Mergers and the Demand for Protectionism

Felix Montag
NYU Stern, CEPR*

This version: February 28, 2026

Abstract

When import competition is strong, domestic mergers can strengthen the incentives to seek trade protection. However, merger control treats rivals' production location as irrelevant. 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. I develop a model to quantify how mergers affect the merging firms' demand for tariffs. I show that mergers between domestic producers increase their incentive to petition for tariffs and can generate merger-induced consumer harm through the trade-policy channel, 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.

*Email: felix.montag@nyu.edu. I thank seminar participants at NYU, the Stigler Center, the ITAM/UT Austin IO Conference, Georgetown University and the Yale Trade Day for helpful comments and suggestions. This work was supported in part through the NYU IT High Performance Computing resources, services, and staff expertise.

1 Introduction

To maintain the focus of antitrust law on consumer welfare and isolate it from trade policy considerations, the United States has kept a strict separation between trade and antitrust law (Bradford and Chilton, 2021). Falling trade costs have intensified foreign competition for domestic incumbents in most countries, 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 sit uneasily 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 study how mergers between domestic producers and cross-border mergers differently affect the incentives to petition for trade protection. In stage one, the competition authority adjudicates a horizontal merger involving a domestic incumbent that faces foreign competition. In stage two, conditional on the competition authority's decision, the incumbent chooses among lowering marginal costs via offshoring, raising foreign rivals' costs by petitioning for tariffs, or doing nothing. 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 above-and-beyond the direct market-power effects through a

[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).

trade-policy channel. This channel consists of an increase in the incentives to petition for tariffs and increased consumer harm from a given tariff after the merger. The incentive to petition for tariffs strictly increases after a domestic merger if the alternative is keeping 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* (a merger-induced increase in profitability from tariffs to the merging parties joint profits). If the alternative to petitioning is lowering marginal costs through offshoring, the appropriation effect remains strictly positive, while the strategic effect becomes unsigned.

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, despite high market shares, 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 be sufficient to prevent consumer harm from the merger. 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 this led to market share losses by domestic incumbents, as well as preventing them to raise 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. The strongest predictor of whether a domestic incumbent seeks trade protection is not product-market concentration but whether there are two or fewer domestic producers.

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 the parameters of a rich model of demand and supply following Montag (2025). This 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 significantly 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 the merger-induced strategic effect significantly increases the profitability of tariffs, the increase in profitability that stems from the appropriation effect is an order of magnitude larger. Furthermore, I find that the harm to consumers from tariffs is large and that conditional on tariffs being imposed, the merger amplifies this 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 above-and-beyond the direct market-power effects through a trade-policy channel, 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, horizontal mergers are associated with increases in AD/CVD petitions, which are relatively insulated from direct political bargaining and present a different choice set for incumbents: respond to import competition by petitioning for tariffs or by offshoring production.[2] Second, when imports can subsequently be restricted through trade remedies, merger control should weight constraints from domestic rivals and from imports differently. Third, in the model and empirics I distinguish between the appropriation (or collective-action) channel emphasized by Moshary and Slattery (2024) and the strategic channel.

The paper contributes to a literature on 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). The mechanism in this work is that because dumping margins depend on foreign pricing, the option value of a petition can induce higher

[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.

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. 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.

The paper adds to research on merger control and trade protection in the U.S. household appliance industry. Montag (2025) and Ashenfelter, Hosken, and Weinberg (2013) document sizable price increases and consumer harm from the Whirlpool–Maytag merger. Flaaen, Hortaçsu, and Tintelnot (2020) show that earlier AD/CVD actions on large residential washers primarily induced tariff jumping by LG and Samsung, whereas the 2018 global safeguards raised U.S. washer prices by nearly 12 percent. I link the merger decision to subsequent trade actions and 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.

Finally, the paper relates to a literature on optimal merger policy. Nocke and Whinston (2022) show that current concentration thresholds in merger control are too lax in the absence of large efficiency gains. Bhattacharya, Illanes, and Stillerman (2023) combine price estimates from a large number of U.S. consumer packaged-goods mergers with a model of enforcement practice and conclude that competition authorities effectively only challenge mergers with expected price increases above 5 percent. Breinlich, Nocke, and Schutz (2018) study optimal merger policy for international mergers in settings where multiple national agencies can block a transaction across jurisdictions.[3] I contribute to this literature by highlighting a non-market effect operating through trade policy: mergers change the merging parties' incentives to seek trade protection, which ultimately affects consumers.

The results have direct policy implications. In a globalized setting, the effects of trade and antitrust law are inextricably connected, so merger control can shape incentives to seek protection from imports and thereby affect consumers. Mergers that leave one or two domestic producers facing strong import competition should be viewed more critically than cross-border mergers. For example, although Draghi (2024) has prompted calls to relax EU merger control to enable scale, the results here caution against leniency toward mergers among domestic incumbents.[4] Cross-border consolidation can deliver scale economies

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

[4]Even before Draghi (2024), France and Germany urged approval of a merger to create a "European champion" in rail equipment to counter CRRC; the European Commission nonetheless blocked Siemens/Alstom.

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 vast 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).[5]

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.[6] 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. This 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 may rationally sell below average total cost (but above average variable cost), a price below average total cost is considered dumping.[7]

[5]In 2025, the first tariffs based on the International Emergency Economic Powers Act (IEEPA) were imposed. At the time of writing, the question of whether these actions exceed the President's authority has not yet been decided by the Supreme Court (Liu, 2026).

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

[7]Blonigen and Prusa (2016) explain that although the U.S. Antidumping Act of 1916 was originally

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 only done this once and quickly withdrawn its statement thereafter and no other federal agency has done so in the last decades (U.S. Government Accountability Office, 2022).

There are several reasons for the popularity of AD as a tool for domestic petitioners. First, AD is a particularly effective instrument against import competition because it disincentivizes importers from competing aggressively: the lower the importer's price, the more likely a domestic rival can establish that it 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 distortive. 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 subsidies provided by a foreign government or public entity. 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.

AD/CVD petitions occur frequently. According to data compiled by Bown et al. (2020), U.S. authorities initiated 747 AD, 453 CVD, and 15 GS investigations between 1980 and

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.

2024. Between 2011 and 2021, 74 percent of AD/CVD petitions resulted in AD/CVD orders (U.S. Government Accountability Office, 2022). At the same time, preparing a petition is costly, requiring legal counsel, expert economic analysis, and participation in administrative hearings. 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 more complex cases or for 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 that between 2002 and 2024, there were 789 petitioners for AD/CVD cases. Of these, 528 were unique petitioners. Fourteen petitioners were labor unions and 217 were trade associations or coalitions of individual companies, while the remaining 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 in theory 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 success predictable, and success rates increase with the competitiveness of the importer. 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 that affect the interplay between mergers and the demand for protectionism.

3.1 Setup

Consider a market with three firms. Firm 1 is a domestically producing incumbent, firm 2 is a domestic acquisition target, and firm 3 is a foreign rival. Each firm produces a single, horizontally differentiated product and sells exclusively in the domestic market. Demand is generated by a unit mass of consumers with heterogeneous preferences 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.[8]

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.

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

Consumer surplus changes from policies are measured by compensating variation:

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

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 petitioning 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.[9]

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.

[9]This is not true for any demand system. Under Constant Elasticity of Substitution (CES) demand, the price of firm 1 does not react to the quality of product 3 and so κ^* strictly increases in δ_3. While this gives a sharper prediction in this case, the lack of strategic complementarity is an undesirable property for merger analysis.

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 tariff raises merger surplus—the profit gain from joint pricing exceeds the sum of standalone profit gains. 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, while the strategic effect is zero under CES-MC, the appropriation effect and thus overall effect, remain positive.

Next, I analyze how a merger between 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 (from c_D to c_F). 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 channel dominates and the strategic effect is positive; when the cost gap dominates, the offshoring-gain channel 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, which firm 1 expects the trade commission to set in the event of a successful petition, is below the post-merger κ^*.

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

Proposition 5. *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 discretely 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 to 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 sufficiently high such that $c_D < (1+\kappa)c_F$. In the following, I focus on the case where R_3 is sufficiently small, such that tariff jumping is the rational response for firm 3.

Proposition 6. *Tariff jumping strictly reduces the incentive to petition relative to offshoring. Petitioning can remain optimal even with perfect patience ($\beta = 1$) and certainty of tariff jumping in $t = 2$.*

This shows that while tariff jumping has a dampening effect on the incentives to petition for tariffs, the key tradeoff described in the previous propositions remain valid.

3.7 Discussion of 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 are inherently less harmful.

Suppose that there is a second foreign producer (firm 4) acquired by firm 1. The theoretical impact on petitioning incentives is ambiguous but suggests a countervailing force absent in domestic mergers.

First, consider the *appropriation effect*. In a domestic merger, the target is a beneficiary of protection; the merger allows firm 1 to internalize the positive externality of the tariff. In a cross-border merger, the target (firm 4) is a direct victim of the tariff. To avoid the tariff, the merged entity would have to relocate firm 4 to the domestic market, incurring fixed costs and permanently raising marginal costs from c_F to c_D. Thus, unlike the domestic case where the appropriation effect is strictly positive, here it represents a trade-off: firm 1 internalizes the benefit of handicapping rival firm 3 against the cost of handicapping (or relocating) its own affiliate firm 4.

Second, the *strategic effect* is similarly complicated by cross-border cannibalization. A tariff shifts market share from foreign to domestic products. For a cross-border entity, this policy-induced substitution is partly internal—shifting sales from its own foreign affiliate (product 4) to its domestic incumbent (product 1). Depending on the relative margins and

the intensity of substitution between products 2, 3, and 4, this internalization can dampen the incentive to petition relative to a purely domestic firm that treats foreign market share purely as a competitive threat.

With four products, relocation margins on both sides of the border, and endogenous market shares, the relative profitability of petitioning versus maintaining status quo locations becomes heavily parameter-dependent. While the internalization of foreign losses suggests cross-border mergers may reduce the demand for protectionism, the net effect does not yield robust, signable comparative statics in closed form. To shed light on the relative strength of the different forces, I quantify the impact of cross-border mergers empirically in the simulations in Section 7.

4 Institutional Setting, Data, and Descriptive Evidence

To shed light on the interplay between mergers, concentration, and the demand for trade protection in a concrete example—and to illustrate how this concept could be operationalized in merger policy—I focus on the household appliance industry.

4.1 Household Appliance Industry

In the year 2000, the import share for most major appliances into the EU and U.S. was below 10 percent. By 2018, the import share was above 30 percent for most major appliances and closer to 50 percent for some, such as clothes washers, dryers or 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 main justification given by the Department of Justice in its merger clearance decision was that post-merger price increases were unlikely because foreign manufacturers posed a sufficiently large constraint on the merging parties (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 domestic producers for EU washers or U.S. dishwashers. The markets with few domestic producers also correspond to the instances where Whirlpool filed for AD/CVD.

While the U.S. petition for bottom-mount refrigerators was ultimately unsuccessful,[10] large residential clothes washers (LRWs) were subject to multiple rounds of petitions for trade protection. 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).

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 from TraQline until 2023, using the TraQline data provided via Dewey Data. This does not include non-price product characteristics other than brand and thus does not allow extending the structural analysis 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 data on production from Appliance Magazine, Euromonitor and hand-collected information on production locations between 2000 and 2023, whenever this information is available. For clothes washers sold in the U.S. for 2005–2015, I use hand-collected data on the production locations from Montag (2025).

Finally, I estimate the import share for every market and year using trade data from

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

the USITC and COMTRADE.

4.3 Descriptive analysis

The stylized model in Section 3 suggests that mergers between domestic producers are particularly likely to lead to demand for trade protection. We should therefore expect petitions for trade protection 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 number of domestic producers. Specifically, I estimate 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 producers' (foreign and domestic) sales share in the domestic market, and nrdomprod_{it} is the number of domestic producers.

The data spans 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 is not available for all product markets in all years, resulting in an unbalanced sample.

The descriptive results in Table 1 indicate that higher product market concentration, as measured by the product market HHI, is not positively associated with petition filing. If anything, the association is negative and statistically significant 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

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. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

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 to understand whether a merger harms consumers through the trade-policy channel requires estimating the merging parties' variable profits with and without the merger and with and without the imposition of tariffs. To estimate these objects, I specify a rich model of demand and supply tailored to the U.S. washer market since this is where my empirical application is situated.[11] However, the model could easily nest a different demand and supply model.

5.1 Consumer Demand

Let utility for household i from purchasing product j be:

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

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

where x_{jt} is a vector of observed non-price characteristics, x_{jt}^{FL} is a front-loader indicator interacted with a random taste draw $\nu_i^{\text{FL}} \sim \mathcal{N}(0,1)$, 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

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

The demand estimation combines aggregate and household moments as outlined in Berry, Levinsohn, and Pakes (2004). It uses the same data, estimation procedure, and moment conditions as Montag (2025), where interested readers can find more details about the demand estimation.

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.

Firms take derivatives of market shares with respect to prices to compute their markups. 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 tariffs on imports from an origin set O. Petitioning results in an ad valorem tariff $\kappa > 0$ being imposed on imports from O; tariff-origin pairs are indexed by (κ, O).[12] 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 inferred by inverting the first order condition of firms by which they set prices and combining this with data on 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 matrix of nonprice characteristics $\mathbf{x}_j$ captures material cost differences across products, while ω_{jt} denotes transitory material cost shocks.

5.3 Trade-Policy Channel of Mergers

Having established how to estimate the variable profits of firms in different merger, offshoring, and tariff scenarios allows linking the empirical model to the propositions of the theoretical model in Section 3. The model shows that to understand how a merger changes the incentive of the merging parties to petition for tariffs requires estimating the *appropriation* and *strategic* effects of a merger.

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

[12] I assume that petitions always lead to tariffs. Adding uncertainty about the success of a petition is isomorphic to adding uncertainty about κ.

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 tariff conditional on it being imposed. 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 $\alpha_i = \exp(\alpha + \kappa_\alpha \iota_i)$ and $V_{ij}^{(\kappa, O;\, m)} = \delta_{jt} + \mu_{ijt}^{(\kappa, O;\, m)}$ uses the equilibrium prices implied by m and (κ, O). Tariffs affect consumer surplus through equilibrium prices (entering $\mu_{ijt}^{(\kappa, O;\, m)}$).

Conditional on a particular tariff-origin pair (κ, O), I define how a merger changes the consumer surplus impact of a tariff as

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

so $\Delta CS^{\mathcal{M}}(\kappa, O) < 0$ indicates greater consumer surplus loss from a tariff under merger for the same (κ, O).

6 Parameter Estimates

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

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

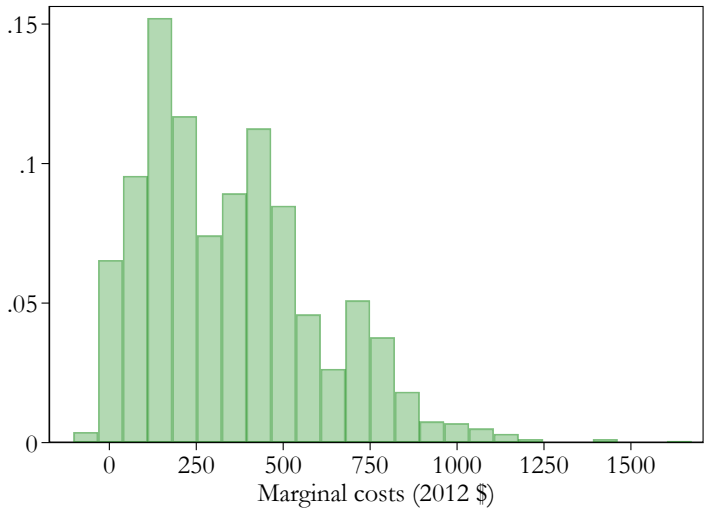
Finally, Table 3 quantifies how marginal costs depend on labor costs (captured by the deflated RER), product characteristics, and firm-specific fixed effects.

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: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

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.

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 different components of the trade-policy channel for Whirlpool's observed domestic acquisition of Maytag. In particular, I quantify how this affected the profitability of petitioning for the different rounds of petitions observed between 2010 and 2018.

To contrast this with the trade-policy channel of a cross-border merger, I repeat this exercise 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. To assess their impact on consumers, I estimate the corresponding $\Delta CS^{\mathcal{M}}(\kappa, O)$.

While I observe realized tariff outcomes and relocation responses by LG and Samsung, I do not incorporate those in the simulations. 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 therefore simulate simpler schedules with ad valorem tariffs of $\kappa \in \{25\%, 50\%\}$ 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).

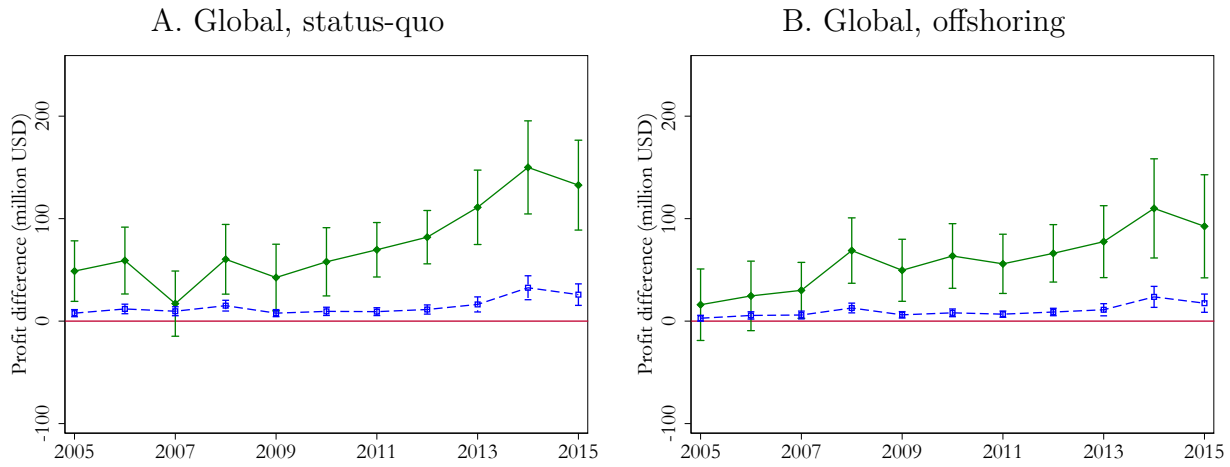
For each calendar year t, I recompute the Bertrand–Nash pricing equilibrium under explicit production-location assumptions. Under a tariff (κ, O), Maytag and Whirlpool reshore any remaining foreign washer production to the U.S. in year t, while all other firms' production locations are held at their configuration in year $t-1$. 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* ($\ell = \text{sq}$), Maytag and Whirlpool's production locations remain at where they were in year $t-1$. In the *incumbent-offshoring baseline* ($\ell = \text{off}$), relative to the status quo, Maytag and Whirlpool offshore front-loader production to Mexico in year t (top-loaders are not offshored).[13] All rivals' production locations always remain at their locations in year $t-1$.

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

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* (left) and the *incumbent-offshoring baseline* (right).[14]

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. Standard errors are clustered at the brand level.

The results indicate that the merger increases the profitability of global import tariffs for Whirlpool. While the merger-induced appropriation and strategic effects significantly increase the profitability of petitioning for trade protection, most of the trade-policy channel in a domestic acquisition of Maytag by Whirlpool comes through the appropriation effect. The strategic effect is an order of magnitude smaller than the appropriation effect.

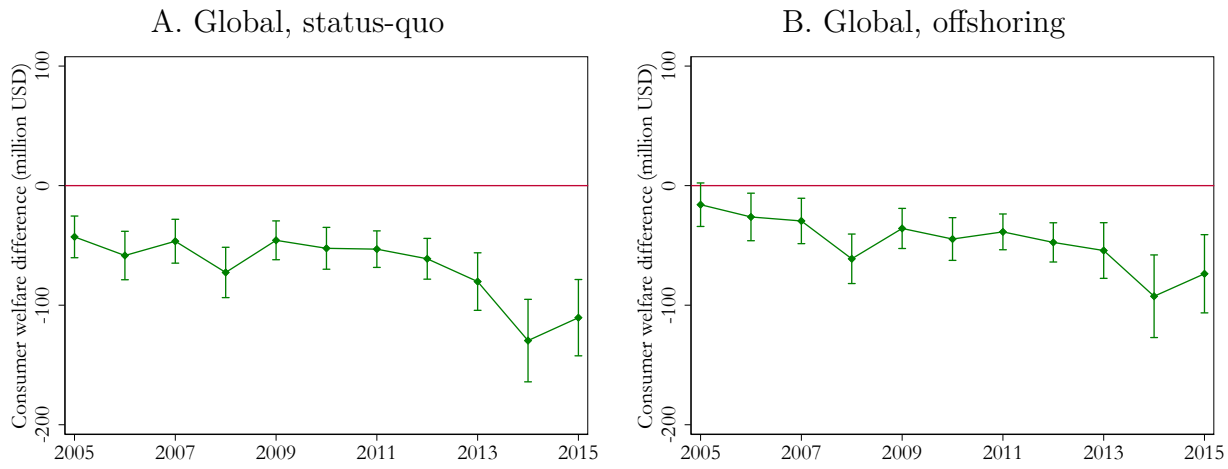
Figure 3 shows the merger-induced additional loss in consumer surplus from a 50% global tariff on U.S. consumer surplus. The merger increases consumer surplus losses of global import tariffs. Depending on the year, the increase in the annual consumer harm from tariffs exceeds $100 million. This is without accounting for the change in the probability of petitioning.[15]

Table 4 reports the estimates of the effect of introducing a 50% tariff for the different tariff scenarios in the year before these were introduced (or the final year of the data in the case of global tariffs). The first column shows the tariff-induced change in profits for Whirlpool in the absence of the merger. The sum of the appropriation and strategic effects is the increase in profits from tariffs to Whirlpool caused by the merger. In most cases,

[14]Results for Korea+Mexico and China+Korea+Mexico tariffs are presented in Appendix Figures A.1–A.2.

[15]Results for Korea+Mexico and China+Korea+Mexico tariffs are presented in Appendix Figures A.3–A.4.

Figure 3: Domestic merger: consumer surplus effect, $\kappa = 50\%$, global tariffs



Notes: The figure shows how a Whirlpool-Maytag merger changes the consumer welfare implications from a 50% global tariff. Standard errors are clustered at the brand level.

acquiring Maytag more than doubled the profits from tariffs to Whirlpool. This shows why it is very plausible that the merger increased the probability of a tariff petition.

The final two columns show the consumer surplus loss from a 50% tariff in the different scenarios in the absence of a merger, as well as the merger-induced change in consumer surplus loss due to tariffs. Two observations stand out. First, the consumer welfare loss from tariffs is substantial. Even in the absence of the merger, a 50% global tariff on washers decreases consumer surplus by around $718 million if the alternative is offshoring. Second, the merger substantially increases the consumer harm from tariffs. For instance, in the global tariff scenario, the merger increases the consumer surplus loss from a 50% tariff by around $74 million if the alternative is offshoring.[16]

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. In the case of global tariffs in 2015, where the alternative would be offshoring, if we believe that the merger increased the likelihood of these tariffs by 10%, a conservative estimate given that they doubled Whirlpool's profits from the tariffs, the Maytag acquisition by Whirlpool lead to consumer harm of $150 million per year through the trade policy channel. To put this

[16]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.

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 [\$34M, \$83M]	\$8M [\$5M, \$11M]	−\$443M [−\$568M, −\$317M]	−\$46M [−\$60M, −\$32M]
Offshoring	\$47M	\$45M [\$17M, \$72M]	\$5M [\$1M, \$9M]	−\$498M [−\$623M, −\$373M]	−\$26M [−\$45M, −\$8M]
Panel B: China+Korea+Mexico tariffs (Year: 2015)					
Status quo	\$154M	\$130M [\$87M, \$173M]	\$25M [\$15M, \$35M]	−\$585M [−\$748M, −\$423M]	−\$108M [−\$139M, −\$76M]
Offshoring	\$93M	\$90M [\$40M, \$140M]	\$17M [\$8M, \$26M]	−\$708M [−\$873M, −\$543M]	−\$71M [−\$104M, −\$39M]
Panel C: Global tariffs (Year: 2015)					
Status quo	\$157M	\$133M [\$89M, \$177M]	\$26M [\$15M, \$36M]	−\$596M [−\$759M, −\$433M]	−\$110M [−\$142M, −\$79M]
Offshoring	\$96M	\$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 (Propositions 3 and 4). Consumer surplus columns report the change in consumer surplus from tariffs without the merger and the merger-induced additional consumer harm (Proposition 5). 95% bootstrap confidence intervals in brackets. See Table A.1 for results treating Kenmore top-loaders as Whirlpool products.

into perspective, Montag (2025) estimates that the direct market-power related consumer surplus harm from the Whirlpool-Maytag merger is $225 million for clothes washers. This shows that the magnitude of the trade-policy channel can be.

7.2 Trade-Policy Channel of a Cross-Border Merger

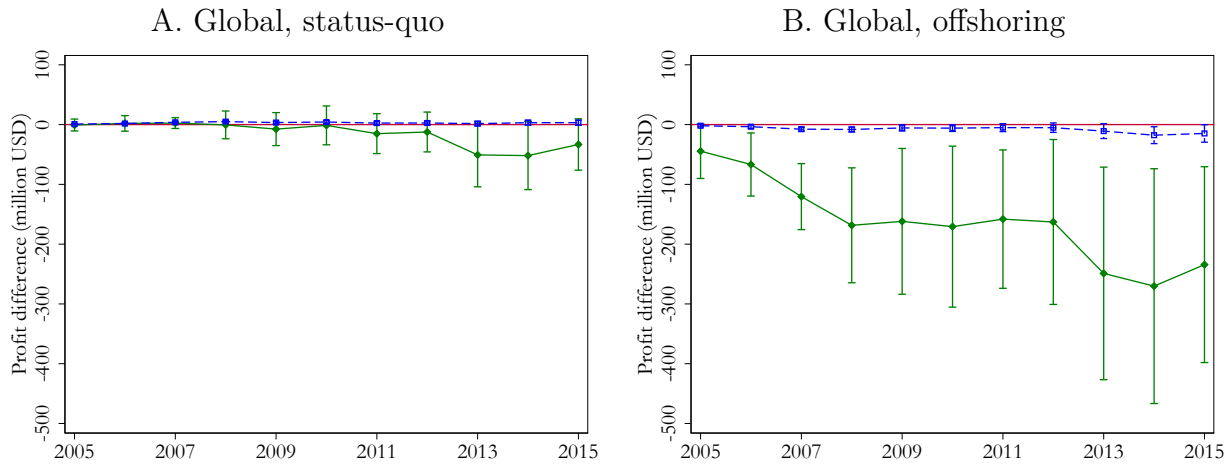
In Section 3.7 I explain that while I cannot formally prove that cross-border mergers are inherently less harmful for consumers in terms of the trade-policy channel, the internalization of foreign losses in a cross-border merger suggests that these may reduce the demand for protectionism.

To illustrate this point, I repeat the previous simulations for a cross-border merger between Whirlpool and LG. To make this more comparable to the simulations of the domestic merger, I demerge all Maytag brands from Whirlpool across all years for this scenario. I assume that Maytag always produces in the U.S., whereas in the absence of petitioning Whirlpool and LG either keep their observed (status-quo) production locations in every year 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. This is because after a merger between Whirlpool and LG, the upsides to petitioning are limited (they mainly protect the merged-entity from competition by Samsung), while there are significant downsides to petitioning. In particular, it requires the merged Whirlpool-LG to relocate all of its production to the U.S. and incur the associated increases in production costs. Table 5 reports the corresponding point estimates and bootstrap confidence intervals for all three tariff scopes. Results for Korea+Mexico and China+Korea+Mexico tariffs are presented in Appendix Figures A.5–A.6.

Figure 5 shows that, conditional on a given set of tariffs, the consumer harm from those tariffs is similar with and without a Whirlpool–LG merger or even larger without the merger than without it. The reason is that, although tariffs always reduce consumer welfare, LG's role as a strong competitor is especially valuable when the firms remain separate. Tariffs weaken this competitive constraint, and the resulting loss is therefore borne more heavily by consumers in the absence of the merger. Results for Korea+Mexico and China+Korea+Mexico tariffs are presented in Appendix Figures A.7–A.8.

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



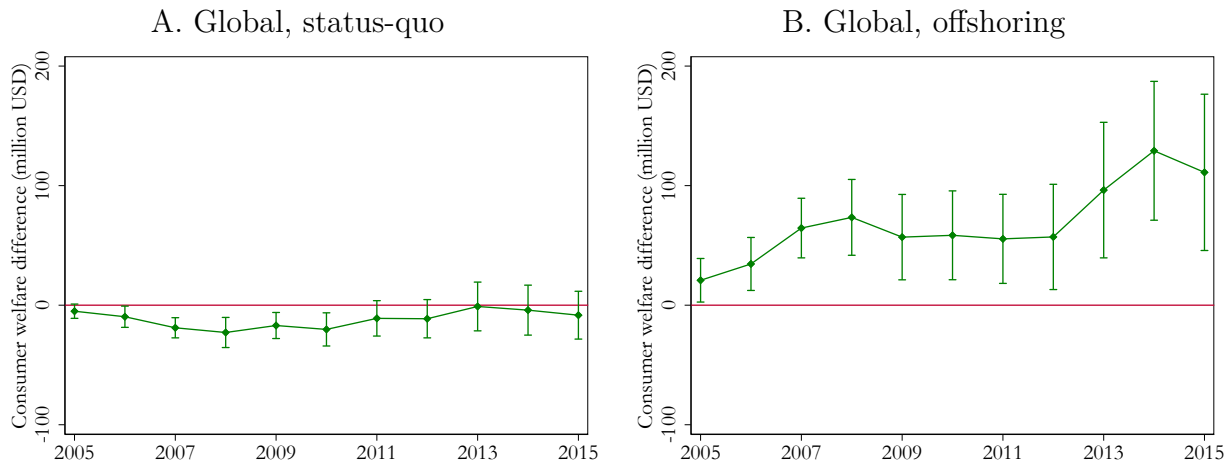
Notes: The figure shows how for a Whirlpool-LG merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% global tariff. Standard errors are clustered at the brand level.

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	\$60M	−\$16M [−\$50M, \$17M]	\$2M [\$0M, \$5M]	−\$356M [−\$456M, −\$255M]	−\$10M [−\$25M, \$5M]
Offshoring	\$50M	−\$123M [−\$236M, −\$9M]	−\$4M [−\$11M, \$2M]	−\$511M [−\$655M, −\$368M]	\$43M [\$6M, \$80M]
Panel B: China+Korea+Mexico tariffs (Year: 2015)					
Status quo	\$103M	−\$34M [−\$77M, \$9M]	\$3M [−\$1M, \$7M]	−\$404M [−\$521M, −\$288M]	−\$7M [−\$27M, \$13M]
Offshoring	\$95M	−\$235M [−\$399M, −\$71M]	−\$15M [−\$30M, \$0M]	−\$714M [−\$908M, −\$519M]	\$112M [\$46M, \$177M]
Panel C: Global tariffs (Year: 2015)					
Status quo	\$106M	−\$33M [−\$76M, \$10M]	\$3M [−\$1M, \$7M]	−\$414M [−\$531M, −\$298M]	−\$8M [−\$28M, \$12M]
Offshoring	\$97M	−\$234M [−\$398M, −\$70M]	−\$15M [−\$29M, \$0M]	−\$725M [−\$920M, −\$530M]	\$111M [\$46M, \$176M]

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 (Propositions 3 and 4). Consumer surplus columns report the change in consumer surplus from tariffs without the merger and the merger-induced additional consumer harm (Proposition 5). 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 welfare implications from a 50% global tariff. Standard errors are clustered at the brand level.

8 Conclusion

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

Using the U.S. washing machine industry as a case study, I find that the increased profitability of petitioning for tariffs following a domestic merger is driven primarily by an appropriation effect: the merger allows the acquiring firm to internalize trade-protection rents that would otherwise accrue to its domestic rival. A strategic pricing effect is also present but is quantitatively much smaller. Importantly, the resulting consumer harm from the trade-policy channel is of the same order of magnitude as the harm generated by the merger's direct market-power effects. In contrast, I find no consumer harm arising from the trade-policy channel in an alternative cross-border merger.

These findings imply that, in tradable-goods markets, mergers between domestic producers warrant heightened antitrust scrutiny when shutting out foreign competitors post-merger would significantly harm competition and consumers. Cross-border mergers, by comparison, are unlikely to generate additional consumer harm beyond their direct competitive effects.

References

Ashenfelter, Orley C., Daniel S. Hosken, and Matthew C. Weinberg. 2013. "The Price Effects of a Large Merger of Manufacturers: A Case Study of Maytag-Whirlpool." *American Economic Journal: Economic Policy* 5 (1): 239–61.

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

Bhattacharya, Vivek, Gastón Illanes, and David Stillerman. 2023. *Merger Effects and Antitrust Enforcement: Evidence from US Consumer Packaged Goods.* NBER Working Paper 31123. National Bureau of Economic Research. https://doi.org/10.3386/w31123.

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

Blonigen, Bruce A., and Thomas J. Prusa. 2016. "Dumping and Antidumping Duties." In *Handbook of Commercial Policy,* edited by Kyle Bagwell and Robert W. Staiger, vol. 1B, 107–159. North-Holland. https://doi.org/10.1016/bs.hescop.2016.04.009.

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

Bown, Chad, Milla Cieszkowsky, Aksel Erbahar, and Jose Signoret. 2020. *Temporary Trade Barriers Database.* https://www.worldbank.org/en/research/brief/temporary-trade-barriers-database. Washington, DC: World Bank.

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

Breinlich, Holger, Volker Nocke, and Nicolas Schutz. 2018. "Merger Policy in a Quantitative Model of International Trade." *Economic Journal* 128 (614): 2385–2417. https://doi.org/10.1111/ecoj.12522.

Casey, Christopher A. 2020. *Trade Remedies: Antidumping.* CRS Report R46296. Congressional Research Service.

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

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

De Stefano, Martino, and Marc Rysman. 2010. "Competition Policy as Strategic Trade with Differentiated Products." *Review of International Economics* 18 (5): 888–904. https://doi.org/10.1111/j.1467-9396.2010.00893.x.

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

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

Flaaen, Aaron, Ali Hortaçsu, and Felix Tintelnot. 2020. "The Production Relocation and Price Effects of US Trade Policy: The Case of Washing Machines." *American Economic Review* 110 (7): 2103–27.

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

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

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

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

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

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

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

Montag, Felix. 2025. "Mergers, Foreign Competition, and Jobs: Evidence from the U.S. Appliance Industry." *Working Paper.*

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

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

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

Nocke, Volker, and Nicolas Schutz. 2018. "Multiproduct-Firm Oligopoly: An Aggregative Games Approach." *Econometrica* 86 (2): 523–557. https://doi.org/10.3982/ECTA14720.

———. 2025. "An Aggregative Games Approach to Merger Analysis in Multiproduct-Firm Oligopoly." *RAND Journal of Economics* 56 (3): 233–250. https://doi.org/10.1111/1756-2171.12500.

Nocke, Volker, and Michael D. Whinston. 2022. "Concentration Thresholds for Horizontal Mergers." *American Economic Review* 112 (6): 1915–1948. https://doi.org/10.1257/aer.20201038.

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

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

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

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

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

U.S. Government Accountability Office. 2022. *Antidumping and Countervailing Duties: Process Design Helps Ensure Proceedings Are Based on Accurate and Complete Information.* Technical report GAO-23-105794. Washington, D.C.: U.S. Government Accountability Office.

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

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

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

Appendix for Online Publication

I Appendix to Section 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 $F(0) < 0$, 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 existence, note that 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 $F(0) = \pi_1^{\text{sq}} - L - (\pi_1^{\text{off}} - R_1) < -L < 0$, and the cutoff exists.

□

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

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

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. With $s_2, s_3 \in (0,1)$, logit gives $\frac{\partial s_2}{\partial p_3} = \alpha s_2 s_3 > 0$, and Bertrand pass-through implies $\frac{dp_3}{dc_3} > 0$. Hence

$$\frac{d\pi_2}{dc_3} = \frac{\partial \pi_2}{\partial p_3}\frac{dp_3}{dc_3} = \Big(p_2 - c_2\Big)\frac{\partial s_2}{\partial p_3}\frac{dp_3}{dc_3} > 0.$$

The duty raises c_3, so $\pi^{\text{pet}}_{2,\mathcal{S}} - \pi^{\text{sq}}_{2,\mathcal{S}} > 0$.[17]

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 its *type*: $T_j = \exp(\delta_j - \alpha c_j)$ for single-product firm j, 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:

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

[17] I abstract from a second-order feedback effect in which an increase in p_3 leads to an increase in p_1 and p_2, further increasing π_2. This does not change that the appropriation effect is strictly positive.

where α is the marginal utility of income.[18] 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.

Holding the ownership structure fixed and applying the envelope theorem (at each value of c_3, the domestic firms are at their profit-maximizing prices), the profit response of a domestic firm or merged entity f in regime $\omega \in \{\mathcal{S}, \mathcal{M}\}$ is:

$$\frac{d\pi_f^\omega}{dc_3} = \sum_{j \in \mathcal{J}_f} (p_j^\omega - c_j) \frac{\partial s_j^\omega}{\partial p_3} \frac{dp_3^{*,\omega}}{dc_3} = \sum_{j \in \mathcal{J}_f} \frac{\mu_f^\omega}{\alpha} \cdot \alpha \, s_j^\omega s_3^\omega \cdot \frac{dp_3^{*,\omega}}{dc_3} = \mu_f^\omega \, S_f^\omega \, s_3^\omega \cdot \frac{dp_3^{*,\omega}}{dc_3} = \alpha \, \pi_f^\omega \, s_3^\omega \cdot \frac{dp_3^{*,\omega}}{dc_3},$$

where the second equality substitutes the common ι-markup ($p_j - c_j = \mu_f/\alpha$) and the logit cross-derivative ($\partial s_j/\partial p_3 = \alpha \, s_j s_3$), the α's cancel in the third equality, and the last uses $\mu_f S_f = \alpha \sum_{j \in \mathcal{J}_f} (p_j - c_j) s_j = \alpha \, \pi_f$ with $\mu_f = 1/(1 - S_f)$ (Nocke and Schutz, 2025, eq. 5, 6). The common factor α cancels across regimes in the comparison that follows.

The resulting equation says that each domestic firm's profit response to an increase in c_3 is the product of (i) the pass-through of c_3 into p_3, (ii) the foreign market share s_3, and (iii) the firm's own profit level. Comparing across regimes:

$$\frac{d\pi_{\mathcal{M}}}{dc_3} - \frac{d(\pi_{1,\mathcal{S}} + \pi_{2,\mathcal{S}})}{dc_3} = \frac{dp_3^{*,\mathcal{M}}}{dc_3} \cdot s_3^{\mathcal{M}} \cdot \pi_{\mathcal{M}} - \frac{dp_3^{*,\mathcal{S}}}{dc_3} \cdot s_3^{\mathcal{S}} \cdot \Big(\pi_{1,\mathcal{S}} + \pi_{2,\mathcal{S}}\Big).$$

Since the merger is profitable, ($\pi_{\mathcal{M}} > \pi_{1,\mathcal{S}} + \pi_{2,\mathcal{S}}$. It also raises the foreign market share ($s_3^{\mathcal{M}} > s_3^{\mathcal{S}}$, as higher domestic prices shift demand toward product 3) but *lowers* the foreign firm's cost pass-through: from firm 3's FOC, the best-response pass-through is $dp_3/dc_3 = 1 - s_3$, which falls as s_3 rises. However, the net exposure $s_3 \cdot dp_3^*/dc_3 \approx s_3(1 - s_3)$ is increasing in s_3 for $s_3 < 1/2$, which holds for any single product when the outside good captures a non-trivial market share. So both the profit and exposure channels lead to higher tariff profitability after the merger.[19] 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

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

□

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

[19] Computational verification across 136,000 parameter combinations confirms zero violations. Across all parameter values, the product $s_3^{\mathcal{M}}(1 - s_3^{\mathcal{M}}) \cdot \pi_{\mathcal{M}}$ exceeds $s_3^{\mathcal{S}}(1 - s_3^{\mathcal{S}}) \cdot (\pi_{1,\mathcal{S}} + \pi_{2,\mathcal{S}})$, confirming that the profit and exposure effects strictly dominate the pass-through reduction in the full equilibrium.

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 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.

Term B is strictly positive. Under offshoring, firm 1's cost drops from c_D to c_F regardless of ownership. But the merger additionally enables offshoring of product 2 ($c_2\colon c_D \to c_F$). In the aggregative games framework, the merged entity's type increases by more than the sum of standalone types: $T^{\text{off}}_{\mathcal{M}} - T^{\text{sq}}_{\mathcal{M}} = T^{\text{off}}_2 - T^{\text{sq}}_2 + (T^{\text{off}}_1 - T^{\text{sq}}_1)$, where the first term captures the offshoring of product 2 (only possible under the merger), while standalone firm 2 remains at c_D ($T^{\text{off}}_{2,\mathcal{S}} = T^{\text{sq}}_{2,\mathcal{S}}$). Moreover, standalone firm 2 is *hurt* by firm 1's offshoring (a stronger rival lowers its profit), so $\pi^{\text{off}}_{2,\mathcal{S}} < \pi^{\text{sq}}_{2,\mathcal{S}}$. The merged entity's offshoring gain therefore strictly exceeds the sum of standalone offshoring gains.

Sign of the strategic effect. The strategic effect equals Term A − Term B, with both terms strictly positive. If $c_D = c_F$, offshoring offers no cost advantage, so Term B = 0 and

the strategic effect equals Term A > 0. If $\kappa = 0$, the tariff offers no protection, so Term A $= 0$ and the strategic effect equals $-$Term B < 0. In general, 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 drop 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 the 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 the 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 discretely raises markups, producing $H^{\mathcal{S}}_{-3}/H^{\mathcal{M}}_{-3}$ 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. Consider a two-period model $t = 1, 2$ with discount factor $\beta \in (0, 1]$. Firm 1 chooses between petitioning and offshoring at $t = 1$. Firm 3 can respond to the imposition of a duty in $t = 1$ by relocating production to D (i.e., tariff jumping), but not before $t = 2$.

If Firm 1 petitions, it pays L and the duty κ is imposed in $t = 1$, raising Firm 3's cost to $(1 + \kappa)c_F$. If tariff jumping occurs, Firm 3 relocates to the domestic market in $t = 2$, paying a sunk cost R_3 to adopt the domestic marginal cost c_D. If Firm 1 offshores, it pays R_1, sets its cost to c_F in $t = 1$, and the duty is never imposed. Firm 3 remains foreign at cost c_F.

The net present value of offshoring is:

$$V^{\text{off}} = (1 + \beta)\pi^{\text{off}} - R_1,$$

where π^{off} is the profit given costs (c_F, c_F).

The net present value of petitioning depends on whether tariff jumping occurs. In the absence of tariff jumping (permanent protection), the duty persists:

$$V^{\text{pet}}_{\text{perm}} = (1 + \beta)\pi^{\text{pet}}(\kappa) - L,$$

where $\pi^{\text{pet}}(\kappa)$ is the profit given costs $(c_D, (1 + \kappa)c_F)$.

With tariff jumping (temporary protection), Firm 3 becomes a domestic competitor in $t = 2$ with cost c_D:

$$V^{\text{pet}}_{\text{jump}} = \pi^{\text{pet}}(\kappa) + \beta\pi^{\text{jump}} - L,$$

where π^{jump} is the profit given symmetric domestic costs (c_D, c_D).

Reduction in Incentives to Petition. Define the incentive to petition relative to offshoring as $\Delta \equiv V^{\text{pet}} - V^{\text{off}}$. The impact of tariff jumping on this incentive is

$$\Delta_{\text{jump}} - \Delta_{\text{perm}} = V^{\text{pet}}_{\text{jump}} - V^{\text{pet}}_{\text{perm}} = \beta\Big(\pi^{\text{jump}} - \pi^{\text{pet}}(\kappa)\Big).$$

Tariff jumping is only relevant if the duty raises foreign costs above domestic costs: $(1+\kappa)c_F > c_D$. Since Firm 1's profits are strictly increasing in its rival's marginal cost, it follows that $\pi^{\text{pet}}(\kappa) > \pi^{\text{jump}}$. Therefore, $\Delta_{\text{jump}} - \Delta_{\text{perm}} < 0$. Tariff jumping strictly reduces the relative incentive to petition.

Optimality of Petitioning with $\beta = 1$ and Tariff Jumping. Set $\beta = 1$. Firm 1 prefers petitioning with tariff jumping over offshoring if $V^{\text{pet}}_{\text{jump}} > V^{\text{off}}$:

$$\pi^{\text{pet}}(\kappa) + \pi^{\text{jump}} - L \;>\; 2\pi^{\text{off}} - R_1.$$

Rearranging, this requires:

$$\pi^{\text{pet}}(\kappa) - \pi^{\text{off}} \;>\; (\pi^{\text{off}} - \pi^{\text{jump}}) - (R_1 - L).$$

This condition holds for a non-empty set of parameters. Specifically, if the duty κ is sufficiently high and competition between firms 1 and 3 in the event of offshoring is high, the short-run windfall from petitioning vis-à-vis offshoring can be large. Additionally, if the fixed cost of offshoring R_1 is high relative to L, the petitioning strategy remains attractive despite the long-run erosion of profits caused by the rival's relocation. □

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.

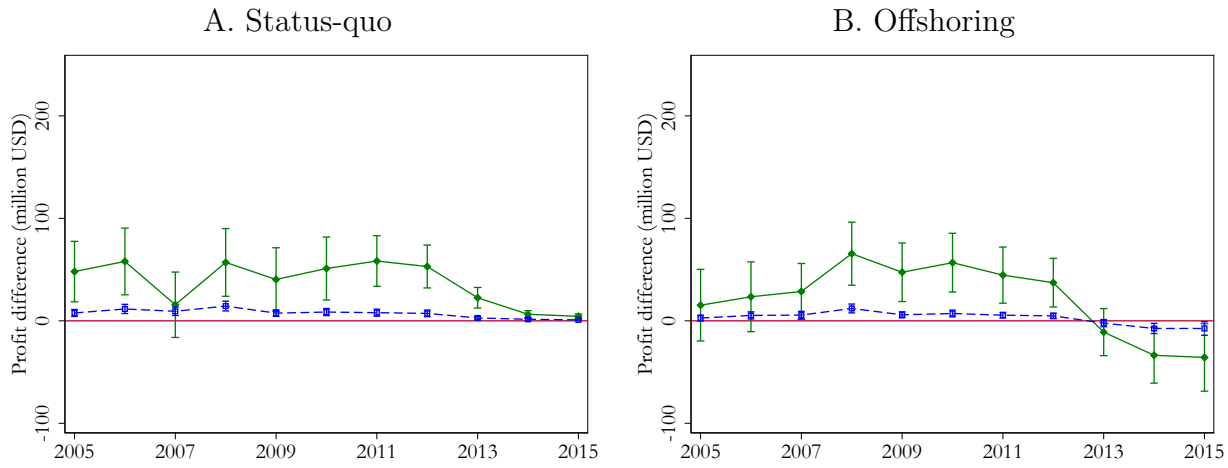
Domestic Merger: Non-Global Tariff Scopes

Cross-Border Merger: Non-Global Tariff Scopes

Kenmore Sensitivity

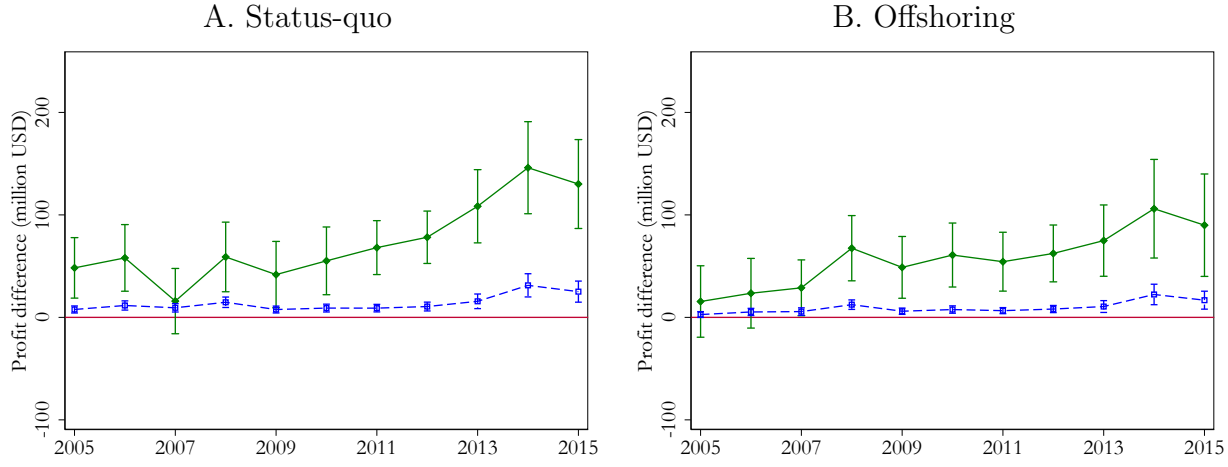
While the analysis in Figure 2 treats Kenmore appliances as fully separate from Whirlpool, despite the fact that Whirlpool is the manufacturer of Kenmore top-loaders, the results in

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



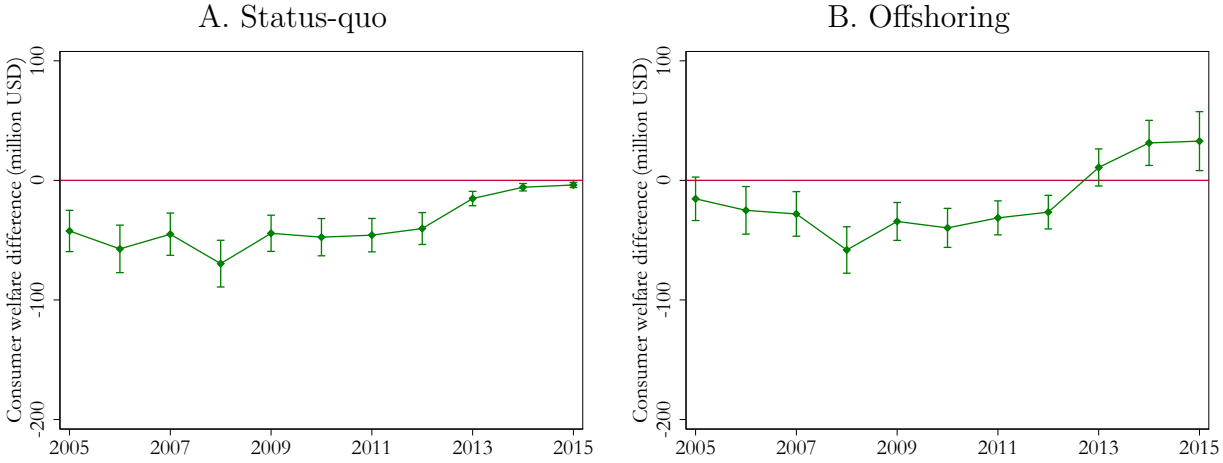
Notes: The figure shows how for a Whirlpool-Maytag merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% tariff on imports from Korea and Mexico. Standard errors are clustered at the brand level.

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



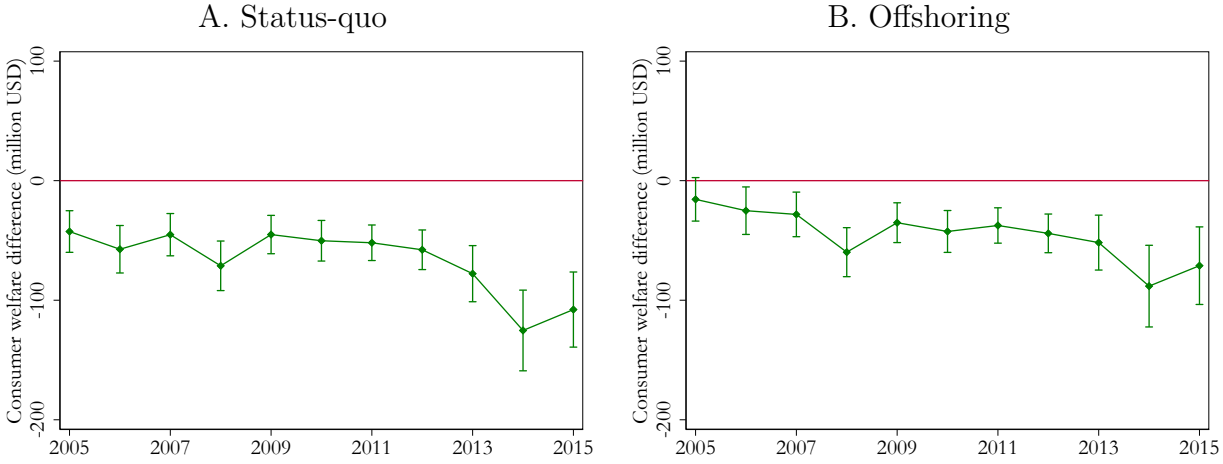
Notes: The figure shows how for a Whirlpool-Maytag merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% tariff on imports from China, Korea, and Mexico. Standard errors are clustered at the brand level.

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



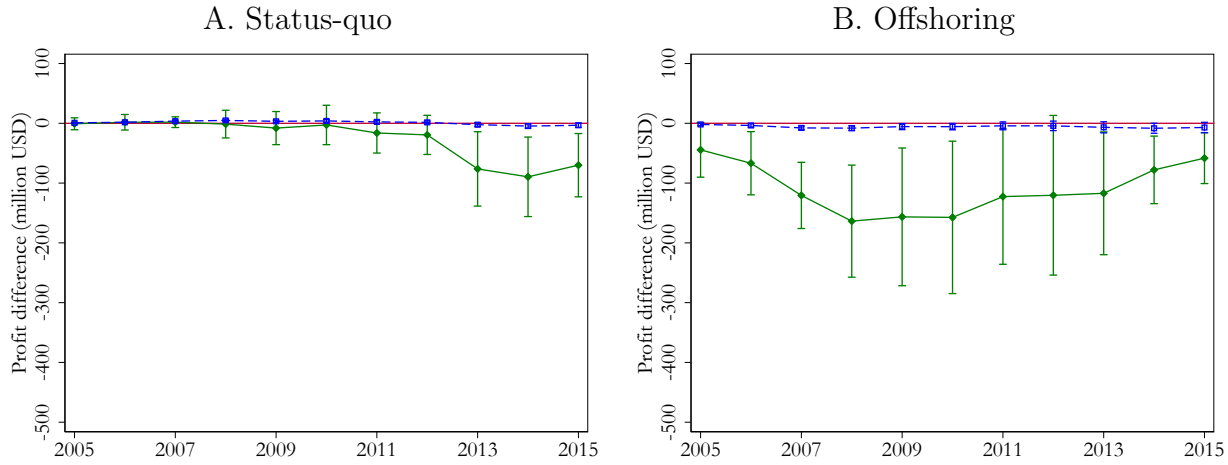
Notes: The figure shows how a Whirlpool-Maytag merger changes the consumer welfare implications from a 50% tariff on imports from Korea and Mexico. Standard errors are clustered at the brand level.

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



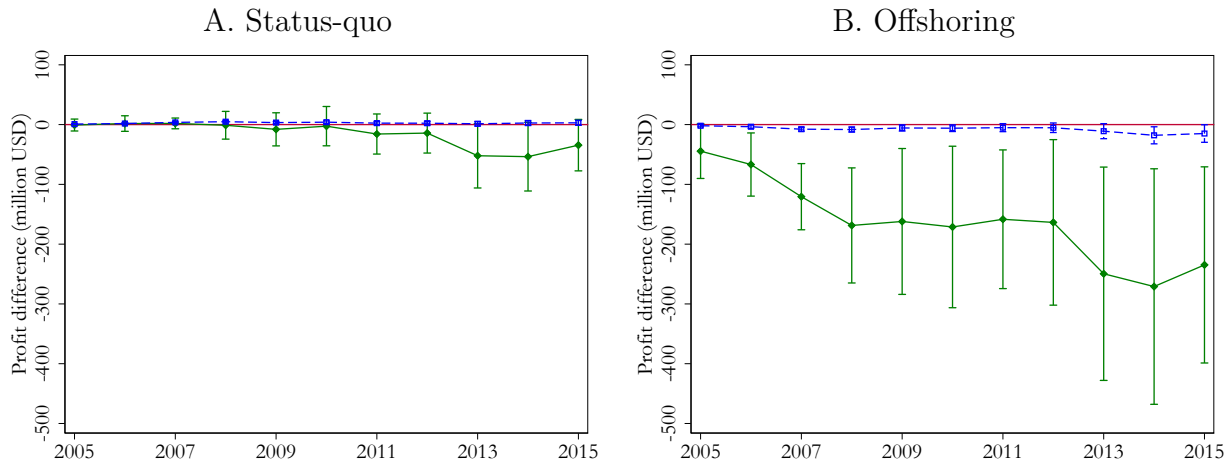
Notes: The figure shows how a Whirlpool-Maytag merger changes the consumer welfare implications from a 50% tariff on imports from China, Korea, and Mexico. Standard errors are clustered at the brand level.

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



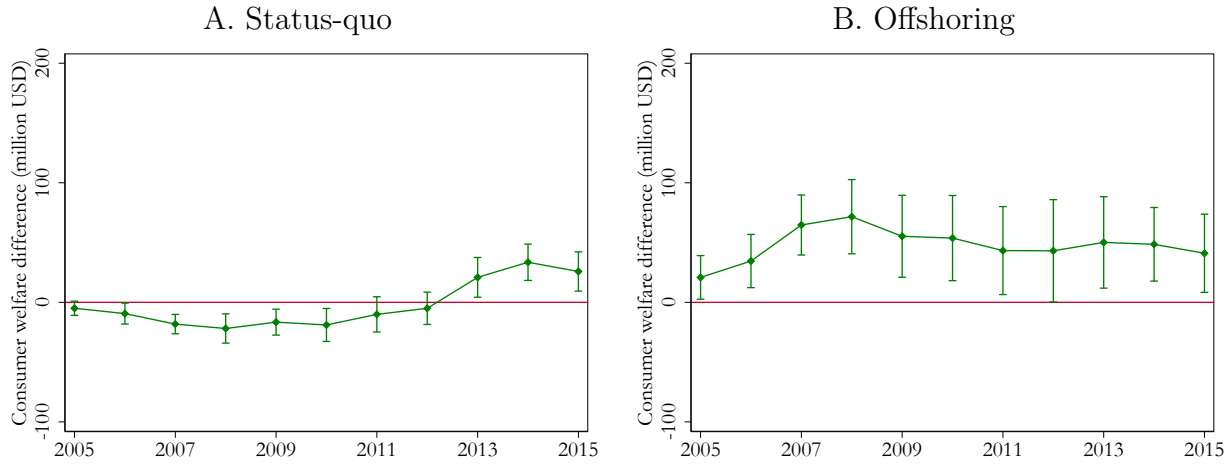
Notes: The figure shows how for a Whirlpool-LG merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% tariff on imports from Korea and Mexico. Standard errors are clustered at the brand level.

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



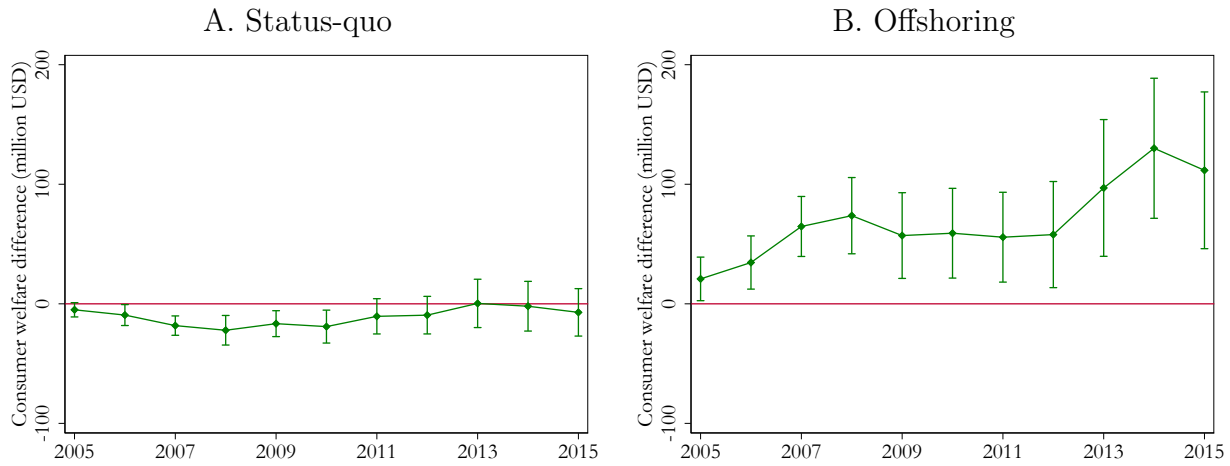
Notes: The figure shows how for a Whirlpool-LG merger the *appropriation effect* (solid green line) and the *strategic effect* (dashed blue line) change Whirlpool's profits from a 50% tariff on imports from China, Korea, and Mexico. Standard errors are clustered at the brand level.

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 welfare implications from a 50% tariff on imports from Korea and Mexico. Standard errors are clustered at the brand level.

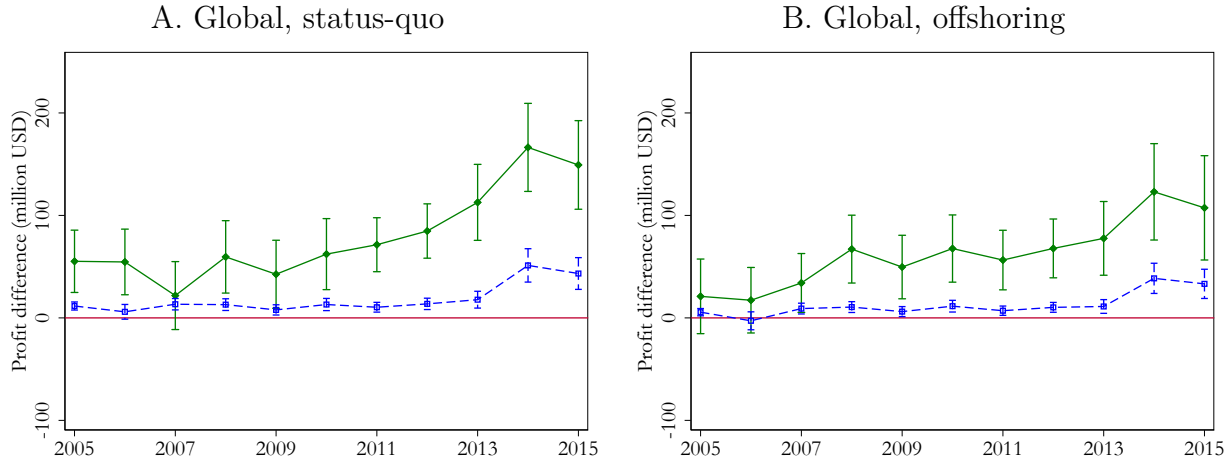
Figure A.8: Cross-border merger: consumer surplus effect, $\kappa = 50\%$, China+Korea+Mexico



Notes: The figure shows how a Whirlpool-LG merger changes the consumer welfare implications from a 50% tariff on imports from China, Korea, and Mexico. Standard errors are clustered at the brand level.

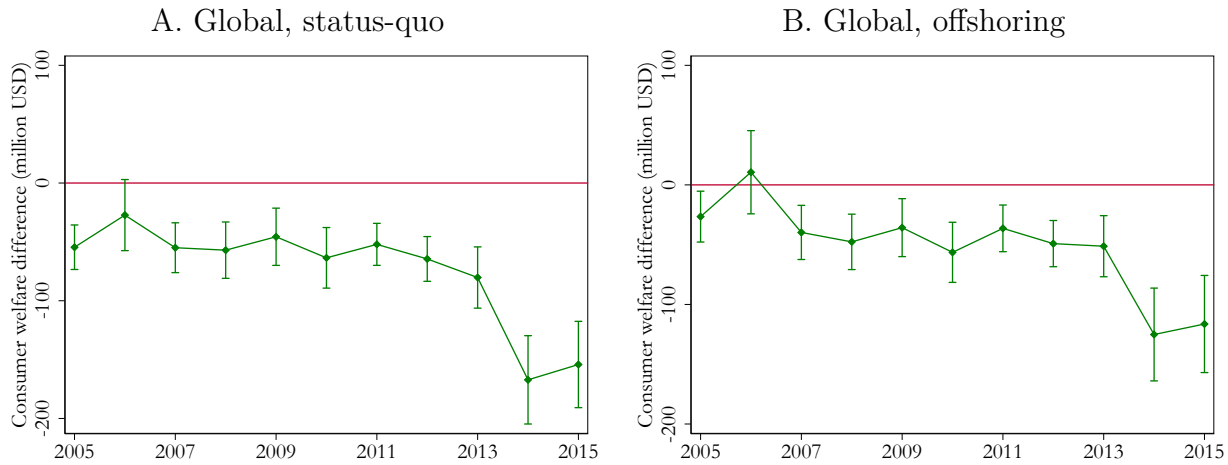
Figures A.9 and A.10 are based on the same analysis but treating Kenmore top-loaders like a fully integrated Whirlpool brand. That is, Whirlpool is the residual claimant of profits and has full control over price setting. The key takeaway from these simulations is that this only has a minor effect on the estimates and so the results are not driven by ownership assumptions on Kenmore. Table A.1 reports the corresponding point estimates and bootstrap confidence intervals.

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 (manufactured by Whirlpool) like products sold by Whirlpool directly. Standard errors 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 welfare implications from a 50% global tariff. The simulations treat Kenmore top-loaders (manufactured by Whirlpool) like products sold by Whirlpool directly. Standard errors 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	−\$84M [−\$140M, −\$29M]	\$59M [\$35M, \$84M]	\$8M [\$4M, \$13M]	−\$481M [−\$605M, −\$357M]	−\$42M [−\$59M, −\$26M]
Offshoring	−\$115M [−\$167M, −\$63M]	\$44M [\$17M, \$72M]	\$5M [\$1M, \$9M]	−\$516M [−\$640M, −\$393M]	−\$26M [−\$45M, −\$8M]
Panel B: China+Korea+Mexico tariffs (Year: 2015)					
Status quo	\$53M [−\$37M, \$144M]	\$146M [\$104M, \$189M]	\$42M [\$27M, \$57M]	−\$783M [−\$950M, −\$615M]	−\$150M [−\$186M, −\$114M]
Offshoring	−\$3M [−\$80M, \$73M]	\$104M [\$54M, \$155M]	\$32M [\$18M, \$46M]	−\$864M [−\$1033M, −\$696M]	−\$113M [−\$153M, −\$72M]
Panel C: Global tariffs (Year: 2015)					
Status quo	\$57M [−\$35M, \$148M]	\$149M [\$106M, \$192M]	\$43M [\$28M, \$59M]	−\$798M [−\$965M, −\$631M]	−\$154M [−\$191M, −\$118M]
Offshoring	\$0M [−\$77M, \$77M]	\$107M [\$56M, \$158M]	\$33M [\$19M, \$47M]	−\$880M [−\$1048M, −\$711M]	−\$116M [−\$157M, −\$76M]

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 (Propositions 3 and 4). Consumer surplus columns report the change in consumer surplus from tariffs without the merger and the merger-induced additional consumer harm (Proposition 5). 95% bootstrap confidence intervals in brackets. Kenmore top-loaders (manufactured by Whirlpool) are treated as Whirlpool products.