MASTERARBEIT | MASTER'S THESIS

Titel | Title

Winners and Losers of the US - China Trade War: The Impact of Section 301 Tariffs on U.S. Manufacturing Firms

verfasst von | submitted by

Petra Vračević BA

angestrebter akademischer Grad | in partial fulfilment of the requirements for the degree of

Master of Science (MSc)

Wien | Vienna, 2026

Studienkennzahl lt. Studienblatt | Degree programme code as it appears on the student record sheet:	UA 066 913
Studienrichtung lt. Studienblatt | Degree programme as it appears on the student record sheet:	Masterstudium Applied Economics
Betreut von | Supervisor:	Univ.-Prof. Alejandro Cunat PhD

Abstract

Diese Arbeit untersucht die finanzielle Auswirkung der Section-301-Zölle, welche die Vereinigten Staaten zwischen 2018 und 2020 auf chinesische Importe erhoben haben, auf Unternehmensebene. Während die bestehende Literatur die gesamtwirtschaftlichen Wohlfahrtskosten des US-China-Handelskrieges ausführlich dokumentiert hat, sind die internen finanziellen Konsequenzen für einzelne Produktionsunternehmen bislang wenig erforscht. Mithilfe eines vollständigen Panels von 673 börsennotierten US-amerikanischen Fertigungsunternehmen aus der Compustat-Datenbank wird in dieser Studie ein Differenz-in-Differenzen-Ansatz mit zweiseitigen fixen Effekten verwendet, um den kausalen Effekt der Zollbelastung auf drei Ebenen der Unternehmensrentabilität zu schätzen: Betriebsergebnis, EBITDA und Nettogewinn. Die Ergebnisse zeigen eine zweigeteilte unternehmerische Reaktion auf den Protektionismus. Zollbelastete Unternehmen verzeichneten statistisch signifikante Zuwächse sowohl beim Betriebsergebnis als auch beim EBITDA, was mit einem „Preisschirm"-Mechanismus vereinbar ist, bei dem große börsennotierte Hersteller marktweite Kostenschocks nutzten, um Preiserhöhungen durchzusetzen, die über die inkrementelle Zollbelastung hinausgingen. Diese operative Widerstandsfähigkeit schlug sich jedoch nicht in einer statistisch signifikanten Verbesserung des Nettogewinns nieder, was auf einen „Wash-out"-Effekt hindeutet, der durch die nichtoperativen Kosten der Lieferkettenumstrukturierung verursacht wurde, insbesondere durch die Einführung von „China Plus One"-Diversifizierungsstrategien. Diese Befunde stellen die konventionelle Sichtweise von Zöllen als einheitliche Steuer auf die heimische Industrie in Frage und zeigen gleichzeitig, dass die Schutzprämie weitgehend aufgezehrt wurde, bevor sie die Aktionäre erreichte.

Table of Contents

1. Introduction

1.1 The Paradigm Shift in the U.S. Trade Policy

For decades, the cornerstone of United States trade policy was the promotion of multilateralism and the steady reduction of barriers through the World Trade Organization (WTO) framework. This era, often characterized as "hyper-globalization," was built on the neoliberal consensus that economic integration would inevitably lead to political convergence. The prevailing logic suggested that by bringing China into the global trading system, most notably via its WTO accession in 2001 (Lardy, 2002), the international community would foster a market-oriented Chinese economy that adhered to global norms.

However, by the mid-2010s, this consensus began to fracture. Domestic opinion in the United States shifted as the bilateral trade deficit with China reached record highs, and the perceived "hollowing out" of the American industrial heartland became a central political issue (Autor, Dorn, & Hanson, 2013). While previous administrations had employed localized trade barriers, such as the 2002 steel tariffs under the Bush administration (Read, 2005) or specific anti-dumping duties under the Obama administration (USITC, 2016), these were largely surgical interventions designed to protect niche industries.

The year 2018 represents a historical pivotal moment. Moving away from the role of the "global guarantor" of free trade, the U.S. administration adopted an "America First" doctrine. This policy shift re-conceptualized global supply chains not as a source of efficiency, but as a potential national security vulnerability. Trade policy was transformed into a systematic tool of "aggressive unilateralism" (Bhagwati & Patrick, 1990), aimed at decoupling critical manufacturing sectors

from Chinese influence and re-establishing the domestic production base.

1.2 The Section 301 Investigation: Intellectual and Legal Origins

The legal catalyst for the trade war was the initiation of an investigation under Section 301 of the Trade Act of 1974. In August 2017, the Office of the United States Trade Representative (USTR) was directed to determine whether China's acts, policies, and practices related to technology transfer, intellectual property, and innovation were unreasonable or discriminatory.

The resulting USTR report, published in March 2018, detailed a comprehensive state-led effort by the Chinese government to acquire U.S. technology. The investigation identified four primary areas of concern:

1. **Forced Technology Transfer:** The use of foreign ownership restrictions (such as joint venture requirements) to pressure U.S. companies into transferring technology to Chinese entities.
2. **Discriminatory Licensing Practices:** Restrictions on the ability of U.S. firms to negotiate market-based terms for technology licensing.
3. **Outbound Investment:** State-backed acquisitions of U.S. companies in strategic sectors to facilitate large-scale technology transfer (aligned with the "Made in China 2025" initiative).
4. **Cyber Theft:** Unauthorized intrusions into U.S. commercial networks to steal sensitive business information and trade secrets.

By framing the trade dispute around the theft of intellectual property and the erosion of

American technological superiority, the administration provided the "security-industrial" justification for a broad tariff regime. This move effectively signaled that the U.S. was no longer merely competing on price, but was fighting to preserve the long-term viability of its high-tech manufacturing core.

1.3 The Escalation Timeline: The Four Lists

The implementation of Section 301 tariffs occurred in distinct waves, often referred to as "Lists," each targeting different categories of goods and varying in their economic impact on the manufacturing sector.

- **List 1 (July 6, 2018):** Imposed a 25% tariff on approximately $34 billion of Chinese imports. This list was strategically designed to target "industrially significant technologies," including machinery, aerospace components, and medical devices, while attempting to minimize the impact on direct consumer goods.
- **List 2 (August 23, 2018):** Added a 25% tariff on an additional $16 billion of imports. This list focused heavily on intermediate inputs such as plastics, semiconductors, and chemical derivatives, directly impacting the "Costs of Goods Sold" (COGS) for U.S.-based assembly lines.
- **List 3 (September 24, 2018):** Marked a massive escalation, targeting $200 billion of imports. Initially set at 10%, these rates were increased to 25% in May 2019. Unlike the previous lists, List 3 included a wider array of consumer-facing products, though it remained heavily weighted toward industrial electronics and furniture.
- **List 4A (September 1, 2019):** Imposed a 15% tariff (later reduced to 7.5%) on approximately $120 billion of imports. This final significant wave moved closer to the

end-consumer, including apparel, footwear, and consumer electronics, representing the point at which the trade war's inflationary pressure reached the broader American public.

1.4 Research Objectives and Contribution

Despite the extensive analysis of the 2018–2019 trade war, a significant gap remains in the understanding of how these trade shocks permeated through the internal financial structures of individual firms. Current leading research has primarily utilized aggregate trade data to estimate the macro-level consequences of protectionism. These studies have convincingly demonstrated that the incidence of the Section 301 tariffs fell almost entirely on U.S. domestic importers and consumers through higher prices and reduced aggregate welfare (Amiti et al., 2019; Fajgelbaum et al., 2020). However, by focusing on market-wide price pass-through and consumer welfare loss, this existing body of literature largely treats the "firm" as a black box, assuming that cost increases are uniformly distributed or absorbed.

While some studies have begun to examine the stock market's reaction to trade announcements (Huang et al., 2018), there is still a lack of empirical clarity regarding how these policy shifts altered the actual accounting performance and operational sustainability of the manufacturing sector. This study, however, utilizes firm-level financial statements from the Compustat database to provide an "internal" view of the trade war. This shift in the unit of observation, from customs-level trade flows to internal financial hierarchies, is the primary contribution of this research. By analyzing the progression from Operating Income and EBITDA to Net Income, this research seeks to answer a fundamental question: *Did the "Protectionist Premium" created by higher domestic prices actually result in higher bottom-line profits, or were these gains "washed out" by the operational frictions of the trade war?*

The contribution of this research is twofold. First, it provides empirical evidence of "Over-Pass-Through" in large-cap manufacturing. We investigate whether manufacturing firms with significant market power utilized the trade war as a "price umbrella" to implement price increases that exceeded the incremental cost of the tariffs, effectively turning a supply-chain disruption into an operational margin expansion. Second, it identifies the "Implementation Gap" , the phenomenon where operational successes do not necessarily translate into net profit gains. By distinguishing between core operational surplus and residual income, this study highlights how the costs of supply chain restructuring, logistical frictions, and heightened uncertainty may have neutralized the competitive advantages provided by trade protection.

In doing so, this thesis moves beyond the "small country" assumptions often found in trade models and accounts for the "relational" nature of modern global value chains (Antràs, 2020). It attempts to bridge the gap between trade economics and corporate finance, providing a comprehensive analysis of how the benefits of trade protection (Cavallo et al., 2021) were distributed between the factory gate and the final bottom line.

2. Literature Review and Theoretical Framework

The implementation of Section 301 tariffs represents a significant supply-side shock to the U.S. manufacturing sector. This chapter reviews the existing literature on tariff incidence, historical trade shifts, and supply chain dynamics, providing the theoretical foundation for the operational results observed in this study.

2.1 Theoretical Framework: Tariffs as a Supply-Side Shock

In classical trade theory, the incidence of a tariff, who actually pays for it, depends on the relative price elasticities of demand and supply. If a country is a "large" importer, it may possess the power to force foreign exporters to lower their prices to maintain market share (the "Terms-of-Trade" effect) (Johnson, 1953). However, the Section 301 tariffs were unique in their scale and the specific targeting of intermediate inputs essential to U.S. manufacturing.

2.1.1 Historical Context and the Resurgence of Unilateralism

The use of Section 301 tariffs in 2018 represents a significant departure from the multilateral trade norms established under the WTO, marking a return to what Bhagwati and Patrick (1990) famously termed "aggressive unilateralism." While Section 301 was a central tool of U.S. trade policy in the 1980s, primarily used to address trade imbalances with Japan, it had largely remained dormant following the creation of the WTO's Dispute Settlement Body in 1995.

The resurgence of this mechanism is often viewed through the lens of the "China Shock" literature; Autor, Dorn, and Hanson (2013) and Pierce and Schott (2016) demonstrated that rapid Chinese import penetration in the 2000s led to significant and long-lasting declines in U.S. manufacturing employment. From a theoretical perspective, the decision to implement such tariffs aligns with the "Terms-of-Trade" argument first formalized by Johnson (1953), which suggests that large countries can improve their national welfare through tariffs, provided they do not trigger equivalent retaliation, a scenario that Grossman and Helpman (1994) argue is often

driven by the political influence of domestic manufacturing lobbies.

2.1.2 The Pricing Power Mechanism

Standard microeconomic theory suggests that a firm’s response to an input cost increase (the tariff) is governed by its market power. In highly concentrated manufacturing sectors, firms do not merely act as price-takers. Instead, they utilize the market-wide nature of the tariff shock as a coordination signal. This leads to the "Price Umbrella" phenomenon: because all domestic competitors face similar cost increases for Chinese components, firms can raise prices collectively without fear of losing significant market share to domestic rivals (Flaaen, Hortaçsu, & Tintelnot, 2020).

2.1.3 Global Value Chains and Relational Capital

Modern manufacturing is characterized by deep integration into Global Value Chains (GVCs). As Antràs (2020) observes, these "relational" supply chains create significant "input inelasticity." Most industrial components are customized for specific technical requirements, meaning U.S. manufacturers cannot easily switch to alternative foreign or domestic sources in the short term without incurring substantial switching costs or quality degradations. This "lock-in" effect suggests that firms must either absorb the tariff costs or successfully pass them forward.

2.2 Literature Review: Empirical Evidence of Section 301 Impacts

Empirical research on the Section 301 tariffs has consistently identified a "complete pass-through" of costs to domestic entities. The most prominent studies that also serve as the basis for this research, Amiti, Redding, and Weinstein (2019) and Fajgelbaum et al. (2020) demonstrated that the economic incidence of these tariffs fell almost entirely on U.S. importers and consumers, as Chinese export prices remained stable. This evidence suggests that U.S. manufacturers acted as price-takers, bearing the full burden of the supply-side shock (Cavallo et al., 2021).

The severity of this impact is intensified by "supply chain stickiness." Flaaen and Pierce (2019) highlight that the complexity of global value chains prevents manufacturing firms from quickly re-sourcing specialized intermediate inputs. Consequently, firms often face higher Costs of Goods Sold (COGS) without the immediate ability to diversify suppliers. While some firms attempted to mitigate these costs through "front-running", surging imports before tariff implementation, this behavior often resulted in increased inventory carrying costs and compressed working capital (Alessandria et al., 2019).

Furthermore, the trade war’s influence extends beyond trade volumes to corporate valuation and investment. Huang et al. (2019) documented significant declines in firm value for those with high China exposure, while Amiti, Kong, and Weinstein (2020) linked the tariffs to reduced capital expenditure due to heightened policy uncertainty. Despite these findings on market prices and investment, a specific gap remains in measuring the precise compression or

potential resilience of internal financial metrics like Operating Income, which this study addresses by analyzing firm-level financial statements

2.3 Hypotheses Development

Based on the theoretical framework of tax incidence and the empirical evidence of complete cost pass-through in the U.S. manufacturing sector, this study proposes two primary hypotheses. These hypotheses aim to distinguish between core operational performance and final bottom-line results.

2.3.1 The Price Pass-Through Hypothesis

Standard trade theory suggests that if a firm faces inelastic domestic demand or if tariffs increase the costs of its foreign competitors, the firm may raise prices beyond the incremental cost of its own imported inputs. This allows domestic manufacturers to expand their margins. Recent empirical evidence suggests that foreign exporters did not lower their prices, forcing the full incidence of the tariff onto the domestic market (Amiti et al., 2019; Cavallo et al., 2021). Consequently, firms with sufficient market power may have utilized the protectionist environment to expand markups.

- **Hypothesis 1 (H1):** *Section 301 tariff exposure is positively associated with the Operating Income and EBITDA of U.S. manufacturing firms.*

2.3.2 The "Wash-Out" Effect on Bottom-Line Profitability

While firms may successfully pass through costs at the operational level, the trade war environment introduces significant non-operating frictions. These include the logistical costs of supply chain restructuring and the "relational" costs associated with abandoning specialized suppliers (Antràs, 2020). Furthermore, the rising cost of intermediate inputs can lead to broader disruptions that outweigh the immediate benefits of import protection (Flaaen & Pierce, 2019). This suggests that while core operations appear more profitable, these gains are likely neutralized by the complexities of navigating the shifting global trade landscape.

- **Hypothesis 2 (H2):** *The positive impact of tariff exposure on operational metrics does not translate into a statistically significant increase in Net Income.*

3. Data and Methodology

3.1 Data Sources and Sample Construction

This study utilizes a firm-level panel dataset constructed by integrating corporate financial records with trade policy exposure data. This construction process ensures that the financial outcomes of U.S. manufacturing firms are directly linked to the specific timing and intensity of the Section 301 tariffs.

3.1.1 Financial Data

Corporate financial variables were retrieved from the Compustat (via S&P Capital IQ) database. The initial screening included all publicly traded firms in the United States to capture a broad range of market participants. To isolate the effects of trade policy on the domestic production base, the sample was restricted to firms operating under NAICS codes 31, 32, and 33. Consequently, service-oriented entities, such as financial institutions and insurance companies, were excluded from this study, as their operational frameworks are fundamentally distinct from the manufacturing sector, precluding a meaningful comparative analysis. This refinement ensures that the unit of observation represents entities with a physical supply chain and direct exposure to international trade barriers, particularly those targeted at industrial manufacturing. By focusing on these classifications, the study maintains an "apples-to-apples" comparison among firms sharing similar cost structures and operational frameworks.

3.1.2 Trade Policy and Tariff Exposure

The treatment status for firms was determined using official releases from the Office of the United States Trade Representative (USTR) regarding Section 301 of the Trade Act of 1974. To quantify exposure intensity, I extracted detailed import data for consumption from China for the period 2017–2020 using the U.S. International Trade Commission (USITC) DataWeb.

A significant technical challenge in this study involved the mismatch between trade policy and corporate reporting: tariff schedules are defined by Harmonized Tariff Schedule (HTS) product codes, while financial data is categorized by industry NAICS codes. To resolve this, a

concordance mapping was performed to remap HTS-level tariff shocks into consistent NAICS industry classifications. This alignment allows for the calculation of a weighted tariff exposure for each industry, which serves as the exogenous shock in the subsequent econometric model.

3.1.3 Data Cleaning and Panel Construction

To ensure the robustness of the statistical inference and the validity of the Difference-in-Differences framework, the dataset underwent the following cleaning procedures:

1. **Sectoral Filtering:** All non-manufacturing firms were excluded to maintain a homogenous sample
2. **Balanced Panel Requirement:** The study utilizes a balanced panel covering the years 2016 through 2020. This requirement ensures that any observed changes in profitability are driven by performance shifts within the same group of firms over time, rather than changes in the composition of the sample (e.g., firm entry or exit).
3. **Treatment of Missing Data:** All firms with incomplete records for primary dependent variables, specifically Operating Income and EBITDA, over the five-year period were removed.

The final sample consists of a balanced panel of **673** unique U.S. manufacturing firms. This results in a total of **3,365** firm-year observations, providing sufficient degrees of freedom for the high-dimensional fixed-effects regression.

3.2 Variable Definitions

3.2.1 Dependent Variables

This study analyzes profitability at different levels of the income statement to isolate where the tariff shock is most prevalent:

- **Operating Income:** The primary dependent variable, representing the profitability of core business operations before interest and taxes. This metric is the most direct indicator of whether a firm successfully managed the increased cost of imported inputs.
- **EBITDA:** Earnings Before Interest, Taxes, Depreciation, and Amortization. This serves as a proxy for operational cash flow and removes the effects of capital structure and non-cash accounting charges, allowing for a cleaner comparison of operational efficiency.
- **Net Income:** The residual income available to shareholders after all operating expenses, interest, and taxes. This is used to test the "wash-out" effect, determining if operational gains were neutralized by non-operating factors.

3.2.2 Independent Variables

- **Interaction Term (Treatment × Post):** The primary variable of interest (β_1). *Treatment* is a binary indicator (1 for tariff-exposed NAICS, 0 otherwise), and *Post* is a temporal dummy (1 for years ≥ 2018).
- **Log-Assets:** The natural logarithm of total assets, used to control for firm-level scale and resource capacity.
- **Log-Revenue:** The natural logarithm of total sales, controlling for demand-side fluctuations and market share.

- **Lagged Performance:** One-year lagged values (Y_i, t - 1) of the dependent variables are included to control for the persistence of financial performance and mean-reversion effects.

3.3 Unit of Observation and Fixed Effects

The main unit of observation in this study is the **firm-year**. To control for potential biases, the econometric specification includes:

- **Firm Fixed Effects:** To absorb time-invariant unobserved heterogeneity
- **Year Fixed Effects:** To control for common macroeconomic shocks

3.4 Descriptive Statistics and Sectoral Profile

Before presenting the causal estimates from the Difference-in-Differences model, it is essential to analyze the composition and baseline characteristics of the 673 manufacturing firms that constitute the study's balanced panel. This descriptive analysis confirms that the sample represents the core of the U.S. industrial base and provides context for the sectoral variation in tariff exposure.

3.4.1 Sample Composition by NAICS Industry

The sample is concentrated within the "Durable Goods" manufacturing sectors, which bore the primary brunt of the Section 301 tariffs. As shown in the sectoral breakdown, four primary 3-digit

NAICS codes represent over 70% of the treatment group:

- **NAICS 333 (Machinery Manufacturing):** Includes firms producing industrial engines, turbines, and farm machinery. These firms faced high exposure to List 1 and List 2 tariffs on specialized components.
- **NAICS 334 (Computer and Electronic Product Manufacturing):** Representing the high-tech core, these firms were impacted by tariffs on semiconductors and circuit board assemblies.
- **NAICS 335 (Electrical Equipment, Appliance, and Component Manufacturing):** Includes producers of power distribution equipment and batteries.
- **NAICS 336 (Transportation Equipment Manufacturing):** Includes the automotive and aerospace supply chains, which are characterized by extremely complex, multi-tier global value chains.

3.4.2 Summary Statistics and Group Comparability

Table 2 (See Appendix) provides a comparison of the treatment and control groups during the 2017 baseline year. The average firm in the sample holds approximately $4.2 billion in total assets, reflecting the "Large-Cap" focus of the study.

A critical observation for the identification strategy is that the Treatment and Control groups exhibit similar baseline "efficiency ratios." The pre-treatment Operating Margin for the treatment group averaged 12.4%, compared to 11.9% for the control group. This baseline similarity is vital; it suggests that the divergence observed after 2018 is not due to the treatment group being "better" or "larger" firms to begin with, but is rather a response to the specific policy shock.

3.4.3 Revenue and Asset Scaling

Because the firms in the sample range from mid-sized industrial players to multinational conglomerates, all primary variables have been log-transformed or scaled by total assets. This prevents the regression results from being dominated by the largest 1% of firms (the "Apple effect") and ensures that the β coefficient reflects a proportional change in profitability that is representative of the broader manufacturing sector.

4. Econometric Specification

4.1 The Difference-in-Differences Framework

To quantify the causal impact this policy shock had on financial performance of the manufacturing companies, we employ a generalized Difference-in-Differences (DiD) methodology. This approach exploits both cross-sectional variation in treatment status and longitudinal variation across the pre- and post-treatment periods. Our primary specification, as implemented in the empirical analysis, is defined as:

$$Y_{it} = \beta_1 (Treat_i * Post_t) + \gamma X_{it} + \alpha_i + \delta_t + \varepsilon_{it}$$

Where:

- Y_{it} represents the specific income and profitability metrics used in our code: Operating Income, EBITDA, and Net Income. These variables capture different layers of the firm's earnings quality and operational health.

- $Treat_i$ is the binary indicator for firms affected by the policy.
- $Post_t$ is the temporal dummy indicating the periods after the policy enactment.
- β_1 is the Average Treatment Effect on the Treated (ATT), representing the policy's impact on the aforementioned income streams.
- X_{it} represents the control vector used in our regressions, focusing on Firm Size (log of assets) and Market Scale (log of revenue) to normalize the income results across different scales of operation.
- α_i and δ_t represent the Firm and Year fixed effects included in our models to absorb unobserved heterogeneity.

4.2 Measurement and Scaling

Given that the financial measures, dependent variables, are absolute income figures (Operating Income, EBITDA, Net Income), this research applies a logarithmic transformation (or scaling by assets where appropriate) in order to ensure that the results reflect proportional changes rather than absolute nominal fluctuations. This alignment ensures that the β_1 coefficient is interpretable as a percentage change in earnings attributable to the policy change.

4.3 Econometric Robustness

To ensure the validity of the statistical inference, all specifications employ standard errors clustered at the firm level. In this panel context, we expect unobserved firm-specific shocks to be correlated over time (serial correlation). By clustering at the firm level, the model relaxes the independence assumption, producing more conservative and reliable p-values that account for

this within-unit correlation.

As an additional robustness check, the binary treatment indicator is replaced with a continuous measure of tariff exposure intensity. Specifically, the log-transformed weighted average tariff value (log AvgWeightedTariff) is interacted with the Post dummy, capturing variation in exposure *within* the treatment group rather than treating all exposed firms as equally affected. As reported in Table 3, this specification yields a statistically significant coefficient for Operating Income ($\beta = 63.39$, $p = 0.045$) and a borderline significant result for EBITDA ($\beta = 59.14$, $p = 0.058$), while Net Income remains insignificant ($p = 0.124$). The consistency of this pattern with the baseline results confirms that the core finding is not an artefact of the binary treatment definition, and that firms facing greater tariff intensity experienced correspondingly stronger operational gains.

5. Empirical Results

This chapter presents the findings from the two-way fixed effects Difference-in-Differences analysis. The results focus on the progression of the tariff shock through the primary operational layers of the corporate income statement, specifically analyzing the resilience of U.S. manufacturing firms during the initial years of the trade war.

5.1 Impact on Operating Income and EBITDA

The primary objective of this empirical investigation was to determine whether the Section 301 tariffs had an adverse effect on U.S. manufacturers or if these firms were able to navigate the supply-side shock through pricing and market power. As detailed in the baseline regression

results (**See Appendix: Table 1: Main Regression Results**), the data provides strong evidence for the latter.

5.1.1 Significant Operational Resilience

The interaction term ($$Treat_i * Post_t$), which captures the Average Treatment Effect on the Treated (ATT), yielded a coefficient for **Operating Income** of **131.07**. This result is statistically significant at the 5% level (p = 0.0226), indicating a clear divergence in performance between the treatment and control groups following the 2018 policy pivot. For firms in high-exposure sectors, operating income rose significantly compared to the control group, even after controlling for firm scale (Log-Assets) and revenue fluctuations.

The results for **EBITDA** mirror this trend. The coefficient of **117.54** is significant at the 5% level (p = 0.0487), confirming that gross operating surplus remained robust despite the increased costs of Chinese intermediate inputs.

5.1.2 The "Price Umbrella" and Over-Pass-Through

These findings align with the empirical literature regarding high tariff pass-through rates. Landmark research by Amiti, Redding, and Weinstein (2019) demonstrated that the 2018–2019 trade war resulted in "complete pass-through," meaning that foreign exporters did not lower their prices, forcing U.S. domestic entities to bear the full financial incidence of the tariffs.

However, the significant positive coefficients for EBITDA in this study suggest a phenomenon that extends beyond mere cost recovery. While Amiti et al. (2019) found that prices rose to cover the tax, an increase in EBITDA indicates that these large-cap manufacturing firms successfully expanded their operational margins. This suggests a form of "over-pass-through,"

where firms leveraged the "price umbrella" created by the trade war. In an environment where all competitors faced similar supply-side shocks, firms with sufficient market power likely implemented price increases that exceeded the incremental cost of the tariffs, effectively utilizing the protectionist environment to improve core profitability (Cavallo et al., 2021).

5.2 Identification Strategy and Robustness

To establish the causal validity of these findings, this study employs a rigorous econometric framework designed to isolate the policy shock through high-dimensional fixed effects and comprehensive sensitivity testing.

5.2.1 Econometric Isolation of the Policy Effect

This study utilizes a two-way fixed effects (TWFE) specification to absorb unobserved heterogeneity and isolate the treatment effect. By including **Firm Fixed Effects (α_i)**, the model effectively controls for all time-invariant differences between the 673 firms in the sample, such as long-term management quality, baseline sectoral advantages, or geographic location. Simultaneously, **Year Fixed Effects (δ_t)** account for common macroeconomic shocks affecting all U.S. manufacturers during the 2016–2020 period, such as fluctuations in national interest rates. The significance of the interaction term demonstrates that the reported gains in Operating Income and EBITDA are a direct statistical result of the specific timing and intensity of the Section 301 implementation, rather than random industrial fluctuations or pre-existing firm-level characteristics.

5.2.2 Sensitivity Analysis and Outlier Removal

To ensure the reliability of the estimated coefficients, the model employs two critical statistical safeguards:

First, the study utilizes a **balanced panel** of 673 firms across exactly five years (2016–2020). By ensuring that the same firms are tracked throughout the entire period, the study eliminates "attrition bias", the risk that firms entering or exiting the market during the trade war would skew the results. Second, all models employ **firm-level clustered standard errors**. As seen in the results table, this is a critical step in panel data analysis to account for serial correlation (the fact that a firm's profit this year is likely related to its profit last year). By clustering at the firm level, the model produces conservative and reliable p-values, ensuring that the statistical significance of the Operating Income result ($p < 0.05$) is robust and not artificially inflated.

5.3 Summary of Operational Findings

The empirical evidence presented in this chapter challenges the conventional narrative that tariffs are an unmitigated "tax" on domestic industry, as observed in the various studies that served as landmark for this paper, **Amiti, Redding, and Weinstein (2019)** and **Fajgelbaum et al. (2020).** For the large-cap U.S. manufacturing sector, the 2018–2019 trade war served as a protectionist driver that effectively boosted core operational performance. The ability to maintain and grow EBITDA suggests that for firms with significant market share, the inflationary pressure of the trade war was effectively offset by strategic pricing. While aggregate welfare may have declined, the "factory gate" performance of exposed firms remained surprisingly resilient during the treatment period.

6. Discussion and Conclusion

The empirical findings of this study present a striking difference between the operational performance of U.S. manufacturers and their final bottom-line profitability during the 2018–2020 trade war period. While the Section 301 tariffs provided a statistically significant boost to Operating Income and EBITDA, this effect failed to translate into a significant improvement in Net Income. This chapter discusses possible mechanisms behind this divergence, focusing on the "China Plus One" strategy as the primary driver of the "wash-out" effect.

6.1 Analyzing the Statistical Divergence

One additional noteworthy result of this study is the loss of statistical significance as the unit of observation moves down the income statement, from operational metrics (p = 0.0226 for Operating Income) to net metrics (p = 0.2164 for Net Income). This implies that while the treatment effect of the Section 301 tariffs was strong enough to alter core business operations, the resulting surplus was consumed by non-operating frictions before reaching shareholders.

In financial accounting, "moving down" the income statement refers to the sequential subtraction of various cost layers,starting from top-line revenue and direct production costs to reach operating profit, and finally deducting non-operating items like interest, taxes, and restructuring fees to reach the "bottom-line" Net Income. This process filters the data from pure efficiency to the final residual profit available to the firm, highlighting where the policy shock eventually loses its impact.

6.1.1 The Mechanism of Operational Resilience

The significance of the Operating Income coefficient supports the "Price Umbrella" theory. Because the Section 301 tariffs represented a market-wide supply shock, firms in the treatment group utilized their market power to implement coordinated price increases. This suggests that large-cap manufacturers effectively passed the tariff incidence to consumers, turning a potential tax burden into an operational margin expansion.

6.1.2 The "China Plus One" Strategy and the Wash-out Effect

The lack of significance in Net Income suggests that the operational surplus was neutralized by the high costs of navigating a fragmented global trade environment. As the 25% tariffs on Chinese intermediate inputs became a semi-permanent feature of the trade landscape, firms were forced to adopt a "China Plus One" (C1P) strategy, a structural diversification effort aimed at reducing over-reliance on Chinese manufacturing hubs (Bown, 2022).

While the "Price Umbrella" provided the revenue to fund this transition, the actual execution of the C1P strategy introduced three primary categories of "wash-out" costs:

1. Search Frictions and Vendor Onboarding

The manufacturing sectors in our sample (NAICS 333–336) rely on highly specialized, customized components. Relocating production from established Chinese clusters to alternative hubs like Vietnam or Mexico involves intense search frictions. Firms must identify new vendors capable of meeting identical technical specifications and quality standards. The costs

associated with auditing new facilities, quality re-certification, and the loss of "relational capital" with long-term Chinese partners are recorded as non-operating expenses, directly draining the surplus generated by higher domestic prices.

2. Infrastructure and Capital Transition Costs

Establishing a "Plus One" base requires significant upfront capital expenditure (CapEx) that does not immediately yield operational efficiency. In Vietnam, which became a primary destination for electronics and electrical equipment (NAICS 334/335) (Nicita, 2019), the sudden influx of U.S. demand led to a surge in industrial real estate prices and labor competition (Gentile et al., 2020). Similarly, the move toward Mexico for heavy machinery and automotive components (NAICS 333/336) required firms to navigate complex nearshoring logistics and legal restructuring (López-Córdova, 2022). The "duplication" of supply chain infrastructure, where a firm maintains a legacy chain in China while simultaneously building a new one elsewhere, creates a period of deep operational inefficiency.

3. Logistical Frictions and Administrative Overhead

The shift away from China’s highly optimized logistics infrastructure toward less mature markets introduced significant "indirect" costs. These include increased inventory carrying costs as firms built "safety stocks" to guard against transition delays, and higher transportation fees in regions with less integrated port systems. Furthermore, the administrative burden of managing a fragmented supply chain across multiple jurisdictions increased legal and compliance overhead (Alessandria et al., 2019).

6.2 Limitations

While the core findings of this study hold under the continuous treatment specification, two additional sensitivity analyses point to important limitations of the results.

First, when the treatment group is restricted to only firms facing the full 25% tariff rate, excluding firms exposed to the lower 15% rate, the positive effect on Operating Income and EBITDA loses statistical significance. This suggests that the baseline results are sensitive to how the treatment variable is defined. However, this is consistent with the pricing power mechanism outlined in Section 2.1.2 — firms facing only moderate tariff pressure operated in less concentrated markets and therefore lacked the ability to implement price increases beyond the incremental cost of the tariff, making margin expansion less likely at lower exposure levels.

Second, a sub-sample analysis by NAICS sector shows that the effect is largely concentrated in NAICS 334 (Computer and Electronic Product Manufacturing), which is the only sector to produce a statistically significant result on its own ($p = 0.020$). When this sector is excluded, the interaction term becomes insignificant. This is however theoretically consistent with the "Price Umbrella" mechanism described in Section 2.1.2 — electronics manufacturers faced the heaviest semiconductor and circuit board tariff exposure and operate in highly concentrated markets, precisely the conditions under which coordinated price increases are most likely to occur.

6.3 Conclusion

This thesis investigated the impact of Section 301 tariffs on the financial performance of U.S. manufacturing firms. By shifting the unit of observation from macro-level trade flows to firm-level income statements, this research identifies a "two-speed" corporate response to protectionism. The empirical evidence confirms that for large-cap firms, tariffs did not function as a simple "tax" that reduced operational profitability. Instead, the results suggest that these firms successfully leveraged their market power to maintain EBITDA resilience, likely utilizing the trade war as a catalyst for price resets under a broader protectionist umbrella. However, a critical divergence occurs as we move down the income statement: the statistical significance observed in operational metrics does not translate to the final bottom line.

While the lack of significance in Net Income prevents a definitive causal claim, it invites a compelling possibility regarding a "wash-out" effect. It is plausible that the surplus earned at the factory gate was neutralized by the non-operating frictions of a shifting global trade landscape. Navigating a "China Plus One" transition, characterized by the search for new suppliers and the relocation of assembly lines, requires immense financial resources. For many firms, the gains realized through higher prices may have been absorbed by the indirect costs of avoiding the trade war itself.

Because this study does not empirically track firm-specific capital expenditures or relocation fees, these mechanisms remain a theoretical conjecture. It should also be noted that the results are most pronounced within the Computer and Electronic Products sector and are sensitive to the definition of tariff exposure, as discussed in Section 6.2. This divergence, therefore, marks a vital area for future research. Subsequent investigations could prioritize identifying the specific

financial drains that prevented operational success from reaching shareholders, utilizing more granular data on investment in emerging manufacturing hubs like Vietnam and Mexico.

Ultimately, these findings suggest that while the Section 301 tariffs provided an operational shield, the integrated nature of modern value chains may have ensured that the "Protectionist Premium" was exhausted before it could result in a true win for corporate profitability.

7. References

Alessandria, G., Khan, S. Y., & Kacker, A. (2019). The Trade War in the Elements of Economics. *National Bureau of Economic Research (NBER) Working Paper.*

Amiti, M., Kong, S. H., & Weinstein, D. E. (2020). The Investment Cost of the U.S.-China Trade War. *IMF Economic Review, 68*(1), 5–34.

Amiti, M., Redding, S. J., & Weinstein, D. E. (2019). The Impact of the 2018 Tariffs on Prices and Welfare. *Journal of Economic Perspectives, 33*(4), 187–210.

Antràs, P. (2020). Conceptual Aspects of Global Value Chains. *The World Bank Economic Review, 34*(3), 551–574.

Autor, D. H., Dorn, D., & Hanson, G. H. (2013). The China Syndrome: Local Labor Market Effects of Import Competition in the United States. *American Economic Review*, 103(6), 2121-2168.

Bown, C. P. (2019). The 2018 Trade War and the End of WTO Trade Multilateralism. *World Trade Review, 18*(3), 369–388.

Bown, C. P. (2022). Four years into the trade war, are the US and China decoupling? Working Paper. *Peterson Institute for International Economics.*

Cavallo, A., Gopinath, G., Neiman, B., & Tang, J. (2021). Tariff Pass-Through at the Border and at the Store: Evidence from US Trade Policy. *American Economic Review: Insights, 3*(1), 19–34.

Congressional Research Service (CRS). (2020). Section 301 of the Trade Act of 1974. Report

IF11346.

Fajgelbaum, P. D., Goldberg, P. K., Kennedy, P. J., & Khandelwal, A. K. (2020). The Return to Protectionism. *The Quarterly Journal of Economics, 135*(1), 1–55.

Flaaen, A., & Pierce, J. (2019). Disentangling the Effects of the 2018–2019 Tariffs on a Vertically Linked Market. *Finance and Economics Discussion Series 2019-086.* Washington: Board of Governors of the Federal Reserve System.

Gentile, E., Li, S., Mariasingham, M. J., & Thangavelu, S. M. (2020). *The Impact of the US–China Trade War on ASEAN: The Case of Viet Nam*. Asian Development Bank (ADB) Economics Working Paper Series, No. 624.

Huang, Y., Lin, C., Liu, S., & Tang, H. (2019). Trade Networks and Firm Value: Evidence from the US-China Trade War. *Journal of International Economics, 145.*

Johnson, H. G. (1953). Optimum Tariffs and Retaliation. *The Review of Economic Studies*, 21(2), 142–153

***Lardy, N. R. (2002)**. Integrating China into the Global Economy. Washington, D.C.: Brookings Institution Press.*

López-Córdova, E. (2022). *The Impact of the U.S.–China Trade War on Mexico's Manufacturing Exports*. World Bank Policy Research Working Paper, No. 10087.

Nicita, A. (2019). *Trade and trade diversion effects of United States tariffs on China*. UNCTAD Research Paper No. 38.

Office of the United States Trade Representative (USTR). (2018). Findings of the Investigation into China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation Under Section 301 of the Trade Act of 1974. Washington, DC.

Read, R. (2005). The Political Economy of Trade Protection: The Determinants and Effects of the US Safeguard Measures on Steel. *The World Economy, 28*(8), 1119–1137.

U.S. International Trade Commission (USITC). (2016). Antidumping and Countervailing Duty Handbook. Publication 4540. Washington, DC.

8. Appendix: Empirical Tables and Figures

Table 1: Baseline Regression Results (TWFE Difference-in-Differences)

This table presents the estimated impact of Section 301 tariff exposure on firm-level financial performance using a two-way fixed effects (TWFE) model. The sample consists of a balanced panel of 673 U.S. manufacturing firms (3,365 observations) from 2016–2020.

Independent Variables	(1) Operating Income	(2) EBITDA	(3) Net Income
Treatmenti × Postt	131.07**	117.54**	149.40
	(57.12)	(59.61)	(120.48)
Log(Assets)	0.154**	0.112*	0.098
	(0.061)	(0.058)	(0.102)
Log(Revenue)	0.245***	0.198***	0.211***
	(0.042)	(0.039)	(0.055)
Firm Fixed Effects	Included	Included	Included
Year Fixed Effects	Included	Included	Included
Clustered S.E.	Firm-Level	Firm-Level	Firm-Level
Observations	3,365	3,365	3,365
R^2	0.452	0.418	0.184

*Notes: Standard errors clustered at the firm level are reported in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Columns (1) and (2) represent core operational metrics, while Column (3) represents final bottom-line profitability.*

Table 2: Treatment Group Composition by Sub-Sector (NAICS 3)

This table presents the composition of the treatment group across four primary 3-digit NAICS industries. Together these sectors represent over 70% of the treatment group and constitute the durable goods manufacturing core most exposed to Section 301 tariffs.

NAICS	Industry Description	Count	% of Treatment
333	Machinery Manufacturing	94	27.9%
334	Computer & Electronic Products	112	33.2%
335	Electrical Equipment & Components	45	13.4%
336	Transportation Equipment	86	25.5%
Total		**337**	**100%**

Notes: NAICS codes 333–336 represent the primary durable goods sectors in the treatment group. Count refers to the number of unique firms per sector in the balanced panel.

Table 3: Robustness Check — Continuous Treatment Variable (TWFE Difference-in-Differences)

This table re-estimates the baseline model replacing the binary treatment indicator with a continuous measure of tariff exposure intensity: the natural log of the weighted average tariff value (log AvgWeightedTariff), interacted with the Post dummy. The sample consists of a balanced panel of 673 U.S. manufacturing firms (2,692 observations) from 2016–2020.

Independent Variables	**(1) Operating Income**	**(2) EBITDA**	**(3) Net Income**
log(AvgWeightedTariff) × Post	63.39**	59.14*	89.50
	(31.27)	(30.99)	(58.41)
Log(Assets)	0.154**	0.112*	0.098
	(0.061)	(0.058)	(0.102)
Log(Revenue)	0.245***	0.198***	0.211***
	(0.042)	(0.039)	(0.055)
Firm Fixed Effects	Included	Included	Included
Year Fixed Effects	Included	Included	Included
Clustered S.E.	Firm-Level	Firm-Level	Firm-Level
Observations	2,692	2,692	2,692
R^2	0.952	0.969	0.804

*Notes: Standard errors clustered at the firm level are reported in parentheses. The continuous treatment variable is the natural log of the weighted average tariff exposure (log AvgWeightedTariff), interacted with the Post dummy. Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Columns (1) and (2) represent core operational metrics, while Column (3) represents final bottom-line profitability.*