Anti-Dumping Reaches the Grocery Store

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Abstract

Recent US policy has increasingly focused on import tax circumvention, yet the literature lacks a benchmark quantifying the potential benefits of circumvention to consumers. This paper examines the effects of a 2018 US anti-dumping (AD) duty against China on consumer prices, seller costs, and trade flows of aluminum foil sold in grocery stores. Reduced-form results show a 7% price increase caused by the imposition of AD duties for both foreign and domestic brands. I estimate a random coefficient logit model of demand and decompose prices into costs and markups. Both marginal costs and markups rise following the policy, implying more than 100% pass-through of cost increases to prices. These price increases translate to a more than 10% decrease in consumer surplus each year. Compared to the no circumvention counterfactual, the model suggests that as much as 78% of potential price increases from the policy are mitigated by circumvention, which provides the first benchmark of its kind in the literature.

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1 Introduction

One of the major concerns of the current US administration regarding trade policy is the circumvention of import taxes by what the White House calls “transshipment.” This is the evasion of import duties by exporting goods from high-tariff countries through low-tariff countries and then to the US (White House, 2025). For example, Chinese steel exporters can avoid high duties by shipping their products to the US through South Korea, which faces a much lower tariff level. Putting blanket tariffs on almost every country is one strategy to prevent this behavior. However, if policymakers wish to block import-tax circumvention, they should have a benchmark that quantifies the extent to which it can mitigate price increases to consumers. While there is an extensive international trade literature investigating the aggregate effects of trade policy on import prices, empirical evidence of the direct impacts of import taxes on consumer prices is rarer in the literature (Irwin, 2019; Flaaen et al., 2020). Moreover, the effects of the taxes may be underestimated if they are assumed to have been fully enforced. To my knowledge, no economics study has evaluated the consumer price effects of an import tax with documented circumvention of the nature described nor provided a benchmark for the extent to which circumvention mitigates price increases. This paper aims to fill these gaps.

To analyze the effects of a circumvented import tax, and to estimate the "dampening" effect of the policy circumvention, I exploit an anti-dumping (AD) duty levied on aluminum foil imports coming from China. Anti-dumping laws, which impose taxes on imports deemed to be “dumped” (sold below fair value), have become a common trade policy tool since the 1980s. Initially employed by only a few developed countries, AD policies have since been adopted worldwide and today account for the overwhelming majority of all contingent protection measures used globally (Blonigen and Prusa, 2003). In the United States, the frequency and scope of AD enforcement have expanded steadily over the past four decades. Gallaway et al. (1999) estimate the aggregate welfare cost of US AD laws at between 2–4 billion dollars, making them the costliest US trade policy. Since then, the number of AD investigations in the US, as well as the share which result in final affirmative decisions, has only increased. As of October 2025, the US has 783 active AD and Countervailing duty (CVD) orders. AD laws were originally motivated as a means to protect domestic producers from predatory pricing of low-cost importers, but their current importance extends far beyond this narrow case of producer protection. In practice, AD duties serve as a key instrument of “administered protection”—a flexible substitute for tariffs which the WTO permits as exceptions to ratified tariff commitments. In other words, they provide policymakers with a legal channel to utilize trade protectionism in politically sensitive sectors. As a result, industries facing import competition frequently use the AD petition process to gain an advantage over their foreign competitors. Their use now deviates far beyond cases of simple predatory pricing. For example, imports to the US can be concluded to be "unfair" even when importing firms charge a *higher* price to the US market than to their own domestic market (Blonigen and Prusa, 2003).

The stakes in AD are substantial. Regardless of motivation, curtailing low-priced foreign imports will soften price competition and lead to higher prices in the domestic market. If the affected good is an intermediate input, higher prices will have ripple effects throughout the economy. Moreover, import taxes can also cause the protected domestic producers' marginal costs to rise as they move along their own cost curve (Loecker et al., 2016). This dual channel, higher output prices and elevated marginal costs, makes AD an especially distortionary policy instrument. Understanding how these duties affect both consumer prices and firm-level costs is therefore essential for evaluating their broader welfare implications.

The aluminum foil duties are broadly relevant and offer an ideal case to study the effects of AD policy in general. Given the administrative process in granting AD protections, AD duties unsurprisingly target similar kinds of industries. Typical AD goods are non-branded, homogeneous, intermediate inputs. Common examples include chemical products, finished and unfinished steel parts, and other crude metals. These are exactly the kinds of goods which lend themselves to the circumvention described, since price is the primary dimension of competition and verifying the true country of origin is difficult once a product arrives at the port. Although recent AD duties on goods like washing machines and solar panels have allowed researchers to examine the consumer price effects of AD duties (Flaaen et al., 2020; Houde and Wang, 2025), these goods are fundamentally different from the ones typically affected by AD policy. Aluminum foil is a rare and notable product for the study of the impacts of AD duties. It is a mostly homogeneous good which is used significantly as an intermediate input in industries such as food packaging and HVAC construction and repair. However, it is also sold directly to consumers in the form of retail aluminum foil available in grocery stores. The likeness of aluminum foil to goods which can more easily circumvent AD laws bolsters the external validity of the results of the study.

The broad effects of the AD policy on trade flows of aluminum foil from China to the US can be seen immediately. In February of 2018, the Department of Commerce announced its affirmative final determinations of the AD investigation, and duties of 106% were levied on aluminum foil from China. Foil imports from China to the US plummeted. However, US imports from other countries rose substantially, so that total imports actually increased from 2017 to 2020 (Figures 1 and 2).

Subsequent investigations reported high levels of circumvention, where Chinese foil was exported to the US via 3rd party countries such as Korea and Thailand (U.S. Department of Commerce, 2022; U.S. Court of International Trade, 2024). Suggestive evidence for this can also be seen in publicly available trade data. Total exports of aluminum foil from China to the rest of the world increased significantly in 2018, and remained constant for the rest of the study period. Figures 3 plots imports of aluminum foil from China and exports of aluminum foil to the US for the top nine US supplying countries. While most graphs support the findings of circumvention (Chinese imports and exports to the US rising together), particularly Brazil, Turkey is a notable exception.

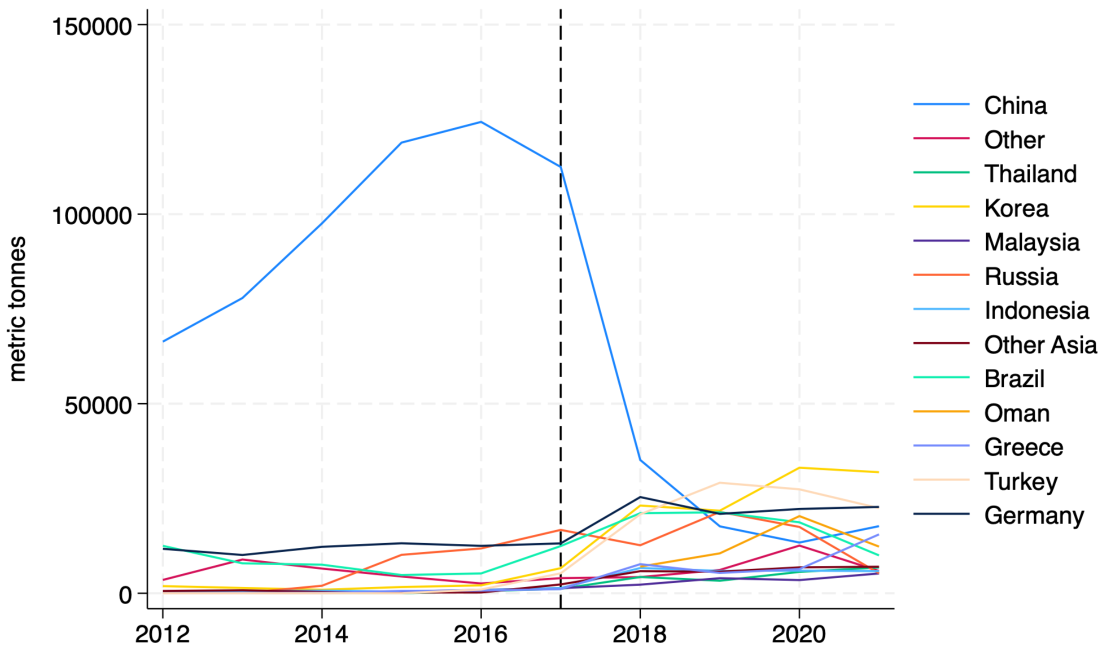

Figure 1: Top 10 exporters of Aluminum Foil to the US (BACI database).

In particular, this paper investigates the effects of the 2018 AD duties on the market for retail consumer aluminum foil. I estimate the magnitude of the price and cost effects of the realized AD policy and counterfactual policies, and I provide an upper bound for how much circumvention mitigates price increases from the policy. To isolate the effect of the AD duties on prices, I exploit an exemption within a subsequent aluminum-related AD order to identify an appropriate comparison product. Despite widespread and documented circumvention of the policy, the two-way fixed effects (TWFE) estimates suggest that the imposition of AD duties raised prices by approximately 7% for foreign brands and 6% for domestic brands, consistent with the effects obtained from the corresponding event study.

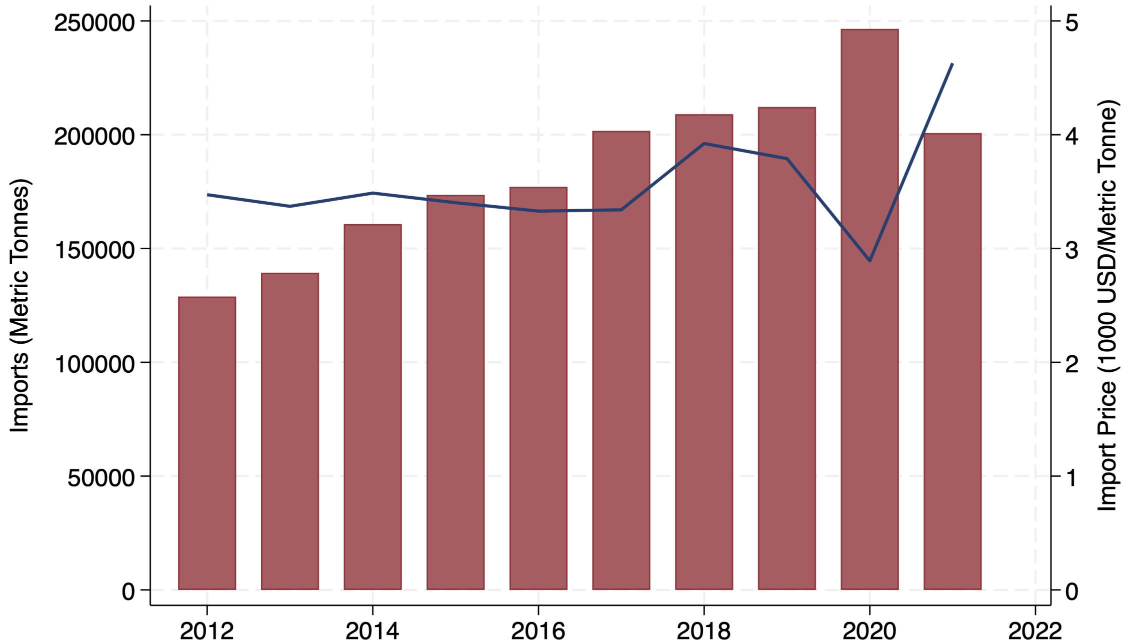

Figure 2: Total US imports quantity and price of Rolled Aluminum Foil

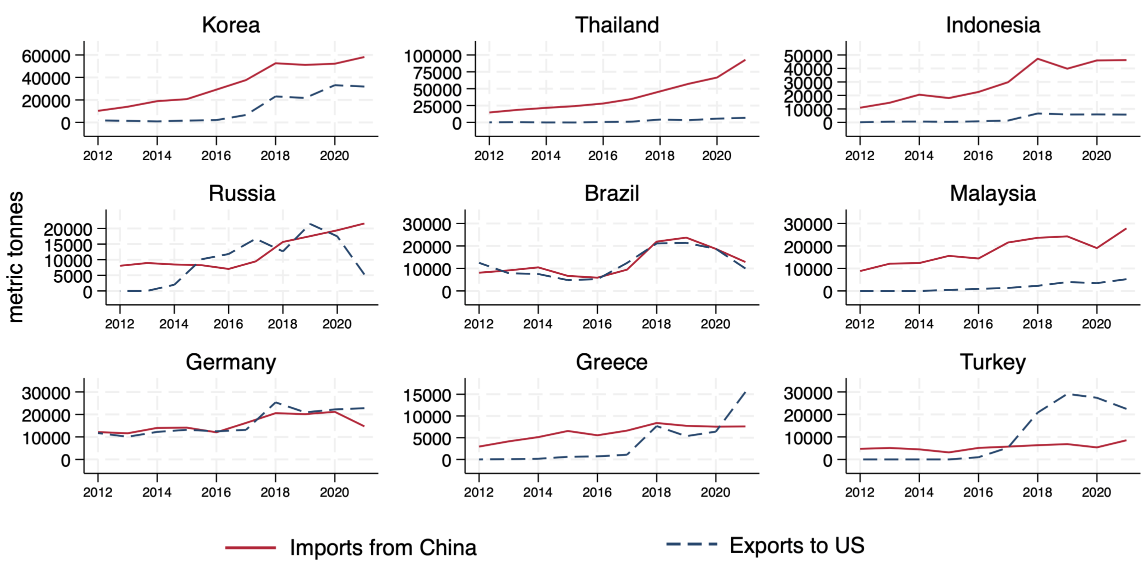

Figure 3: Imports of Aluminum Foil from China and Exports to the US

To interpret the mechanisms underlying the observed price increases and to evaluate counterfactual price equilibria, I estimate demand using a random coefficient (RC) logit framework. The model allows consumers to differ in both their baseline preferences for aluminum foil and their price sensitivity by income group, capturing heterogeneity in substitution patterns between brands. On the supply side, I model firms as competing in prices under Nash-Bertrand conduct, where each brand sets prices to maximize its own profits given rivals' prices. This allows for the decomposition of observed prices into marginal costs and markups, for testing alternative conduct assumptions, and for simulating equilibrium outcomes under different states of the world.

The results from the demand model are sensible. The parameters are precisely estimated, and the implied price elasticities are closely in line with the baseline from the literature. I find that both estimated costs and markups rise after the policy, implying a more than 100% pass-through of the cost increases to consumer prices in the post AD period. Results from a supply regression imply that marginal cost increases from the policy are seen for both foreign and domestic brands, but more for foreign brands.

A "no AD counterfactual" uses the supply regression to estimate the cost increases attributed to the AD policy. The model implies an average 5% price increase as a result of these cost increases, in line with the reduced-form results. A "no circumvention counterfactual" is also computed by calculating how much marginal costs would have been for each brand had the AD duties been binding. Comparing the prices implied from this counterfactual with those in the data and those in the "No AD counterfactual," I find that as much as 78% of the potential price increases from the policy were mitigated by the circumvention, and this provides the first benchmark of its kind in the literature.

The structure of the paper is as follows: Section 2 reviews the relevant literature. Section 3 presents the data and descriptive statistics. Section 4 describes the reduced-form models and results. Section 5 estimates demand. Section 6 calculates the counterfactuals. Section 7 describes domestic production, and Section 8 concludes.

2 Literature Review and Contribution

This paper builds on and contributes to a wide range of literature in the fields of both Industrial Organization and International Trade. Broadly speaking, studies of anti-dumping in International Trade analyze the import price effects for a range of industries, while the Industrial Organization research addressing trade policy tends to focus on the effects of a particular product or industry.

Overall, anti-dumping is a pervasive yet historically understudied policy. Before the ground-breaking paper of Finger et al. (1982), anti-dumping was mostly considered an obscure part of US trade policy and was largely overlooked in economic research (Irwin, 2005). The paper shows which kinds of industries are most likely to receive AD protections. Consistent with more recent research (Oliveira, 2014), they show that economic distress and the ability to organize politically are the biggest indicators of whether an industry will receive AD protections or not. Note that these are both characteristics of the domestic industry, rather than the pricing behavior of importers. Following this, there is a rich study of anti-dumping laws in the trade literature.

Early theoretical work in the 1980s and 1990s established the mechanisms by which AD laws can lead to higher domestic prices. Under imperfect competition, the mere threat or imposition of anti-dumping duties can dampen competitive pressures and facilitate outcomes akin to collusion (Staiger and Wolak, 1992). Veugelers and Vandenbussche (1999) show how European AD policy can sustain both national and international collusion, enabling domestic and foreign firms to coordinate on higher prices.

Empirically, AD duties have been found to have the highest pass-through to final prices of any protective trade policy (Blonigen and Haynes, 2002). For example, Blonigen and Haynes (2002) use price regressions to show greater than 100% pass-through for iron and steel imports from Canada to the US, by exploiting products that were and were not involved in AD duties. Because AD duties are applied based on past pricing and are subject to continued administrative review, foreign firms have an incentive to raise prices. This process can facilitate implicit price coordination, allowing consumer prices to rise significantly above the level implied by standard tariffs (Blonigen and Prusa, 2003). As AD duties are expressly intended to combat low prices,Nizovtsev and Skiba (2020) find that AD duties affect import prices on average more than twice as much as tariffs. Konings and Vandenbussche (2005) also show that domestic firms increase markups as a response to AD protections, as they exercise increased market power when foreign firms are penalized. The results for the foil market presented in this paper are consistent with this finding. Additionally, AD duties have been shown to decrease exports for affected firms and increase trade "deflection," so that rather than paying duties, exporting firms simply supply to buyers in other countries (Felbermayr and Sandkamp, 2020). This deflection can also be the first step in circumvention if the demand for the product is low in 3rd party countries. While a wealth of papers estimate the pass-through of trade restrictions and tariffs to import prices (Winkelmann and Winkelmann, 1998; Trefler, 2004; Broda and Weinstein, 2006; Broda et al., 2008; Spearot, 2012; Ludema and Yu, 2016; Fitzgerald and Haller, 2018; Feenstra, 1989), few are able to connect import prices to consumer prices (Irwin, 2019). For consumer price effects, we turn to the Industrial Organization literature.

The model in this paper builds on the Berry et al. (1995) random coefficient logit framework. There is a rich tradition of demand estimation techniques being exploited to analyze policies in international trade. In fact, one of the first applications of the RC logit model was in the Berry et al. (1999) paper evaluating the effects of Voluntary Export Restraints (VERs) (self-imposed quotas) of Japanese automakers during the 1980s. In the more recent empirical Industrial Organization literature, there are also several studies which investigate various effects of specific AD duties. First, Flaaen et al. (2020) analyze price and production relocation effects on washers and dryers of trade restrictions (AD and Tariffs) on Washers only. In this market, no price increases were seen after the imposition of AD duties, and prices only rose after tariffs affecting all countries were placed on washers. Houde and Wang (2025) investigate effects of AD duties on solar panels and incorporate vertical structure between manufacturers and installers. In particular, they find that AD duties disproportionately affected US consumers, in line with the results from the trade literature. In contrast to the Flaaen et al. (2020) paper, they find $> 100\%$ pass-through of the AD duties to consumer prices. The price effects of the AD duties investigated in this paper fall in between these two.

This paper also adds to the growing literature on re-exporting. This is a broad term which refers both to the exporting of imported goods after undergoing value-added processes and also to "trans-shipment," where imported goods are exported without any transformation. Complex supply chains allow firms to exploit differences in comparative advantages and logistic costs as well as differences in import taxes. Early work on East Asian processing trade highlighted the rise of Hong Kong and other entrepôts as re-export hubs for Chinese production Feenstra (1989), while later studies trace how global value chains and multinational production structures enable rapid re-routing of goods in response to tariff shocks Amiti et al. (2019); Fajgelbaum et al. (2020). Re-exporting and re-importing are not limited to tariff avoidance: they also reflect the fragmentation of production and assembly across multiple economies, making the measurement of trade incidence and price effects more complex. Using firm-level data, Felbermayr and Sandkamp (2020) show that trade diversion through re-exports is a common adjustment margin, as exporters shift shipping routes and processing locations following policy changes. Overall, the prevalence of re-export underscores that modern trade policies operate within deeply integrated global supply chains.

This paper makes several contributions to the literatures in international trade and industrial organization. First, it provides the first quantitative benchmark for how much import-tax circumvention mitigates consumer price increases, and the analysis shows that even circumvented policies can still raise both consumer prices and firms' marginal costs substantially. Second, by combining detailed retail scanner and consumer panel data, the paper is able to analyze heterogeneous effects of the policy with respect to demographics such as income. While the distributional impacts of trade policy are typically measured from a labor perspective in the trade literature, far fewer consider the distributional impacts of trade policy from a demand perspective (Goldberg and Pavcnik, 2016). Third, the study analyzes retail rather than import prices, allowing for a direct measurement of how AD duties transmit to final good consumers. Moreover, aluminum foil sharing key characteristics of goods typically targeted by AD laws distinguishes it from the markets addressed in the existing IO-Trade literature, which improves the external validity of the results (Flaaen et al., 2020; Fajgelbaum et al., 2020; Amiti et al., 2019). Finally, by integrating reduced-form evidence with a structural demand model, the paper provides a unified framework to evaluate the implications of anti-dumping duties and enforcement.

3 Data and Descriptive Statistics

The data for this paper were collected from several sources. Retail data for aluminum foil and comparison goods comes from the NielsenIQ Scanner Data. A product is defined at the Unique Product Code (UPC) level, and observations report the price and quantity sold of a certain UPC-store-week. Data are further aggregated to the UPC-store-quarter level for the reduced-form model and to the product-county-quarter level for the demand model. This results in 2,240,499 foil observations in the reduced-form data and 192,297 observations in the demand model. Overall, the data cover over half of US grocery stores, to which I restrict the sample. This should capture a significant share of consumer spending on aluminum foil. The demand estimation augments the sales data using the NielsenIQ consumer panel. Data from the aggregate aluminum sheet, plate, and foil industry[1] are taken from the US Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages. Annual trade flows are taken from the BACI Database. Cost shifters including global aluminum prices, diesel prices, producer price index for rolled aluminum products, and a China import index are taken from FRED. The country of origin of fringe brands was collected by hand by contacting brands and suppliers and inquiring about the reported COO for each product. Weights of store-brand foils were obtained by weighing product samples and computing a sales-weighted mean.

The first key pattern to recognize in the sales data is the dominance of Reynolds and store-brand aluminum foils (Figure 4). The total quantity is relatively stable but falls very slightly after the AD

[1] Aluminum foil is flat-rolled aluminum less than 0.2 mm thick; aluminum sheet ranges from 0.2 to 6 mm; aluminum plate exceeds 6 mm in thickness.

treatment (2018 onward). The aggregate market shares of store brands also fall slightly after the AD treatment. Table 1 breaks down the three brands by country of origin (COO). Reynolds brand foil is advertised saliently on the box as "Foil Made in the USA," despite importing most of their raw aluminum; this has been the subject of a class-action lawsuit against the company (Reuters, 2025). Observational evidence suggests that most store-brand foil came from China before 2018, with a shift to many suppliers after the imposition of the AD duties. In the NielsenIQ data, store-brand UPCs are anonymized, so that even the reported COOs cannot be collected. Due also to circumvention, it is impossible to conclude the COOs of store brands. In general, store brands source foil products from private label suppliers such as TrueChoicePack or WydaPack, who process large industrial rolls of foil into consumer products. These suppliers source input foil from the lowest-cost suppliers, which were consistently in China before the AD duties. After the AD duties were levied, few imports come directly from China. Due to circumvention, however, imports coming from non-Chinese countries may have originated in China, as intermediaries in third-party countries gain rents by exporting lower-cost Chinese-origin foil.

The final data contains 11 unique fringe brands, which are defined as being non-Reynolds and non-Store brands. Only 35% of markets have at least one fringe brand, while the other 65% do not. Figure 5 shows the sales of fringe brands broken down by COO. US brands sell the most in the fringe market. Overall, sales of fringe brands are growing over time, yet they never exceed even 1% of total foil sales. Notably, the total share of fringe brand foils coming from China is constant over the study period.

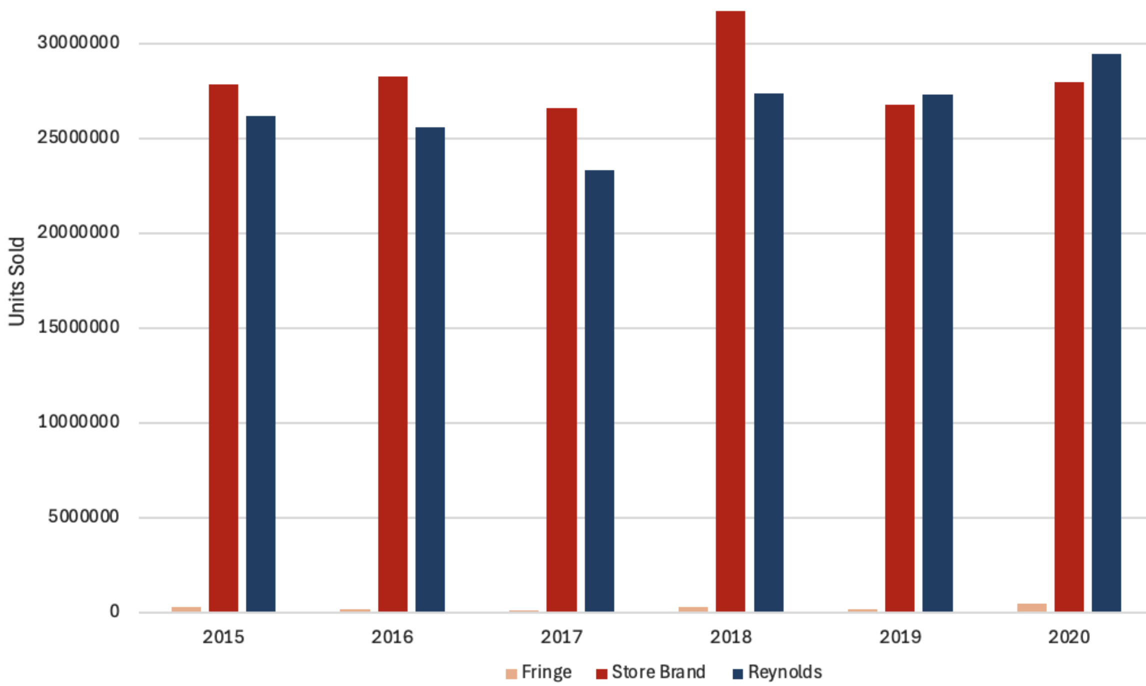

Figure 4: Duopoly-like structure of US consumer aluminum foil market.

Table 1: Country of Origin by Brand

Brand	Reported Country of Origin
Reynolds	"Foil Made in the USA"
Generic	Mostly imported
	Masked Countries of Origin/Circumvention
Fringe	Varies: China, USA, India, Italy.

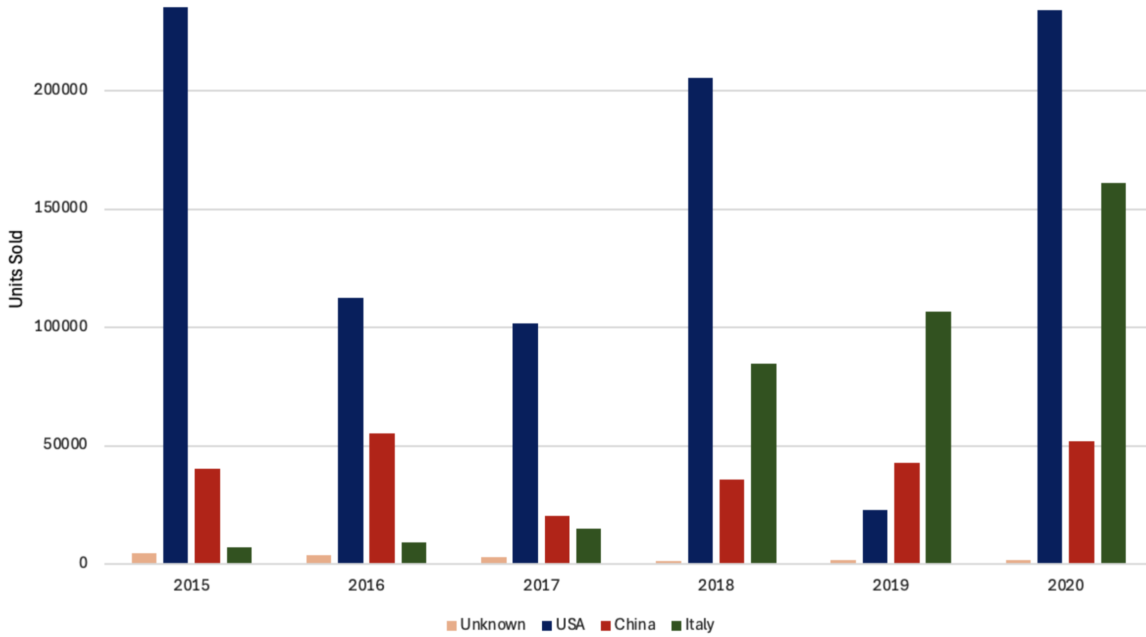

Figure 5: US brands dominate the fringe market.

Figure 6 shows how prices for consumer aluminum foil evolve over time. The blue line shows the average price of non-store brand aluminum foils, while the red line shows the price of store brand foils. The three vertical lines mark key dates in the Anti-Dumping investigation: Initiation, Preliminary Determination, and Final Determination. In particular, it can be seen that the average price of aluminum foil rises after the AD treatment, while global aluminum prices shown in yellow fall sharply over the same period.

A timeline of the aluminum-related import policies can be seen in Figure 7. The AD investigation was initiated in the Spring of 2017, and a preliminary affirmative decision was reached in the Winter of 2017. The final affirmative decision was published at the beginning of 2018. Duties were officially levied on "aluminum foil having a thickness of 0.2 mm or less, in reels exceeding 25 pounds, regardless of width." While rates were set individually for several firms, most Chinese aluminum foil producers faced 106.09% duties when exporting to the US. This begins the AD treatment period, which is highlighted in blue. Note that a broad 10% aluminum tariff is levied on all aluminum products coming from all countries at the very beginning of the AD treatment period. Additionally, there is a subsequent AD duty finalized on aluminum sheet in the beginning of 2019. Aluminum sheet is produced similarly to foil but is of a greater thickness (>0.2 mm).

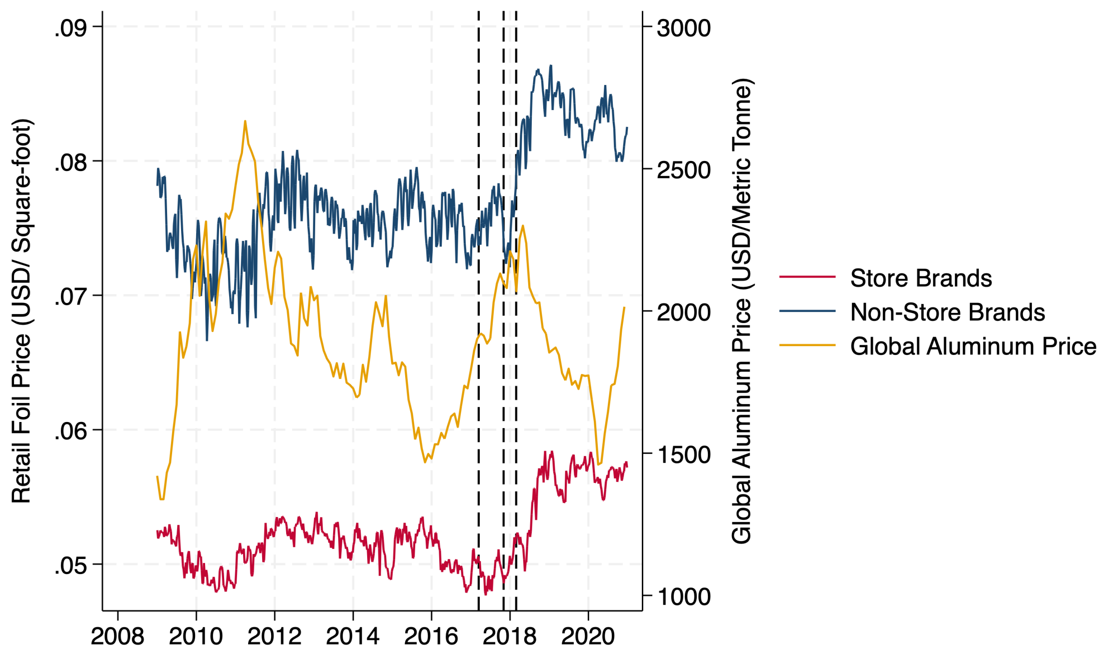

Figure 6: Average Price of Aluminum Foil and Global Aluminum Prices (FRED). Vertical lines correspond to initial investigation, preliminary, and final decisions of the AD duties.

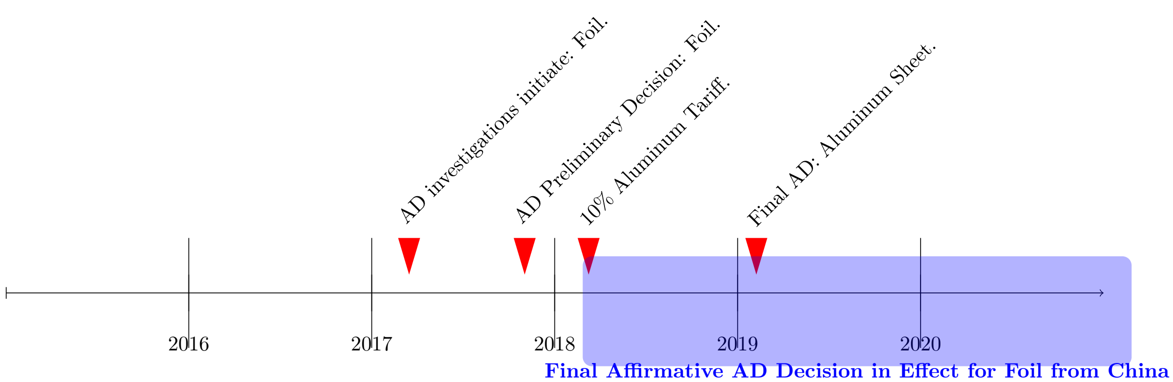

Figure 7: Timeline of Aluminum-related US Trade Policies

4 Reduced-Form Evidence

While descriptive evidence shows clear motivation that the AD duties are associated with higher prices for consumers in the post-AD world, this section verifies that part of the observed price effects on aluminum foil are caused by the AD duties described above. Using products that would have been affected by all other aluminum-related policies, including the 10% tariff levied in the Spring of 2018, I perform fixed effects estimations with log price as the dependent variable.

Due to the wide scope of the AD order on aluminum foil (0 - 0.2mm) and the subsequent AD order on aluminum sheet (0.2 - 6.3 mm), finding a comparison group is not straightforward. I exploit the fact that exactly one exception was made for the AD order on aluminum sheet. The final order states:

> *"Excluded from the scope of this order is aluminum can stock, which is suitable for use in the manufacture of aluminum beverage cans, lids of such cans, or tabs used to open such cans. Aluminum can stock is produced to gauges that range from 0.200 mm to 0.292 mm."*

Thus, 12-packs of canned diet beverages are chosen as a comparison group. One concern about using canned beverages as a comparison group may be that the aluminum can forms a trivial amount of the total cost of the whole product. This is not the case. The US imported 242 million dollars of aluminum can stock, and The Beer Institute reported that the beverage industry lost $2.175 billion from 2018 to 2023 as a result of the 10% tariffs on aluminum (The Beer Institute, 2023). Additionally, the threat of the AD duties on aluminum sheet was costly enough to induce lobbying for this exception. In order to further alleviate this concern, I restrict the sample of cans to 12-packs of carbonated, low-calorie products. Quantity discounts may drive the price of these products closer to the price of production, and low-calorie beverages may be less affected by ingredients with volatile prices such as sugar or fruit juices. Additionally, they will be unaffected by taxes on sugary beverages. Overall, canned beverages are a good comparison group for several reasons: First, aluminum cans are affected by aluminum tariffs, but never any Anti-Dumping laws. Second, the aluminum in canned beverages forms a non-trivial portion of costs. Third, beverage cans are close to the maximum thickness of aluminum foil. Finally, beverage cans are uniform and easy to standardize and identify in the scanner data; each canned beverage is consistent and contains almost an identical portion of aluminum.

Figure 8 shows the raw price trends for foil and canned beverages. The dashed lines indicate the three critical dates of the aluminum foil AD case. Here we see that the relation in price is strong before the AD duties are levied and that there is divergence in price in the post-AD period. Note that this graphs raw price trends and does not control for any time or region trends.

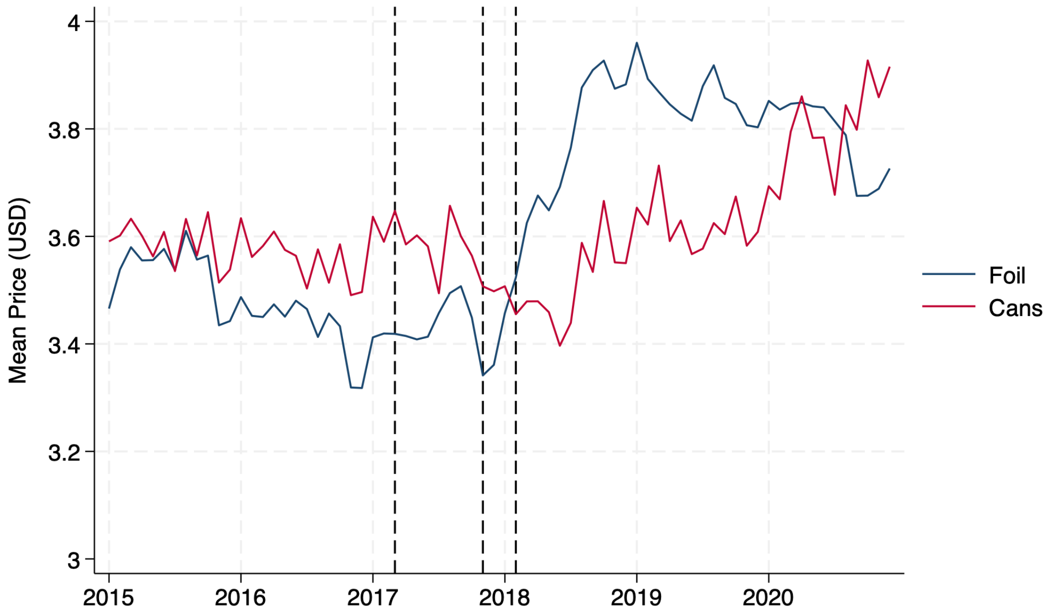

Figure 8: Graph of normalized prices aluminum foil and 12-packs of canned diet beverages. Vertical lines correspond to initial investigation, preliminary, and final decisions of the AD duties.

Moving to the TWFE model, I estimate the following equations where $treat_{jt}$ is defined as $foil_j \times post_t$, and X includes quarter-year, region, and UPC fixed effects

$$ln(price_{jt}) = \alpha + \beta_{treat} treat_{jt} + \gamma X + \varepsilon_{jt} \tag{1}$$

$$\ln(price_{jct}) = \alpha + treat_{jt}\Big[\beta_1\, store_j + \beta_2\, reynolds_j + \beta_3\, fringe_j\Big] + \gamma X + \varepsilon_{jct}. \tag{2}$$

Where the first equation estimates the treatment effect in the aggregate and the second estimates the treatment effect for each of the three brands. Figure 9 reports the results of the event study using equation 1 as a baseline. The effects of the treatment are very clear and stable in the post-AD period.

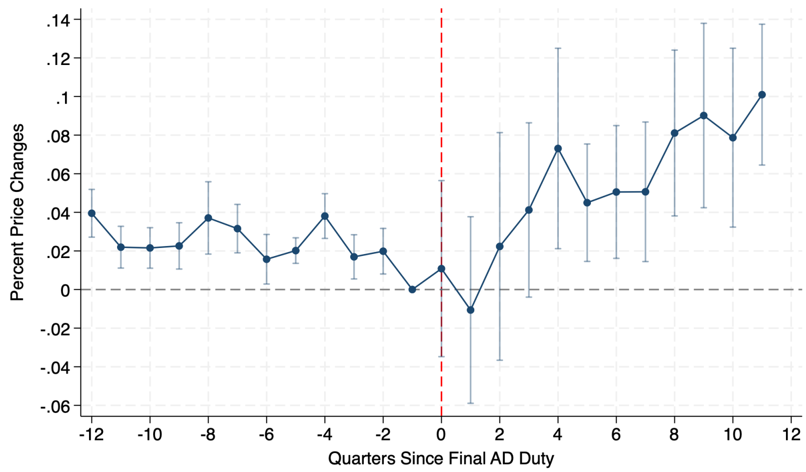

Figure 9: Event Study - Using 12-Packs of Canned Beverages as a comparison. Vertical lines correspond to initial investigation, preliminary, and final decisions of the AD duties.

The estimations can be seen below. Table 2 shows the estimated coefficients of Equations 1 and 2 using sales-weighted regressions for different timings of the post-policy period. All specifications include UPC, time, and region fixed effects. All regressions show positive and statistically significant price effects in the aggregate. Treatment effects are the smallest using the initial investigation as a starting point, and largest using the preliminary determination as a starting point. The preferred timing is the final decision, as before that date there was still uncertainty about the ultimate decision. The rest of the paper will refer to post-AD as the period *after* the final determination. Columns 1 through 4 of Table 3 present estimations for equation 1 using different subsets of the data. Regressions are estimated separately for all products, store brands, Reynolds brands, and Fringe brands, and comparison groups aim to mirror the brand under consideration. For example, in column 2, only store brands of 12-packs of canned diet beverages are included as a comparison group, while in columns 3 and 4 only branded items are included as comparison groups. The final column estimates the preferred specification of equation 2. In the preferred specification, the treatment effect for the aggregate is around 7%. Regardless of specification, similar price effects are seen for *both* store brand and Reynolds brand foils; however, fringe brand prices seem to be unaffected by the AD policy. It should be noted that there is large heterogeneity in price effects for store brands across store chains. Results are robust to using more granular data at the weekly level, but are shown here at the quarterly level to best mirror the demand estimation. The results are also robust to various clustering, to using price rather than log price as a dependent variable, and to the inclusion of store and chain fixed effects.

Table 2: Anti-Dumping Price Effect by Treatment Timing

	Final Decision		Preliminary Decision		Initial Investigation	
	(1)	(2)	(3)	(4)	(5)	(6)
Treat = Foil × Post	0.066***		0.068***		0.049***	
	(0.016)		(0.016)		(0.014)	
Treat × Reynolds		0.073***		0.076***		0.066***
		(0.014)		(0.013)		(0.012)
Treat × Store Brand		0.059**		0.059**		0.027
		(0.021)		(0.021)		(0.019)
Treat × Fringe		-0.045		-0.046		-0.043
		(0.041)		(0.041)		(0.035)
N	12,105,418	12,105,418	12,105,418	12,105,418	12,105,418	12,105,418
Fixed Effects	Quarter-Year, UPC, and Region					

Standard errors clustered by store chain in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3: Estimates by Brands

	(1)	(2)	(3)	(4)	(5)
	log(price)	log(price)	log(price)	log(price)	log(price)
Treat = Foil × Post	0.066***	0.116***	0.050***	-0.072	
	(0.016)	(0.024)	(0.012)	(0.041)	
Treat × Store Brand					0.059**
					(0.021)
Treat × Reynolds					0.073***
					(0.014)
Treat × Fringe					-0.045
					(0.041)
Treatment Group	All	Store brand	Reynolds	Fringe	All
Comparison Group	All	Store brand	Branded	Branded	All
N	12,105,418	3,362,290	8,717,107	7,496,336	12,105,418
Fixed Effects	Quarter-Year, UPC, and Region				

Standard errors clustered by store chain in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5 Demand Estimation

5.1 Data

Data are further aggregated to the county-quarter-UPC level for the demand estimation. I define a market as a county-quarter, and products are defined at the UPC level. The market size is defined as the mean foil sales times 3 which yields outside shares that match those observed in consumer panel data. Summary statistics are presented in Table 4. Unique UPCs for store brands are generated, so that in a market, store brands compete with Reynolds, Fringe Brands, and each other. This follows the strategy of Dubé et al. (2018). Prices are aggregated as sale-weighted means and are standardized to 50 square foot package size. Additionally, stores only observed in all 24 quarters are kept in the sample, and UPCs with fewer than 10 county-quarter observations are dropped. Q1, 2018 is also dropped, since the AD order is finalized in the middle of the quarter. Include two sets of instruments in the estimation. First, I compute 60 price instruments which are constructed as the product of a dummy for a UPC and a dummy for the Post-AD period. To avoid collinearity, instruments are kept only for UPCs which are available before and after the final AD order. The second set of instruments follows the "BLP-style" construction, using the characteristics of own and competing products as excluded variables. These include the mean package length, the mean share of heavy-duty foil, and the number of UPCs within the same market for own- and competing-brand products. These are valid instruments as product characteristics do not develop or change over time. The first stage of the price instruments is strong, and weak instruments are rejected by every F-test.

The micro data are organized in a similar manner. Household trips are aggregated to the quarter frequency, and only households are kept which fall into the markets defined in the retail data. A dummy variable "inside" indicates whether a household consumed an inside good in each quarter. If the household did consume foil, the mean price per square foot is also calculated. Households are also grouped into three income levels: High ($>$ 90k), Middle ($\leq$90k & $\geq$ 45k), and Low ($<$ 45k).

5.2 Model

This section estimates a RC logit model, where consumers can purchase at most one of the goods in the market per quarter or consume the outside good. Consumer i's utility from purchasing good j in market t consists of three parts:

$$u_{ijt} = \delta_{jt} + \mu_{ijt} + \varepsilon_{ijt} \tag{3}$$

Table 4: Summary Statistics

	Mean	St. Dev.	Median	Pctl(25)	Pctl(75)
Price ($)	3.19	1.40	2.82	2.12	3.98
Sales (50 sqft. Units)	1029	2603	350	125	956
Shares	0.017	0.019	0.010	0.004	0.025
Outside Share	0.667	0.044	0.669	0.642	0.693
Length (sqft.)	101.8	143.5	50.0	37.5	75.0
Share Heavy Duty	0.5	0.039	0.5	0.476	0.524
Share Store Brand	0.551	0.111	0.556	0.462	0.64
Share Reynolds	0.421	0.110	0.412	0.333	0.5

$$\delta_{jt} = \xi_j - \alpha p_{jt} + \gamma X_{jt} \tag{4}$$

$$\mu_{ijt} = \sigma_1 \nu_{i1} + p_{jt}(\pi_{p,mid} \times mid_i + \pi_{p,high} \times high_i) + \pi_{mid} \times mid_i + \pi_{high} \times high_i \tag{5}$$

Where δ_{jt} is the mean utility shared by all consumers, μ_{ijt} is the household-specific utility, and ε_{ijct} is an idiosyncratic logit shock assumed to follow a TIEV distribution. The utility of the outside good (j=0) is therefore: $u_{i0t} = \varepsilon_{i0t}$.

ν_{1i} is a random taste shock which follows a standard normal distribution. The model estimates the standard deviation of the random coefficient on the constant, which tells how much consumers vary in the baseline preference for foil. The constant is also interacted with household income bins for middle and high income. I introduce price heterogeneity through the interaction of price with the income bins. In total, 5 non-linear parameters are estimated.

The model includes two sets of moments in GMM objective function:

Standard BLP Macro Moments:

$$E[Z'\xi(\theta)] = 0$$

and three types of Micro Moments:

$$\text{E(price} \mid \text{y} = \text{Y),}$$
$$\text{E(inside} \mid \text{y} = \text{Y),}$$
$$\text{E(inside} \mid \text{inside at t-1),}$$

Where income y is separated into two income bins - middle and high, so that a total of five micro moments are included.

5.3 Identification

My approach leverages both market-level and household-level variation to estimate a coherent model of consumer demand. Identification of the parameters in Equations 4 and 5 follows the standard logic of the random coefficient logit model introduced by Berry et al. (1995). Mean taste parameters α and γ are identified from variation in observed market shares conditional on product and market fixed effects, while the random coefficients are identified from differences in substitution patterns across markets, products, and demographic groups.

The inclusion of micro moments derived from the NielsenIQ Consumer Panel provides critical identifying power (Berry and Haile, 2024). These moments ensure that the estimation matches observed household purchase behavior in the data. In particular, E(inside | inside at t-1) aids in the identification of σ_1, while E(inside | y = Y) and E(price | y = Y) identify πs and π_p respectively for each income group.

Finally, the instruments are strong and intuitive. The first set exploits the price variation arising from the AD duties which constitute a shock to firms' marginal costs, and thus prices, and is unrelated to consumer preferences. The second set aids in the identification of parameters ruling price sensitivity because they generate exogenous variation in prices across markets that allows substitution patterns differ across consumers with varying income levels.

5.4 Estimation

The estimation minimizes the weighted sum of macro and micro moments using one-stage GMM. The weighting matrix for the macro moments is the standard $inv(Z'Z)$, and for the micro moments it is the inverse covariance matrix of the data moments, following Conlon and Gortmaker (2025). The weight between the micro and macro moments is set to give the micro moments one fifth of the weight of the macro moments after the first iteration. This prevents the macro moments from dominating the estimation.

5.5 Results

The results from the estimation can be seen in Table 5. Here we see a high variation in consumers' baseline preference for foil. Additionally, we can see that lower-income households have a stronger

Table 5: RC logit parameter estimation

	Parameter Estimates
Price Per 50 sqft Package (α)	-0.896
	(0.086)
σ_1	7.590
	(2.528)
Middle Income (π_{mid})	-6.864
	(2.055)
High Income (π_{high})	-10.521
	(3.052)
Price $\times$ Middle Income ($\pi_{p,\text{mid}}$)	0.134
	(0.002)
Price $\times$ High Income ($\pi_{p,\text{high}}$)	0.319
	(0.002)
N	192,297
First Stage: Cragg-Donald Wald F stat	570.18
Fixed Effects: Quarter & Year & UPC	

Standard errors in parentheses.

preference for foil than middle- and high-income households. As expected, the estimates suggest that high-income households are the least price sensitive while low-income ones are the most price sensitive.

Table 6: Fit of Micro Moments

	Data Moment	Model Moment
E(price | y = middle)	2.668	2.655
E(price | y = high)	2.715	2.862
E(inside | y = middle)	0.166	0.250
E(inside | y = high)	0.167	0.146
E(inside | inside at t-1)	0.028	0.023

Table 7 reports mean own- and cross-price elasticities between Reynolds, store brands, and fringe brands. The implied elasticities are closely in line with the benchmark from the literature. Shapiro et al. (2021) report a mean own-price elasticity of Reynolds Wrap at -2.55. The fits of each micro moment are reported in Table 6. The fits are generally precise with the exception of the 3rd micro moment, the expectation of consuming an inside good in any given quarter for a middle-income household is 17% in the data, but estimated to be 25% from the model.

Table 7: Price Elasticities and Cross-elasticities for Reynolds, Store, and Fringe Brands

	Reynolds Price ↑	Store Price ↑	Fringe Price ↑
Reynolds (Demand)	-2.972	0.063	0.005
Store (Demand)	0.121	-1.993	0.004
Fringe (Demand)	0.117	0.039	-3.832

5.6 Implied Marginal Costs and Markups

Marginal costs are calculated using the standard FOCs. The objective function for firm f with products j is

$$\Pi_f = \sum_{j \in \mathcal{F}} (p_j - c_j)\, s_j(p|\theta).$$

$s(p|\theta)$: $J \times 1$ vector of RC Logit shares. Stacking these for each product in the market gives the FOC

$$s(p|\theta) + \underbrace{\left(\Omega \odot \tfrac{\partial s(p)}{\partial p}\right)}_{-\Delta(p,\theta)} (p - c) = 0.$$

Where Ω is the ownership matrix ($\Omega_{jk} = 1$ if j, k owned by same firm, 0 otherwise) and $\frac{\partial s(p)}{\partial p}$: $J \times J$ Jacobian of shares with respect to prices. The $\odot$ signifies element-wise multiplication. So as long as $\Delta(p, \theta)$ can be inverted, a solution can be reached which decomposes prices into marginal costs and markups.

$$p = c + \underbrace{\Delta(p,\theta)^{-1}\, s(p|\theta)}_{\text{markups}}.$$

I calculate marginal cost using two distinct conducts. First, Nash-Bertrand, where store chains are the owners of their own store brands, Reynolds prices its own products, and fringe brands price their own brands. In the other conduct, I calculate marginal costs under joint pricing, where the ownership matrix is a matrix of ones in every market. I then regress these imputed marginal costs against cost shifters and fixed effects in Equation 6.

$$mc_{it} = \alpha + \beta_1 Diesel_{it} + \beta_2\, Import_{it} + \beta_3\, PPI_{it} + \gamma_i X + \varepsilon_{it} \tag{6}$$

Where cost shifters are quarterly diesel prices, a China import index, and a producer price index for aluminum sheet, plate, and foil. Mirroring the demand model, fixed effects are year, quarter, and UPC. The marginal costs implied by Nash-Bertrand conduct have a better fit according to both the AIC and BIC measures (Table 8), and are used as the baseline marginal costs for the rest of the paper.

I also formally test this result using the Rivers-Vuong (RV) test as proposed by Duarte et al. (2024). The test compares the difference in fits for the analogous GMM models. Duarte et al. (2024) show that the RV test can behave unreliably with too many or too few instruments, particularly when instruments are weak. This can cause the test's distribution to become skewed. They find that distortions are no greater than 2.5% for models with 2–9 instruments. In line with this finding, the main price instrument used differs from the ones in the demand model. Instead, these GMM models use the mean price of a UPC excluding the observations from the own state, along with the "BLP-style" instruments used in the demand model, so that in total there are 7 instruments. The test statistic follows a standard normal distribution, and the null hypothesis of the test is equal fit of the two models, which is easily rejected in both the pre- and post-AD periods. Additionally, there is no change in fit in the post-AD period.

Table 8: Fits of Conducts

		AIC	BIC
Pre-AD			
Nash-Bertrand		254,176	254,214
Joint Pricing		590,378	590,416
RV Test Statistic:	142.1		
Post-AD			
Nash-Bertrand		264,008	264,046
Joint Pricing		545,180	545,218
RV Test Statistic:	144.7		

The graphs of implied marginal costs and markups for the preferred Nash-Bertrand conduct are presented below. Both markups and marginal costs increase after the AD duties are imposed for both Reynolds and store brands; however, marginal costs increase significantly more than markups. Figure 10 plots the mean marginal costs for a standardized 50 square foot roll by brand. The yellow line plots the "at-port price" for the same unit. This is derived from the BACI trade data, which reports price per metric tonne. Weights of store branded standard and heavy-duty aluminum foil were recorded and aggregated to reflect the market shares of each type. The results are sensible, reflecting that the cost of the raw foil contributes to most of the total marginal costs of store brands, while the residual would be sourcing, packaging, and distribution costs. Consistent with AD duties disrupting

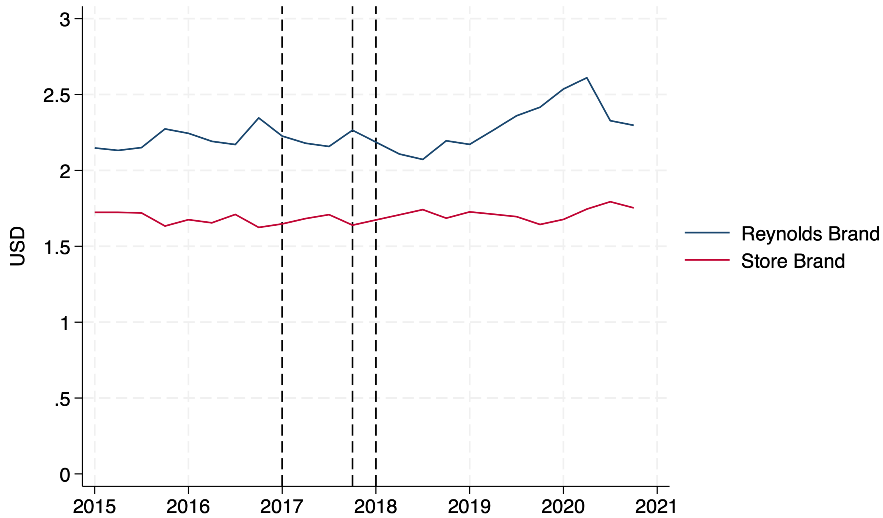

Figure 11: Markups (Nash-Bertrand). Vertical lines correspond to initial investigation, preliminary, and final decisions of the AD duties.

supply chains, these costs increase as a share of total costs in the post-AD period. Figure 11 reveals that markups are increasing visibly for Reynolds after the policy, but that markups are more or less unchanged for store brands. This implies 100% pass-through of increased marginal costs to prices for store brands and a $>$ 100% pass-through for Reynolds brand.

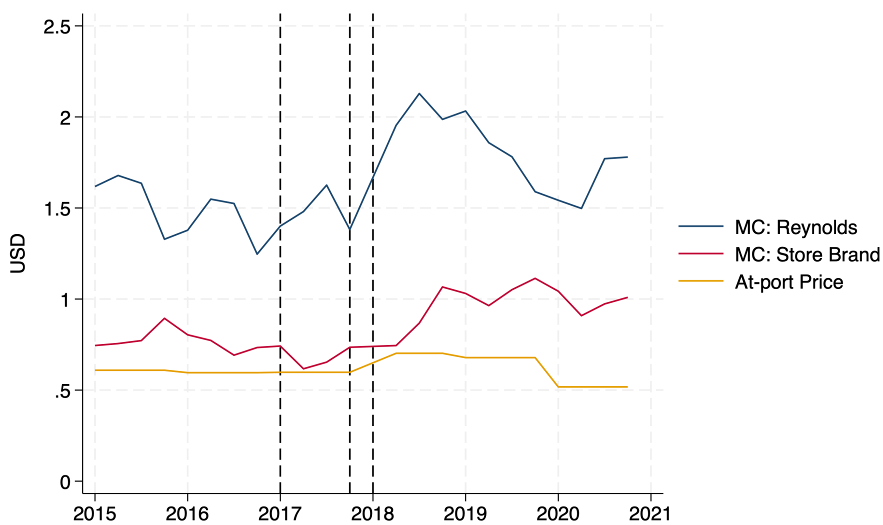

Figure 10: Marginal Costs (Nash-Bertrand). Vertical lines correspond to initial investigation, preliminary, and final decisions of the AD duties.

6 Counterfactuals

Using the preferred Nash-Bertrand marginal costs as a baseline specification, equilibrium counterfactual marginal costs and price equilibria are calculated for 2 separate scenarios. The first counterfactual is a no anti-dumping policy counterfactual. Here, the aim is to find what marginal costs would have been without the AD policy and then calculate a counterfactual price equilibrium from those counterfactual costs. To do this, a TWFE regression of marginal costs against cost shifters, fixed effects, and brand dummies interacted with Post-AD dummies is performed using Italian fringe brands as a comparison group. The logic here is that the Italian brand's costs should not have been affected either directly or indirectly from the policy. Indirect effects for this brand are ruled out since production costs in Italy should not have been affected by events in the US market. The event study for marginal cost effects for store brands and Reynolds brand can be seen in Figure 12. The results of the regressions can be seen in Table 9. The first two columns present the estimates using observations from all markets, while the second two show that the results are robust to using only observations in markets where the Italian fringe brand is available. Results are also robust to the inclusion of cost shifters interacted with a post-AD dummy. Preferred specification is presented in the first column. Here it can be seen that the marginal cost effects of the AD policy are about 19 cents for store brands and 16 cents for Reynolds brands. Thus, in the no AD counterfactual, marginal costs are reduced by 19 cents for each store brand product and by 16 percent for each Reynolds brand product. Marginal costs for fringe brands are left unchanged. The counterfactual price equilibrium implied by the marginal cost changes is calculated using the fixed point algorithm of Morrow and Skerlos (2011). The mean prices for the post-AD period from the factual and the counterfactual scenarios are presented in Table 10. The bottom row reports the price changes implied from the TWFE model from the reduced form portion of the paper. Overall, aggregate price effects align well with those from the reduced form model, although the counterfactual predicts slightly smaller price effects for Reynolds brands compared to the estimation in the TWFE model. When used to calculate consumer surplus, these price changes translate to roughly 10% higher consumer surplus in the no AD counterfactual compared to the CS calculated from the realized factual prices.

The AD duties can affect firms' marginal costs through several channels. The most immediate and transparent channel operates through the duties themselves. Foil imported directly from China faces a direct increase in marginal costs, as the duties are levied on those imports. A second direct channel operates through the circumvention. Chinese-origin foil imported through third-party countries faces costly rerouting or other circumvention-related expenses. Beyond these direct channels, the policy also raises marginal costs for firms producing domestically. Several mechanisms can generate these indirect effects. First, increased demand for US-made foil may raise input prices, while protection from foreign competition can weaken cost discipline if firms divert resources toward lobbying for continued protection rather than improving production efficiency. In addition, if demand expands sufficiently, domestic producers may encounter capacity constraints that push marginal costs higher.

Several explanations can, however, be ruled out. Figure 6 in Section 3 demonstrates that there was no corresponding increase in aluminum prices in the post-AD period. Furthermore, the test of discrete conducts in Section 5 precludes cost mismeasurement attributed to collusive behavior in both the pre- and post- AD periods. This suggests that the implied increases in marginal costs for Reynolds are genuine rather than consequences of altered firm conduct. Overall, the evidence suggests that domestic producers experienced indirect cost increases driven by non-aluminum input costs, efficiency losses, and as they move along their own cost curve. Overall the results demonstrates that AD protections can raise costs for nearly all suppliers.

Table 9: Regression Results

	All Markets		Italian Fringe Only	
	MC	MC	MC	MC
Store Brand × Post	0.188***	0.188***	0.205***	0.205***
	(0.041)	(0.041)	(0.041)	(0.041)
Reynolds × Post	0.157***	0.157***	0.146***	0.145***
	(0.010)	(0.010)	(0.003)	(0.003)
Producer Price Index	-0.009**	-0.010**	-0.009**	-0.011**
	(0.003)	(0.003)	(0.003)	(0.004)
Diesel Price	0.259**	0.202	0.274***	0.210
	(0.083)	(0.122)	(0.076)	(0.116)
China Import Index	0.085	0.124**	0.161**	0.193**
	(0.052)	(0.043)	(0.054)	(0.055)
Producer Price Index × Post		-0.009*		-0.008
		(0.003)		(0.004)
Diesel Price × Post		0.600***		0.558***
		(0.140)		(0.138)
China Import Index × Post		0.108*		0.106
		(0.048)		(0.064)
N	190,894	190,894	71,119	71,119
Fixed Effects	Quarter, Year, Region, and UPC			

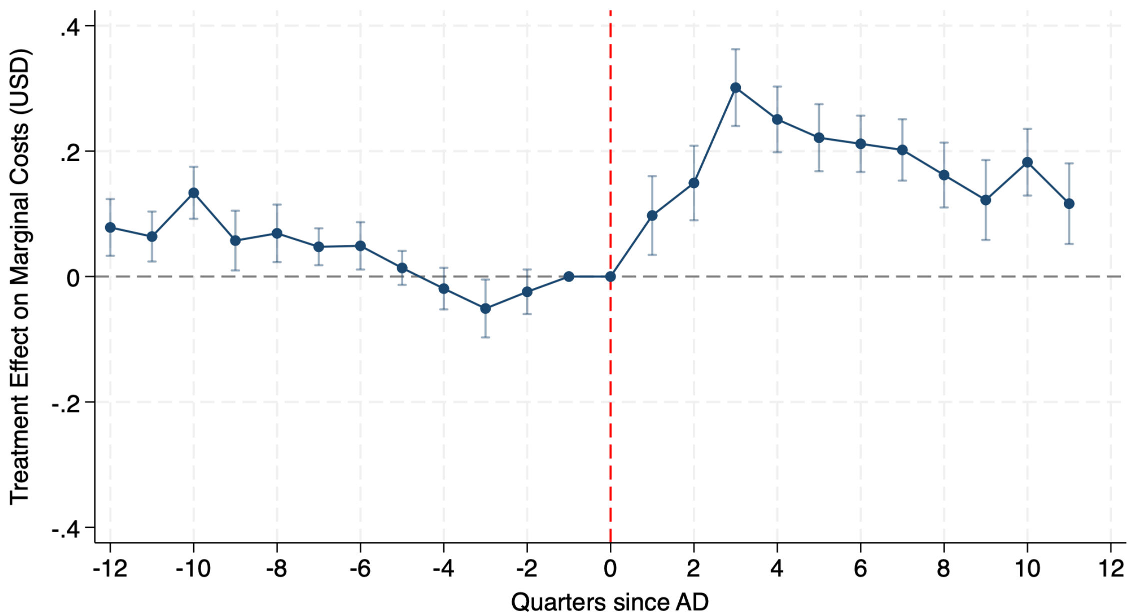

Figure 12: Event Study using Italian fringe brand as a comparison group.

Table 10: Mean Prices by Brand: Post-AD Period

	All	Store Brand	Reynolds
Realized Data	3.37	2.69	4.11
No AD Counterfactual	3.20	2.51	3.95
% Δ (Data $\rightarrow$ No AD)	-5.1%	-6.7%	-3.9%
Reduced Form % Δ	-6.6%	-5.9%	-7.3%

The second exercise considers a "no circumvention" counterfactual scenario. This attempts to estimate the price equilibrium if there were no circumvention of the AD possible. This means that all imports originating in China would be taxed. To do this, several assumptions must be made which likely result in an upper bound for how costly it would be if circumvention were not possible.

Counterfactual Assumption I: *All Store Brands use imports originating in China and the 106% duties pass completely through to marginal costs.*

This is a very strong assumption and does not allow for supplier switching as a response to the AD duties. Next, decompose marginal cost into a linear function of cost shifters, quantity, and the AD shock, ω

$$mc_{it} = c(w, q) + \omega$$

Let $c(w, q)$ be the baseline marginal costs as calculated above. Then ω (the amount of duties paid) is just the "At Port Price" (see Table 10) of foil times the import tax (106%). So counterfactual store brand marginal costs increase by the amount of the duties:

$$MC_{cf}^{Store} = MC^{Store} + \omega_{cf}^{Store} = MC^{Store} + AtPortPrice \times 1.06$$

Counterfactual Assumption II: *The ratio of marginal cost effects of the AD duties for Store Brands and Reynolds is constant across enforcement levels.*

For both Reynolds and store brands, $c(w, q)$ should be invariant to the AD policy so $\frac{\partial c(w,q)}{\partial AD} = 0$. The ratio of marginal cost effects is given by η and is calculated using the cost effects estimated in the no AD counterfactual.

$$\eta = \frac{\frac{\partial \omega^{Reynolds}}{\partial AD}}{\frac{\partial \omega^{Store}}{\partial AD}} = \frac{\frac{\partial MC^{Reynolds}}{\partial AD}}{\frac{\partial MC^{Store}}{\partial AD}} = \frac{0.16}{0.19} = 0.84$$

Putting everything together, Reynolds brand marginal costs increase by an η share of the duties.

$$MC_{cf}^{Reynolds} = MC^{Reynolds} + \omega_{cf}^{Reynolds} = MC^{Reynolds} + \eta \times \omega_{cf}^{Store} =$$
$$MC^{Reynolds} + 0.84 \times AtPortPrice \times 1.06$$

Summaries of the two counterfactual calculations can be seen in Table 11. The resulting price equilibrium for the no circumvention counterfactual can be seen in the third row of Table 12

Table 11: Counterfactual Calculations

No Anti-Dumping	Decrease Reynolds MC by 0.16 and Store Brand MC by 0.19.
Binding AD (No Circumvention)	Increase MC for Store Brands by "At-Port Price" × 1.06 Increase MC for Reynolds Brands by $\eta\times$"At-Port Price" × 1.06

Table 12: Mean Prices by Brand: Post-AD Period

	All	Store Brand	Reynolds
No AD (Counterfactual)	3.20	2.51	3.95
Realized Data	3.37	2.69	4.11
No Circumvention (Counterfactual)	3.98	3.37	4.71
Δ (Data)	0.17	0.18	0.16
Δ (No AD)	0.78	0.86	0.76

Overall, prices in the no circumvention counterfactual are 17 cents higher than they are in the factual state of the world, and 78 cents higher than in the no AD counterfactual. Using the aggregate as a baseline, of a potential 78 cent price increase, only 17 cents are realized in the factual state of the world. Thus, the results imply that circumvention mitigates as much as

$$\frac{0.78 - 0.17}{0.78} \times 100 \approx 78\%$$

of the potential price increases from the AD duties.

7 Domestic Industry

To complement the consumer-side analysis, this section examines whether the 2018 anti-dumping duties generated any measurable benefits for domestic producers in the US aluminum industry. Although data disaggregated specifically for aluminum foil manufacturers are not available, broader industry statistics for the Aluminum Sheet, Plate, and Foil Manufacturing industry provide evidence on how US producers fared during the study period. Table 13 reports annual industry-level indicators from the US Census Bureau's Annual Survey of Manufactures (ASM), including total sales, payroll, employment, hours worked, and materials costs. Figure 13 graphs quarterly industry trends along with the vertical line indicating the final timing of the AD policy.

Table 13: Industry-level statistics from Aluminum Sheet, Plate, and Foil Manufacturing

Year	Sales	Payroll	#employees	Annual hours	Annual wages	Materials cost
2015	15,799,355	1,293,300	18,744	29,643	920,916	11,299,139
2016	14,954,632	1,357,064	19,056	29,673	964,904	10,492,985
2018	19,014,383	1,489,730	18,845	30,204	1,045,976	12,057,383
2019	17,504,347	1,595,346	19,051	30,932	1,127,247	10,559,880
2020	14,649,777	1,462,138	19,421	30,247	1,005,029	8,687,954
2021	18,273,722	1,525,874	18,702	28,886	1,042,548	11,466,168

Source: BLS, Annual Survey of Manufactures (ASM). Sales, Payroll, Wages, and Costs in 1000s of US dollars.

Note: ASM was not conducted in 2017

The aggregate data reveal little evidence of domestic production benefits following the aluminum foil AD order. From a labor perspective, payroll, wages, and hours remain stagnant throughout the study period. The data suggest that US producers maintained a steady trajectory before and after the policy, implying that the AD duties and related tariffs on aluminum inputs left the industry trends unchanged.

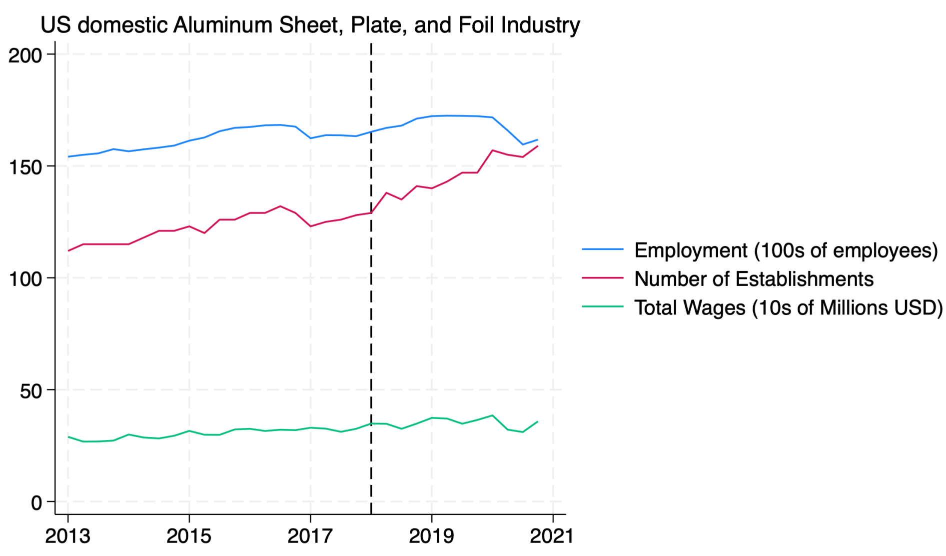

Figure 13: Industry trends unchanged by AD policy.

These findings are consistent with the hypothesis that anti-dumping protection in this sector produced limited benefits for domestic firms. The AD duties may have indirectly raised their own input costs, offsetting any gains from reduced foreign competition. Moreover, widespread circumvention implies that import competition from Chinese-origin foil persisted through third-party countries, further diluting potential protective benefits of the policy.

Overall, while the consumer side of the market experienced clear price increases, the producer side appears largely unaffected, with no evidence of expanded employment, increased wages, or rising profits in the post-policy period. Together, these findings highlight the risk of AD duties. Even when designed to aid domestic producers, anti-dumping duties may not have their intended effects, yet still impose substantial costs on consumers.

8 Conclusion

This paper provides new evidence on how anti-dumping duties affect consumer prices and firm costs in retail markets, and it offers the first quantitative benchmark for the role of import-tax circumvention in mitigating these effects. As these types of origin-specific import taxes are becoming ever more common, it has never been more important to have high-quality analysis of their effects on consumers and sellers. Using detailed scanner and consumer panel data, I find significant price increases for imported and domestically produced brands implied from both the reduced form regressions and the structural model. Additionally, the model suggests that costs increased for both foreign and domestic firms in the post-AD period, and that the pass-through of increased costs to consumer prices is >100%. Finally, I estimate that as much as 78% of the price increases from the AD policy were mitigated by circumvention of the AD duties.

The findings have several implications for the design and evaluation of trade policy. First, they demonstrate that even when duties are circumvented, consumers can face substantial welfare losses through higher prices, while domestic producers often experience limited protective benefits. Second, a framework is provided to consider conduct and market structure when evaluating trade policy. This is critical in concentrated downstream markets, where markup adjustments can amplify the price effects of import restrictions. My analysis suggests that tightening enforcement of import taxes would be very costly to consumers. Given stricter enforcement across many goods, it could also exacerbate inflation, while the enforcement itself may also be expensive. However, since circumvented import taxes often fail to provide the intended protection to domestic producers or to collect tax revenue, policy makers may still find it advantageous to tighten enforcement. Generally speaking, circumvented import taxes should receive increased enforcement only if the protective benefits outweigh the further increases to consumer prices and should be eliminated otherwise.

Several limitations of the study invite further research of this and other AD duties. First, this paper is only able to investigate the effects of the AD policy on retail consumers. Non-retail buyers of aluminum foil would have also been affected by the policy, which likely had downstream effects on the rest of the economy, particularly in the food service and HVAC industries. Additionally, due to circumvention and masked store-brand UPCs, I am unable to link all products to their true countries of origin. Finally, when looking at the effects of the policy on domestic industry, I do not observe disaggregated data on the aluminum foil industry only. Although total imports increasing slightly in the post-AD period suggest little protective benefit of the AD duties to the domestic industry, without data on producers' profits and employment, conclusions about the overall welfare effects of the policy are limited.

Despite these limitations, the paper contributes by demonstrating that even circumvented import taxes can significantly raise consumer prices and firm costs, and it is the first paper to my knowledge which provides a benchmark for how much anti-dumping circumvention mitigates consumer price increases.

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