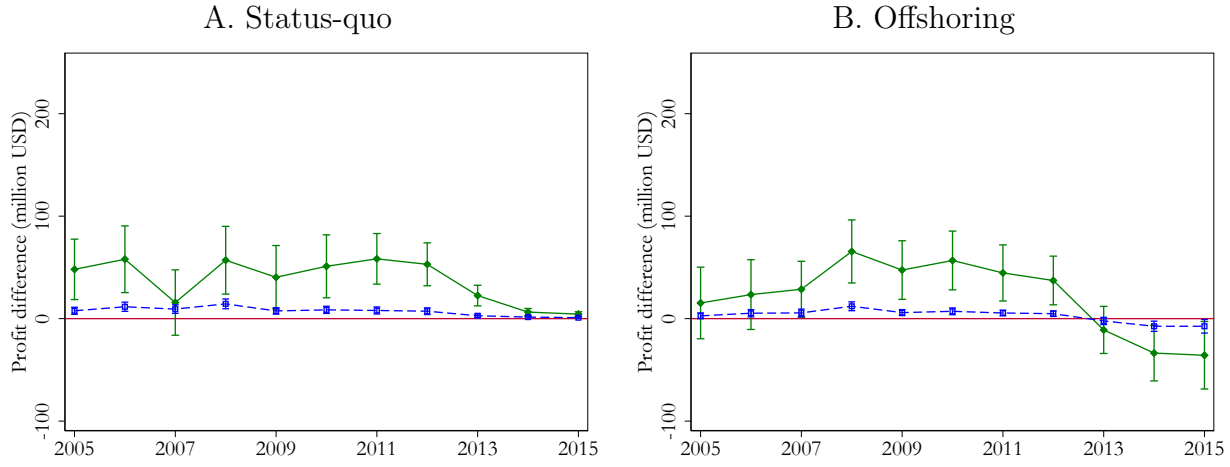
Strategic effect (ambiguous). The strategic effect captures the net effect of joint pricing and cost restructuring: under the merger with petitioning, product 4 operates at c_D (relocated), whereas standalone firm 4 operates at $(1+\kappa)c_F$. Whether the joint-pricing surplus net of the cost restructuring exceeds the standalone profit differential depends on the tariff rate κ, the cost gap $c_D - c_F$, and the demand parameters. This can go either way. □

II Appendix to Section 7

This appendix presents simulation results for narrower tariff scopes (Korea+Mexico and China+Korea+Mexico) that complement the global tariff results in the main text. It also reports a sensitivity analysis treating Kenmore top-loaders as Whirlpool products and Kenmore front-loaders as LG products.

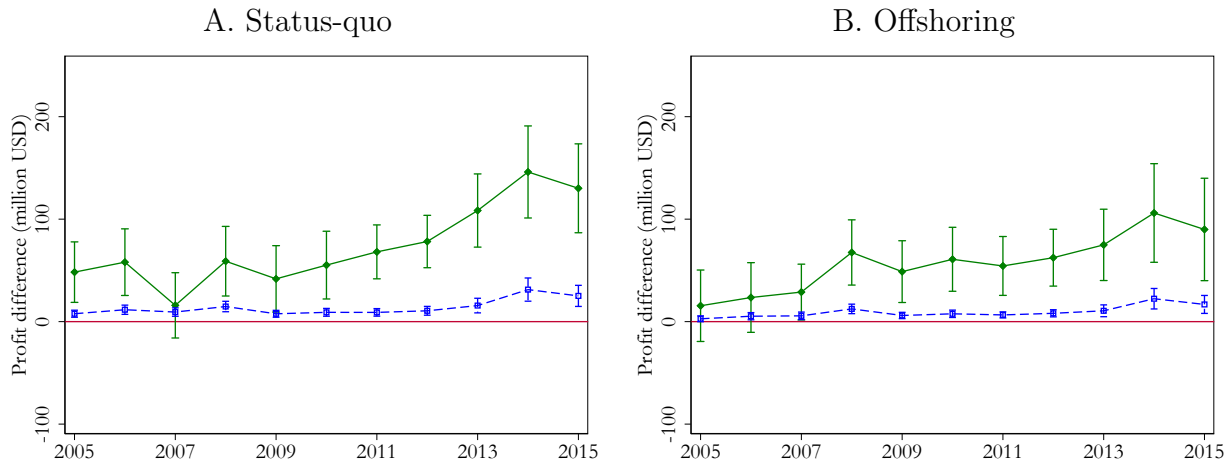
II.A Domestic Merger: Non-Global Tariff Scopes

Figure A.1: Domestic merger: appropriation and strategic effects, $\kappa = 50\%$, Korea+Mexico



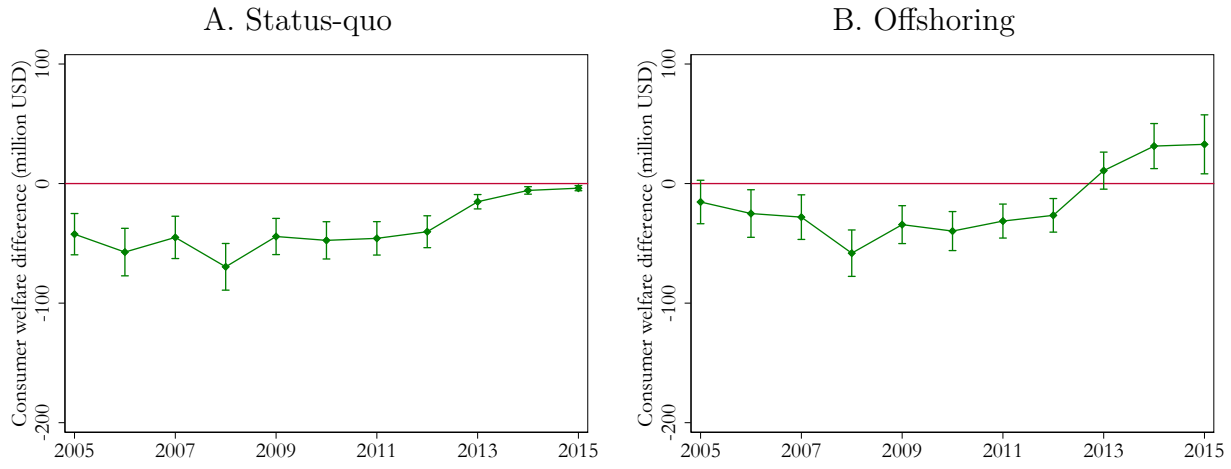
Notes: The figure shows how for a Whirlpool-Maytag merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% tariff on imports from Korea and Mexico. 95% bootstrap confidence intervals are clustered at the brand level.

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



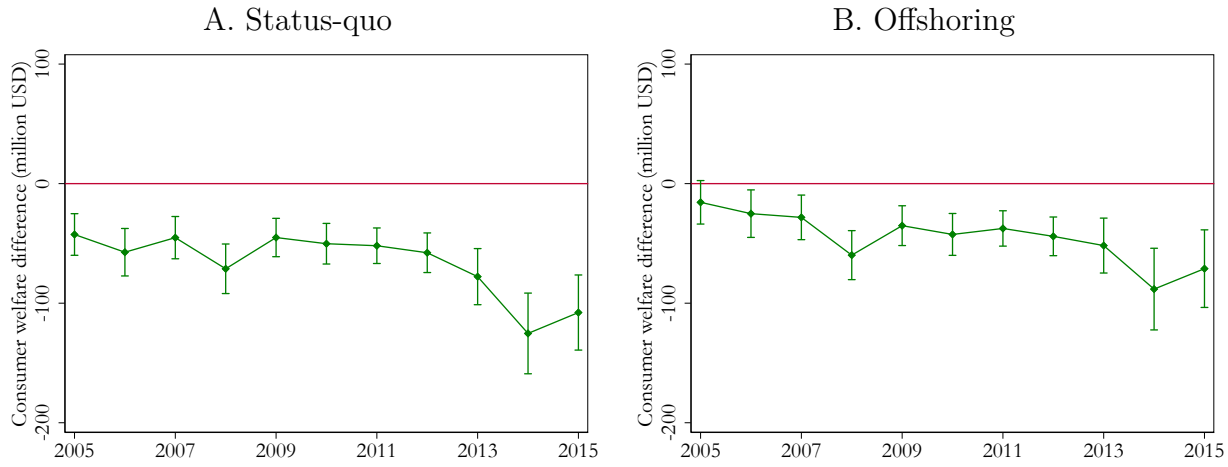
Notes: The figure shows how for a Whirlpool-Maytag merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% tariff on imports from China, Korea, and Mexico. 95% bootstrap confidence intervals are clustered at the brand level.

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 clustered at the brand level.

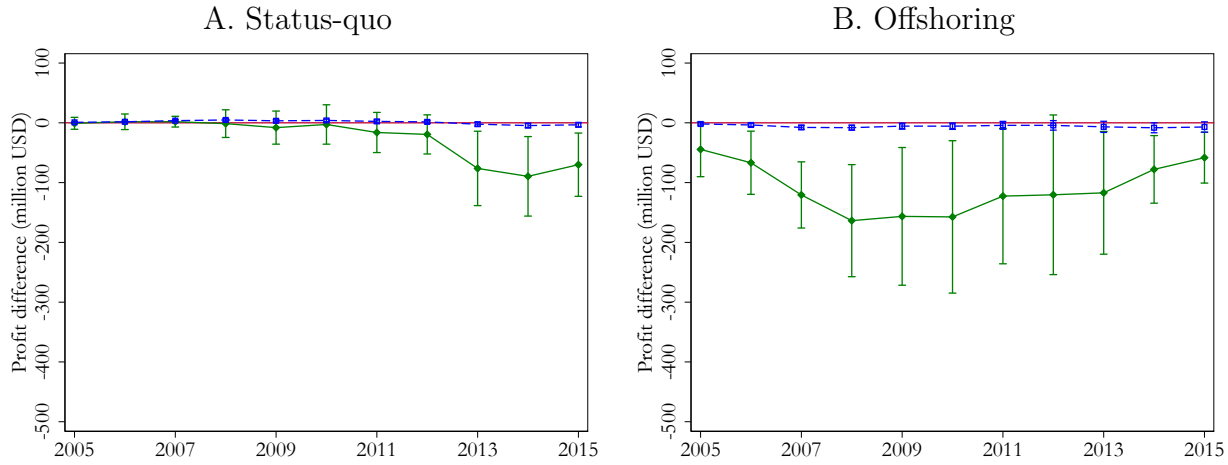
Figure A.4: Domestic merger: consumer surplus effect, $\kappa = 50\%$, China+Korea+Mexico



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 clustered at the brand level.

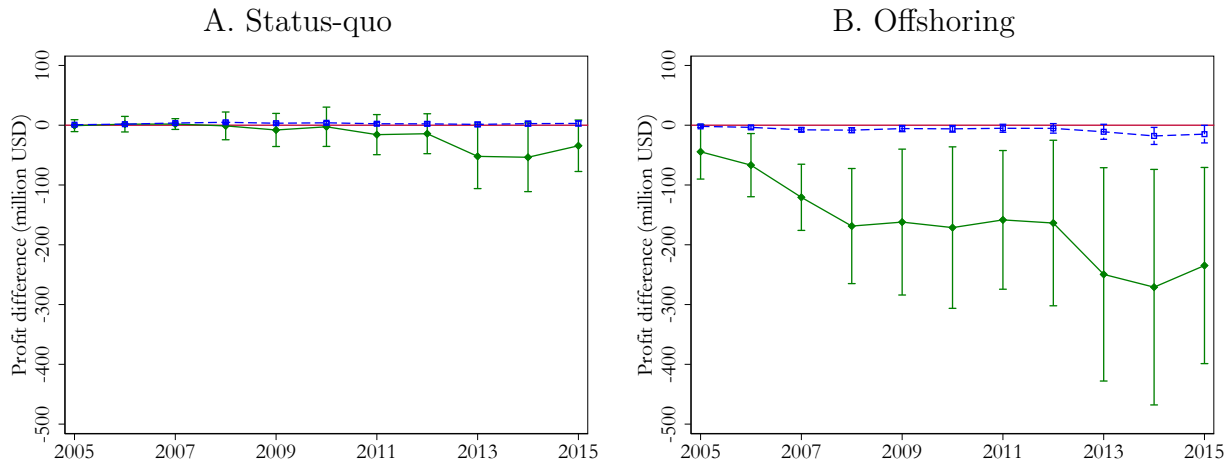
II.B Cross-Border Merger: Non-Global Tariff Scopes

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



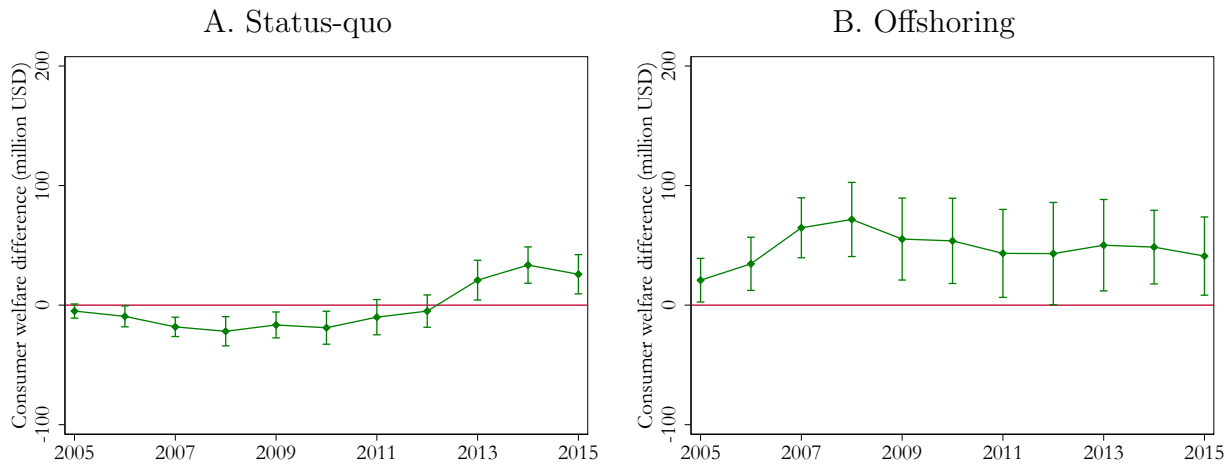
Notes: The figure shows how for a Whirlpool-LG merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% tariff on imports from Korea and Mexico. 95% bootstrap confidence intervals are clustered at the brand level.

Figure A.6: Cross-border merger: appropriation and strategic effects, $\kappa = 50\%$, China+Korea+Mexico



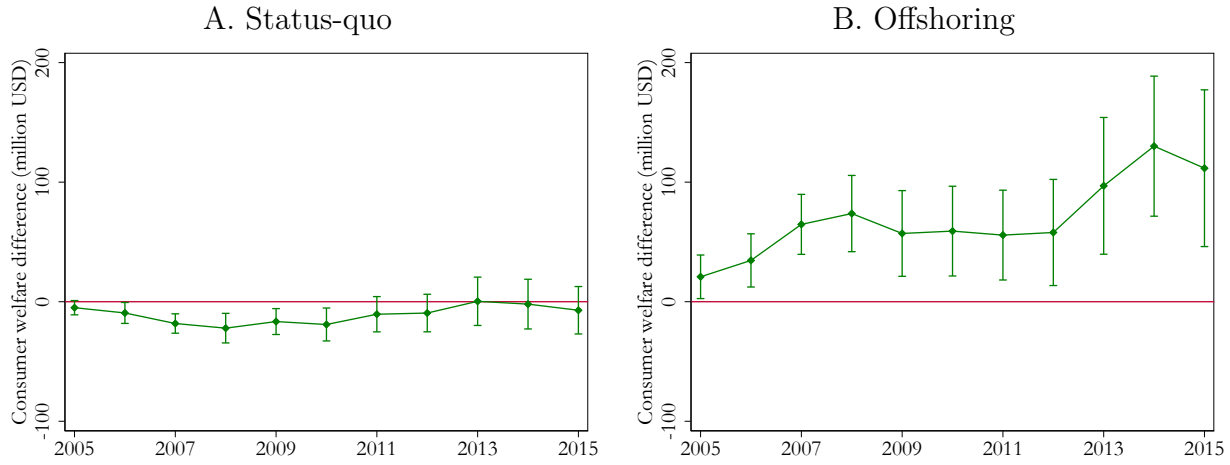
Notes: The figure shows how for a Whirlpool-LG merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% tariff on imports from China, Korea, and Mexico. 95% bootstrap confidence intervals are clustered at the brand level.

Figure A.7: 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 clustered at the brand level.

Figure A.8: 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 clustered at the brand level.

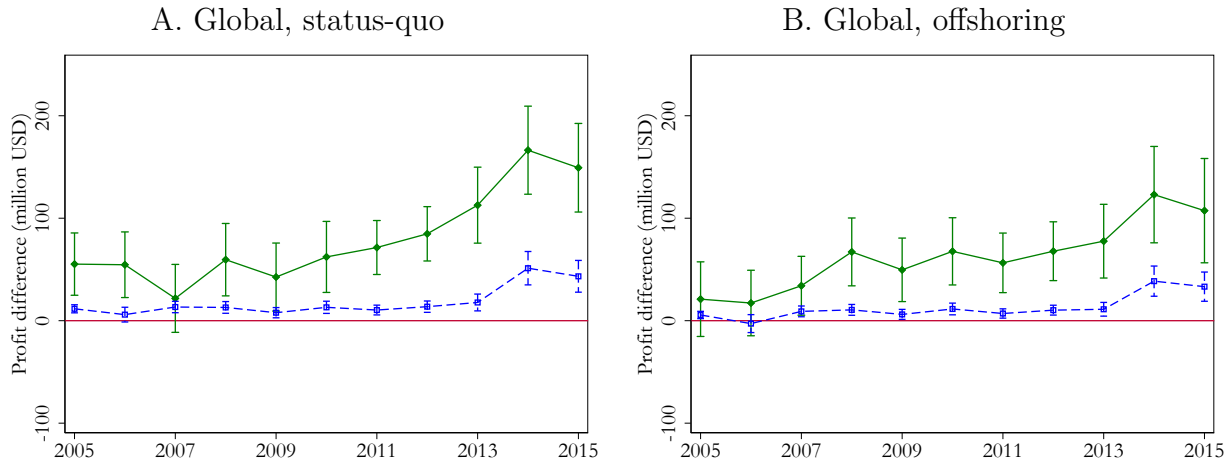
II.C Kenmore Sensitivity

The main analysis (Figure 2) 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.9 and A.10 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.

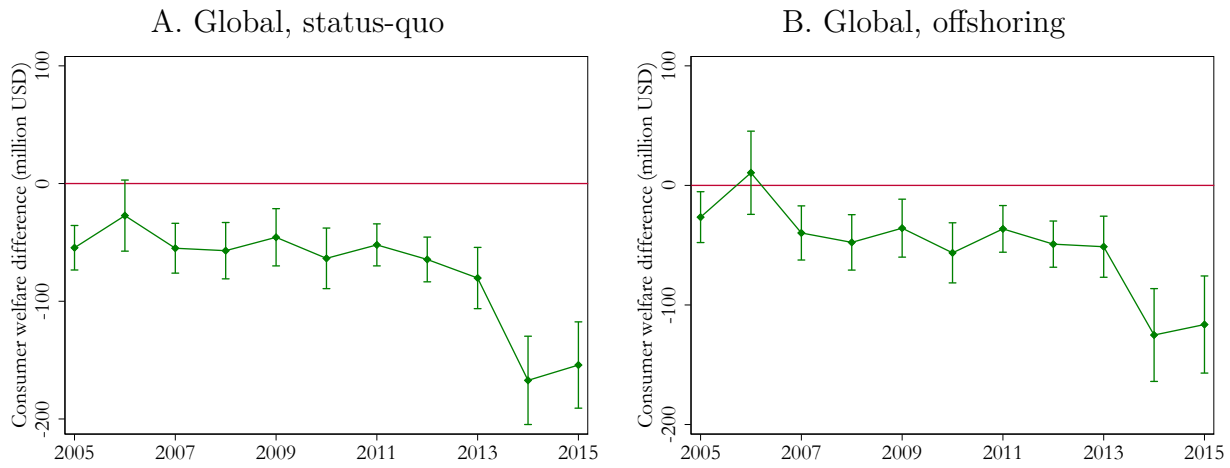
The results in Table A.1 show that while the magnitude of the effects increases under the alternative Kenmore ownership assumption, the sign and relative size of the effects does not change. This confirms that the results are not driven by this modeling choice.

Figure A.9: 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 clustered at the brand level.

Figure A.10: 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 clustered at the brand level.

Table A.1: Trade-policy channel of a domestic merger, $\kappa = 50\%$, Kenmore integrated

	Whirlpool profits			**Consumer surplus**	
	No merger	Appropriation	Strategic	No merger	$\Delta^{\mathcal{M}}$
Panel A: Korea+Mexico tariffs (Year: 2011)					
Status quo	\$103M [\$71M, \$135M]	\$60M [\$38M, \$81M]	\$11M [\$6M, \$15M]	−\$441M [−\$545M, −\$336M]	−\$54M [−\$69M, −\$39M]
Offshoring	\$70M [\$35M, \$105M]	\$45M [\$20M, \$71M]	\$8M [\$4M, \$12M]	−\$496M [−\$604M, −\$388M]	−\$39M [−\$55M, −\$24M]
Panel B: China+Korea+Mexico tariffs (Year: 2015)					
Status quo	\$206M [\$145M, \$266M]	\$142M [\$101M, \$183M]	\$41M [\$26M, \$55M]	−\$610M [−\$761M, −\$460M]	−\$146M [−\$181M, −\$111M]
Offshoring	\$151M [\$79M, \$222M]	\$101M [\$52M, \$150M]	\$30M [\$17M, \$43M]	−\$735M [−\$892M, −\$578M]	−\$107M [−\$146M, −\$68M]
Panel C: Global tariffs (Year: 2015)					
Status quo	\$210M [\$149M, \$271M]	\$145M [\$104M, \$187M]	\$42M [\$27M, \$57M]	−\$622M [−\$773M, −\$472M]	−\$149M [−\$185M, −\$114M]
Offshoring	\$155M [\$83M, \$227M]	\$104M [\$55M, \$153M]	\$31M [\$18M, \$45M]	−\$747M [−\$904M, −\$589M]	−\$111M [−\$150M, −\$72M]

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.