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Essays on Corporate Lobbying

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Essays on Corporate Lobbying

by
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Dedicated to my home team, my family.

ABSTRACT OF THE DISSERTATION

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Doctor of Philosophy in Business Administration

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Professor Seth Carnahan, Co-Chair

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In the intricate landscape of modern society, the role of corporations extends beyond their primary business operations and financial goals. Companies are now deeply embedded in the complex interplay of political processes. Despite the extensive scholarly focus on business-government interactions, significant gaps remain in understanding how firms engage with government entities. To advance this discussion, my dissertation proposes and investigates two potential explanations for corporate lobbying across three chapters.

Chapter 1. Theories of Why Firms Lobby reviews extensive literature on corporate lobbying and situates it within various theoretical frameworks such as the neoclassical view, industrial organization, resource dependence theory, resource-based view, and capability theory. It explores how firms' resources and capabilities, such as their ability to mobilize stakeholders or invest in local communities, bolster their lobbying efforts. This chapter sets the stage for a deeper examination in subsequent chapters of how strategies like vertical integration and supply chain management influence lobbying activities, underscoring that lobbying is a strategic tool essential for firms navigating the intricate interplay between business and government.

Chapter 2. Vertical Integration and Corporate Lobbying: Alternative Measures and Drivers of Lobbying delves into how corporate strategies concerning firm boundaries relate to lobbying. It poses the question of whether vertically integrated firms lobby more and how their lobbying differs from that of diversified firms. Initial findings indicate a negative association between vertical integration and lobbying, suggesting a potential trade-off between a firm's integration and lobbying activities. The chapter also contrasts vertical integration with horizontal expansion, revealing that while horizontal expansion correlates with increased lobbying, vertical integration demonstrates a complex, sometimes inverse relationship. These insights prompt further exploration of how changes in a firm's vertical scope influence its political engagement.

Chapter 3. Chains of Lobbying: How Supply Chain Relationships Affect Corporate Political Activities empirically examines how supply chain relationships impact corporate lobbying, focusing on environmental, social, and governance (ESG) risks. This chapter connects the literature on corporate lobbying and trade, highlighting that cost-driven strategic decisions about whether to produce inputs in-house or outsource can lead to negative externalities such as poor labor conditions and environmental damage. Drawing from examples like the 2020 palm oil import ban, it illustrates how malpractices within firms and across their supply chains can economically impact firms, particularly as the importance of ESG grows. It argues that increasing supplier-driven ESG risks are likely to result in intensified lobbying efforts by customer firms to influence policies and manage supply chain risks.

This dissertation aims to deepen our understanding of the nuanced dynamics between corporate strategy and lobbying and its potential impact on organizational performance. It emphasizes the increasing importance of the interplay between business and politics as a critical pillar for organizational success.

Chapter 1: Theories of Why Firms Lobby

1.1 Introduction

Corporate strategy navigates through the uncertainties of changing policy environments, which can present both opportunities and threats to firms. When opportunities emerge, some firms devise strategies based on their forecasts to capitalize on these chances. Conversely, perceived threats prompt other firms to seek protection from policymakers (Grossman and Helpman, 1994b). Previous research on corporate lobbying has provided interesting evidence of the connection between firms' risk-taking behaviors and their lobbying activities. It has been noted that firms in declining industries tend to increase their spending on lobbying for protection (Brainard and Verdier, 1994), while others ramp up their lobbying efforts when engaging in risky ventures (Meng and Rode, 2019; Igan et al., 2012). This essay explores how different types of risks—the strategic risk of vertical integration discussed in Chapter 2 and the operational risk stemming from suppliers in Chapter 3—are linked to firms' lobbying activities. This chapter sets the stage by reviewing pertinent literature and framing the subsequent discussions on the significance of these risks.

Lobbying is an official means of interacting with political institutions. Among various corporate political activities, it is the most predominant way for firms to engage in the policymaking process (Kaiser, 2009; Hillman et al., 2004).[1] With specific purposes in mind, firms use their resources to interact with political actors, which might accompany certain types of exchange. In

[1] *Corporate political activity (CPA)* refers to any purposeful attempts to manage political institutions by interacting with political actors in the interests of corporations. It encompasses various political activities such as campaign donation, grassroots mobilization, reporting research findings, testifying in legislative hearings, and even bribery (Katic and Hillman, 2023; Drutman, 2015). However, lobbying takes the largest share among various CPAs. Lobbying expenditures are substantially larger than campaign contributions. In 2022, corporate lobbying expenditures were over $ 3.5 billion versus the size of campaign contributions of business PACs, which was $ 341.3 million for the Senate and House combined during the 2022 election cycle. It is up from $3.3 billion spent during the 2018 midterm election cycle, with inflation adjusted.

addition to industry expertise and legislative subsidy, they also provided a round of golf, gifts, and promised campaign contributions.(Drutman, 2015) Prior to the 2007 lobbying reform bill, corruption scandals featured lobbying scenes from time to time.[2] However, for better theoretical discussion, this article assumes that lobbying is distinct from bribery, which indicates buying off the lawmakers to get around the rule (Harstad and Svensson, 2011).

Although media often spotlight the elected politicians at the federal level, such as the President, senators, and members of Congress, political actors include a broad range of public officials, including elected and appointed government officials at the federal and state levels. By interacting with various political actors, firms can use lobbying as an essential nonmarket strategy to manage government decisions' effect on firm operations. Unlike the market environment, where participants make price-based transactions, the nonmarket environment rarely resembles market economics but affects a company's operations. For example, firms' market strategies are less successful in managing issues like obtaining FDA approval for new drugs, reducing the cost of carbon regulation, facing opposition from residents when developing a lithium mine, or setting USB-C charging ports in a standard format. In this case, firms might need different strategies because the interaction with nonmarket stakeholders, unlike suppliers or buyers in their value chain, is rarely contractible.

Although corporate political activity is a long-debated topic in public discourse, the literature is on the road to progress. In particular, lobbying as corporate behavior is far from understanding. This chapter aims to review and reintegrate previous studies, extending the theories on corporate lobbying behavior (Kerr et al., 2014; Bombardini, 2008). First, this article starts by discussing the potential opportunities and threats created by the government and how they incentivize firms to lobby. Also, I discuss that firms' risk-taking behavior can be associated with lobbying. Given the firms' capabilities and rationality of firm decisions, I look at how previous theories of the firm explain firms' different incentives for lobbying. Then, I focus on the firms' capabilities to explain who participates in lobbying. By reintegrating the theories of why firms lobby, I will

[2] *Politico*. 2007/09/14. "Bush signs reform bill pushed by Dems"

position *Chapter 2. Vertical Integration and Corporate Lobbying* and *Chapter 3. Chains of Lobbying* and explain why they matter in studying corporate lobbying.

1.2 Opportunities or Threats from the Government and Corporate Lobbying

Business and governments are inextricably linked. Firms inevitably encounter opportunities or threats in nonmarket environments when planning and executing business projects, including regulations, subsidies, and tax issues. The opportunities or threats can primarily originate from politics, which shapes the business environment in two ways. First, they can arise when political institutions affect the macro environments. While managing inflation, household purchasing power, and unemployment, economic policies affect the macro environment, often accompanying uncertainties that cause greater stock price volatility and reduced investment and employment (Baker et al., 2016). Trade policies are another venue for the government's influence on macro market environments, which well-exemplifies the trade war between the U.S. and China. As early as 2017, the Trump administration initiated a series of investigations and restrictions on China. The U.S. government released its report on China's unfair trade practices related to technology transfer and intellectual property under Section 301 of the Trade Act. Also, several restrictions or quotas were imposed on imports from China for national security reasons. The import goods ranged from solar panels, steel, aluminum, autos, and auto parts to chips.[3] As much as trade liberalization expands the markets for customers and suppliers, the decoupling trade policies affect the boundaries of firms' operations (Jiao et al., 2022).

Second, when government activities affect firm-level outcomes such as profitability, growth, and sustainability, firms face opportunities or threats. For example, it was a global initiative by governments that pushed for net zero commitment and a transition to clean energy. Adopting the Kyoto Treaty on climate change turned climate change, once a scientific issue, into a political

[3] *PIIE*. 2023."Trump's Trade War Timeline: An Up-to-Date Guide" Accessed: 02/02/2024

topic (Carman et al., 2022). Combined with the wave of sustainability and ESG reporting, large policy moves prompted companies, especially those in the energy sector. The political calculations regarding energy security and the international dynamics also drove the policy moves. Despite the divided public opinion, governments in many countries, including the European Union, the U.S., and China, joined the net zero commitment and undertook the clean energy transition and electric vehicles initiative, making policies favorable to clean energy and electric vehicles.[4] With financial support from the government, the price of solar and wind power generation has decreased to a competitive level (Griffith, 2022). In 2022, the Biden-Harris Administration announced 13 billion dollars for funding the expansion and modernization of the nation's electric grid, which is a prerequisite for clean electricity.[5] In the United States, electric vehicles benefit from government incentives which enable their price more competitive, beating internal combustion engine cars.[6]

The opportunities or threats from politics in advanced democracies differ from those in countries with weak institutions. In most cases, they center around prioritization of policies and resource allocation. For example, governmental agencies setting the industry standard affects firm operations, as in Apple's recent decision to switch to a USB-C port.[7] As a result of prioritizing welfare versus efficiency, standard-setting inevitably picks the winners.[8] The Antitrust Laws are a well-known example of government intervention, as I observe in Microsoft's long struggle with the antitrust issues of acquiring Blizzard.[9] It is a political act of prioritizing market competition over other concerns. When lobbying allows access to the policymaking

[4] *IEA*. 2021."Electric Vehicles Initiative: Accelerating the introduction and adoption of electric vehicles" Accessed: 09/10/2023

[5] *Department of Energy*. 2022."Biden-Harris Administration Announces 13 Billion Dollar To Modernize And Expand America's Power Grid" Accessed: 10/01/2023

[6] *The New York Times*. 2023."Electric Vehicles Could Match Gasoline Cars on Price This Year" Accessed: 10/01/2023

[7] *New York Times*. 2023."Apple Unveils iPhone 15 and Switches to USB-C Charger: European regulators passed a rule requiring USB-C charging across electronic devices, forcing the change in Apple's newest iPhones. " Accessed: 09/12/2023

[8] *European Parliament*. 04/2022. "Long-awaited common charger for mobile devices will be a reality in 2024" Accessed: 09/10/2023

[9] *New York Times*. 2023."Microsoft Closes In on Activision Deal After Britain Signals Approval" Accessed: 09/22/2023

processes, firms can benefit from lobbying.

As such, subsidies, tax-exempt, and regulatory costs can directly affect corporate profit functions. The timing of product commercialization may vary by government approvals or permits, affecting firms' market competitiveness. Including antitrust issues and bailouts, there are several aspects where the government takes critical roles in business sustainability and profitability. Corporate lobbying responds to these opportunities or threats posed by the government. The growing government power in public expenditure and regulations can increase the opportunities or threats from government activities. Baker et al. (2014) points out that the "payoffs associated with private economic decisions are increasingly affected by government activities and policies that are subject to change." Secular growth in government spending and taxes and the complexity of regulations and tax codes are likely to cause a rise in policy-related economic uncertainty, incentivizing corporate lobbying.

Notably, government spending has steadily increased. Since the 1960s, per-person government spending has quadrupled after adjusting for inflation. In 2022, the total receipts of the United States government added up to approximately 4.9 trillion U.S. dollars. Among them, roughly 6% are used for business contracts, including civilian defense contracts, IT purchases, and R&D like developing vaccines and medical equipment, which are all increasing.[10] As much as government spending has increased, economically significant rules and the regulatory agency budget have also risen over the last few decades. Also, the number of pages published in the code of federal regulations has generally increased since the 1970s.[11] Including lobbying from various interest groups and trade organizations, the size of total lobbying increased with this trend.[12]

The government's role in trade conflicts adds more importance to the recent business envi-

[10] *Bloomberg Government*. 01/05/2021. Federal Contract Spending: Five Trends in Five Charts. Accessed: 02/01/2024.

[11] Economically significant rules means the regulations issued by executive branch agencies that meet this definition in Executive Order 12866: "Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities."

[12] Total lobby spending grew on average 6.5% each year during the ten years of 1999-2009 and declined afterward. The increase in total lobbying tends to fluctuate depending on the macro environment.

ronment (Schultz, 2015). The various sources of lobbying returns documented by earlier studies largely depend on government activity such as gaining tax benefits (Bertrand et al., 2020; Richter et al., 2009), earmarks (De Figueiredo and Silverman, 2006), trade protection (Grossman and Helpman, 1994b; Bombardini and Trebbi, 2012), and lowering regulatory costs (Fidrmuc et al., 2018; Delmas et al., 2016). If government activities have a significant economic impact on firms, growing government power might increase corporate incentives to engage in lobbying.[13]

1.3 Corporate Incentive to Lobby

Given the growing opportunities or threats from the government ahead, the theory of the firm offers explanations for different calculations underlying corporate incentives to lobby. For example, in the neoclassical view, lobbying is a medium of exchange, and firms will engage if it is sufficiently beneficial, exceeding its cost. Based on their rationality, firms maximize profits based on full and relevant information about the environment. In a frictionless market, firms' decisions on lobbying should be a reactive response to any change that increases the net benefit of lobbying. By assumption, a change in the external environment is in the firms' predictable range, and firms rationally respond to a given opportunity structure. In other words, if government activity increases policy risks relevant to firms, firms' incentives to lobby rise.

Many studies on lobbying, especially *quid pro quo* lobbying, share the neoclassical view (e.g., Grossman and Helpman, 1994a; Gawande et al., 2012). Depending on expected returns from lobby spending, firms in the neoclassical view either engage or do not engage in the lobby. Since it is a reaction to the opportunities or risks ahead, they may recede from politics after the issues are resolved. In this model, firms are unorganized independent actors acting on their interests, and lobbyists work as agents of exchange. In other words, corporate lobbying from a neoclassical

[13]Meanwhile, many companies have perceived the government as a significant stakeholder despite the changing significance of government in business. According to McKinsey & Co., the estimated value at stake from government and regulatory intervention is roughly about 30 % of EBITDA for companies in most industries. In the banking and finance sector, it goes up to 50%. (Source: McKinsey & Co. 11/01/2013. Organizing the government-affairs function for impact. Accessed: 02/01/2024)

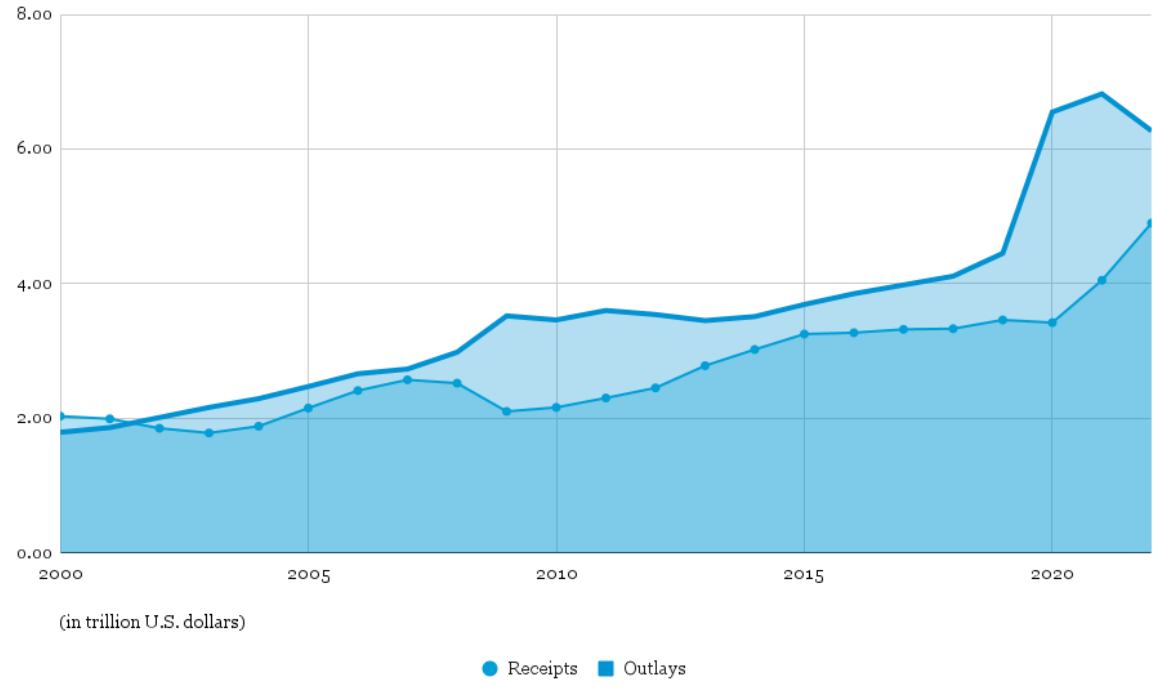


Figure 1.1: U.S. Government Spending and the Size of Lobbying (1977-2022)

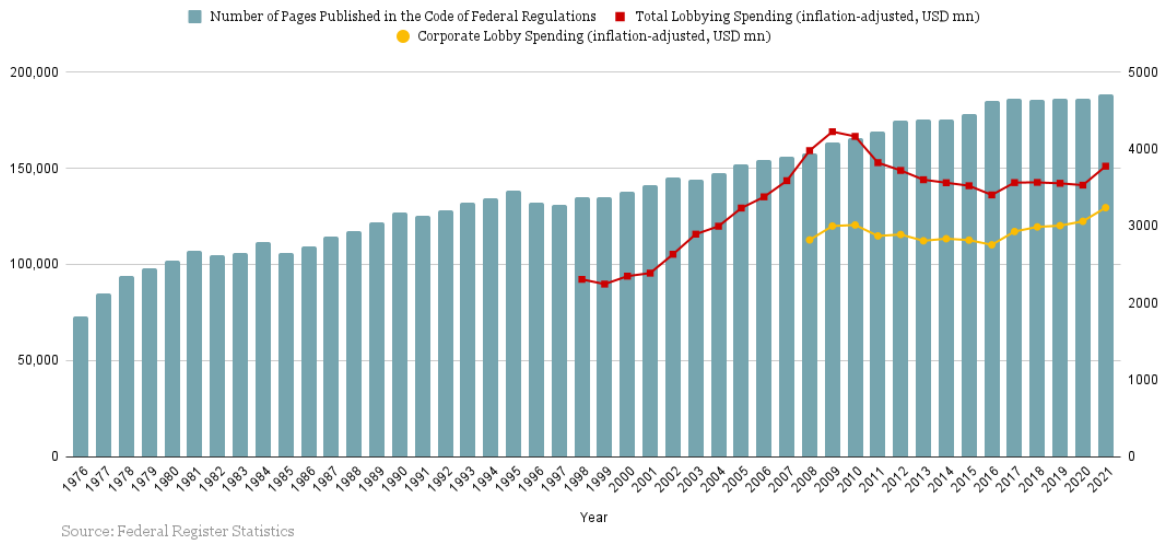


Figure 1.2: The Number of Pages Published in the Code of Federal Regulations and the Size of Lobbying (1976-2021)

perspective is a rational investment decision for taking advantage of the government's actions based on their predictions (Hansen and Mitchell, 2000).

Another common assumption in lobbying research is based on resource dependence theory, which emphasizes the interdependence between organizations (Hillman et al., 2009; Pfeffer and Salancik, 2015). Given the interdependence with the government, firms have strong incentives to lobby if the flow of critical resources directly or indirectly depends on the government. For instance, firms might have a solid incentive to lobby if the government contracts, subsidies, and regulations[14] are an essential part of their income. It also applies to the firms operating in the industries where the government sets the prices, directly affecting firms' profitability.[15] Since it amplifies the risks from the government, increasing dependency can motivate corporate lobbying (De Figueiredo and Silverman, 2006; Fremeth et al., 2016; Kim and Osgood, 2019).[16] Many studies have established the link between greater dependence, government-related risk, and political activity to counter the risks (Hansen and Mitchell, 2000; Schuler et al., 2002).[17] Based on similar rationales, earlier studies find that firms with global operations are more active in lobbying (e.g., Zeng, 2021; Fremeth et al., 2016).

However, the effect of government activities on firms is not symmetric. The incentive to lobby can differ by firms' market power and industry competition. Industrial organization (henceforth, IO) model firms competing for market power by strategically limiting competition (Porter, 1985). Given the assumption that lobbying is a strategic investment, IO theories predict that firms are more likely to lobby if it helps grow their market power and enjoy more benefits

[14]The regulatory agencies previously studied in the literature include the Federal Communications Commission (FCC), the Environmental Protection Agency (EPA), and the Food and Drug Administration (FDA).

[15]Based on the Administrative Procedures Act (APA), Health and Human Services (HHS) sets prices for specific categories of hospital admissions, physician services, and those provided by many other providers to administer Medicare. Source:*Brookings Institution*. 2021."Government regulated or negotiated drug prices: Key design considerations"

[16]According to OpenSecrets, industries like defense, pharmaceuticals, healthcare, air transport, oil & gas, insurance, and banking are among the top lobby spenders. For identifying the relationship between government dependency and firms' operating profits, many studies focus on a firm's sales to the government or the regulatory cost(e.g., Barber IV and Diestre, 2019; Kim, 2019).

[17]Firms or industries characterized by large government sales and heavy regulations tend to engage more in lobbying (Kim, 2008). It has been more pronounced recently, as the COVID-19 pandemic and the US-China trade war caused supply chain shocks in which the government played a vital role.

from lobbying. Since policies share some characteristics with collective goods, the firms might engage in lobbying to maximize their benefits (Katic and Hillman, 2023). For example, sectors with high levels of product market competition tend to lobby through industry associations to raise tariffs on all products in the sector (Bombardini and Trebbi, 2012).[18] Consistently, previous findings that firms in concentrated industries are more likely to engage in lobbying than those in fragmented industries (Schuler et al., 2002; Esty and Caves, 1983). Given that firms' market power influences the benefits they can get, firms' strategic choices that change their scope might be associated with lobbying incentives.

1.4 Resources and Capabilities of Firms and Corporate Lobbying

Unlike economic markets, political markets function in a different way(Stigler, 1972; Laver, 2005; Katic and Hillman, 2023). Contrary to economic markets where high product demand is followed by growing supply, high policy demand may not lead to growing supply in political markets for two reasons. First, the number of interested parties and the intensity of policy competition increases competition in politics (Stigler, 1972). The growing number of parties with different interests makes it harder to pass the legislation. According to Drutman (2015), the bills tend to be more lengthy and complex as various parties lobbied for their particular concerns about the bills.[19] Second, considering politicians' objective function is to maximize votes and support, individual politicians find the political opportunity more attractive if more parties demand their political resources and it appeals to their constituents (Bonardi et al., 2005).

[18] Another recent example of collective lobbying is NetChoice's fight against social media ban. NetChoice is an online business association that advocates for free expression and free enterprise on the Internet. Its members include Amazon, Google, Lyft, Meta, Nextdoor, PayPal, Snap, TikTok, Verisign, Waymo, and X. Source: *WSJ*. 02/25/2024. "First Amendment Fight Pits Red States Against Big Tech at Supreme Court"

[19] For example, the Patient Protection and Affordable Care Act (ACA) and the Dodd-Frank Wall Street Reform and Consumer Protection Act, two landmark bills passed by the 111th Congress, clocked in at 327,911 and 383,013 words each. For the Dodd-Frank Wall Street Reform and Consumer Protection Act lobbying, 56.5 percent were individual corporations (Drutman, 2015).

Accordingly, firms' incentive to lobby might differ by the issues at stake and their resources and capabilities to appeal to politicians, which are closely related to their business.

	Neoclassical Economics	**Industrial Organization**
Seminal works	Walras (1874)	Bain (1956), Porter (1985)
Key assumptions	- Rational actors - Global optimization with perfect information - Absence of externalities	- Agentic role of firms - Market stability once the market structure is set
Definition of a firm	Profit-maximizing entity	Profit-maximizing entity
Corporate goals	Maximizing profits	Growing market power
Key factors that drive firm behavior	- Competitive markets - Objective market conditions	- Market power - Fixed costs and market size
Unit of analysis	Economy, Markets (static)	Industry
Sources of rents or competitive advantage	N/A	Monopoly
Underlying key relationship	Markets (Firms and external environment)	Industry and macro environment
Roles of government	Government imposes additional constraints	Government affects the market structure
Assumptions on the rationality		
Theoretical Implication	Explanation for different calculations underlying corporate incentives to lobby, given the capabilities	
Theoretical prediction of lobbying	- Changes in the external market environment motivate lobbying - The benefit that exceeds cost drives firm lobbying	- Changes in firms' market positions drive corporate lobbying
Studies on lobbying that share this view	Grossman & Helpman (1994), Kang (2016), Gawande (2012)	Bombardini et al. (2012), Bombardini (2008), De Figueiredo (2001)

Figure 1.3: Theories of the Firm and Corporate Incentives to Lobby

	Transaction Cost Economics	Institutional Economics	Resource Dependency Theory
Seminal works	Coase (1995), Williamson (1979)	North (1990), DiMaggi et al. (1983)	Pfeffer & Salancik (2015)
Key assumptions	- Bounded rationality on transactions - Firm boundaries vary by relative costs of the market and firms - Imperfect market - Institutional factors can change	- Individuals affected by habits, norms, culture, and institutions - Institutional change over time - The dynamic, evolutionary nature of the economy	- Heterogeneous Firms - Firms' survival and growth hinge on the valuable resources from external parties
Definition of a firm	Contracts of transactions	Organization	Collection of resources
Corporate goals	Enhancing transaction efficiency	Survival and growth	Strengthening firm performance given the existing resources and competencies
Key factors that drive firm behavior	- Uncertainty in market transactions - Firm boundaries	- Legitimacy, - Adherence to institutional rules and norms (standards and regulations)	- Interdependence between firms and their critical suppliers - Resources and capabilities
Unit of analysis	Transactions	Institutions, Macro environments	Firms
Sources of rents or competitive advantage	Transaction efficiency	Legitimacy	Ensuring and stabilizing the flow of critical resources
Underlying key relationship	Between contracting parties	Firms and Institutions	Firms and external parties that they depend on
Roles of government	Government affects the uncertainty in transactions	Government sets the legitimate rules of the game	Government stabilizes the flow of valuable resources to the firm
Assumptions on the rationality	Rationality of firm decisions		
Theoretical Implication	Explanation for different calculations underlying corporate incentives to lobby, given the capabilities		
Theoretical prediction of lobbying	- Changes in the value of specialized assets drive firm lobbying	- Change in institutional uncertainty, industry standards, or regulations change drives firm lobbying	- Changes in the flows of critical resources motivate firm lobbying
Studies on lobbying that share this view	De Figueiredo (2001), Park (2022),	Barber IV & Diestre (2019), Henisz (2004), Shi (2021) Gao & McDonald (2022)	De Figueiredo (2006), Brainard & Verdier (1994), Fremeth et al. (2016)

Figure 1.4: Theories of the Firm and Corporate Incentives to Lobby

In this respect, the various stakeholders can strengthen firms when they lobby. For example, when *Google* fought against the Protect Intellectual Property Act in 2011, their lobbying tactic was to mobilize their broad user base to form an opposition. Unlike traditional lobbying that involves wooing members of Congress with gifts and promising campaign contributions, whipping their users as opposition to the legislation enabled its successful lobbying. Firms' significant stakeholders, like users, customers, employees, and suppliers, can also constitute their capability to lobby.

Similarly, investing in local areas and employing residents can increase firms' negotiation power over lawmakers (Bisbee and You, 2024). One of the stylized facts embraced by political science scholarship is that economic conditions account for roughly one-third of variations in candidates' vote share and approval rate (Lewis-Beck and Paldam, 2000). With elections waiting around the corner, politicians are eager to support issues and causes that appeal to voters at home while being uncomfortable taking actions that are not popular. The well-known examples are Texas and Nevada, which offered significant incentives to Tesla to build factories in the region and create jobs. Previous studies have focused on how firms develop political or politically-related resources and capabilities for superior performance (e.g., Fremeth et al., 2016; Oliver and Holzinger, 2008). However, firms' resources and capabilities in the market can become a part of their nonmarket strategy. When interdependence matters, public-private interactions become more valuable for both parties, which might increase firms' lobbying. Although the change in the firm scope might influence the composition of stakeholders in this respect, the literature is relatively silent on it.

On the other hand, stakeholders can increase the risk of focal firms. For example, Malaysian palm oil producers came under fire in 2020 due to allegations of forced labor, and U.S. Customs and Border Protection blocked the import of their products.[20] Since they were major suppliers that provide one of the key ingredients, the incident affected the operation of several major food manufacturers. Although the food manufacturers did not directly engage in labor malpractice, it caused a chain reaction, producing an adverse economic impact on their partners' operating practices.[21,22] In the following year, major food manufacturers like *General Mills, Nestle, Kraft Heinz, Hershey,* and *Unilever* removed them from their supply chain and recorded trade as one of their lobbying issues at the same time. In many cases, the flow of resources from suppliers is vital for focal firms to operate their business. However, we have a limited understanding of

[20] *U.S. Customs and Border Protection*. 12/30/2020. "CBP Issues Withhold Release Order on Palm Oil Produced by Forced Labor in Malaysia"

[21] *AP News*. 09/30/2020. "U.S. says it will block palm oil from large Malaysian producer". Accessed: 11/10/2023

[22] Forbes. 03/29/2023. "Suppliers Are The Secret Sauce To Manufacturers' ESG Success", Accessed: 12/01/2023

whether and how firms respond to stakeholder issues when their options are constrained. [23]

1.5 Organization of the Dissertation

In the complex landscape of modern society, the role of corporations transcends their business operations and profit margins. Beyond their primary economic functions, companies increasingly find themselves entangled in the intricate web of political processes (Freeman et al., 2010). When they lobby, the various stakeholders can be the strength of firms.

As the relationship between business and politics deepens, understanding the dynamics of corporate lobbying becomes vital for contemporary businesses to navigate and operate in a global environment where governments regulate and collaborate with corporations. In the dissertation, I focus on firm behavior and contribute to deepening the understanding of why firms lobby. In particular, it focuses on the underlying risks that firms' strategic choice accompanies and how it incentivizes lobbying. As a strategic choice, *Chapter 2* looks at vertical integration, and *Chapter 3* focuses on supplier relationships. Throughout the three essays, the dissertation aims to explain why firms lobby and discuss its implications for performance. In this chapter, *Theories of Why Firms Lobby*, I reviewed the literature on corporate lobbying. Also, I reintegrated previous theories and findings centered around firm-level incentives and connected them to firm capability.

In the following chapter, *Chapter 2. Vertical Integration and Corporate Lobbying*, I will explore how corporate strategies on firm boundaries relate to lobbying. Based on previous studies that vertical integration reduces or increases risks (Chatterjee et al., 1992), *Chapter 2* explore the possible relationship between vertical integration and corporate lobbying by abductive reasoning. To enrich the explanation, I use alternative measures of lobbying.

Finally, *Chapter 3. Chains of Lobbying: How Supply Chain Relationships Affect Corporate Political Activities* empirically studies how supply chain relationship is associated with lobbying. By presenting that suppliers' ESG risks can motivate firm lobbying, this chapter shows firms can

[23] It will be further developed in the following chapter,"Chains of Lobbying".

participate in lobbying to manage supplier-driven risks when the importance of ESG grows. As the significance of the interaction between business and politics increases, corporate lobbying works as a critical pillar for organizational success and performance. This dissertation aims to deepen an understanding of the complex dynamics of corporate lobbying and strategy and its potential impact on performance.

Chapter 2: Vertical Integration and Corporate Lobbying: Alternative Measures and Drivers of Lobbying

2.1 Introduction

Do vertically integrated firms engage in more lobbying, and how does their lobbying differ from firms that have expanded horizontally? Vertical integration represents a pivotal corporate decision, affecting whether to acquire specific inputs or services or to internally develop them—a choice that can broadly involve integrating various parts of the value chain from R&D to marketing, or more narrowly, incorporating several production phases (Williamson, 1979; Armour and Teece, 1980).[1]

By integrating other businesses into their value chain, firms can enhance transaction efficiency, control quality more effectively, secure a steady input supply, and add greater value to their products and services (Williamson, 1981; Argyres, 1996; Forbes and Lederman, 2009). However, vertical integration also introduces complexities, integrating various issues and stakeholders that need managing. As firms grow in size and regional presence through integration, their increased visibility may lead to greater public scrutiny. Furthermore, vertical integration often results in organizational rigidity, making firms less nimble in responding to external changes, particularly those driven by technological or policy shifts. In this context, lobbying could serve as a strategic tool for vertically integrated firms to navigate the enhanced opportunities and risks.

Conversely, there could be a negative relationship between vertical integration and lobbying. Corporate spending is shaped by strategic priorities, and while focus is essential for performance

[1]Vertical integration can be defined broadly or narrowly. In a broad sense, vertical integration indicates integrating some parts of the value chain from R&D to marketing. Narrowly, some studies focus on integrating several phases of production (e.g., Armour and Teece, 1980).

(D'Aveni and MacMillan, 1990), lobbying could divert attention and resources from critical success factors, an issue that may be particularly acute for resource-constrained firms. As changing a firm's vertical scope broadens its stakeholder base and the array of relevant business issues, similar to expanding horizontally, it alters the strategic calculus. Although the marginal cost of lobbying for such issues and strategies might differ, some policy issues, such as tax, trade, environment, and antitrust, that vertically integrated firms encounter are similar to those that firms with broad horizontal scope face. Thus, strategic trade-offs of changing the firms' scope potentially leading to either positive or negative impacts on the firm's lobbying activities.

For example, *Amazon.com* acquired the organic grocery store chain, *Whole Foods*, for 13.7 billion dollars in 2017. Before the acquisition, *Amazon* was already operating in the grocery retail market with its *Prime Pantry*. Although their merger had a horizontal component, with both companies selling groceries, it contributed more to *Amazon*'s vertical integration. The acquisition of *Whole Foods* made *Amazon* more vertically integrated by enabling it to operate its own food distribution center and source and manage local produce directly. Rather than contracting other companies, *Amazon* integrated the production and distribution of agricultural products, which helped it reduce transaction costs, increase margins, and strengthen its capabilities to analyze and utilize customer data. Vertical integration that I refer to is integrating some of the phases of the value chain from R&D (research and development) to production to distribution to market. Their merger is vertical in terms of integrating novel ways of delivering agricultural products and interacting with local suppliers and customers.

It is an odd coincidence that agriculture started to appear on their lobbying reports around the time. In 2015, their in-house lobbyists started meeting the USDA (United States Department of Agriculture), the House, and the Senate to discuss agriculture issues. During the same period, new issue codes arose, including antitrust issues (in their words, "Issues related to competition in technology industries"[2] and "Issues related to veterans hiring and training, *competition, and the Whole Foods Market acquisition*.") and welfare.[3] Similarly, change in horizontal scope can also

[2] *Amazon.com*. LD-2 Disclosure Form: Lobbying Report 1Q2017. Accessed: 03/2024

[3] *Amazon.com*. LD-2 Disclosure Form: Lobbying Report 3Q2017. Specific lobbying issues under the delineated

be associated with lobbying. *Amazon* started lobbying for pharmacy issues after acquiring online pharmacy *PillPack* for 753 million dollars in 2018. After the acquisition, *Amazon* horizontally expanded its services by launching the new online pharmacy service, *Amazon Pharmacy*, in 2020. Although insufficient information limits the validity of the relationship between lobbying and the change of firm scope, I can point to several interesting coincidences in other cases that bridge vertical or horizontal scope and lobbying.

The association between firm scope and lobbying also emerges in the case of relatively smaller firms like *Joby Aviation*.[4] Founded in 2009, *Joby* manufactures electric vertical takeoff and landing aircraft, so-called e-VTOL. Although clearing regulatory hurdles was crucial for competition in the early e-VTOL industry, *Joby* was politically inactive for a while. It was 2019 when it started lobbying, around the time when they integrated the downstream project, *Uber*'s *Elevate*.[5] Figure 2.1 shows the value chain of e-VTOL industry. Before the acquisition, Joby focused on upstream activities such as R&D and manufacturing since it was a small early-stage start-up. For its long-term vision to "*build a global passenger service*," *Joby* acquired *Elevate* for 75 million dollars in December 2020, vertically integrating downstream activities. After securing the customer base for their downstream services, *Joby* went public in 2021, backed by *Uber*.[6]

Corporate lobbying of the two companies tended to align with their choice of the firm scope. Around the time of acquisition, *Joby* started lobbying the Federal Aviation Administration (FAA), Department of Energy, the House, and the Senate.[7] The issues they discussed evolved from "aviation technology" to "aircraft certification" and "the manufacturing, development, and regulation of electric-powered advanced air mobility aircraft." Gradually stepping forward, they seemed to

issue code, WEL(welfare) are "Issues related to the USDA SNAP pilot, Electronic Benefit Transfer, the National Bioengineered Food Disclosure Standard (Public Law 114-214), and the Farm Bill Nutrition Title (draft form - no bill number)". Accessed: 03/2024

[4]When *Joby* initiated lobbying in 2019, its total assets were worth 0.53 billion dollars.

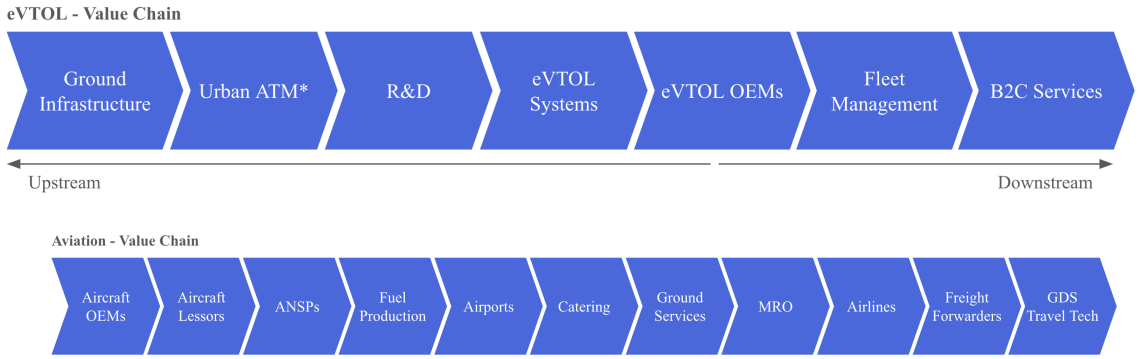
[5]Uber launched a new project, Elevate 2017, announcing that "the role that *Uber* would be playing in the ecosystem, along with our initial set of OEM, charger, infrastructure, and city partners in the Elevate Network." *Uber* officially stated "The two parent companies have agreed to integrate their respective services into each other's apps, enabling seamless integration between ground and air travel for future customers."

[6]*Joby*. 12/08/2020. "Joby Aviation Welcomes New $75M Investment from Uber as it Acquires Uber Elevate and Expands Partnership". Accessed: 05/2023

[7]From the fourth quarter of 2019, *Joby* was active in lobbying.

prepare for the increase in scale in manufacturing and scope as a customer-facing downstream service provider. During the period, *Joby*'s primary lobbying issue, AVI(Aviation/Aircraft/Airlines), disappeared from *Uber*'s lobbying issues.[8]

Figure 2.1: Value Chain of eVTOL Industry and Vertical Integration



Note: Below is the value chain of the traditional aviation industry for comparison. ATM is an abbreviation of Air Traffic Management. OEM stands for original equipment manufacturer, meaning a manufacturing firm that makes a product to be sold by another company under its name. The value chain of aviation industry is from *IATA* (2022).

The extant literature emphasizes the complementarity of lobbying and corporate strategy for better firm performance (Baron, 1995; Jia and Mayer, 2016). However, the relationship between vertical integration and lobbying is still underexplored in the academic literature despite their strategic importance. Primarily, it is due to two reasons. First, except for a few exceptions, most research focuses on a single lobbying measure, *lobbying expenditure*. Although such a measure fits the purpose of studies that uncover whether money can buy political power, the assumption that firms' success probabilities are determined by their relative expenditures omits institutional frictions, politics, and corporate strategies (Godwin et al., 2008). However, focusing on the amount of lobbying constrains making the connection between corporate strategy and lobbying.

Second, change in vertical scope is difficult to measure in traditional ways. The primary method of measuring vertical integration is by mapping the industry codes of the acquiring

[8] AVI(Aviation/Aircraft/Airlines) was consistently included in Joby's lobbying issues from 2019 onward. Although other factors might intervene, Uber reported AVI as a part of their lobbying issues in 2019-20, and AVI did not appear afterward.

firms and acquired firms to the industries in BEA(Bureau of Economic Analysis)'s Input-Output Accounts (e.g., Atalay et al., 2014; Cory et al., 2021). However, it is not a direct measure of vertical integration since the input-output accounts connect the industries, not firms. More fundamentally, the source of limits lies in the methodology of traditional SIC or NAICS industry classifications, which are based on the production process, not the product offerings. Also, because they are official categories with a limited number of updates, they do not reflect granular changes in firms' business.[9]

This article takes a different approach to explore the relationship between firm scope and lobbying. First, in addition to lobby expenditures, I use two alternative measures: the number of issues and the persistence of engagement. Since firms' vertical and horizontal decisions affect their marginal cost and returns from lobbying, it might be associated with how broadly and persistently they lobby. I take an abductive approach to show the substantive and descriptive aspects of the relationship between firm scope and lobbying. Furthermore, instead of traditional ways of measuring vertical integration, I use a text-based vertical integration score from the `TNIC` database Hoberg and Phillips (2016, 2022). Based on the firms' 10-K business descriptions and input-output accounts, they identified and scored the firm-level vertical integration. Using this data, I examine the relationship between vertical integration and lobbying and whether and how vertically integrated firms differ from horizontally expanded firms in lobbying behavior.

As Philippon (2019) points out, studying lobbying is "an uphill battle." Lobbying is at the intersection of various political and economic interests. Since change is difficult, especially for salient issues, many policy battles end with zero-sum outcomes. What is worse, lobbying is the last one that firms and public officials want to advertise. As a result of the combination of the two, I observe the status quo without the dynamics behind the curtain. Inevitably, the drivers and consequences of lobbying are difficult to observe or measure, and studies on lobby are subject to omitted bias and reverse causality. Thus, research on lobbying is wading through the thicket of endogeneity. Since this is the first study that connects vertical integration and lobbying to our

[9]NAICS Association. "Everything About NAICS." Accessed: 01/2023

knowledge, this study takes an abductive approach, carefully establishing the relationship. The first section will introduce the data and show some trends in firm scope and lobbying. Based on the trend, the second section will explain the association between firm scope and lobby and frame the three main questions. The last section will delve into each question using the data and cases and conclude with a discussion.

2.2 Data and Measures

This article investigates the relationship between vertical integration and lobbying between 1999 and 2019. Given our interest, the main variables are the firm's vertical integration and lobbying, and a firm-year is our level of analysis. For the empirical analysis, I look at the U.S. publicly traded companies during 1999-2019.[10] Lobbying data is from `LobbyView` (Kim, 2018) and financial characteristics of firms are from `S&P Capital IQ` and `Compustat`. For measuring the vertical scope of firms, I use the scores in `TNIC` database (Hoberg and Phillips, 2016). As complementary datasets, I use the data from `OpenSecrets` and the original lobbying reports from the Senate Office of Public Records (SOPR), especially for detailed descriptions. CPI(Consumer Price Index) is from the Federal Reserve Bank of St. Louis. The data contains 108,743 firm-year observations. As in Figure B.4, the number of firms in the sample peaked in 1999 and gradually decreased, except for a slight increase in 2014. During 1999-2019, the median number of firms in our sample was 4,817, the number of firms in 2009.[11]

[10]The definition of the U.S. firm is based on their incorporation. To exclude the effect of the COVID-19 pandemic, I limit the period to 2019. As much as the unprecedented consequences of the pandemic, the government's response and corresponding business lobbying during the period were unusual. The CARES Act, the largest stimulus package in U.S. history, drew substantial lobbying efforts from every major industry. According to OpenSecrets, nearly 1,600 clients have reported lobbying for it. It is the second most-lobbied bill in history, ahead of Republicans' 2017 tax legislation and Democrats' 2010 Affordable Care Act. (See: https://www.opensecrets.org/news/issues/covid-19)

[11]Figure B.7

2.2.1 Alternative Measures of Corporate Lobbying

The three measures shed light on different aspects of corporate lobbying. First, following the traditional way in the literature, I use firms' lobby expenditures as a baseline measure, representing *lobbying intensity*. Although lobby spending is the most frequently-used measure for lobbying (e.g., Hall and Deardorff, 2006; Richter et al., 2009), it simplifies corporate lobbying as a function of spending (Godwin et al., 2008). Although lobby spending is useful for estimating the returns from lobbying, it speaks less about how and why firms lobby. For this reason, I also use two alternative measures To enrich our abductive reasoning. The two alternative measures represent *breadth* and *persistence* of lobbying. Unlike previous studies that measure the breadth of government entities (Abdurakhmonov et al., 2022; Ridge et al., 2017), lobbying breadth in this study focuses on the breadth of lobbying issues. While breath measures how many issues a firm engages in, persistence is about how long they stay in the game. Given that only a tiny portion of firms start lobbying for strategic reasons, their persistence of lobbying may represent underlying incentives of firms substantially different from what lobby expenditures do.

According to the Lobbying Disclosure Act of 1995, lobbying activities indicate "lobbying contacts and efforts in support of such contacts, including preparation and planning activities, research and other background work that is intended, at the time it is performed, for use in contacts, and coordination with the lobbying activities of others."[12] Lobbying includes any oral or written communication to executive or legislative branch officials regarding the formulation, modification, or adoption of legislation, regulations, Executive order, or any program, policy, or official position of the U.S. government.[13] Registration requirements are for those whose semiannual lobbying income from a particular client exceeds $5,000. If employees engage in lobbying on behalf of the firm and their total expense of $20,000, they must register.

Corporations are dominant players in lobbying. According to *OpenSecrets*, business corpo-

[12] *U.S. House of Representatives*. 1995."Lobbying Disclosure Act" Accessed: 09/22/2023

[13] The Lobbying Disclosure Act of 1995 requires "any individual lobbyist (or the individual's employer if it employs one or more lobbyists) within 45 days after the individual first makes, or is employed or retained to make, a lobbying contact" with federal-level elected or unelected public officials including the President, the Vice President, a Member of Congress."

rations spent 3.5 billion dollars in 2022. As in Figure 2.2, business lobbying comprises 86.9 percent of total lobby spending, while ideological groups spend 4.9 percent and labor unions 1.3 percent. Although trade associations, labor unions, and other influential organizations with special interests also play a role, this article focuses on individual firm lobbying. The growth rates of the lobbying industry and corporate lobby spending are relatively low. The total lobby spending in 2022 is 4.11 billion dollars, which has grown at 2.4 percent since 1998.[14] The modest growth of lobbying is attributed to a limited number of participating firms. In our sample, 18.3% of firms engaged in lobbying at least once during 1999-2019. Although it is higher than 12% in (Huneeus and Kim, 2018) or 10% in (Kerr et al., 2014),[15] Overall, lobbying seems to have substantial entry barriers, allowing a relatively stable composition of top spenders and a limited number of entrants in the game(Kerr et al., 2014; De Figueiredo and Richter, 2014).[16] The data show that on average 84 firms enter during the period, which is 9% of average number of firms active in lobbying.[17]

Two alternative variables, the number of lobbying issues and years in lobbying, shed light on different aspects of firm lobbying. In Figure 2.3, the listed firms tend to stay at the top as the largest lobby spenders across different periods.[18] Despite little shuffling, they tend to persist their substantial spending on lobbying across different periods. While the top 20 firms tend to rank high on both lobby expenditures and issue range, the number of issues results in a slightly

[14]The growth rate is based on cumulative annual growth. Numbers are from *OpenScrets*. (Source: *OpenSecrets*. 2023."Total Spending and Lobbying" Accessed: 09/23/2023)

[15]This may be attributed to the process of identifying the firms in the lobbying dataset. For the users' convenience, *LobbyView* offers `gvkey` as a firm identifier, and *OpenSecrets* does not provide a firm identifier. I found some errors in some of the lobbying reports, especially those in the handwritten formats. Examples are Figure B.9 and B.10. Using the *LobbyView* dataset as a base, I used fuzzy matching and made final corrections by hand. Still, only a small fraction of firms engage in lobbying.

[16]Figure B.17

[17]The number of entrants in lobbying is relatively small. The average entry rate is around 9% of total firms that engaged in lobbying. 86.6% of entrants start lobbying through contracting professional lobbyists on the so-called K-street. Compared to their sales, the median firm spends less than 0.01% while spending 5.1% on R&D. See Table B.8

[18]I divided periods into three groups for separating the effect of the financial crisis. The biggest lobby spenders in our data are *Bank of America*, *AT&T*, *General Electric*, and the railroad freight operator, *Norfolk Southern Corporations*. During 2007-2009, the top 20 companies stayed stable while the ranks of firms below the top 20 fluctuated.

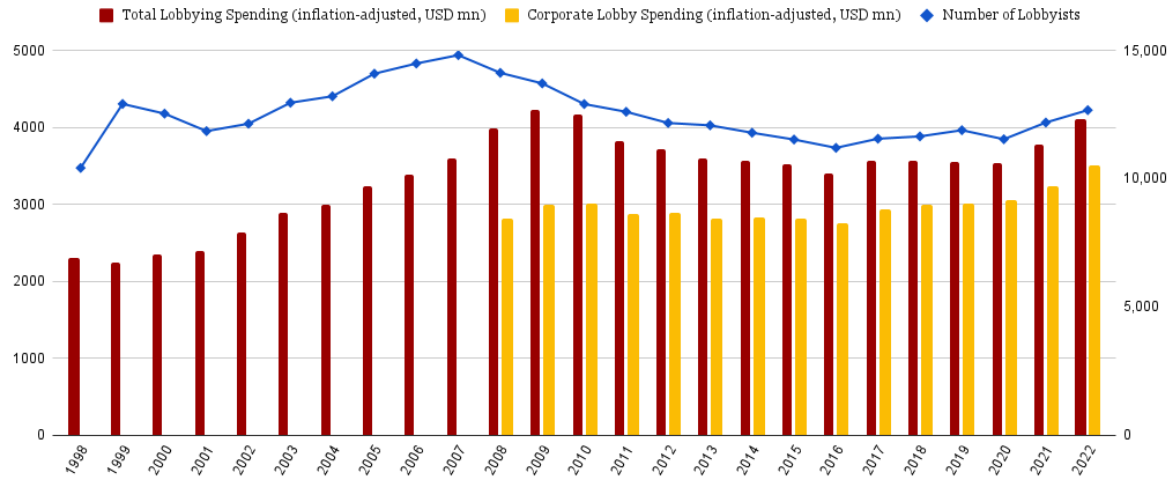


Figure 2.2: Size of Lobbying Industry and Business Lobby

different picture of the top spenders.[19] The sixth columns in Figure 2.3 show the rankings based on the number of lobby issues among the listed top 20 companies. For example, *AT&T* spent the fourth largest amount in 2010-2019, but it lobbied on a relatively narrower range of issues than other top 20 companies in the list. On the contrary, *Oracle* and *Microsoft* spent less than *AT&T*, while lobbying for more diversified issues. The difference is greater for firms outside the list.[20]

Although firms change their political strategies by altering lobbying amount, issues, and targeting government entities (Selling, 2020), our understanding of how they connect to corporate strategy is limited.[21] With the policy change, the popular lobbying issues change over time, and it is closely related to firms' strategic motives.[22] When the government focuses on anti-competitive practices, firms often discuss antitrust issues. In 2018, the year when the US-China trade war unfolded, foreign relations were among the top twenty issues that corporate clients' lobbying targeted. As in the cases of *Amazon*, *Uber*, and *Joby*, lobbying issues might reflect the firm's

[19] Reporting issue codes are not a part of reporting requirements.

[20] The top 20 firms based on the issue numbers on Figure B.15

[21] Few exceptions are Ridge et al. (2017) and Abdurakhmonov et al. (2022). Instead of issues, both papers focus on *lobbying breadth* of government entities that firms lobby.

[22] During 2016-2023, the top-ranked issues based on the number of client firms include federal budgets and appropriations, health issues, and taxes.

1999-2006

Rank	Company Name	Industry	Lobby Issues			Lobby Expenditure		Vertical Scope		Horizontal Scope	
			(Total)	(Avg.)	Rank	(Total, $ mn)	(Avg., $ mn)	(Avg.)	(Avg. change, YoY)	(Avg.)	(Avg. change, YoY)
1	Bank of America Corporation	FIN	988	124	9	330.5	41.3	0.00	32.2%	5.38	3.2%
2	AT&T Inc.	INFO	1,532	192	1	200.8	25.1	0.01	8.9%	6.38	7.7%
3	General Electric Company	MFG	1,190	149	6	183.0	22.9	0.03	-4.2%	23.38	2.9%
4	Norfolk Southern Corporation	TRS	1,276	160	4	172.5	21.6	0.04	16.1%	8.38	149.4%
5	Altria Group, Inc.	MFG	1,146	143	8	133.4	16.7	0.02	2.5%	11.75	6.6%
6	Verizon Communications Inc.	INFO	1,375	172	2	117.8	14.7	0.01	5.2%	11.00	14.1%
7	Federal Home Loan Mortgage Corporati	FIN	644	81	17	117.3	14.7	-	-	-	-
8	Wyeth LLC	MFG	1,213	152	5	102.2	12.8	0.00	-7.8%	4.38	2.7%
9	Northrop Grumman Corporation	MFG	753	94	13	102.1	12.8	0.01	37.3%	7.86	65.6%
10	Lockheed Martin Corporation	MFG	1,315	164	3	94.0	11.8	0.01	3.5%	12.50	7.3%
11	Goodrich Corporation	MFG	1,148	144	7	93.8	11.7	0.02	4.7%	12.75	28.8%
12	The Boeing Company	MFG	840	105	11	90.2	11.3	0.02	1.6%	6.50	48.6%
13	Microsoft Corporation	INFO	588	74	18	86.0	10.7	0.01	-7.6%	22.88	0.7%
14	Federal National Mortgage Association	FIN	659	82	15	84.6	10.6	0.00	29.5%	15.60	10.0%
15	Motors Liquidation Company	MFG	840	105	12	77.4	9.7	0.03	5.5%	8.38	7.7%
16	Merck & Co., Inc.	MFG	671	84	14	76.8	9.6	0.00	248.7%	4.25	76.4%
17	Exxon Mobil Corporation	MFG	500	63	19	69.2	8.6	0.03	-11.3%	3.75	127.3%
18	United Parcel Service, Inc.	TRS	895	112	10	62.2	7.8	0.01	17.0%	5.88	2.0%
19	Genentech, Inc.	MFG	645	81	16	61.3	7.7	0.00	-2.1%	4.75	3.4%
20	Citigroup Inc.	FIN	470	59	20	59.6	7.4	0.01	492.6%	22.63	14.0%
	Average		934	117		115.7	14.5	0.02	45.9%	10.44	30.4%

2007-2009 Financial Crisis

Rank	Company Name	Industry	Lobby Issues			Lobby Expenditure		Vertical Scope		Horizontal Scope	
			(Total)	(Avg.)	Rank	(Total, $ mn)	(Avg., $ mn)	(Avg.)	(Avg. change, YoY)	(Avg.)	(Avg. change, YoY)
1	Bank of America Corporation	FIN	988	329	1	313.7	104.6	0.00	106.6%	6.67	27.8%
2	General Electric Company	MFG	878	293	4	130.9	43.6	0.02	-4.6%	21.00	-4.1%
3	Norfolk Southern Corporation	TRS	902	301	3	94.2	31.4	0.05	-6.3%	12.33	2.8%
4	Exxon Mobil Corporation	MFG	420	140	15	80.5	26.8	0.01	84.3%	9.67	-26.0%
5	Verizon Communications Inc.	INFO	987	329	1	77.9	26.0	0.02	6.0%	21.00	27.9%
6	AT&T Inc.	INFO	568	189	10	69.7	23.2	0.01	31.8%	8.67	-6.7%
7	Amgen Inc.	MFG	592	197	9	60.2	20.1	0.00	9.6%	17.00	13.9%
8	Goodrich Corporation	MFG	865	288	5	56.4	18.8	0.02	-21.7%	11.67	-8.4%
9	Altria Group, Inc.	MFG	468	156	13	56.3	18.8	0.01	1.7%	2.67	-37.3%
10	The Boeing Company	MFG	528	176	11	55.2	18.4	0.02	-3.1%	6.33	5.6%
11	Northrop Grumman Corporation	MFG	238	79	19	51.9	17.3	0.01	-6.3%	14.00	6.9%
12	Lockheed Martin Corporation	MFG	650	217	6	51.0	17.0	0.01	-2.1%	10.67	-14.2%
13	Chevron Corporation	MFG	281	94	18	48.6	16.2	0.01	-4.4%	21.33	-2.7%
14	United Parcel Service, Inc.	TRS	608	203	8	45.7	15.2	0.01	-11.3%	6.00	0.0%
15	PG&E Corporation	UTI	127	42	20	40.3	13.4	0.01	30.2%	20.33	3.4%
16	Wyeth LLC	MFG	327	164	12	38.7	19.4	0.00	28.1%	1.50	-41.7%
17	Level 3 Parent, LLC	INFO	639	213	7	37.9	12.6	0.02	-3.3%	27.33	11.5%
18	Microsoft Corporation	INFO	466	155	14	37.8	12.6	0.00	-23.5%	20.33	1.8%
19	Federal Express Corporation (US)	TRS	317	106	17	35.9	12.0	0.01	-9.5%	5.33	9.4%
20	General Dynamics Corporation	MFG	412	137	16	34.7	11.6	0.01	-16.0%	12.00	-2.4%
	Average		563	190		70.9	23.9	0.01	9.3%	12.79	-1.6%

2010-2019

Rank	Company Name	Industry	Lobby Issues			Lobby Expenditure		Vertical Scope		Horizontal Scope	
			(Total)	(Avg.)	Rank	(Total, $ mn)	(Avg., $ mn)	(Avg.)	(Avg. change, YoY)	(Avg.)	(Avg. change, YoY)
1	Bank of America Corporation	FIN	3,912	391	3	1052.1	105.2	0.00	11.1%	7.90	-1.6%
2	General Electric Company	MFG	5,211	521	1	441.3	44.1	0.02	61.2%	12.20	-6.4%
3	Norfolk Southern Corporation	TRS	3,423	342	4	256.2	25.6	0.05	3.1%	11.20	-4.3%
4	AT&T Inc.	INFO	2,070	207	10	217.2	21.7	0.01	3.3%	13.00	11.1%
5	United Parcel Service, Inc.	TRS	2,111	211	9	213.5	21.3	0.01	-1.1%	6.70	2.3%
6	The Boeing Company	MFG	2,261	226	8	200.4	20.0	0.01	-2.0%	6.40	-0.8%
7	Alphabet Inc.	INFO	2,634	263	6	184.5	18.4	0.01	7.4%	12.10	7.4%
8	Lockheed Martin Corporation	MFG	1,973	197	11	169.6	17.0	0.01	0.9%	9.00	1.0%
9	Verizon Communications Inc.	INFO	2,431	243	7	163.7	16.4	0.01	2.5%	24.80	-1.7%
10	Federal Express Corporation (US)	TRS	1,855	186	15	162.0	16.2	0.02	8.7%	6.70	13.5%
11	Northrop Grumman Corporation	MFG	1,074	107	18	156.7	15.7	0.01	5.3%	9.60	2.2%
12	Oracle Corporation	INFO	4,356	436	2	148.2	14.8	0.00	18.8%	19.70	-0.6%
13	Amgen Inc.	MFG	1,568	157	16	147.2	14.7	0.00	3.2%	14.60	-2.8%
14	General Dynamics Corporation	MFG	1,972	197	12	146.6	14.7	0.01	5.3%	17.30	9.9%
15	Altria Group, Inc.	MFG	1,901	190	14	142.4	14.2	0.01	-5.1%	2.00	0.0%
16	Exxon Mobil Corporation	MFG	1,940	194	13	138.2	13.8	0.02	-0.9%	1.00	0.0%
17	Microsoft Corporation	INFO	2,783	278	5	125.2	12.5	0.00	3.9%	18.60	1.4%
18	DuPont de Nemours, Inc.	MFG	1,054	105	19	118.5	11.9	0.03	-4.3%	30.70	0.2%
19	CVS Health Corporation	RTL	872	87	20	115.0	11.5	0.00	13.2%	19.50	4.3%
20	QUALCOMM Incorporated	MFG	1,150	115	17	113.4	11.3	0.01	4.0%	26.70	2.8%
	Average		2,328	233		220.6	22.1	0.01	6.9%	13.49	1.9%

Figure 2.3: Top 20 Firms By Lobbying Expenditures

strategic choice.[23] As a firm's scope of business-related issues widens, the number of issues might increase.[24]

For this reason, I use the number of issues as an alternative measure of *lobbying breadth*. Although not required, the LDA encourages firms to report the most relevant issues among predefined issue codes. For example, *Apple* lobbied on eleven issues in the first quarter of 2022 and spent $2,500,000. *Apple*'s lobby on ENV(Environmental/Superfund) was about climate change and clean energy provisions. TRD(Domestic & Foreign Trade) was related to the "US-EU Privacy Shield, international discussions of digital regulation, and foreign regulatory proposals and proposals related to competition". Antitrust issues coded as LBR (Labor Issues/Antitrust/Workplace) were among the eleven.[25]

As Figure 2.4 illustrates, lobbying issues surged around 2007-2008 and remained relatively stable afterward. Previous studies characterize the 2007-2009 period with surging policy uncertainty (Baker et al., 2016) and corporate experience of the increasing role of government(Baker et al., 2014). A group of issues such as taxes, budget, science and technology, energy, and environment contributed to a drastic increase. Figure 2.4 shows that issues like trade, tariff, and transportation keep increasing in numbers, while energy, environment, and utilities are decreasing after 2010. The most frequent issues are tax and budget, but issues like tech and science, patents, labor, immigration, and antitrust have increased, narrowing the gap between the two groups. The grouping is based on exploratory factor analysis.[26]

[23]Although it is not within the boundary of this study, the means of corporate lobbying might differ depending on the lobbying issues. Based on the records of lobbying contacts, De Figueiredo and Kim (2004) document that in-house lobbying tends to be firm-specific while lobbying through outside lobbyists deals with more general topics requiring general knowledge of industry or policy. An increase in contracted lobbying tends to contribute more to the increasing number of lobbying issues.

[24]It is assumed that the reports without specific issue codes are less significant. Since the number of issues correlates highly with the number of lobbying reports ($r = 0.939$, $p < 0.001$), I use the lobbying reports for robustness check. Two tendencies support the high correlation between the two. First, most of the entrants in lobbying use contracted lobbyists. The number of lobbying reports increases with the number of contracting K-street lobbyists. Previous studies documented that firms outsource lobbying for general policies like tax and climate change (De Figueiredo and De Figueiredo, 2002).

[25]The examples of how firms report the relevant lobbying issues are available in FigureB.11, FigureB.11, and FigureB.13. They are all from the lobbying reports of *Apple Inc.* in 2022.

[26]Detailed methodology is in *Chapter 3*.

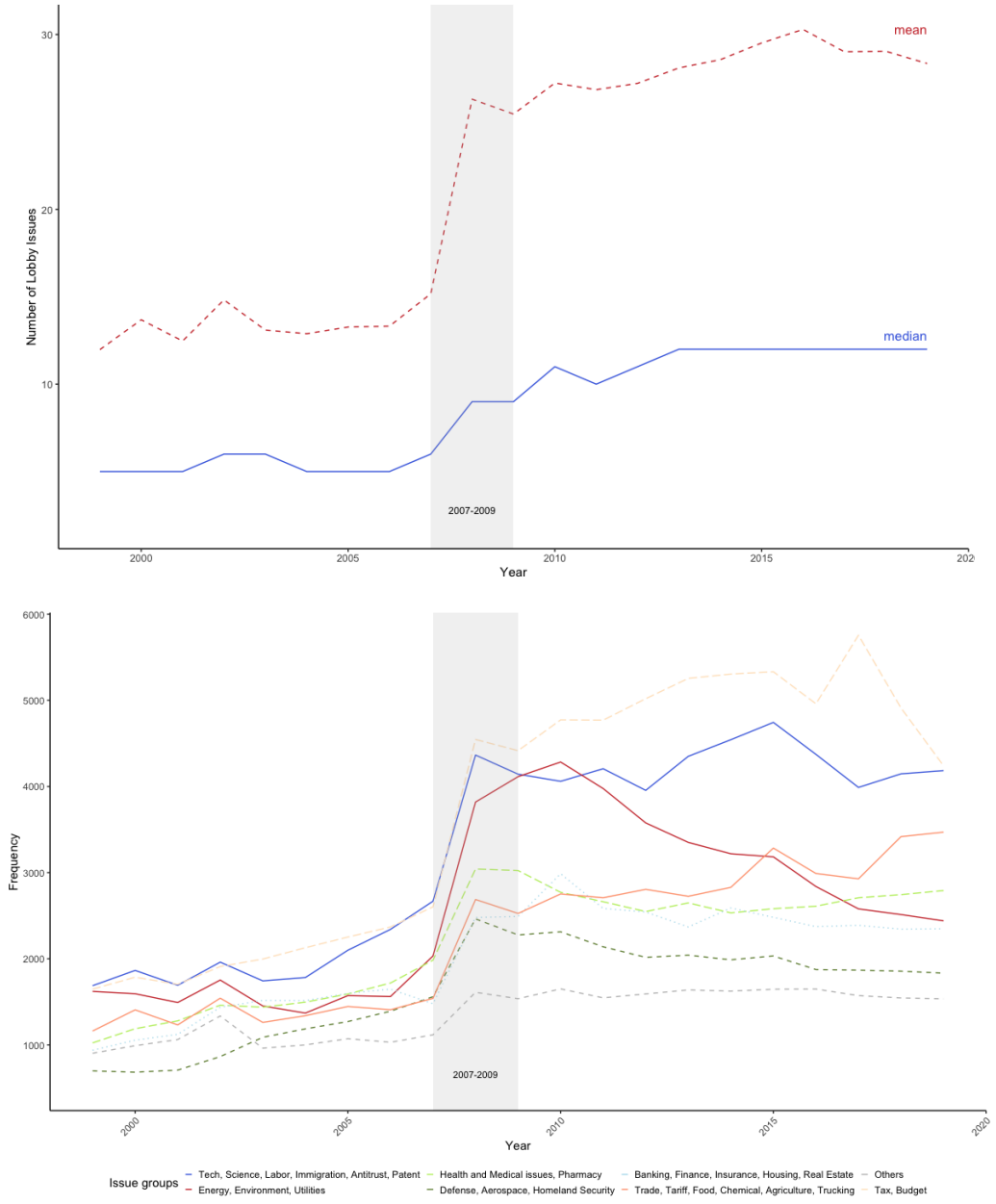


Figure 2.4: Trends in Lobbying Breadth - Number of Lobbying Issues

Persistence of lobbying is another alternative measure that shows how long each firm engages in lobbying. The persistence of lobbying is the difference between the first year a firm starts lobbying and the terminating year.[27] Figure 2.5 shows some variations across industries. The horizontal line at zero means the firms never engaged in lobbying during the period. The 45-

[27]For example, if a given firm started lobbying in 2000 and continued lobbying until 2005, its persistence is five years. Firms' lobbying engagement is determined based on their lobbying reports.

degree line connecting the origin (0,0) and (2019, 20) is the firms that persist in lobbying the whole time. In the middle, some firms cease lobbying. Given that a firm engages in time *t*, the probability of the firm to lobby in time *t+1* across industries is 95.6%.[28] The more they stay in the game, the more they spend. Both mean and median lobbying expenditure increases with persistence of lobbying. When firm lobbying can be self-reinforcing (Drutman, 2015), stopping may be a more significant corporate decision than lowering the amount.[29]

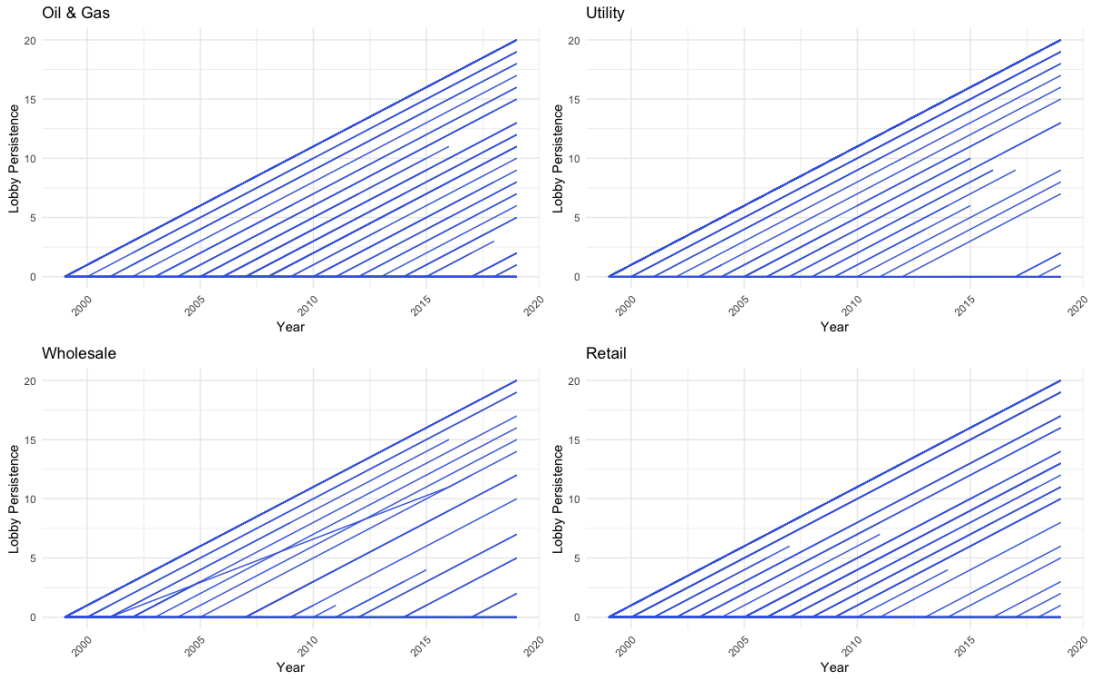


Figure 2.5: Lobby Persistence in Utility, Oil& Gas, Wholesale, and Retail Industries

I combined the client-level, report-level, and issue-level datasets to compose a firm-year dataset. Since the original dataset only includes the names of client firms, I mapped them to the company information in Compustat-CRSP using the `LobbyView` dataset as a base. For some firms that `LobbyView` missed, I used fuzzy-matching and made final corrections by hand. I applied additional coding rules for the reports that left the lobbying amount blank. In the original dataset, some dubious cases were found in which firms contact multiple entities, but the expenditure is either 0 or NA. For conservativeness, I imputed them with the median amount for the groups

[28] Figure B.16

[29] Drutman (2015) focuses on corporate learning with the help of lobbyists. He argues that firms can learn new profitable opportunities through lobbying.

based on the similarity.[30] As mentioned earlier, 18.3% of firms in the dataset engaged in lobbying at least once during 1999-2019. The average lobby expenditure is $183,700 in constant 1999 dollars. The correlation between (a) lobbying expenditure, (b) number issues and (c) persistence of lobbying is $r_{a,b} = 0.78\ (p < 0.01)$, $r_{a,c} = 0.26\ (p < 0.01)$, $r_{b,c} = 0.43\ (p < 0.01)$.[31]

2.2.2 Measure of Vertical Integration and Horizontal Scope of the Firms

To measure the vertical integration and product market scope of a firm, I use the `TNIC(Text-based Network Industry Classification)` data (Frésard et al., 2020; Hoberg and Phillips, 2016). The `TNIC` data relies on the networks of vocabularies from firms' 10-K filings. The `TNIC` vertical integration score measures the degree of firms' vertical integration by linking the product vocabularies from the Bureau of Economic Analysis (BEA) input-output tables to firms' 10-K business descriptions to measure vertical integration. Item 101 of Regulation S-K requires firms to report their significant products in business descriptions. Similarly, by using the 10-K product descriptions and pairwise similarities between firms, the `TNIC`'s product scope measures the horizontal scope of a firm.

Frésard et al. (2020) operationalize vertical integration in five major steps. First, they extracted business descriptions from 10-K filings and composed firm-specific product vocabularies. To identify whether a given commodity is vertically linked upstream or downstream to another commodity, they used the BEA input-output (IO) tables. The input-output accounts show trade flows between producers and buyers in the U.S. economy. Based on the commodity input-output table, they created a matrix of a commodity, a commodity word, and its economic importance.

[30] According to the U.S. Lobby Disclosure Act of 1995, lobbyists must register themselves, declare their activities, their representing parties, and the issues petitioned, and report any payments received from clients if they exceed $13,000 per quarter for in-house lobbying and $3,000 per quarter for lobbying through outside lobbyists. I imputed the lobbying amounts left blank for the in-house lobbying reports with the annual median of other in-house lobbying reports with reported lobbying amounts not exceeding $13,000. A similar rule was applied to the lobbying reports submitted by professional lobbying firms. The median lobbying amount for the in-house reports that do not exceed $13,000 per quarter ranges from $10,203 to $10,500. For the reports submitted by contracted lobbyists, the median lobbying amount in the lobbying less than minimum requirements ranges from $78 to $2,007.

[31] Figure 2.14

They constructed a matrix that identifies vertical relatedness, **V** in the equation below. Then, they make vectors representing BEA commodities and firm-specific product vocabularies, which enable them to calculate the similarity between firms and commodities.[32] In this way, they computed the vertical relatedness between company pairs. The pairs compose a dynamic directed network as 10-Ks are updated annually. For example, the vertical relatedness measures show that *Tesla* in 2010 is vertically related to upstream firms like *Honeywell*, *Goodyear*, and *Sun Hydraulics* (Frésard et al., 2020).[33] Finally, they calculated the *vertical integration score* based on vertical relatedness.

The vertical integration score for a given firm i, $\mathbf{VI}_i$ is calculated based on the diagonal entries of the matrix $\mathbf{UP}_{i,j}$ in firm-pair vertical relatedness between firm i and j.

$$\mathbf{UP}_{i,j} = \left[\mathbf{B} \cdot \mathbf{V} \cdot \mathbf{B}'\right]_{i,j}$$

where B is a cosine similarity of the vocabularies in the IO commodity and the unique vocabularies in firm's business descriptions. **V** is a constructed matrix purely based on the vertical relatedness in the BEA input-output accounts. Downstream relatedness mirrors the upstream relatedness ($\mathbf{UP}_{i,j} = \mathbf{DOWN}_{j,i}$). The vertical integration score is the diagonal entries of the triple product ($\mathbf{UP}_{i,i}$). It measures the extent of vertical integration of a given firm based on whether its business description contains word pairs that are vertically related. Therefore, it means the extent of a given firm's products to be vertically related to the other products sold by the same firm. The vertical integration score increases as more vocabularies of a firm's business description span vertically-related markets. Intuitively, a higher score means the firm is more vertically integrated. As previous studies pointed out, earlier measures that connect industry to industry have limits

[32] They used cosine similarity to control the length of documents.

[33] Two aspects of the vertical relatedness measure is worth noting. First, it is not symmetric. As firm pairs in 2010, *Tesla (downstream)*and *Encore Wire (upstream)*'s vertical relatedness is 0.020 while *Tesla (downstream)* and *Honeywell (downstream)* is 0.026. From a different perspective, *Encore Wire (upstream)*'s vertical relatedness with *Tesla (downstream)* is 0.014, with *GM* is 0.019, *Harley-Davidson* is 0.014. The firm pairs with high vertical relatedness scores have a vocabulary that maps to vertically-related commodities in the IO the most. Second, the pairwise vertical relatedness score does not capture the actual shipments between firm pairs. Hoberg and Phillips (2016) emphasizes that it is "designed to capture the extent to which two firms operate in vertically related product markets." Given that intangible assets are significant drivers of vertical integration, this distinction can be useful.

for measuring firm-specific vertical integration (Atalay et al., 2014; Cory et al., 2021). Since this study explores the relationship between vertical integration and lobbying at the individual firm levels, I find the TNIC vertical integration measure fit for the study.

$$\mathbf{VI}_{i,i} = \mathbf{UP}_{i,i} = \mathbf{DOWN}_{i,i} = [\mathbf{B} \cdot \mathbf{V} \cdot \mathbf{B}']_{i,i}$$

Similarly, the TNIC uses 10-K business descriptions as a base for measuring the horizontal scope of a firm. The notion that firms in the same industry use similar words to identify and describe their product offerings underlies the construct of measure. Based on the vocabularies in product descriptions, Hoberg and Phillips (2016) assign each firm a spatial location. Then, they calculate the pairwise word similarities between the two firms. The horizontal scope measure is a result of reducing high-dimensional word vectors to a simple matrix of firm pairwise similarity scores. Unlike traditional scope measures based on SIC, NAICS, and Compustat Segment, which focus more on the production process, it allows firms to be classified based on their unique product offerings. As 10-K is updated annually, it also reflects changes over time.

In this respect, the TNIC scope measure offers distinct benefits to this study. First, some lobbying issue codes, such as food, beverage, broadcasting, advertising, tobacco, computer, and automotive, are more relevant to industry or firm-specific product offerings. In contrast, other issue codes like environment, consumer issues, tax, budget, trade, and tariff are more general issues to many firms.[34] If firms increase lobbying for issues relevant to their specific product and service, their lobbying issues might become more diversified as their horizontal scope increases. Given the relevance between product offerings and lobbying issues, the measure of horizontal scope based on firm-specific product offerings might increase explanatory power on lobbying breadth. Also, given its variation across time, it is useful for investigating if a firm increases lobbying when its product market scope changes. According to Hoberg and Phillips (2016), it is more granular than the scope measure based on Compustat Segments and richer in context than

[34]Lobbying issue codes are available in Figure B.6. Firms can select lobbying issue codes using pull-down lists on the LD-1DS and LD-2DS forms.

the NAICS-based measure. [35] This article depends on the robustness of scope measures in the TNIC data.[36]

The data show that vertical integration decreased while horizontal product market scope increased during 1999-2019. In Figure 2.6, the median vertical integration score is 0.0052, and the mean is 0.0087. Firms in the top 1% of vertical integration score include *Emerson Electric* (0.069), *Packaging Corp of America* (0.066), *Nucor* (0.059), *Exxon Mobil* (0.055), *Honeywell International* (0.051), and *Olin Corporation* (0.053).[37] On average, capital goods like industrials, transportation, vehicles and trucks, and household durables record high in vertical integration score. In contrast, aerospace and defense, construction, building products, and insurance sectors record low. For the horizontal product market scope, the median is 10, the mean is 11.09, and the standard deviation is 6.02. On average, firms in the dataset operate in eleven product markets, but the difference is quite large. The maximum number of product scopes is 35. Companies operating in thirty-five product markets include *Walt Disney*, *Comcast*, *Adobe*, *Broadcom*, *Paramount*, *Viacom*, *Ocular Therapeutix*, and *Moderna*.[38]

As for horizontal scope, the scores tend to ascend if firms enter the new product markets and gain a meaningful market share. Conventionally, companies report a new segment if their sales exceed 10% of total revenues or if it is a meaningful part of their growth strategy. By construct, the vertical integration score changes if a given firm's business descriptions become less vertically related to the products that the firm sells. In general, the integration change tends to be granular, but a surge often relates to an integration of vertically acquired operations.

[35] However, it differs from the traditional measure based on product relatedness.(e.g., Miller, 2006; Tanriverdi and Venkatraman, 2005)

[36] The median and mean of NAICS-based scope are 4 and 6.260 with a standard deviation of 7.519. The same statistics for the TNIC-based scope measure are median 6, mean 6.923, and standard deviation 5.482. On the other hand, for the scope measure based on the Compustat Segment, the median is 1, the mean is 1.452, and the standard deviation is 0.862. Hoberg and Phillips (2016)'s data cover 1988-2017.

[37] The scores are mean values. Their average horizontal scope scores are *Emerson Electric* (12), *Packaging Corp of America* (3), *Nucor* (23), *Exxon Mobil* (1), *Honeywell International* (22), and *Olin Corporation* (16)

[38] However, *Disney*'s products are quite related to each other in that many are based on the same set of animated characters. In terms of product relatedness, its scope is not broad. The scores are mean values. Their average vertical integration scores are *Walt Disney* (0.009), *Comcast* (0.012), *Adobe* (0.006), *Broadcom* (0.0026), *Paramount Global* (0.0007), *Viacom* (0.0005), *Ocular Therapeutix* (0.0006), and *Moderna* (0.0004).

A well-known vertically integrated company, *Tesla*'s case is relatively apparent. In the 2015 10-K business descriptions, *Tesla* states that "Several major component systems of our vehicles are purchased from suppliers; however we have a high level of vertical integration in our manufacturing processes at the Tesla Factory." In 2014, *Tesla* acquired former *Chrysler*'s parts distribution building for producing automotive parts. It also acquired two more factories in 2015, a former *SolarCity*'s facility in California for battery production, integrating battery manufacturing. The Nevada *Gigafactory* opened in 2016. As one of the highest-volume plants, it also produces energy-storage products. In some cases, vertical integration is not independent of horizontal scope change. In general, the correlation between vertical integration and horizontal scope of firms is minimal (0.04, $p < 0.01$) but relatively more prominent in mining, oil and gas extraction (0.39, $p < 0.01$), media (0.29, $p < 0.01$), and wholesale industry 0.28, $p < 0.01$). The correlation within the manufacturing industry is (0.07, $p < 0.01$).

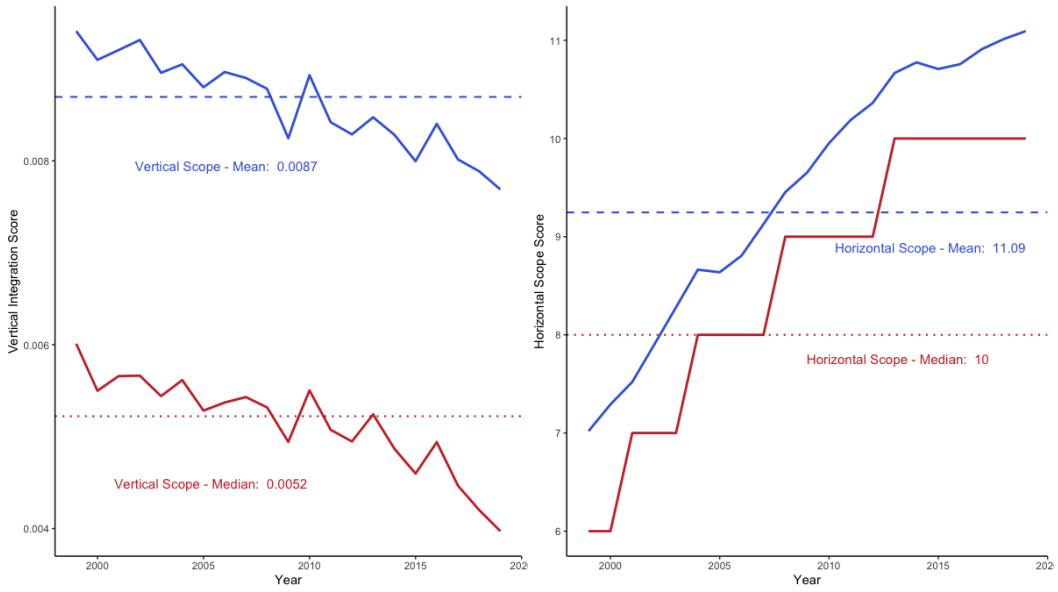
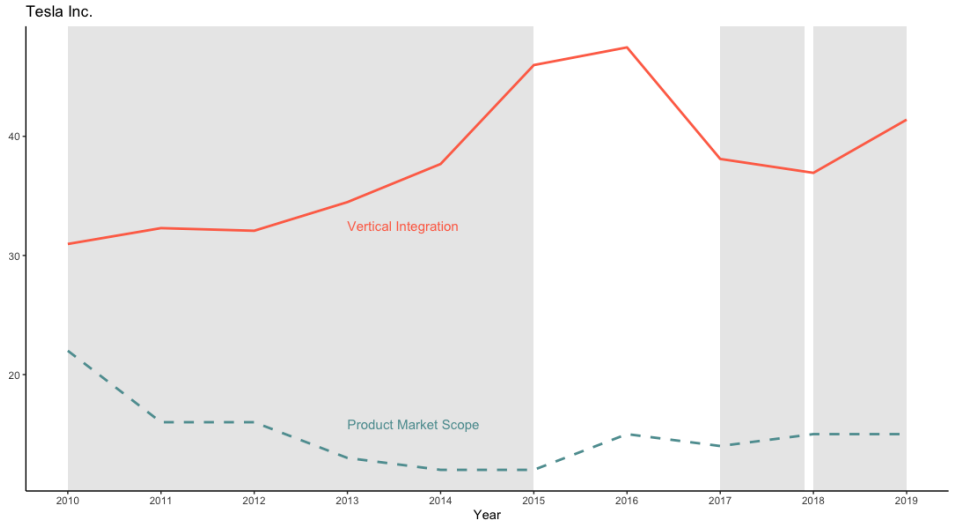


Figure 2.6: Vertical Integration and Horizontal Scope of the Firm Across Years



Notes: For ease of comparison, the vertical integration score is multiplied by 1,000. The grey areas indicate that horizontal and vertical scope measures move in different directions.

Figure 2.7: Change in Vertical Integration and Horizontal Scope - *Tesla Inc*.

2.3 Framing Questions

Although literature has built up around vertical integration and lobbying, we lack an understanding of the association between the two. This article aims to fill this gap by connecting vertical integration and lobbying. Unlike the positive association between horizontal scope and lobbying documented in earlier studiesHillman et al. (2004); Kim (2008); Shaffer (1995), theories predict complementary or substitutionary relationships between vertical integration and corporate lobbying.[39] Focusing more on vertical integration, this section frames the three questions around the association between firm scope and lobbying.

The scope of the firm is one of the central topics in economics. Bresnahan and Levin (2012) points at two streams of literature that explain vertical integration. First, organizational economics theories explain that vertical integration is firms' efficient response to market transaction costs (Williamson, 1979). According to transaction cost theories, the ambiguity of the tasks and difficulty of contracting every contingency increase the cost of market transactions. Another school of thought focuses on the patterns of integration at the industry level. In a complementary approach, industrial organization economics emphasizes the economies of scale and scope or other strategic motives for consolidating market power as rationales for vertical integration (Stigler, 1972).

Both theories explain that firms can ensure a steady and reliable input supply and exploit from scale economy as vertically integrated, while investment in *sticky factors* accompanied by vertical integration choice might lead the firm to miss out profitable opportunities (Ghemawat, 1991). If vertical integration choice is less variant than lobbying, firms might lobby in order to manage the trade-off between vertical integration and risk from the increased rigidity. As an initial step, the first question addresses how much vertical integration changes and whether it varies across industries. Moreover, given the strategic motives behind vertical integration and lobbying, I describe how frequently vertical integration and lobbying change. Primarily, the first

[39] This article focuses on individual firms' behavior. For some policy issues, firms lobby through trade associations (e.g. Bombardini and Trebbi, 2012), but it is beyond the scope of this study. 'Corporate lobbying' and 'firm lobbying' indicate the independent lobbying of individual firms.

question compares the patterns of vertical integration and lobbying, focusing on the extent of change.

> **Question 1:** *What are the patterns of vertical integration and lobbying? How much do firms change the extent of vertical integration and lobbying?*

In some respects, vertical integration and diversification resemble and might increase the opportunities or risks, incentivizing lobbying. First, vertical integration and diversification tend to increase the number of stakeholders. Depending on the business, firms have various stakeholders such as users, customers, employees, suppliers, residents, lawmakers, and regulators (Freeman et al., 2010; Buysse and Verbeke, 2003). While horizontal expansion often increases exposure to widened markets across different products, vertical integration tends to incorporate multiple value chain phases. Meanwhile, firms' significant stakeholder base might broaden. Moreover, as the firm scope expands, its strategic moves become more visible to the public and susceptible to media scrutiny. It is more the case if firms pursue acquisitive growth. Recently, the number of large firms' mergers and acquisitions under the FTC's radar is rising, with concerns about their effect on market competition.[40] The number of merger filings increased from 1,429 in 2012 to 3,520 in 2022, and the industries of acquired entities are diverse from consumer goods, manufacturing, IT, health care to energy and natural resources. Although horizontal mergers are generally more subject to FTC investigation, both scope expansions will likely face anti-competitive allegations.

Regarding developing and leveraging firms' unique resources and capabilities, vertical integration choice is associated with horizontal scope (Brahm et al., 2021). In response to the transaction frictions or the inefficiency originating from industry structure, vertical integration eventually enables firms to exploit and develop core capabilities internally (Argyres, 1996). Likewise, horizontal expansion enhances scope economics by leveraging complementarity

[40]FTC. 2021. "Annual Reports to Congress Pursuant to the Hart-Scott-Rodino Antitrust Improvements Act of 1976"

between existing resources and capabilities (Panzar and Willig, 1981).[41] Teece (1980) argued that sharing resources or capabilities such as technological or managerial know-how can create value across multiproduct businesses, which can be costly to transfer across firm boundaries. When shared use of proprietary know-how or specialized assets than a cost function explains the scope economies, diversifying horizontal scope is an efficient way of organizing firms' economic activity, similar to vertical integration. The underlying complementarity enabling efficiency might increase the opportunities and risks as firms increasingly commit to complementary assets.

Given the widened stakeholder base and complementary assets as drivers of corporate choice on scope, expanding vertical and horizontal scope might offer a similar incentive for firms to engage in the lobby. However, unlike vertical integration, product diversification might provide more leeway to firms. With a mix of product offerings in the product portfolio, diversified firms might adjust the risk exposures. For example, Russo (1992) shows that electric utility firms diversified away from regulated business sectors when regulations became more hostile. However, vertically integrated firms have limited leeway compared to diversified firms, which might increase the demand for lobbying. For this reason, although previous research documents a positive relationship between horizontal scope and lobbying (Shaffer, 1995; Hillman et al., 2004), it does not apply to vertical integration and lobbying.

> **Question 2:** *Is vertically integrated firms' lobbying different from horizontally expanded firms' lobbying? If it is, how do they differ in lobbying?*

2.3.1 Complementarity between Vertical Integration and Lobbying

Theories predict positive or negative relationships between vertical integration and lobbying. First, vertical integration and lobbying can be complementary. As mentioned earlier, vertical

[41] The literature on diversification explains that the dominant rationale for product diversification is economies of scope (Panzar and Willig, 1981). In particular, scope economies in assets subject to transaction costs can drive diversification (Williamson, 1975).

integration increases the number of stakeholders and relevant business issues. It poses both opportunities and risks for firms. If firms manufacture the parts independently instead of purchasing them from the suppliers, the number of significant stakeholders increases. A notable example is an increase in the number of employees. *Tesla*'s Gigafactory in Austin hires approximately 20,000 people. *Amazon*'s biggest fulfillment center in Tennessee hires around 3,000 employees. As job creation is a big concern for politicians, vertical integration is a significant investment decision and increases a firm's negotiation power over government(Bisbee and You, 2024). Given that politicians prefer uproarious advertisement, especially before the election season, the opportunity is more significant for firms with sizable market power. Growing interdependence between the government and a given firm might increase lobbying.

For example, the CHIPS and Science Act of 2022 aims to recover the manufacturing base in the U.S. and derisk China.[42] Manufacturing plants, especially the ones for semiconductor production, are designed for specific chip production, are expensive to build, require high-paid employees, and have a relatively long useful life. In addition to the government incentives for investment, firms need consistent policies that ensure a steady and reliable input supply. Amid growing concerns about intellectual property thefts, some firms want a National Security Act that imposes stricter punishments on trade secret misappropriation. Firms generally choose vertical integration when the inefficiency of market transactions increases. Both supply costs and the importance of policy might increase during trade wars. If firms depend on certain critical complementarities, small environmental variations might lead to costly policy changes, magnifying the demand for lobbying (Holmstrom and Milgrom, 1994).

Moreover, strategic commitments underlying sizable corporate investments might make firms vulnerable to changes in the external environment. Different corporate strategies in the recent electric vehicle (or EV) market can be a case in point. Based on firm-specific predictions on the electric vehicle (or EV) markets, firms strategically invested in new production lines and hired employees. The strategies differed by firms. *Toyota*, for example, betted against

[42]White House. 08/09/2022. "FACT SHEET: CHIPS and Science Act Will Lower Costs, Create Jobs, Strengthen Supply Chains, and Counter China." Accessed: 01/2024

EVs, pursuing diversification. On the contrary, *Ford* promoted the transition to electric vehicles and announced a 12 billion-dollar investment in a Kentucky battery plant.[43] With strategic commitments, both firms lobbied. Although both firms' lobbying targetted Electric Vehicle Policy, *Toyota* lobbied to "increase the availability of fuel cell infrastructure," while *Ford* lobbied for the Inflation Reduction Act of 2022, the Clean Energy for America Act, and the Infrastructure Investment and Jobs Act, which could benefit *Ford*'s business directly.[44] As corporate commitment increases with vertical integration, corporate lobbying might also increase. When firms encounter regulatory hurdles, political efforts to co-create regulations enable firms to earn licenses or approvals. When the strategic alignment of integration and lobbying is in place, lobbying might help firms plow through thickets when uncertainties are ahead.[45]

2.3.2 Substitution between Vertical Integration and Lobbying

However, with a focus on transaction characteristics such as specificity, uncertainty, and complexity favoring vertical integration, lobbying is a double-edged sword. Setting up an in-house research center, building new facilities, and hiring more people bring inherent business risks (Amit and Wernerfelt, 1990). By loosening regulatory constraints or securing government subsidies or contracts, lobbying might reduce risks. However, lobbying might distract corporate focus away from more productive activities. Since investment decisions affect the competitiveness of firms in the long run, being distracted by political favors might result in poor corporate decisions. As it can distract corporate focus and resources, the trade-off of lobbying is more critical for firms with limited resources. Given the resource limits, firms encounter strategic choices between lobbying and other corporate investments such as R&D or marketing. Although

[43]The Kentucky battery plant was expected to create 11,000 jobs.

[44]Against their predictions, customers were reluctant to purchase EVs, and Ford recently changed its strategy toward hybrids. Some customers' caution is attributed to insufficient charging infrastructure, which public-private cooperation can accelerate. (Source: *CNBC*. 2023/10/26. "Ford will postpone about $12 billion in EV investment as buyers become more cautious." Accessed: 02/2024)

[45]Nevertheless, lobbying is not necessarily associated with positive firm performance. Brainard and Verdier (1997) and Brainard and Verdier (1994) underscore this point by showing firms in declining industries tended to actively lobby for protection, which resulted in decreasing performance.

lobbying might help firms clear the regulatory hurdles, political tactics to buffer against downside regulatory risk tended to pay off less in a nascent industry (Gao and McDonald, 2022).

Furthermore, although vertical integration enables the stable and efficient flow of resources within firms, it impedes agile and flexible responses to the market. For example, vertical integration can be costly with a fast-paced market selection. By illustrating how IBM PC organized innovations along the market lines, Langlois and Robertson (1992) points out that vertical disintegration is more advantageous for commercializing innovations when replacement cycles are short. Given that invention races and following market selection are on a component-by-component basis, even general-purpose components are easily replaced, making vertical integration a liability. When agility matters, the benefits of lobbying can be limited. Reaching social consensus and changing policy is difficult and slow compared to the speed of technology advancement. Regulations often follow the market rather than vice versa, as seen in the development of Artificial Intelligence regulations.[46] When the product market is premature or underlying technology is changing fast, market knowledge and fit might be more valuable than regulatory concerns.

As a substitution, there are cases in which firms might choose vertical integration over lobbying. The efficiency concerns are one of the primary drivers of vertical integration (Bresnahan and Levin, 2012). Internalizing upstream suppliers' markup decreases the inefficiency from double-marginalization (Spengler, 1950). The efficiency stands out more when the industry competition intensifies. A notable feature of lobbying is that it is an investment with enormous uncertainties. Given the inherent trade-off in most policy battles, change is difficult, and some firms might find lobbying an inefficient investment. Even if it ever creates any meaningful change, it takes time to take effect, which is longer for divided policy issues.

For example, the introduction of the Stop Online Piracy Act (SOPA) in 2011 provoked the policy battle between computer and Internet firms and the content creation industries such as movie, music, and media companies *U.S. Copyright Office*. 11/2022. "H.R. 3261, the Stop Online Piracy Act" Although it left ongoing discussion as a legacy, both camps spent many resources on

[46] Harvard Business Review. 09/2021. "AI Regulation Is Coming"

lobbying and the legislation ended up defeated, resulting a zero-sum status-quo. Tax and budget have undoubtedly been the most popular issues in lobbying for the last two decades.[47] Many firms tend to pursue small changes in low-salience with less or no opposition, such as the tax code, subsidies, contracts, and other minor benefits. From an efficiency standpoint, engaging in policy battles is costly, and vertically integrated firms are less likely to select lobby. Accordingly, the third question addresses whether vertical integration and lobbying are complementary or substitutionary.

Question 3: *Do vertical integrated firms lobby more?*

2.4 Patterns of Vertical Integration and Lobbying

During 1999-2019, average vertical integration gradually decreased overall.[48] The decreasing trend was led mainly by the manufacturing and utility sectors. Figure 2.8 presents the trends in vertical integration across different industries. One of the main drivers of the decreasing trend, especially in manufacturing, is globalization (Whitford, 2005; Atalay et al., 2014). Since the 1990s, American manufacturing has dramatically transformed from internal production toward outsourcing. The cost reduction from offshoring spurred the transformation of manufacturing. Since global businesses often encounter conflicts beyond the U.S. border, corporations need government intervention or arbitration. While integrating global operations into their business, some firms wanted favorable trade policies and protection against global conflicts. Those firms included low-productivity firms in declining industries (Brainard and Verdier, 1997; Bombardini et al., 2021).

[47] Figure B.5
[48] Figure 2.6

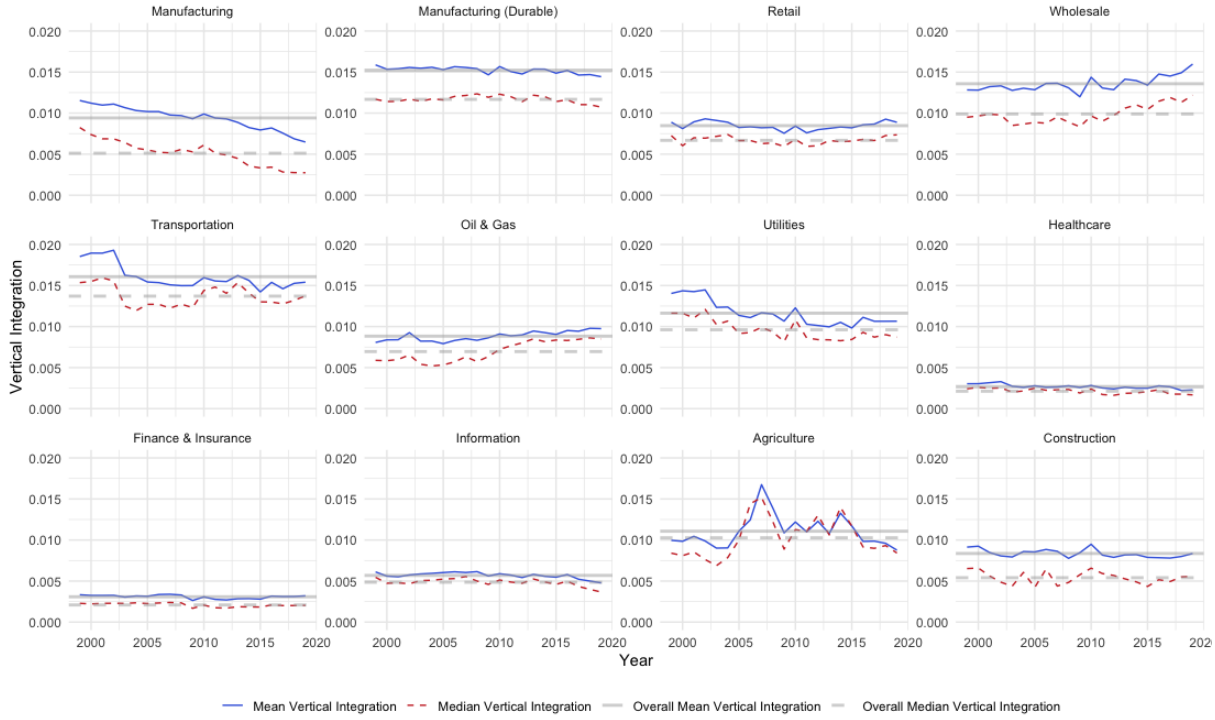


Figure 2.8: Trends in Vertical Integration by Industry

Unlike industry-level change in vertical integration, firm-level change was not small.[49] Among non-durable manufacturing firms, the annual standard deviation ranged from 0.009 in 2019 to 0.01 in 1999. Figure 2.9 shows the large-cap companies in decile groups based on their different levels of vertical integration. Considering that the vertical score of *DuPont*, one of the companies in the top 10% vertically integrated group, is 0.035, the 0.01 change is a meaningful range. On average, most vertically integrated firms include *Emerson Electric* (0.069), *Honeywell* (0.037), *Ford Motor* (0.031), *Alcoa* (0.027), and *Exxon Mobil* (0.025).

Although some integrated firms spend enormous amounts of money on lobbying, it does not confirm the positive or negative relationship between vertical integration and lobbying intensity. For example, some vertically integrated firms like *DuPont* are large spenders in lobbying, while others like *Emerson Electric* and *Kimberly-Clark* spend on average less than a million dollars on

[49]The change in agriculture involves ownership of farm production and processing activities such as feed mills, hatcheries, slaughter facilities, and packing plants, but also includes a widening product scope. For example, *Cargill* vertically integrated producing and processing, while their products encompass arrays of meats and feeds such as corn and soybeans.

lobbying each year. Notably, in some cases, changes in vertical scope are not independent of changes in product markets, which might motivate firms to spend more on lobbying.[50] In many cases, vertical merger has some components of horizontal merger, and vice versa. *Amazon*'s 2017 acquisition of *Whole Foods*[51] is a case in point.

Figure 2.10 shows the trends of vertical integration (orange line), product market scope (blue dotted line), and lobbying expenditure (dark grey line) of *DuPont* over the twenty one years, which tend to move in accordance. Relatively large changes in vertical integration between 2006 and 2011 were attributed to the strategic actions of the company to improve fixed-cost productivity and reduce costs through restructuring. The restructuring plans included reducing the businesses that support the motor vehicle and construction markets. In 2008, *DuPont* had five core business units with 28 distinct products.[52] *DuPont*'s lobbying expenditure has gradually increased until 2016, partially resembling the change in vertical integration.

While the change in product market scope is generally led by a small number of firms,[53] the change in vertical integration seems to occur more often across different firms. Figure 2.11 the industry median moves every year while median product market scope rarely moves.[54] It carefully suggests that vertical integration is less rigid than previously assumed. For strategic reasons, firms might change vertical integration by divesting or restructuring their assets.

[50]Change in the product market scope by industries is available in Figure B.23

[51]The illustration is in *2.1 Introduction*.

[52]The five core business segments include *Agriculture, Coatings and Color Technology, Electronic and Communications, Performance Materials, and Safety & Protection.* They divested *Textiles & Interiors* in 2004.

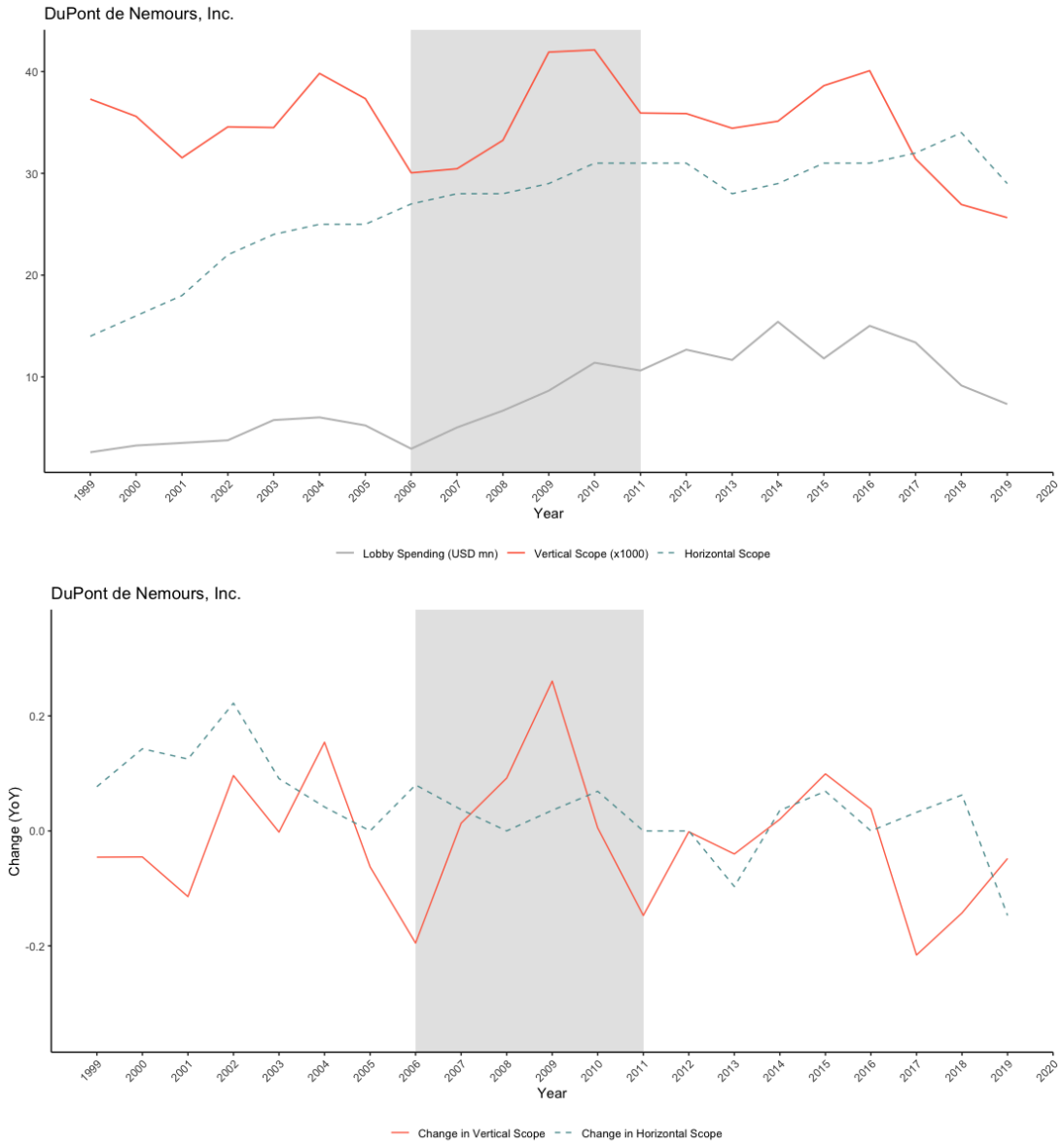
[53]Figure B.23 shows the annual change in product market scope by industries.

[54]Figure B.24 suggests that vertical integration might change more often.

Vertical Integration (Avg.)		Company Name	Industry	Product Market Scope (Avg.)	Lobby Issues (Avg.)	Lobby Expenditure (Avg. mn)
Top 10%	0.0692	Emerson Electric Co.	MFG_durable	17.9	26.3	0.8
	0.0370	Honeywell International Inc.	MFG_durable	18.5	131.8	6.3
	0.0349	DuPont de Nemours, Inc.	MFG	26.8	82.3	8.2
	0.0309	Ford Motor Company	MFG_durable	11.7	100.3	7.3
	0.0265	Alcoa Inc.	MFG_durable	15.7	47.6	2.5
	0.0257	DIRECTV, LLC	INFO	8.9	43.2	2.9
	0.0252	Exxon Mobil Corporation	MFG	3.3	136.2	13.7
	0.0248	EIDP, Inc.	MFG	8.3	78.5	4.7
	0.0246	Kimberly-Clark Corporation	MFG	3.3	35.2	0.3
	0.0244	General Electric Company	MFG_durable	17.7	346.6	36.0
Top 20%	0.0178	Walmart Inc.	RTL	9.6	108.7	6.2
	0.0161	The Boeing Company	MFG_durable	6.4	172.8	16.5
	0.0158	Mondelez International, Inc.	MFG	6.8	35.8	1.8
	0.0157	PepsiCo, Inc.	MFG	10.3	55.0	3.6
	0.0153	Chevron Corporation	MFG	19.5	76.4	9.4
	0.0151	Corning Incorporated	MFG_durable	6.9	36.9	1.1
	0.0142	The Gillette Company	MFG_durable	1.8	0.2	0.0
	0.0141	Altria Group, Inc.	MFG	5.8	167.4	15.8
	0.0139	Level 3 Parent, LLC	INFO	26.0	168.8	8.4
	0.0132	Verizon Communications Inc.	INFO	19.0	228.2	17.1
Top 30%	0.0119	United Parcel Service, Inc.	TRS	6.3	172.1	15.3
	0.0114	Enron Creditors Recovery Corp.	WS	12.0	79.0	4.5
	0.0112	Tellabs, Inc.	MFG_durable	12.7	0.8	0.0
	0.0108	Comcast Corporation	INFO	22.5	0.3	0.0
	0.0107	GTE Corporation	INFO	8.0	23.0	6.8
	0.0104	QUALCOMM Incorporated	MFG_durable	24.4	80.2	7.9
	0.0103	The Coca-Cola Company	MFG	8.6	83.1	5.4
	0.0101	The Walt Disney Company	INFO	27.3	36.4	4.1
	0.0100	Warner Media, LLC	INFO	26.6	116.2	9.2
	0.0100	The Home Depot, Inc.	RTL	8.8	51.5	1.3
Bottom 40%	0.0035	Bristol-Myers Squibb Company	MFG	10.7	91.0	5.6
	0.0035	Eli Lilly and Company	MFG	9.3	97.1	8.5
	0.0032	Walgreens Boots Alliance, Inc.	RTL	2.5	29.0	2.1
	0.0032	Wyeth LLC	MFG	3.8	154.0	14.1
	0.0031	Amgen Inc.	MFG	13.1	131.7	12.6
	0.0031	Akamai Technologies, Inc.	INFO	9.2	1.9	0.0
	0.0031	Target Corporation	RTL	4.6	33.2	1.5
	0.0030	Merck & Co., Inc.	MFG	10.8	102.1	8.9
	0.0030	Twitter, Inc.	INFO	7.9	26.3	0.9
	0.0030	Oracle Corporation	INFO	16.0	275.3	10.7
Bottom 30%	0.0025	Dell EMC	MFG_durable	7.6	27.1	1.5
	0.0024	Abbott Laboratories	MFG	5.9	73.0	4.8
	0.0022	Compaq Computer Corp.	MFG_durable	2.0	13.3	0.5
	0.0020	The Gap, Inc.	RTL	4.9	9.0	0.3
Bottom 20%	0.0019	VMware, Inc.	OTHERS	10.3	25.1	0.5
	0.0017	Genentech, Inc.	MFG	4.8	101.4	8.8
	0.0015	Meta Platforms, Inc.	INFO	2.3	98.9	11.4
	0.0014	CA, Inc.	INFO	6.4	20.8	0.8
	0.0014	Johnson & Johnson	MFG	2.6	102.0	7.5
Bottom 10%	0.0009	AbbVie Inc.	MFG	8.6	91.3	6.7
	0.0009	Baxalta Incorporated	MFG	10.0	44.0	1.0

Note: Vertical integration scores are in decile. Only some large-cap companies are included in the list, and they do not represent the sample. 10% to 40% groups are available in Appendix Figure **??**. When firms' lobbying expenditure is 0, their average spending is less than a million dollars.

Figure 2.9: Companies and Vertical Integration - Top 10% to 30% and Bottom 10% to 40%



Note: For ease of comparison, the vertical integration score is multiplied by 1,000 on the first chart. The second chart shows the year-over-year change in vertical integration and product market scope of the firm.

Figure 2.10: Vertical Integration and Lobbying of a Top Spender - *Dupont De Nemours Inc*.

Figure 2.11: Median Change in Vertical Integration and Product Market Scope By Industry

Next, I explore the relationship between vertical integration and lobbying by using two alternative measures. Figure 2.12 shows how average vertical integration changes after starting and persisting lobby. By identifying the first year that a given firm started lobbying, I calculate the years from the first year[55] and plot how vertical integration is associated with it. Figure 2.12 shows the negative association between the two. After starting lobbying, firms' average vertical integration decreases. Although it is not causal, as descriptive evidence, it suggests that lobbying and integration can be substitutes under some conditions.

To find whether vertical integration connects to increase in issues, I also calculate how many more lobbying issues firms engaged in.[56] Figure 2.13 presents the association between

[55] For a firm i, Years from t_i = Year $- t_i$ | Engagement$_i$

[56] For a firm i in an industry j and year k, *Difference in Number of Issues*$_{i,j,k}$ = *Number of Issues*$_i$ − *Average Number of Issues*$_{j,k}$. The average number of issues is 6.03 across all industry-years. The median was 3.95 for the education sector in 2009, and the maximum was 78.6 for conglomerates in 2012.

lobbying and integration using the industry and year average as a base point. Before reaching the industry-year average, vertical integration decreases. The average vertical integration increases when firms engage in more issues exceeding the average. Although it is insufficient to conclude, the figure suggests that the association between vertical integration and lobbying is negative for firms that lobby less than the industry average while positive for firms that lobby more actively than the industry average.[57]

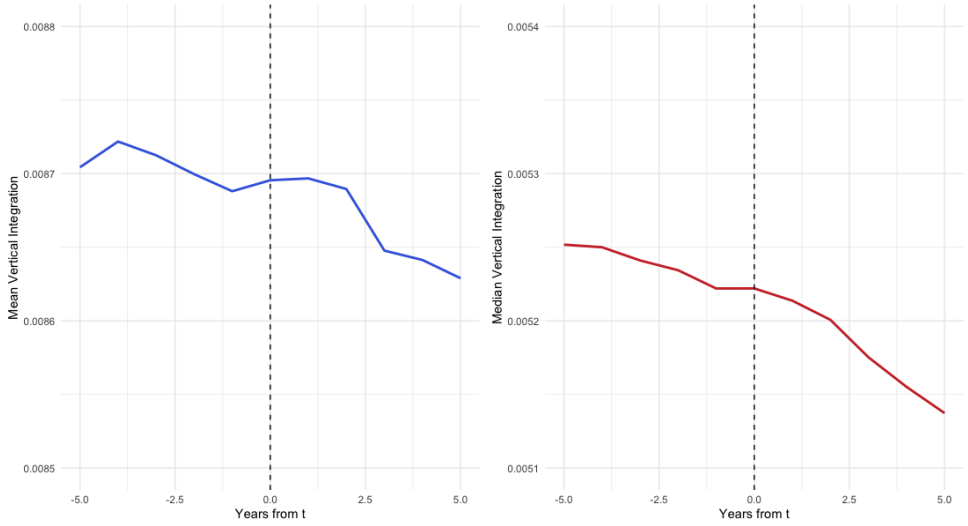
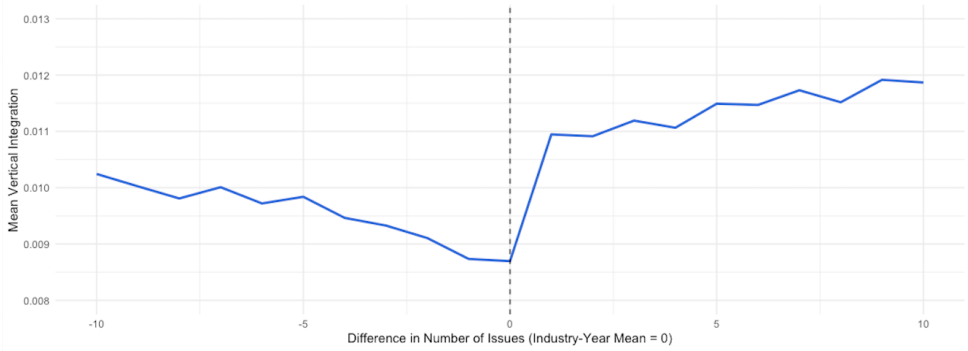


Figure 2.12: Persistence of Lobbying and Vertical Integration



Notes: For each firm, I calculate the difference between its number of lobbying issues and industry-year average. When they are the same, the value is 0.

Figure 2.13: Number of Lobbying Issues and Vertical Integration

[57] Figure B.27 show some large-cap companies grouped by the number of issues.

2.5 The Scope of the Firms and Lobbying

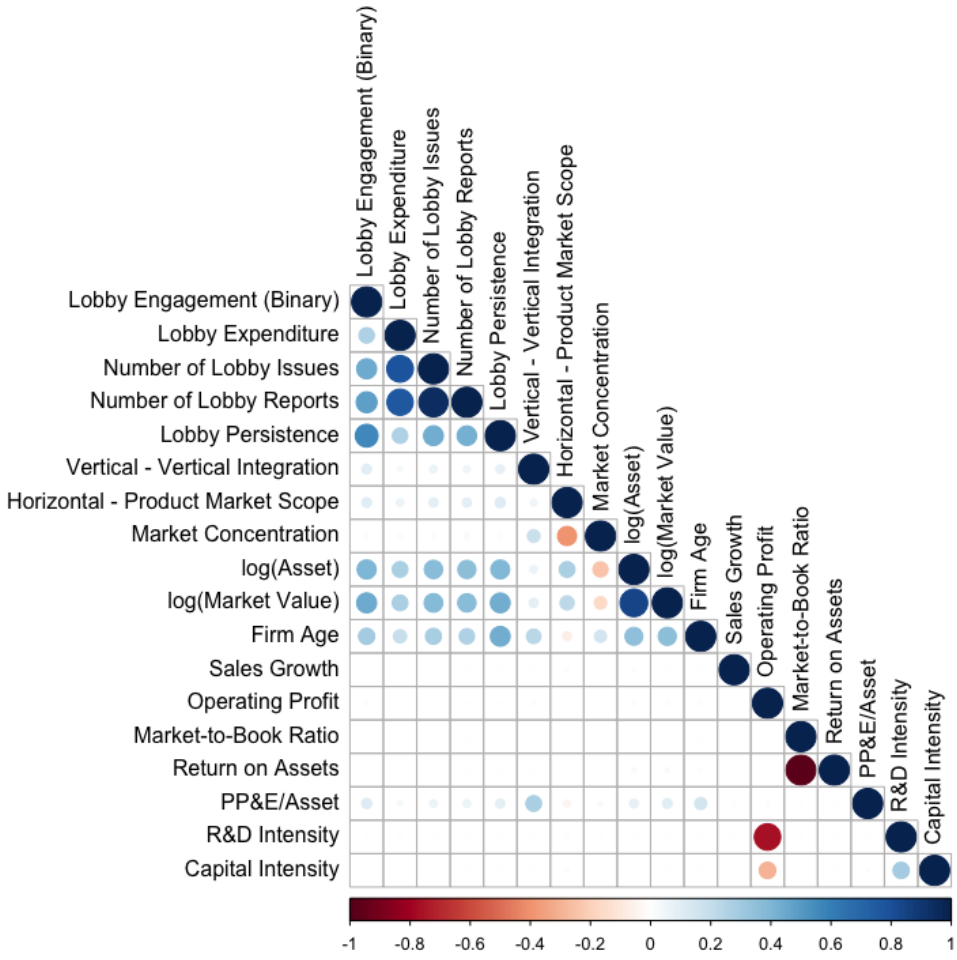
The second and third questions center around the association between the firm scope and lobbying, focusing on the distinction between vertical and horizontal scope. Using two-way fixed effect models, I test their relationship. To highlight the different aspects of lobbying, I also use different alternative measures. The three tests aim to find correlational rather than causal relationships. Since it is correlation-based, the relationship is both ways.

Since this article explores how firm scope and lobbying are strategically aligned, I focus on the model with firm-year fixed effects and controls. Simple linear models are added for comparison. Extending the previous studies on horizontal diversified firms' lobbying, I include product market scope as a measure of horizontal diversification. The main models are as follows:

$$\begin{aligned} log(\text{Firm Lobbying}_{i,t} + 1) = \; & \alpha + \beta_1 \cdot \text{Vertical Integration}_{i,t} + \\ & \beta_2 \cdot \text{Product Market Scope}_{i,t} + \\ & \delta \cdot \mathbf{Z}_{i,t} + \theta_t + \gamma_i + \epsilon_{i,t} \end{aligned} \tag{2.1}$$

where i denotes a firm and t denotes a year. As measures of $Firm\ Lobbying_{i,t}$, I use $Lobby\ Expenditure_{i,t}$, $Number\ of\ Lobbying\ Issues_{i,t}$, and $Years\ in\ Lobbying_{i,t}$. Each measure represents lobbying intensity, breadth, and persistence. To examine the association between vertical integration and lobbying, I set all variables at year t. $\mathbf{Z}_{i,t}$ indicates control variables, including asset size, profitability, return on asset (or ROA), firm age, R&D intensity, and capital intensity. Figure 2.14 shows the correlation between variables, and descriptive statistics are available in Table B.2 in the appendix. θ_t captures year-fixed effects, and γ_i captures firm-fixed effects. For comparison, I add μ_j in some models for capturing industry-fixed effects.

Figure 2.14: Correlation between Main Variables



Notes: The plot is based on Pearson correlation coefficients for the full sample.

Vertical integration and lobbying can be complementary when an increased range and number of stakeholders amplify opportunities and risks. Given the rigidity of vertically integrated firms, firms might use lobbying as a complementary means to manage uncertainties. Since politicians welcome corporate investment with open arms, especially before the election season, vertical integration might offer tax incentives or other political favors by appealing to politicians. Firms representing sizable voter blocs might benefit more from vertical integration and lobbying. Moreover, since integrated firms commit to a value chain of specific businesses, the positive

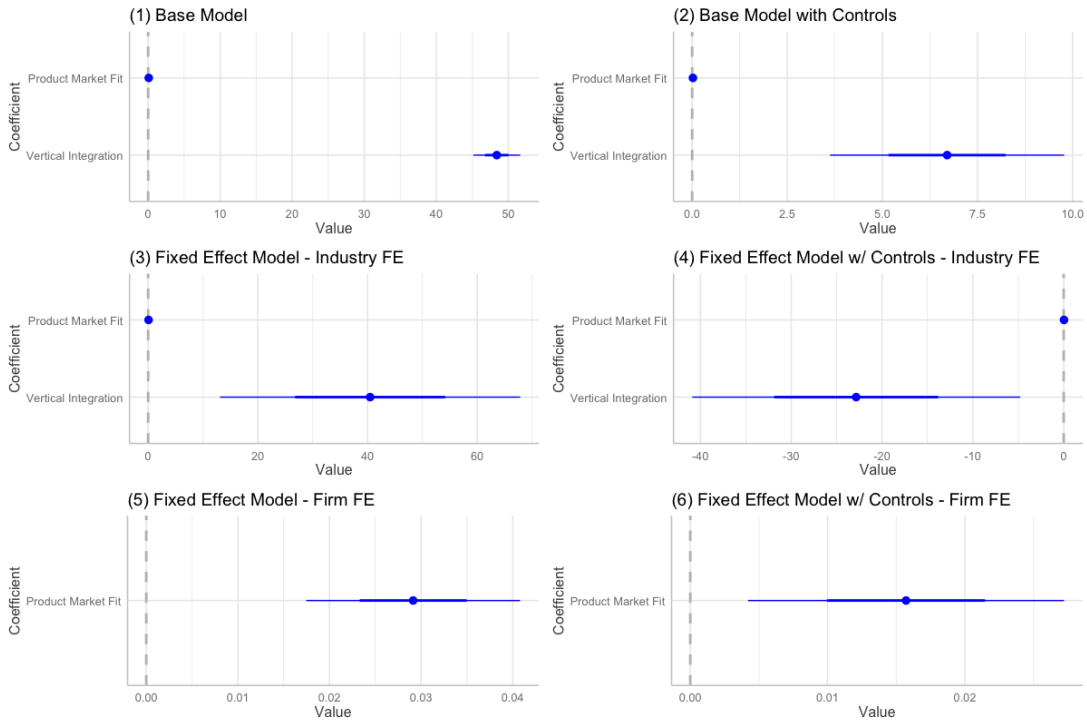
or negative effect of policy change could be more significant, while spreading out lobbying expenditure decreases the marginal cost of lobbying. Figure 2.15 and Table 2.1 show the result.

Although it loses significance in Column (6), vertical integration with fixed effects and controls supports a negative relationship with lobbying intensity. The direction is also negative when adding the industry-year fixed effect and controls. Although it loses statistical significance, the results indicate that a 1% increase in vertical integration is associated with a 2.5% decrease in lobbying expenditure, with firm-year fixed effects and controls. Although the explained portion of variance is lower than that of the primary model, the effect is greater in the models with industry-year fixed effects. In Column (4), 1% more vertically integrated firms tend to spend 22.9% less on lobbying when the average effects of each industry year and other firm characteristics are constant. For an average firm, a 1% increase in vertical integration is associated with spending about 52,571 dollars more on lobbying.

Consistent with previous studies, firms with broader horizontal scope tend to spend more on lobbying(Hillman et al., 2004; Kim, 2008), not only in the primary model but also across all models for comparison. 1% increase in product market scope is associated with a 0.03% increase in lobby spending when industry-year average effects and other firm characteristics are controlled. It is for an average firm that spends 229,570 dollars a year, expansion in one more product market is associated with 689 dollars increase in lobbying expenditure.[58] The omitted variables in the industry-year fixed effects models might contribute to the mixed results. Since the mixed results are consistent in the relationship between vertical integration and lobbying issues, I discuss the omitted variable later in this section. Unlike vertical integration, product market scope is significantly positive across all models. Consistent with previous findings, firms' asset size in control variables increases lobby expenditure (Kerr et al., 2014).

[58]For an average firm, 1% increase in product market scope is equal to about expansion in 0.09 product market.

Figure 2.15: Vertical Integration and Lobby Intensity



Notes: The coefficients of vertical Integration lose significance in the firm-year fixed effect models (5) and (6). The effect of product market fit is small compared to vertical integration but significantly positive.

Table 2.1: Vertical Integration and Lobby Intensity

	Dependent variable:					
	Lobby Intensity: *log*(Lobby Expenditure + 1)					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
Vertical Integration	48.395***	6.701***	40.469***	−22.850**	0.997	−2.477
	(1.623)	(1.538)	(13.679)	(9.028)	(4.245)	(4.247)
Product Market Scope	0.082***	0.021***	0.075***	0.032***	0.029***	0.016***
	(0.003)	(0.002)	(0.010)	(0.010)	(0.006)	(0.006)
Controls		✓		✓		✓
Year FE			✓	✓	✓	✓
Industry FE			✓	✓		
Firm FE					✓	✓
Observations	96,356	96,356	96,356	96,356	95,127	95,127
Adjusted R^2	0.020	0.228	0.064	0.288	0.769	0.773
Note:						*p<0.1; **p<0.05; ***p<0.01

Next, Table 2.16 shows the results of testing the association between vertical integration and lobbying breath. The main results in Column (6) with firm-year fixed effects and controls, 1% more vertically integrated firms engage in 0.5% narrower issues, although it loses statistical significance. The negative relationship is found in the models for comparison. For the model with industry-year fixed effects and controls, a 1% increase in vertical integration is associated with a 5% narrower lobbying breadth.[59] Since the average firm in the sample engages in around 3.9 issues, the firm will narrow the lobbying by 0.2 issues if 1% more vertically integrated.

Firms with broader product market scope are more likely to have diverse issues related to their products, which leads them to engage in more policy issues. In Column (6), a 1% increase in product market scope is associated with a 0.02 increase in lobbying breadth when the average effects of each firm-year and other firm characteristics are held constant. For an average firm,

[59] Column (4)

diversification into one more product market will likely engage in roughly one more lobbying issue. Although the number of issues does not directly capture diversity, a positive relationship with product market scope is expected. On the other hand, firms are likely to have stronger policy preferences as they vertically integrate and commit more to their supply chains. Firms might have fewer policy issues if vertical integration and lobbying are strategically aligned. Figure 2.16 and Table 2.2 show the relationship between vertical integration and lobbying breath.

The results from Table 2.1 and Table 2.2 are largely consistent. With firm-level controls, vertical integration is significantly negative in the industry-year fixed effect model. Firm-year fixed effect models with or without controls are not significant. On the other hand, lobbying issues increase with an increase in horizontal scope. Their positive relationship is consistent across all models, although the effect size is minimal compared to vertical integration.[60] A potential reason for losing statistical significance in firm fixed effect models is multicollinearity between the firm-year fixed effects and firm scope. In two of our models, the firm-year fixed effects absorb much of the variation in lobby intensity and lobbying breadth. It is also possible that the firm-year fixed effects capture much of the variation that was previously attributed to industry differences. For example, strong competition within an industry might lead firms within the same industry to lobby in similar ways.[61]

The negative association between vertical integration and lobbying is more apparent in the model that explores the persistence of lobbying. On average, the firms in our sample engaged in lobbying for 1.65 years. If I narrow down to firms that engaged in lobbying at least once during the period, their average years in lobbying is 5.45.[62] The model examines if vertical integration is associated with longer or shorter persistence of lobbying. Figure 2.17 and Table 2.17 present

[60]The results are consistent when I use the number of lobbying reports. Figure B.28 and B.8 in the Appendix show the results of the robustness check. The results are consistent in an alternative test with fixed-effects ordered logit models(Muris, 2017) by using decile for grouping firms based on the number of policy issues they engage. As vertical integration increases, lobbying issues reduce the most in the highest 10% groups with the largest vertical integration. The results are available in the Appendix. Table B.10 and Figure B.29 show the results.

[61]In *Chapter 3*, similar issues arise in the models where the dependent variable is lobbying intensity.

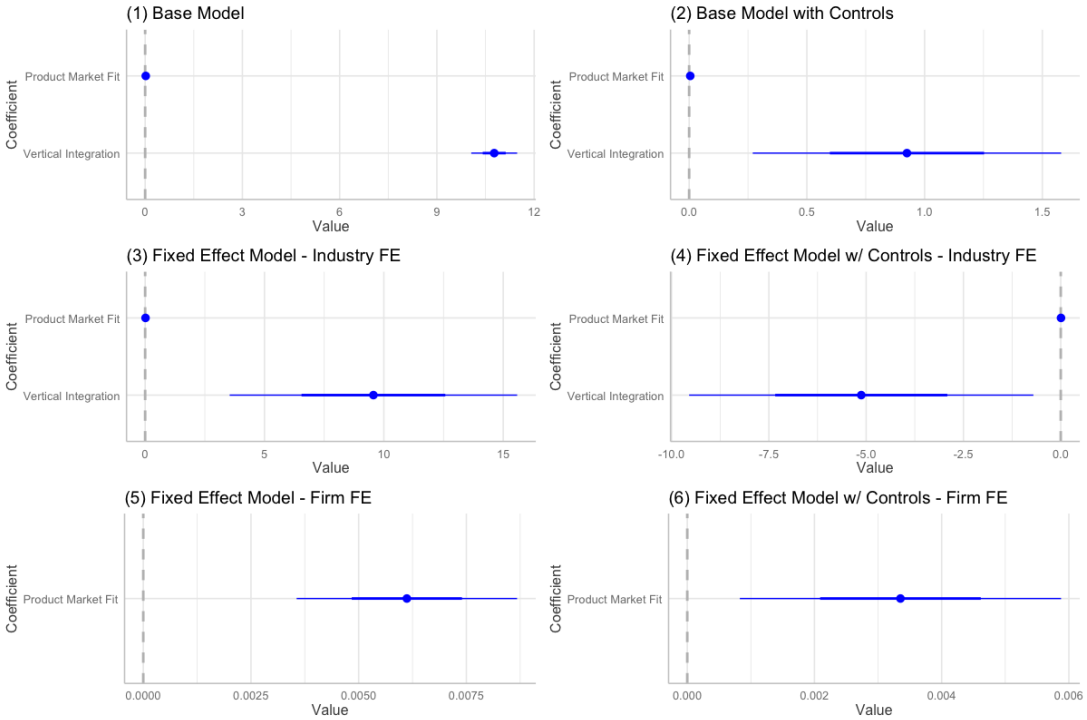
[62]Most of the firms with short persistence lobby through contracted lobbyists, which is easier to terminate than hiring internal lobbyists (De Figueiredo and Kim, 2004). Among the firms that engaged in lobbying less than the average, 5.45, the ratio of contracting so-called K-street lobbyists is approximately 90%.

the results for testing the relationship between vertical integration and persistence.

In Table 2.3, Column (6) shows a negative association between vertical integration and lobby persistence. As firms are 1% more vertically integrated, they are more likely to persist in lobbying for 3.8% longer. Since the average firm persists about 1.65 years in lobbying, it will likely stay 0.06 years longer if it is 1% more vertically integrated, when the average effects of each firm year and other firm characteristics are held constant. Except for the base model and model (3), vertical integration is associated with shorter lobbying persistence. The results support the negative association between vertical integration and lobbying. They can be substitutes in terms of lobby persistence. Unlike the tests for lobby intensity and issues, the results for lobby persistence stay consistent in both firm-year fixed effects models with and without controls.

While vertical integration is associated with shorter persistence of lobbying, product market scope is associated with longer lobby persistence. In Column (6), a 1% increase in product market scope is associated with 0.003% longer persistence of lobbying. If an average firm diversifies by adding one more product offering, it will likely persist 0.05 years longer in lobbying. Based on the results from Table 2.15, Table 2.2, and Table 2.17, firms with diverse product markets tend to spend more on the lobby, engage in more policy issues, and stay longer in the game.

Figure 2.16: Vertical Integration and Lobbying Breath



Note: The coefficients of vertical Integration lose significance in the firm-year fixed effect models (5) and (6). The effect of product market fit is small compared to vertical integration but significantly positive.

Table 2.2: Vertical Integration and Lobbying Breath

	Dependent variable:					
	Lobbying Breath: *log*(Number of Lobby Issues + 1)					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
Vertical Integration	10.769^{***}	0.925^{***}	9.563^{***}	-5.126^{**}	0.253	-0.462
	(0.354)	(0.327)	(3.011)	(2.211)	(0.927)	(0.932)
Product Market Scope	0.019^{***}	0.005^{***}	0.016^{***}	0.006^{***}	0.006^{***}	0.003^{***}
	(0.001)	(0.001)	(0.003)	(0.002)	(0.001)	(0.001)
Controls		✓		✓		✓
Year FE			✓	✓	✓	✓
Industry FE			✓	✓		
Firm FE					✓	✓
Observations	96,356	96,356	96,356	96,356	95,127	95,127
Adjusted R^2	0.021	0.265	0.068	0.318	0.816	0.819
Note:						*p<0.1; **p<0.05; ***p<0.01

Table 2.3: Vertical Integration and Lobby Persistence

	Dependent variable:					
	Lobby Persistence: *log*(Years in Lobbying + 1)					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
Vertical Integration	8.744^{***}	-0.887^{***}	7.697^{**}	-3.707^{**}	-3.745^{***}	-3.892^{***}
	(0.294)	(0.273)	(2.907)	(1.470)	(0.955)	(0.958)
Product Market Scope	0.015^{***}	0.010^{***}	0.008^{**}	0.005^{***}	0.003^{***}	0.003^{**}
	(0.0005)	(0.0004)	(0.003)	(0.002)	(0.001)	(0.001)
Controls		✓		✓		✓
Year FE			✓	✓	✓	✓
Industry FE			✓	✓		
Firm FE					✓	✓
Observations	96,356	96,356	96,356	96,356	95,127	95,127
Adjusted R^2	0.020	0.258	0.132	0.335	0.807	0.807

Note: *p<0.1; **p<0.05; ***p<0.01

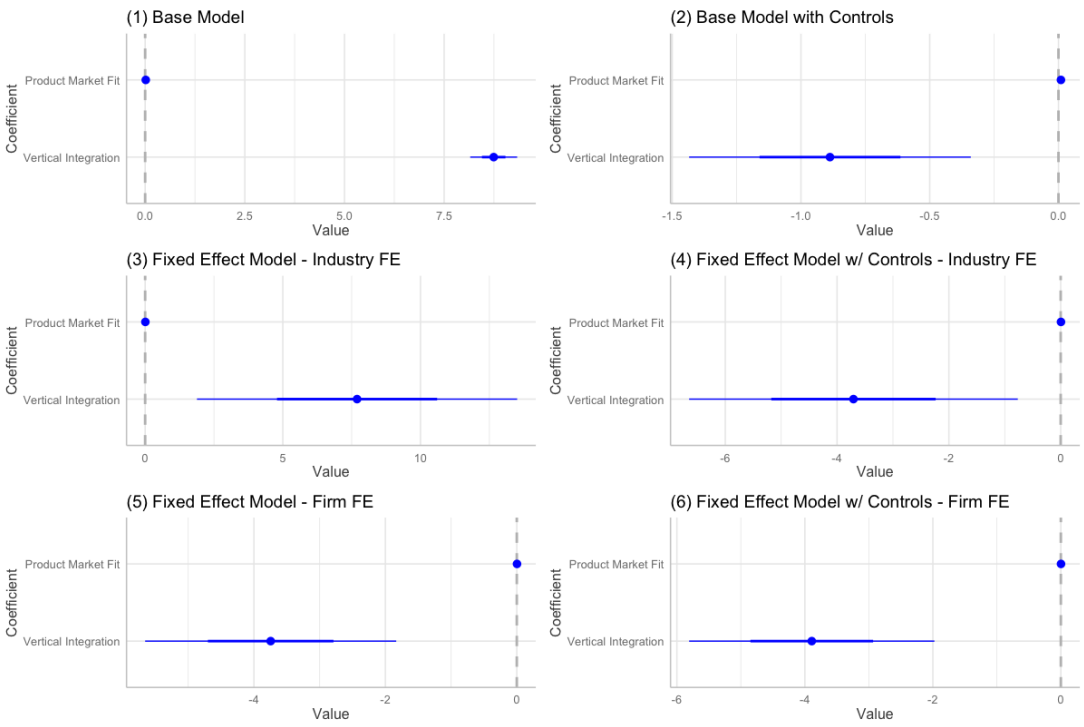


Figure 2.17: Vertical Integration and Persistence of Lobbying

2.6 Discussion and Conclusion

Throughout this article, I explored the relationship between vertical integration and lobbying. The potential rationales behind positive or negative associations were mainly threefold. First, by investing in certain states and enlarging the stakeholders that firms can mobilize, vertical integration might offer opportunities for firms to appeal to politicians (Bisbee and You, 2024). Second, the strategic alignment between integration and lobbying might magnify the returns and risk it brings (Jia and Mayer, 2016; Baron, 1995). If misaligned, lobbying might incur substantial costs, including the cost of a tedious policy fight (Drutman, 2015). Third, vertical integration can be a liability in a rapidly changing environment as it reduces agility (Langlois and Robertson, 1992). Vertical integration and lobbying might be positively associated if lobbying complements the reduced agility by reducing uncertainties (Hassan et al., 2019), and negatively associated if lobbying distracts corporate focus and resources away from market (Gao and McDonald, 2022).

Although the relationship might unfold in both positive and negative ways, our evidence puts more emphasis on the negative association. Despite some mixed results, vertically integrated firms seem to spend less on lobbying, engage in narrower issues, and stay shorter in lobbying. On the contrary, horizontal scope produces a consistently positive association with lobbying. Firms with broader product market scopes tend to spend more, engage in broader issues, and stay longer in lobbying. Whereas firms might be more exposed to risks, this article also suggests that firms might have more leeway in determining the horizontal scope of the firm.

To our knowledge, it is the first study that connects vertical integration and lobbying. With alternative lobbying measures, I explored how vertical integration can be associated with firm lobbying. Lobbying issues and persistence highlight slightly different aspects of lobbying than traditional measures (Ridge et al., 2017; Abdurakhmonov et al., 2022). Moreover, comparing vertically integrated firms and firms with broad product market scope in lobbying, I extended the previous studies on diversification and corporate political activities (Shaffer, 1995). Despite some limits, this article points to the potential association between vertical integration and lobbying and underscores the usefulness of alternative lobbying measures.

Studying the relationship between the scope of the firms and lobbying provides several opportunities to study corporate strategies and performance. First, regarding non-market strategies, firms might encounter trade-offs between investing in lobbying and other investments such as R&D and marketing. Their choice can be more critical for firm performance with resource limits. For example, earlier studies posit that vertical integration can contribute to innovation by sharing and facilitating information across different supply chain stages (Armour and Teece, 1980). Another stream of literature offers empirical evidence that specialized firms with realized innovations are likely to become targets of vertical acquisitions (Bena and Li, 2014) and industries where innovation is mostly realized feature relatively high levels of vertical integration (Frésard et al., 2020). The trade-off between lobbying and other corporate investment calls for future theoretical and empirical research in this vein.

Second, vertical integration is eventually a choice of core capabilities to develop. As it requires a corporate commitment to a particular value chain, it might be close to the commitment that citeghemawat1991commitment conceptualized. However, I carefully suggested that vertical integration might be more flexible than previously assumed. In addition to the flexibility of vertical integration (Claussen et al., 2015; Richardson, 1996), the growing importance of intangible assets seems to play a role (Haskel and Westlake, 2018). If this is the case, vertical integration will depart from investment in*sticky factors* and the resulting missing out profitable opportunities (Ghemawat, 1991). The organizational trade-off between rigidity and flexibility might need to be redefined.

This study is without limits. For example, alternative forms of lobbying, such as lobbying through trade associations or mobilizing stakeholders, were not included in the descriptions. As widely known, some firms lobby through trade association (De Figueiredo and Kim, 2004). When they start lobbying, firms have alternative options to organize their lobbying. According to *OpenSecrets*, the top spenders in lobbying are not firms. Across 1998-2023, the top spenders are business associations like*U.S. Chamber of Commerce*,*Business Roundtable*, and*American*

Hospital Association.[63] Big corporate spenders like*General Electric* and*Boeing* rank following the business association. As discussed earlier, vertical integration might motivate firms to commit to a specific industry by investing in various value chain stages. For vertically integrated firms, collective lobbying is more effective in influencing policies and hiding their fingerprints. Also, if it is successful, vertically integrated firms will likely earn larger returns from collective lobbying, offering them a stronger incentive to collective lobbying (Bombardini and Trebbi, 2012).

A more important example today is mobilizing the constituents. Traditional lobbying involves wooing members of Congress with gifts and promising campaign contributions. However, whipping enough opposition to the legislation among ordinary Americans is deemed the most influential corporate lobbying after *Google*'s lobbying tactics to rally their users succeeded in 2011.[64] With an election always just around the corner, politicians are eager to support issues and causes that appeal to voters at home while being uncomfortable taking actions that are not popular. Although it is a big part of lobbying that many firms use today, this study has limits to capturing it. Studying the relationship between firm scope and lobbying by incorporating alternative forms of lobbying would further enrich the literature.

For companies and lawmakers, lobbying is the last one to advertise. It is why alternative means of lobbying thrive, such as lobbying through business associations, shaping the intellectual environment, and engaging in corporate philanthropy(De Figueiredo and Tiller, 2001; Drutman, 2015; Bertrand et al., 2020). Since firms prefer lobbying to remain unnoticed, they often invent and develop alternative means of lobbying. In other words, lobbying innovates. For this reason, the alternative means are hardly observable through lobbying reports, which adds another hill for already tough uphill battles but offers opportunities for future research.[65]

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[63]The top seven spenders are U.S. Chamber of Commerce ($1,882,365,680), National Association of Realtors ($849,607,903), American Hospital Association ($525,121,249), Pharmaceutical Research & Manufacturers of America ($507,171,550), American Medical Association ($504,434,500), Blue Cross/Blue Shield ($477,487,278), and Business Roundtable ($390,350,000).

[64]Along with other internet companies, *Google* fought against the Protect Intellectual Property Act in 2011.

[65]Today, one of the most effective ways of lobbying is mobilizing stakeholders, including users, customers, employees, suppliers, and residents. Starting Google in 2011, many firms, including tech, oil and gas, pharmaceutical, tobacco companies, and recently,*TikTok* lobbied through rallying ordinary Americans. (Source:*WSJ*. 2024/03/29. Big Tech Has a New Favorite Lobbyist: You)

Chapter 3: Chains of Lobbying: How Do Supply Chain Relationships Affect Corporate Political Activities? (with Soohyun Cho)

3.1 Motivation

How do firms manage sustainability risks within their supply chains? As the importance of environmental, social, and governance (henceforth, ESG) extends from the focal firm to its supply chain, effectively addressing the risks regarding sustainability across the supply chain has emerged as a crucial determinant of firms' competitiveness (Albuquerque et al., 2019). Based on the comparative costs associated with searching for and contracting with trade partners, firms strategically decide whether to "make or buy" the inputs. Global suppliers in emerging countries have a cost advantage in manufacturing goods. However, the supplier factors that offer cost advantages to benefit customer firms often depend on negative externalities such as tolerance of poor labor conditions and environmental damage. When the negative externality grows enough to provoke significant stakeholders like media, government, customers, and shareholders, it often exacerbates ESG-related risks and has an economic impact on firms (Freiberg et al., 2020).

Initiating corporate strategies and managing their performance on ESG is a relatively recent phenomenon (Ioannou et al., 2016). Although limited in influence, *Sustainable Development* became an agenda since some governments and international organizations agreed on global initiative.[1] The catalysts came from the giant asset management companies like *Blackrock*. As a catalyst, the letter to shareholders from Larry Fink, the CEO of *Blackrock*, and following guidance from the largest institutional investors changed the corporate incentives. It was followed by major credit rating agencies and insurance companies that integrated ESG ratings into their

[1] United Nations. "Sustainable Development Goals"

assessments, and investors committed to integrating ESG assessments into their investments.

Notably, ESG assessment is not limited to firms' own operations. It emphasizes corporations' responsibility throughout their supply chain. For example, *Apple* has been criticized for poor working conditions at its mega-supplier *Foxconn* in 2019. Although *Apple* is well known for its efforts to keep high standards for its production practices, several accusations came along that its demands for shorter production cycles caused the suppliers' misconduct.[2] Similarly, the criticism directed at *Tesla* illustrates the challenges that firms encounter. Despite its efforts to keep high ESG standards as reported in its annual environmental impact report, *Tesla* took the hit from its battery material suppliers' involvement in child labor in unsafe artisanal mines in Congo.[3] Contrary to the common belief that ownership comes with responsibility, responsibility in these cases came with relationships rather than ownership. This example underscores the notion that customer firms may bear responsibilities beyond their own operations. Amid the growing pressure from various stakeholders, including consumers, shareholders, and governments expecting firms to manage their supply chain, firms encounter a growing demand to control their suppliers' ESG compliance as well as their own[4]

Given that many firms choose global sourcing for cost-saving (Whitford, 2005; Bresnahan and Levin, 2012), it creates challenges for firms whose primary motive for contracting is efficiency. For these firms, enhancing suppliers' ESG is often a lengthy and costly process, reducing the merits of outsourcing. However, sourcing from suppliers that do not adhere to the standards increases the risk of public criticism, which tends to materialize amid growing importance of ESG. The stringent policies underlie the trend, creating costly regulation shocks.

In 2020, *U.S. Customs and Border Protection* (henceforth, CBP) detained palm oil shipments and blocked the import of major Malaysian palm oil producers. Although the direct causes that

[2] *Business Insider*. 2019/09. "Apple and Foxconn confirmed they broke a Chinese labor law by employing too many temporary workers at the world's biggest iPhone factory"

[3] *Forbes*. 02/08/2023. "Battery Push By Tesla And Other EV Makers Raises Child Labor Concerns" Accessed: 08/20/2023.

[4] Extended Producer Responsibility (EPR) also features the recent trends in ESG assessment. Although it is beyond the scope of our study, it shows that corporate responsibility expanded in the 2000s. OECD defines Extended Producer Responsibility (EPR) as "an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle." Source: OECD

came under fire were allegations of forced labor and indentured child labor in their plantations,[5] palm oil production also has been an issue for its environmental harm. In 2010, corporations that joined the *Consumer Goods Forum* pledged to make policies to stop deforestation and limit climate change. As a result of their commitment to improving global commodity supply chains by 2020, some corporations made '*No Deforestation, No Peat, and No Exploitation (NDPE)*' policies. Several companies in the palm oil supply chain complied with the guidelines of *Roundtable on Sustainable Palm Oil*.[6] However, many of them still used palm oil from suppliers that destroyed rainforests and violated workers' human rights until the CBP took punitive actions.

As a substantially more productive ingredient than other major vegetable oils, palm oil is used in everyday products, from soap to lipsticks to cookies to frying oil. More than doubled since 2000, global palm oil production exceeded 50 million metric tons in 2012, equivalent to 1.9 million truckloads.[7] Following India and China, the U.S. is the third largest palm oil importer, importing 1.58 million tons in 2019.[8] As one of the least expensive vegetable oils on the market with negligible adverse effects on health, palm oil enables firms to reduce their manufacturing costs significantly. Nevertheless, the ecosystem destruction contributing to global warming and the labor abuses at the plantations have been social issues that worry many consumers, NGOs, and lawmakers worldwide.

While the European Union's cause for banning palm oil imports focuses on its environmental impact, the primary ground for the withhold release order of the U.S. government was labor abuses, which is politically less controversial[9] Since some companies that manufacture food and consumer products depend on the cost efficiency of palm oil, the trade ban affects their

[5] *U.S. Customs and Border Protection*. 12/30/2020. "CBP Issues Withhold Release Order on Palm Oil Produced by Forced Labor in Malaysia"

[6] The Roundtable on Sustainable Palm Oil (RSPO) is a multi-stakeholder international body comprising oil palm growers, processors, traders, consumer goods manufacturers, retailers, banks, investors, and social and environmental NGOs.

[7] Source: FAO(Food and Agriculture Organization)

[8] Figure C.1

[9] The House Representative, John Garamendi, introduced the "End Palm Oil Deforestation Act" in 2021. On December 1, 2023, members of the U.S. House of Representatives and Senate reintroduced a bill named "Fostering Overseas Rule of Law and Environmentally Sound Trade Act of 6 2023", the so-called "FOREST Act of 2023" that would prohibit the import of products made from commodities produced on illegally deforested land.

operations significantly. Although the U.S. manufacturers did not directly engage in labor malpractice, it caused a chain reaction, adversely impacting their customer firms' operations.[10] Particularly in the food manufacturing industry, nearly 70% of food accounts ranging from pizzas, bread, and cooking oil, depend on palm oil. Given the dependence and high concentration of producers, replacing the suppliers can be a costly option in the short-term (Bisetti et al., 2023).[11]

Figure 3.1 shows the companies impacted by the government measure on the palm oil trade. We reviewed the lobbying reports of each company during the three years before and after 2020 when the U.S. government took more active measures on issues related to palm oil. The figure summarizes the change in lobbying expenditure and policy issues that each firm discussed during 2020-21. Trade(TRD) was a common policy issue among major packaged food manufacturers with significant dependence on palm oil. Foreign relations (FOR), food industry (FOO), and environmental policies (ENV) were also popular across the companies that we researched. Interestingly, labor issues (LBR) were more likely related to the labor conditions in the U.S. than abroad. The exception was *Kraft Heinz* whose lobbying included the issues related to "*HR 1155; Uyghur Forced Labor Prevention Act*."[12]

Since firms have incentives to hide their lobbying purpose, the lobbying issues in the reports are abstract at best. However, some examples suggest firms might lobby for managing the short-term policy shocks. As Figure 3.2 shows, *Procter & Gamble* discussed *issues related to deforestation* in 2020, which was not discussed earlier.[13] In 2021, the issue disappeared, and another issue emerged, which is the *U.S. relations with Malaysia and Indonesia*, two of the largest palm oil producing countries.[14] The abovementioned issues were specific to the year 2020 and 2021. Regarding the issues, *Procter & Gamble* lobbied *U.S. Customs & Border Protection*, which banned the palm oil imports. According to Bombardini et al. (2021), corporate

[10]Forbes. 03/29/2023. "Suppliers Are The Secret Sauce To Manufacturers' ESG Success", Accessed: 12/01/2023

[11]According to FAO, producers in Malaysia and Indonesia take charge of approximately 85% of the global production.

[12]HR 1155, "Uyghur Forced Labor Prevention Act," was introduced in February 2021 and passed the House in December 2021.

[13]We checked the lobbying reports three years before and after 2020.

[14]Figure C.2

lobbying can be a response to a policy shock. Consistent with previous findings, some firms chose to lobby to manage the impact of the trade policies. Notably, as in the examples above, the risks tend to originate from the suppliers rather than the customer firms themselves, which were underexplored by earlier studies.

When replacing the suppliers or improving their malpractice is impractical in the short-term, how do firms manage the ESG risks inherent within their supply chains? In this article, we argue that lobbying can be a means to manage the risks from suppliers. Our argument depends on five arches of logic. First, supplier-driven ESG risks have economic impacts on customers (Le Tran and Coqueret, 2023). Second, either enforcing the suppliers' ESG compliance or replacing the suppliers is costly for customer firms in the short term (Bisetti et al., 2023; Vachon and Klassen, 2008). Third, government policies can magnify the adverse effects of ESG risks. Fourth, lobbying can help firms reduce the adverse effects (Delmas et al., 2016). Lastly, lobbying costs might be less costly than directly fixing the supplier problems. If this is the case, firms might lobby to influence the effect of policies and manage the risks from the suppliers. Firms have incentives to mitigate supplier firms' ESG risks by influencing policies because establishing and complying with such norms may incur substantial capital investment and management costs. Building on this insight, we show that increasing suppliers' ESG risks influence customer firms' lobbying. To support our argument, we offer quantitative results with descriptive evidence that substantiates our assumptions.

This paper bridges the previous literature on corporate political activity (CPA) and trade. In particular, we offer empirical evidence that supplier-driven risks can motivate corporate lobbying for managing the risks. As the importance of ESG and supply chain emerge, the number of studies on the relevant topics rises. However, supply chain received less attention in studies on the economic impact of ESG (e.g., Gillan et al., 2021; Chiaramonte et al., 2022). Although previous studies have documented that customer firms bear significant economic costs for the risks inherent in their supply chains (Le Tran and Coqueret, 2023), the response of customer

Packaged Food Companies

Company	Corporate Lobbying (2020-21)	
	Expenditure Growth	Policy Issues
Unilever	-	FOO, **ENG**, **ENV**, **TRD**, AGR, CIV, CSP
Mondelez	+	TAX, **TRD**
Kellogg's	+	FOO, RET, **TRD**, AGR, TAX, IMM
General Mills	+	AGR, **ENV**, **TRD**, BUD, CIV, TRU
Kraft Heinz	-	AGR, **TRD**, FOO, BUD, TAX, HCR, LBR, GOV, **FOR**
PepsiCo	-	FOO, **TRD**, **ENV**, TRA, AGR, CDT, DIS, TRU, MAN, TAX, ECN, FIN, ADV, MED, IMM, LAW, SCI, LBR, VET, TOU
ConAgra Brands	+	AGR, FOO, **TRD, ENG,** GUD

Personal Care Companies

Company	Corporate Lobbying (2020-21)	
	Expenditure Growth	Policy Issues
Colgate-Palmolive	+	CHM
Procter & Gamble	-	TAX, CSP, DIS, TRA, **TRD,** MAN, LAW, PHA, WEL, **TAR,** EDU, **ENV,** FOR, GOV, ADV, ANI, CHM, CPT, BUD, CIV, **LBR,** TRU, AGR, HCR, IMM, AVI, SCI, DEF, PHA, SPO
Estee Lauder	+/-	**TRD**, CSP, CIV
Clorox	+	CHM, GOV, MAN

Fast Food Companies

Company	Corporate Lobbying (2020-21)	
	Expenditure Growth	Policy Issues
McDonald's	+	LBR, TAX, **ENV,** FOO, AGR, EDU, GOV, **ENG**
Restaurant Brands International	+/-	SMB, TAX, GOV, LBR, FOO, HCR
Domino's Pizza	+/-	CSP, SMB, TAX
*Dunkin' Brands	-	LBR, TAX, IMM
Starbucks	+	**ENV**, CIV, LBR, TAX, VET, FOO, **FOR**, IMM, HCR, EDU, ECN
*Wendy's	NA	
Yum! Brands	+	LBR, TAX, SMB, **TRD**, AGR, TRA, SCI, CSP, FOO, BUD, **ENV**, TEC

Packaged Food Companies

Company	Example Brands	Commitment Score [0,100]
Nestlé	Toll House PowerBar	85.5
Unilever	Ben and Jerry's Popsicle Slimfast	83.5
Mondelēz	Oreo Ritz Nutter Butter	68.6
Kellogg's	Pop-Tarts Nutri-Grain	52.8
Danone	Danimals	51.5
General Mills	Pillsbury Nature Valley	42.6
HJ Heinz	Ore-Ida Smart Ones	37.1
PepsiCo	Quaker	33.7
ConAgra Foods	Act II popcorn Marie Callender's	35.5
Kraft Foods	Cool Whip JELL-O	0

Personal Care Companies

Company	Example Brands	Commitment Score [0,100]
L'Oréal	The Body Shop Kiehl's Lancôme	80
Reckitt Benckiser	Calgon Clearasil	68.3
Henkel	Dial Right Guard	40
Beiersdorf	Nivea Aquaphor	37.3
Colgate-Palmolive	Softsoap Irish Spring	35
Kao	Jergens Curél	34
Procter & Gamble	CoverGirl Old Spice	16.1
Avon	-	15
Estée Lauder	Clinique Bumble and bumble	0
Clorox	Burt's Bees	0

Fast Food Companies

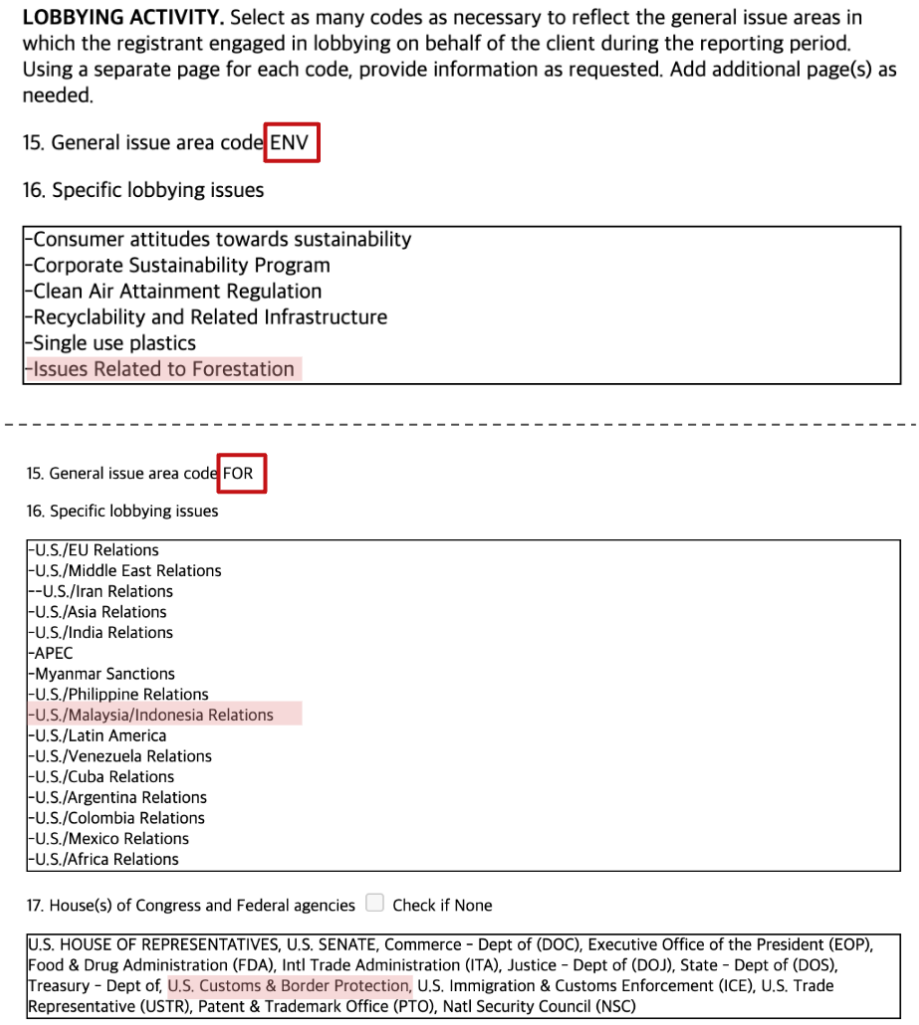
Company	Example Brands	Commitment Score [0,100]
Subway	-	38
McDonald's	-	21.1
Burger King	-	0
CKE Restaurants	Carl's Jr./Green Burrito Hardee's/Red Burrito	0
Dairy Queen	-	0
Domino's	-	0
Dunkin' Brands	Baskin-Robbins Dunkin' Donuts	0
Starbucks	-	0
Wendy's	-	0
Yum! Brands	KFC Pizza Hut Taco Bell	0

Strong commitment | Some commitment | Little commitment | No commitment

Note: 1) Growth in lobbying expenditure is whether a YoY change from 2020 to 2021 is positive or negative. Because COVID-19 constrained corporate spending and face-to-face interactions, lobbying expenditure has generally decreased during the period. Since *Dunkin' Brands* was acquired by *Inspire Brands* in 2020, its lobbying activities are unavailable after 2019. *Wendy's* stopped lobbying after 2019. The issue codes are available in Figure B.6. We hand-collected the lobbying data for each company. 2) *NDPE* stands for '*No Deforestation, No Peat, and No Exploitation*' policies. We rearranged the tables in the 2014 UCS report, "Palm Oil Scorecard 2014: Ranking America's Biggest Brands on Their Commitment to Deforestation-Free Palm Oil." America's biggest brands do not mean their country of incorporation. (Source: ucsusa.org)

Figure 3.1: Major Customers of Palm Oil Producers, Lobbying, and Commitment to NDPE

firms is less understood. Also, we contribute to the scholarly discussion about norm diffusion within the supply chain by showing that corporate lobbying can influence how ESG norms are



LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the registrant engaged in lobbying on behalf of the client during the reporting period. Using a separate page for each code, provide information as requested. Add additional page(s) as needed.

15. General issue area code ENV

16. Specific lobbying issues

-Consumer attitudes towards sustainability
-Corporate Sustainability Program
-Clean Air Attainment Regulation
-Recyclability and Related Infrastructure
-Single use plastics
-Issues Related to Forestation

15. General issue area code FOR

16. Specific lobbying issues

-U.S./EU Relations
-U.S./Middle East Relations
--U.S./Iran Relations
-U.S./Asia Relations
-U.S./India Relations
-APEC
-Myanmar Sanctions
-U.S./Philippine Relations
-U.S./Malaysia/Indonesia Relations
-U.S./Latin America
-U.S./Venezuela Relations
-U.S./Cuba Relations
-U.S./Argentina Relations
-U.S./Colombia Relations
-U.S./Mexico Relations
-U.S./Africa Relations

17. House(s) of Congress and Federal agencies ☐ Check if None

U.S. HOUSE OF REPRESENTATIVES, U.S. SENATE, Commerce - Dept of (DOC), Executive Office of the President (EOP), Food & Drug Administration (FDA), Intl Trade Administration (ITA), Justice - Dept of (DOJ), State - Dept of (DOS), Treasury - Dept of, U.S. Customs & Border Protection, U.S. Immigration & Customs Enforcement (ICE), U.S. Trade Representative (USTR), Patent & Trademark Office (PTO), Natl Security Council (NSC)

Note: The lobbying activities are from reports submitted in 2020 and 2021, respectively. For discussing issues above, *Procter & Gamble* used internal lobbying capabilities, spending $3,284,028 in 2020 and $2,972,810 in total. Since the reports contained multiple lobbying issues, it was infeasible to infer the relative importance of each issue from the reports.

Figure 3.2: Lobbying Issues of a Major Palm Oil Customer: Procter & Gamble Co.

diffused. Although norm diffusion through trading partnerships is a widely-discussed topic in the international political economy (IPE), the role of corporate lobbying has received less attention. Therefore, we bridge the literature on firm lobbying within the context of American politics (Haeder and Yackee, 2015; Richter et al., 2009; De Figueiredo and Richter, 2014; You, 2017; Goldstein and You, 2017), competition over trade policies (Kim, 2017; Gawande and Hoekman, 2006; Bombardini and Trebbi, 2020), and diffusion of norms (Kelley, 2010; Hafner-Burton,

2005, 2011).

Building on previous findings, we show that customer firms increase lobbying efforts in response to the suppliers' ESG risks. In particular, in the face of suppliers' ESG risks, firms lobby more on the relevant issues. Focusing on relevant policy issues will allow firms to mitigate suppliers' risks at a comparatively lower cost than replacing or enhancing suppliers' practices. Our findings show that firms increase their lobbying efforts on environmental issues when suppliers experience more environmental incidents. To estimate the effect of ESG risks on firm-level lobbying, we combine large datasets on supply chain relationships, ESG incidents, and lobbying activities from 2007 to 2019. The firm-level data on supply chain relationships are from `FactSet Revere`, which provides information on individual supply chain relationships across firms over time. The ESG incidents are from `RepRisk`. Lobbying data are from `LobbyView` (Kim, 2018). For controlling firm-level characteristics, we use `Compustat`. To test our theory, we use two-way fixed effects models.

The rest of the article consists of five sections. In the following section, we review the literature on norm diffusion, which helps to link between supply chain and corporate lobbying. Section 3 connects the suppliers' ESG risks and corporate lobbying and hypothesizes whether and how suppliers' ESG risks increase firm lobbying. Section 4 introduces our data and models for testing the hypotheses. Section 5 shows the empirical results of the models. In the final section, we will discuss implications and avenues for future research.

3.2 Trade-based Norm Diffusion and Lobbying

Trade-based norm diffusion has been a widely discussed topic in the literature of international political economy (IPE). While focusing on state-level compliance with international norms, previous studies have examined whether incorporating non-trade issues (NTIs) into trade agreements diffuses international norms such as environment and labor standards (Kelley, 2010; Hafner-Burton, 2005, 2011). Some scholars claim that trade relationships facilitate the

improvement of international norms in developing countries because they seek to establish or expand trade relationships with developed countries that maintain higher standards. This process of norm diffusion is called *California effect*, a term originally coined to explain the diffusion of vehicle emission standards across U.S. states (Vogel, 2009).

On the other hand, others argue that trade relationships can lead to a *race to the bottom* in international norms for developing countries. For example, in terms of labor norms, the competition induced by trade pressures these countries to lower costs, resulting in less compliance with labor norms (Mosley and Uno, 2007). Firms in developed countries use global sourcing from emerging countries to take advantage of cheaper labor costs and more lax environmental regulations. The interests of suppliers and governments in developing countries are aligned with them because they have relatively weaker domestic markets and rely heavily on trade relationships. For this reason, the government often tolerates the externalities it creates, such as poor working conditions and adverse environmental effects.

However, both theories assume away that the stakeholders in their home countries can motivate corporations to manage their suppliers. Given the *California effect*, firms in emerging countries have economic incentives and the ability to voluntarily bear the cost of meeting the high standards for sustaining trading relationships. Both low-cost suppliers and customers are happy as long as the production cost remains stable. When production costs increase, the theory predicts that firms in developed countries should find alternative suppliers and diffuse norms again. On the contrary, *race to the bottom* theories assume that firms in emerging countries have little or no incentive to meet the standards. Instead, firms in advanced countries have an incentive to keep it low since lower production cost is the primary driver of global outsourcing. Meanwhile, emerging countries and low-cost suppliers bear the cost of negative externalities.

With increasing social pressures to enhance ESG, the U.S. government today plays a crucial role in enforcing and implementing international norms. For example, the U.S. government incorporates labor obligations and norms in trade agreements to force firms to rectify the labor practices of their trading partners. When the Presidents of the United States, Canada, and Mexico

signed the *North America Free Trade Agreement (NAFTA)* in 1993, they also signed a side agreement on labor standards called the *North American Agreement on Labor Cooperation (NAALC)*.[15] It created enforcing mechanisms for firms to meet the standards both at home and abroad. As the Bureau of International Labor Affairs officially announces, they contribute to "ensuring that our trade partners do not lower labor standards as a means of attracting trade and investment." Complying with the norms, firms monitor and manage their supply chain. For instance, Apple stated in its 2019 supplier responsibility report that they occasionally put suppliers on probation or dropped them if they violated the rules over the years.

Net Zero policies aiming to regulate carbon footprint are compelling recent examples that show government policies motivate firms to diffuse environmental standards through the supply chain. Climate change had minimal influence on corporate behavior before the U.S. government and giant investors made movements. The 2015 Paris Agreement marked a turning point and facilitated inter-government discussion. Global investors followed by asking corporations to disclose emission and climate-related risks. In 2015, the new guidance required firms to manage not only their direct greenhouse gas emissions but also the emissions from their upstream and downstream partners (Figure **??**).[16] With the strengthening requirements for Federal contractors to publicly disclose their emissions and climate-related risks, the effect of climate change is even amplified.[17] In addition, the U.S. Securities and Exchange Commission recently announced the adoption of rules for public companies to disclose climate-related risks. Since widening the emission scope adds suppliers' carbon emissions to the customers' costs, climate change policies incentivize firms to respond to policy moves.

Unlike the incentives of firms in emerging countries that drive the outcome of norm diffusion

[15]U.S. Department of Labor. Trade Negotiations & Enforcement https://www.dol.gov/agencies/ilab/our-work/trade

[16]*EPA Center for Corporate Climate Leadership*. "Scope 1 and Scope 2 Inventory Guidance," Accessed: 08/20/2023.

[17]In 2022, the White House proposed "the *Federal Supplier Climate Risks and Resilience Rule*, which would require major Federal contractors to publicly disclose their greenhouse gas emissions and climate-related financial risks and set science-based emissions reduction targets" based on the *Executive Orders on Climate-Related Financial Risk and Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability*. Source: The White House. 11/2022. "Biden-Harris Administration Proposes Plan to Protect Federal Supply Chain from Climate-Related Risks."

in previous studies (Hafner-Burton, 2005), corporations in advanced countries have strong incentives to enhance the practices of low-cost suppliers in emerging countries. Although recent studies in international political economy have examined the trade-based norm diffusion focusing on corporate social responsibility and ESG practices (Thrall, 2021; Cho, 2023), the literature generally focuses on the incentive of low-cost suppliers in emerging countries. It fails to explain the effect of recent policies that incentivize U.S. firms and the strategic response that firms can take. Thus, focusing on lobbying directly influencing government policy (Ahuja and Yayavaram, 2011), we connect the literature on norm diffusion and corporate lobbying. When exposed to shocks in the external environment where the government plays a role, some firms engage in political activities to minimize or take advantage of the effect(Grossman and Helpman, 1994b; Bertrand et al., 2023).

3.3 Sustainability Risks, Supply Chains, and Lobbying

Given the growing importance of ESG and pressures from various stakeholders, suppliers' ESG risks have economic impacts on customer firms. According to Le Tran and Coqueret (2023), the ESG shocks not only influence firms' stock returns but also the returns of their customers and suppliers. Although factors like less stringent environmental regulations and lower labor costs benefit customers, they often create environmental or social problems. Also, the cost advantage of global outsourcing depends on the asymmetry of environmental and social standards. Moreover, suppliers are incentivized to reduce costs to attract and secure contracts. Hence, they are less likely to change their business practices, racing to the bottom (Mosley and Uno, 2007). Given the cost-saving motive behind outsourcing from low-cost suppliers in emerging countries, customer firms are vulnerable to the ESG risks from their suppliers.

As the importance of sustainability grows and government policies materialize the economic impact of ESG risks, firms initiated monitoring and managing the ESG issues throughout the supply chain (Albuquerque et al., 2019). The regulations that require greenhouse gas emission

disclosure are examples. Beyond the public criticism of large emitters, climate policies and emission regulations materialize the cost of negative externality, the emission. Although reporting emissions from upstream and downstream suppliers remains voluntary, the U.S. government offers more incentives to further disclose and manage suppliers' emissions.[18] As lawmakers' policy incentives and the importance of sustainability grow, the customer firms' scope of responsibility will likely broaden. If this is the case, the ESG risks from their suppliers might be a bigger concern for customer firms.

The challenge that firms encounter originates from the trade-off of trading with low-cost suppliers in emerging countries. Given that the primary driver of global sourcing is cost advantage (Grossman and Helpman, 2005; Loertscher and Riordan, 2019), enhancing suppliers' ESG is costly in the short term, diminishing the merits of trade. On the contrary, the suppliers' ESG incidents, if they occur, have a greater economic impact on customer firms amid growing pressures from the policies and various stakeholders. Bisetti et al. (2023) has documented about a 30% drop in trade between U.S. customers and their suppliers with ESG incidents during 2007-2020, suggesting that customer firms partially replace their incident-affected suppliers with other suppliers.

When policy increases firms' cost of sustaining the current supplier relationships, their strategic responses to deal with the relationships can be, in Hirschman (1970)'s terms, *exit, voice, or loyalty*. First, customer firms can *exit* the relationship. The direct response to a supplier's increased ESG risk is to replace it (Bisetti et al., 2023). When suppliers sell homogenous goods and operate in competitive markets, terminating their contract with the supplier is less costly. If this is the case, replacing risk-accompanying suppliers with alternatives is the direct way of resolving the risk. However, firms might be unable to terminate the relationships entirely depending on the input specificity or the availability of competitive alternatives.

Second, they can make *voice* to their suppliers by encouraging compliance (Vogel, 2009). Although some firms choose to manage the suppliers' ESG, it is costly, often requiring environ-

[18] In 2022, the U.S. administration required major Federal contractors to publicly disclose their emissions and climate-related risks.

mental collaboration (Vachon and Klassen, 2008),[19] and they might fail to prevent the suppliers' ESG incidents. For example, *Apple* is known for its good management of suppliers. According to its supplier responsibility report, *Apple* occasionally replaces suppliers with ESG risks and works with suppliers on probation for 90 days to ensure corrective actions are taken. Despite its efforts, their suppliers, including *Foxconn* and *Lens Technology*, posed ESG risks to *Apple*. In 2020, *Lens Technology*, one of the critical companies in *Apple*'s supply chain, was linked to allegations of Uighur forced labor from the Xinjiang region, and *Apple* started lobbying for issues related to Uighur forced labor.[20]

When firms are unable to terminate the relationships in the short term and the potential ESG risks might threaten the firms' reputation, they can stay *loyal* to their relationship by maintaining the contract while managing the suppliers' ESG risks by other means. In particular, if firms' competitive advantage is rooted in their capability to manage specialized supplier networks, they might have a more robust incentive to maintain the relationships (Dyer, 1996). Although the *exit* and *voice* might be ideal for firms in the long run, they might be costly in the short term. Also, if the input specificity or supplier dependence is substantial, it is difficult for customers to replace their suppliers. It is more the case when recent supply chain disruptions and the rise of protectionist sentiments worldwide have heightened uncertainties around the supply chain.

When firms maintain the relationship with current suppliers, they might pursue alternative ways to minimize the impact of suppliers' potential incidents. Freiberg et al. (2020) points out that some negative catalyst incidents and government policies financially materialized the issue. Given that government policies play a vital role in materializing the economic impact of ESG, firms are likely to undertake *political* actions and influence policies, and lobbying is the direct means to interact with government (Drutman, 2015).

Firms can benefit from lobbying in various ways. For example, while subsidizing industry

[19]The literature in environmental management defines *Environmental collaboration* as "a direct involvement of an organization with its suppliers and customers in planning jointly for environmental management and environmental solutions(Vachon and Klassen, 2008)." The examples include cases where suppliers and customers plan together to reduce the environmental impact of existing production processes and products.

[20]*Business Insider*, 05/2021, 7 Apple suppliers in China have links to forced labor programs, including the use of Uyghur Muslims from Xinjiang, according to a new report)

expertise to lawmakers, firms can shape the policies favorable to the firms (Hall and Deardorff, 2006). By mobilizing voters, they can encourage or discourage government actions (Drutman, 2015). More relevant to emission disclosure, they can make better strategic decisions on measuring and reporting emissions. Reporting *Scope 3*, which includes the suppliers' emissions, is voluntary, which creates ambiguity. Although *Scope 3* reporting has some benefits, the OECD report points out that due to the lack of verified data and standards, a large part of emission reporting remains elusive and incomplete (Forum, 2023).[21] Given the ambiguity, firms can increase lobbying to obtain information or favorable interpretation of the policy guidelines or regulations that might affect the price of suppliers' incidents. Moreover, the larger the suppliers' inherent risks are, the lower the marginal lobbying cost is. Building on this insight, we argue that customer firms are more likely to increase lobbying when their suppliers' ESG risk increases.

H1: *As supplier-driven ESG risks increase, customer firms are more likely to intensify lobbying efforts.*

3.4 Methods

3.4.1 Data

To test our theory, we combined four sets of firm-level data on firm lobbying, supply chain relationships, ESG incidents, and firm characteristics. The U.S. Lobby Disclosure Act of 1995 and the amendment after the Honest Leadership and Open Government Act of 2007 allow us to access federal-level lobbying activities. Lobbyists must register themselves, declare their activities, their representing parties, and the issues petitioned, and report any payments received from clients if they exceed $5,000.[22] Although the original pdf formatted data are available from the Senate Office of Public Records (SOPR), we use data from `LobbyView` (Kim, 2018) since it

[21] "As there is no one-size-fits-all approach, industry initiatives have played an important role in testing different measurement approaches and gradually bringing about alignment among members in some sectors. (p.3)" Source: *World Economic Forum*. 2023. "Emissions Measurement in Supply Chains: Business Realities and Challenges"

[22] Specifics are available in *Chapter 2*.

offers unique identifiers enabling the cross-reference of Compustat-CRSP, supply chain, and ESG incident data. We combined the client-level, report-level, and issue-level data to compose a firm-year dataset. The detailed cleaning procedures of the firm lobbying data are the same as in *Chapter 2*.

Across the years, 2,678 unique firms are in our sample. Among them, an average of 777 firms (29.0%) engaged in lobbying during 2007-2019 (Figure **??**). Considering the previously reported 12% (Huneeus and Kim, 2018), 10% (Kerr et al., 2014), or 18.3% in *Chapter 2*, the firms in our sample represent more active lobby spenders than average firms. Since our sample includes the U.S. firms with supply chain information, the data will likely under-represent the smaller firms. For the firms that engaged in lobbying during the period, the average annual lobbying expenditure was 1.6 million U.S. dollars, which reflects that corporate lobbying features a skewed distribution where large spenders spend huge amounts of money. On average, firms engaged in 8.7 policy issues and spent approximately 2.1 million dollars on issues related to environment and energy.[23] Around 82.8 percent lobbied through contracted K-street lobbyists.

For the supply chain relationship, we used data from `FactSet Revere`, which maps supply chain relationships. The data include supply chain relationships, relationship duration, and corporate headquarters. Also, we obtained ESG risk incidents from `RepRisk` (2007-2019). According to `RepRisk`, they screen over 100,000 public sources and stakeholders in 23 languages daily. The sources include traditional media, social media, government and regulator documents, think tanks' reports, newsletters, and other online sources, ranging from the international to the regional, national, and local levels. They collect the incident data, screen them using AI and machine learning, and assign 72 pre-defined topic tags. The research team reviews them regularly through client feedback.

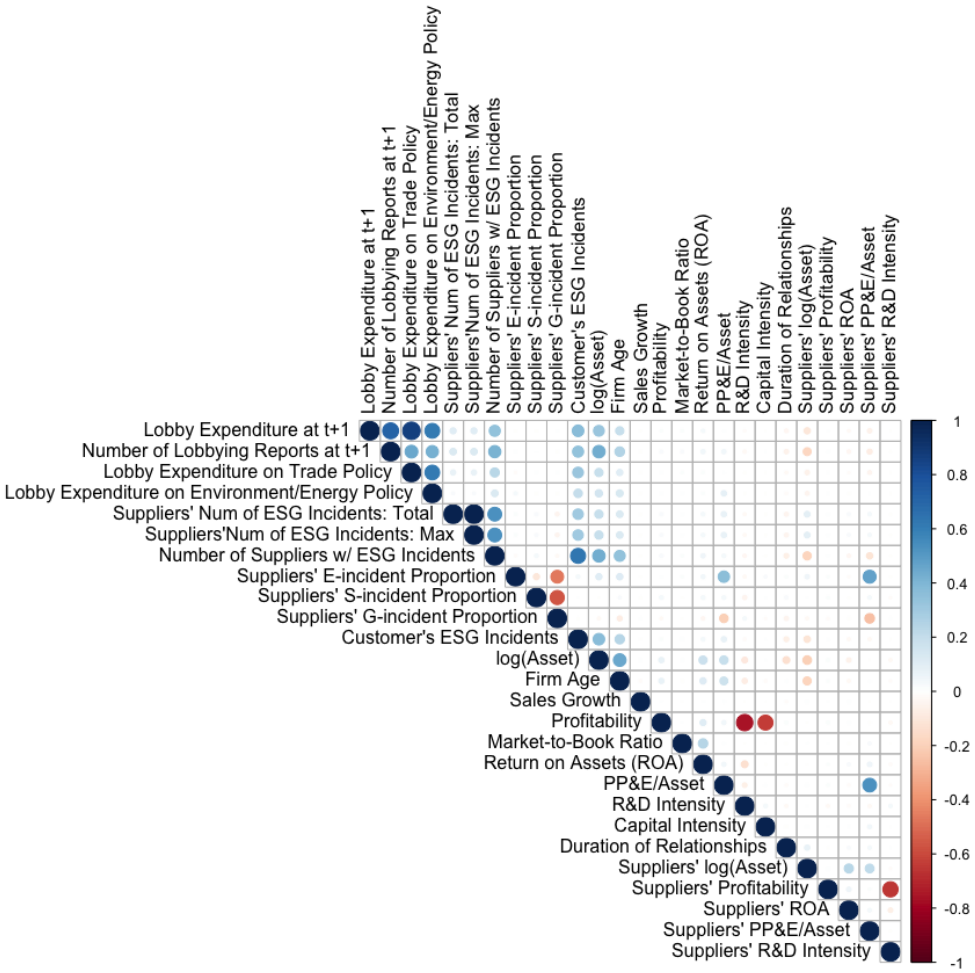
Based on the pre-defined connection between topic tags and issue categories, the incidents are linked to 28 mutually exclusive issues. The definitions of 28 issues follow major international standards like the *World Bank Group Environmental, Health, and Safety Guidelines*, the *IFC*

[23] Based on the assumption that issues are equally important, we calculated the lobbying expenditure for each issue. The issue grouping is based on exploratory factor analysis. The methodology is delineated later in the section.

Performance Standards, and the *OECD Guidelines for Multinational Enterprises*. Allowing double-counting, they are grouped into environmental, social, governance, and cross-cutting categories. For example, the environmental category includes six pre-defined issues: (1) Climate change, GHG(greenhouse gas) emissions, and global pollution, (2) Local pollution, (3) Impacts on landscapes, ecosystems, and biodiversity, (4) Overuse and wasting of resources, (5) Waste issues, and (6) Animal mistreatment.[24] For this reason, some issues could be both environmental and social. Based on the raw counts of each incident, we calculate the firm's total number of risk incidents for each ESG category.

Lastly, we use firm-level characteristics from `Compustat`. To control firms' ability to lobby or policy preferences, we use firm age, asset size, sales growth, profitability, return on assets (ROA), market-to-book ratio, size of property, plant, and equipment (PP&E), R&D intensity, and capital intensity as control variables. Since we combined a firm-level dataset, we used the median to summarize the characteristics of each firm's suppliers. To control the characteristics of supplier compositions, we focus on the suppliers' relationship duration, asset size, profitability, ROA, PP&E size, and R&D intensity. Due to the skewness of financial variables, we take the median instead of the mean to represent the firms' supplier characteristics. More detailed information on the variables used in the analysis is available in Table C.2 in Appendix. The descriptive statistics are provided in Table **??** and the correlation between variables of interest are in Figure 3.3.

[24]The social category includes issues about community relations and issues about employee relations. The community relations issues include four issues: (1) Human rights abuses and corporate complicity, (2) Impacts on communities, (3) Local participation issues, and (4) Social discrimination. The employee relations issues include six issues: (1) Forced labor, (2) Child labor, (3) Freedom of association and collective bargaining, (4) Discrimination in employment, (5) Occupational health and safety issues, and (6) Poor employment conditions. The governance category includes corruption, bribery, fraud, tax evasion, and anticompetitive practices. The cross-cutting issue category embraces products with health and environmental issues and violating legislation or international standards. For the relevance of firm lobbying, we focus on environmental, social, and governance issues for our analysis.



Notes: The plot includes the variables for robustness check.

Figure 3.3: Correlation Coefficient between Variables of Interest

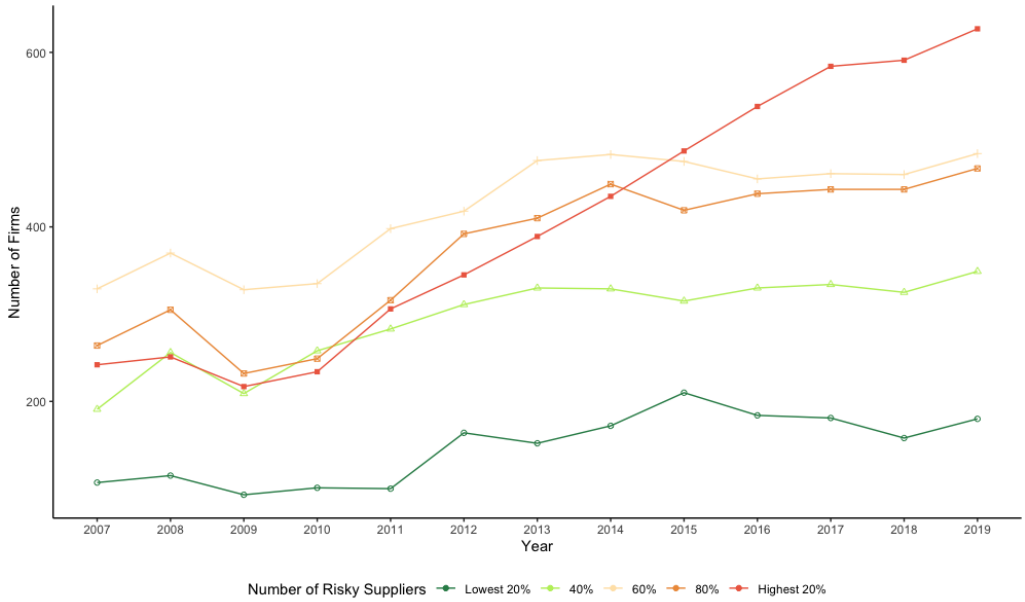
3.4.2 Models

To examine if customer firms enhance lobbying efforts with an increase in suppliers' ESG-related risks, we employ two-way fixed effects models. For analyzing the firm-level behavior, the unit of analysis is a customer firm in a year. Our dependent variable is a firm's lobbying efforts (*Lobbying Efforts*$_{cus,t+1}$), measured by the lobbying expenditures of a given customer firm (*cus*) at year *t*+1 (*Lobbying Expenditures*$_{cus,t+1}$). We aggregate the lobbying expenditures of customer firms in a given year.[25] For robustness checks, we also use *Lobbying Report Count*$_{cus,t+1}$ as an alternative measure for lobbying efforts. *Lobbying Report Count*$_{cus,t+1}$ is the number of lobbying reports a customer firm submitted in a year, *t*+1, either through in-house or contracted lobbyists. Since lobbying through contracted lobbyists is generally less costly than setting up an in-house team of lobbyists, incumbents and entrants in lobbying often choose contracted lobbyists for a short-term increase in lobbying, which increases the number of reports (De Figueiredo and De Figueiredo, 2002). For this reason, the number of lobbying reports tends to increase with firms' lobbying efforts.

Our independent variable is *Suppliers' ESG risk*. We measure it in two ways. First, we use the total number of suppliers' ESG-related incidents of a given firm (*cus*), at a year *t*. If suppliers of a given firm have more ESG-related incidents in a year, the number will increase accordingly. Second, we use the total number of *risky suppliers*. A *risky supplier* means a supplier with at least one incident in a given year. Since 2007, the number of customer firms that have suppliers with high ESG risks has gradually increased. In 2019, 627 customer firms are in the highest 20% in terms of the number of risky suppliers, and the number of issues that their risky suppliers have is 27 on average. In 2009, customer firms with the largest number of risky suppliers were exposed to 9.9 issues on average. Since the number of risky suppliers focuses on the customer firms' supplier portfolio, the second measure highlights slightly different aspects. Because customer firms have multiple suppliers, we aggregate information for individual suppliers to a customer-firm level. Accordingly, we calculate the total number of ESG incidents, the total

[25]The specific operationalization is the same as in *Chapter 2*.

number of supplier firms, and the number of supplier firms experiencing ESG risk incidents.



Notes: The lowest 20% customer firms have one risky supplier. The highest 20% firms have more than 46 risky suppliers. Among the risky suppliers, the lowest 20% have on average 0.5 issues, the highest 20% have 23.6 issues.

Figure 3.4: Trend in the Number of Risky Suppliers

Policy environments tend to change over time, and corporate incentives to lobby vary accordingly. Previous studies documented evidence that supports lobbying is firm-specific\citep{kerr2014dynamics}. As a result, only a fraction of firms in the same industry lobby, although government actions often produce an industry-wide impact. Moreover, suppliers' ESG risks vary with firms across the years since the relationships with suppliers differ by firms, and suppliers' ESG risks tend to increase with the importance of ESG. For this reason, we focus on variations within a firm each year. For the first test, we use Model 3.1 with firm and year fixed effects as our main model.[26] We also use complementary models for enriching our interpretation of results.

$$log(\text{Lobbying Efforts}_{cus,t+1} + 1) = \alpha + \beta \times log(\text{Suppliers' ESG Risks}_{cus,t}) + \delta \times \mathbf{Z}_{cus,t} + \gamma_{cus} + \theta_t + \epsilon_{cus,t} \quad (3.1)$$

[26]Column (6) in Tables 3.1, 3.2 present the main results.

where cus and sup denote supplier and customer firms, respectively. As a primary measure, $Lobbying\ Expenditure_{cus,t+1}$ indicates customer firms (cus)' lobbying amounts, in year t+1. $\mathbf{Z}_{cus,t}$ means control variables for customer firms' characteristics. It includes the customer firm's characteristics such as the firm's age, asset size, sales growth, profitability, market-to-book ratio, return on assets (ROA), size of property, plant, and equipment (PP&E), capital intensity, and R&D intensity. Since previous findings report the strong tendency of large firms to lobby more, we control firms' asset sizes by taking the log for its skewness. $\mathbf{Z}_{cus,t}$ also contains another set of variables for controlling the customer firms' supplier characteristics like suppliers' contract duration, asset size, profitability, ROA, PP&E size, and R&D intensity. We take the median to represent the customer firms' supplier characteristics. We also control the number of ESG incidents of customer firms themselves.[27] Lastly, γ_{cus} captures customer firm fixed effects, which absorb time-invariant characteristics between customer firms. Year-fixed effects, θ_t, captures the annual trend. We expect that supplier firms' total number of ESG incidents in the preceding year will positively correlate with the customer firms' lobby spending.

Next, firms might have multiple issues for lobbying, and gross expenditure offers a weak tie between suppliers' incidents and lobbying. To complement the findings of the first model, we examine the relative importance of suppliers' "E", "S", or "G" risks to customer firms' lobbying. In order to manage suppliers' environmental incidents, customer firms might be more likely to lobby on relevant policy issues. In the second model, we narrow our focus from supplier firms' overall ESG rankings in to individual categories of issues. It examines whether and how suppliers' environmental, social, or governance incidents connect to customer firms' lobbying on relevant policy issues. For the clarity of issue relevance, we focus on environmental issues. Using exploratory factor analysis, we grouped lobbying issues closely related to *ENV(environment)*.

The second model tests whether suppliers' environmental incidents, relative to social and governance incidents, increase customers' lobbying for environmental issues. Based on the anecdotes of the palm oil customers illustrated in the first section, we assume the relevance

[27] See Table C.3 for variable definitions and data sources

between lobbying on policies related to environmental issues and suppliers' environmental incidents. For the robustness check, we also test the relevance between suppliers' incidents and lobbying on trade policies. The U.S. Tariff Act of 1930 prohibits importing any product mined, produced, or manufactured wholly or partially by forced or indentured child labor.[28] Based on the act, U.S. government meddled trade relationships for correcting the suppliers' corporate malpractices. Since it might motivate lobbying on trade-related issues, we also check whether and how individual categories affect customer firms' lobbying efforts on trade issues for robustness checks.[29] Based on the assumed relevance, we examine the main hypothesis, **H1**, again by testing whether and how suppliers' "E", "S", or "G" risks influence customer firms' lobbying efforts.

For the second model, we construct *Lobby Efforts for Environmental Policy*$_{cus,t+1}$ to measure customer firms' lobbying expenditures on the environmental policy.[30] The Lobbying Disclosure Act (LDA) requires lobbyists to select relevant issues in their lobbying reports. Although it is not mandatory, many reports, especially the ones submitted by in-house lobbyists, include issue codes. Since firms' engagement in a single policy issue is limited in number, we identified groups of issues related to environmental policies by using exploratory factor analysis (Fabrigar and Wegener, 2011).[31] Following Kerr et al. (2014), we construct lobby spending on a particular policy issue by multiplying a firm's lobbying expenditure and engagement in a given policy issue. For example, suppose Apple Inc. engaged in the lobby for environmental policy. In that case, we calculate the proportion of issue code *ENV(environment)* of the total number of policy issues

[28] *Section 307 of the U.S. Tariff Act of 1930* (Source: Congressional Research Service)

[29] Given that the government can use sanctions as policy instruments or use ESG as a means to strengthen protectionism(Lindsay, 1986; Bradford, 2020; Vogel, 2009), suppliers' environmental incidents might motivate corporate lobbying on trade issues. For this reason, we expect that suppliers' E, S, or G incidents would increase customer firms' lobbying on trade policies. Trade-related issues are categorized by the same exploratory factor analysis.

[30] *Environment & Energy Policy* include CAW(Clean Air & Water), CDT(Commodities), ENG(Energy), ENV(Environment), RRR(Railroads), UTI(Utility), and WAS(Waste -hazardous/solid/interstate/nuclear). Issue codes are in alphabetical order. More issues are available in Figure B.6. We call them 'policy (or policy issues)' to distinguish the issues in lobbying reports from the ESG issues. Although business lobbying often relates to policies, lobbying issues do not necessarily equal policy.

[31] Scree plot and factor grouping are available in Figure C.4, Figure C.5, and Figure C.6

Apple engaged in a given year. Then, we multiply it by Apple's lobbying expenditure in 2012.[32] We focus on the issue codes disclosed in lobbying reports and assume the equal weight of listed issues. The dependent variable for robustness check, *Lobbying Efforts for Trade Policy*$_{cus,t+1}$, is constructed in the same way.

The independent variables are suppliers' environmental, social, or governance incidents for each customer firm in a given year. By separating the ESG categories, we look at whether each category has an effect on customer firm's lobbying. Among the ESG categories, social issues take the largest share. In 2019, the number of ESG issues of total suppliers including cross-cutting issues was 947,490. The social issues take 37.1% of total issues while environmental is 13.6% and governance is 18.9% of total issues. During 2007-2019, *Walmart*'s suppliers in 2019 have the largest number of ESG issues. They had 12,035 issues with 2,516 environmental (20.9%), 4,094 social (34.1%), and 1,826 governance issues (15.2%). Their largest number of suppliers might affect the number of incidents. Their suppliers have, on average, 3584.2 ESG issues. Similarly, companies with more suppliers tend to have more high risk suppliers, such as *Costco* (2828 supplier incidents), and *Ford Motors* (2515.2), and *General Motors* (2319.3). Supplier-driven ESG risks are not necessarily associated with customer firms' own ESG incidents. Also, there are some firms that both customer firms themselves and their suppliers on average have high ESG risks. Overall, the correlation between customer firm's ESG incident number and their suppliers' incident number is not large ($r = 0.32$, $p<0.001$).

Suppliers' E, S, or G incidents are constructed as a proportion. For example, we calculate the number of suppliers' E incidents and divide it by the total number of supplier incidents. The total number of incidents encompasses E, S, G, and cross-cutting incidents. Intuitively, it means the total number of relevant ESG incidents that happened to suppliers. We build separate models for E, S, and G with equal settings. Issues related to environmental policies are general issues that various corporate lobbying targets. Also, several cases exist where the government intervenes and regulates corporate activities. For testing the relevance between suppliers' ESG incidents

[32] *Lobby Spending on Environmental Policy*$_{Apple,2012}$ = \$1,970,000 $\times \frac{8}{80}$ = \$197,000

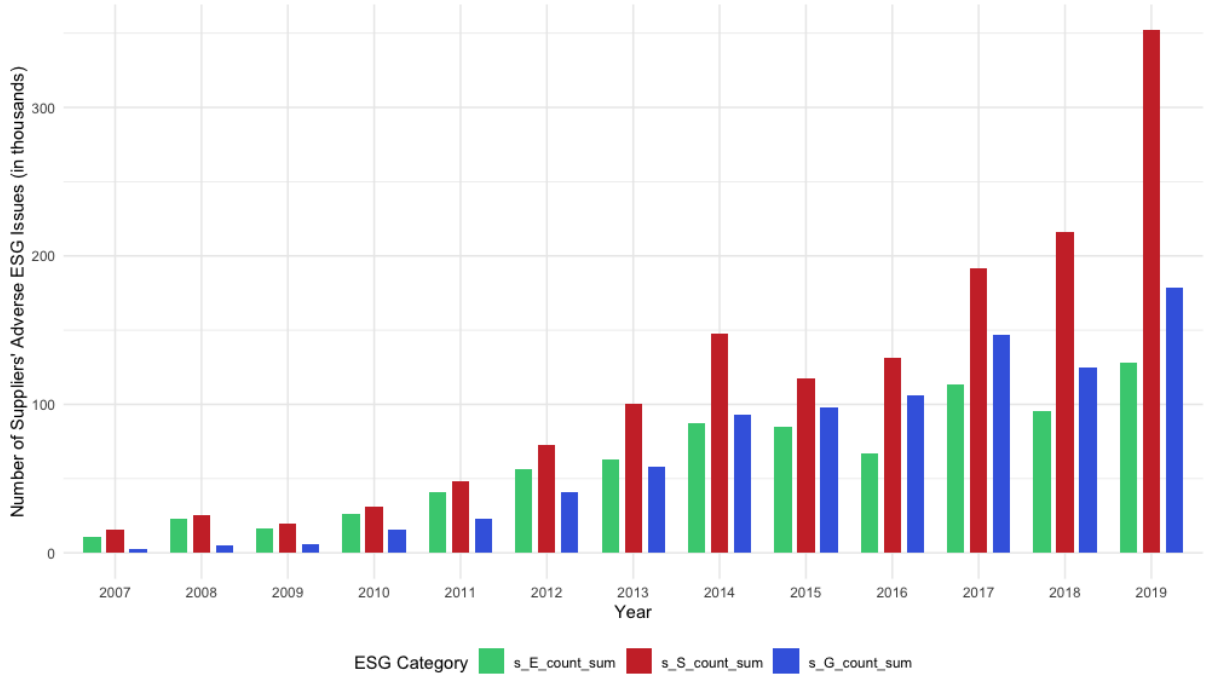


Figure 3.5: Trend in the Number of Suppliers' ESG Issues

and the policy issues that customers target, we examine the following model (Equation 3.2). We test whether suppliers' environmental incidents increase customer firms' lobbying efforts on relevant, i.e., environmental issues more than social or governance incidents. Control variables and fixed effect settings are equal to the first model's.

$$log(\text{Lobbying Efforts for Environment}_{cus,t+1} + 1) = \alpha + \beta \times log(\text{Suppliers' E Incidents}_{cus,t}) + \delta \times \mathbf{Z}_{cus,t} + \gamma_{cus} + \theta_t + \epsilon_{cus,t}$$

$$log(\text{Lobbying Efforts for Environment}_{cus,t+1} + 1) = \alpha + \beta \times log(\text{Suppliers' S Incidents}_{cus,t}) + \delta \times \mathbf{Z}_{cus,t} + \gamma_{cus} + \theta_t + \epsilon_{cus,t}$$

$$log(\text{Lobbying Efforts for Environment}_{cus,t+1} + 1) = \alpha + \beta \times log(\text{Suppliers' G Incidents}_{cus,t}) + \delta \times \mathbf{Z}_{cus,t} + \gamma_{cus} + \theta_t + \epsilon_{cus,t} \quad (3.2)$$

3.5 Empirical Evidence

First, we analyze the effects of suppliers' ESG risks on customer firms' lobbying efforts (**H1**). The independent variable is supplier-driven ESG risks, and the outcome variable is customer firms' lobbying efforts in the following year, *t+1*. Since incidents often realize their inherent cost, we assume that firms' lobbying efforts would follow the incidents. Although companies might take preemptive measures, the probability of suppliers' incidents is challenging for outsiders to predict. We assume customer firms taking preemptive measures are rare for suppliers' incidents.

For measuring the supplier-driven ESG risks, we operationalize the measures in two ways: (1) the total number of ESG incidents from all suppliers of a given firm and (2) the number of suppliers that had at least one ESG incident in a year, which we call 'risky suppliers.' In our sample, every firm has at least one supplier, and the median is four. Some customer firms have relationships with risky suppliers with ESG issues. The firms in our sample have, on average, 10.5 risky suppliers, but their supplier portfolios are heterogeneous and time-variant. Our theoretical prediction is that customer firms are more likely to intensify their lobbying efforts when their suppliers have incidents violating ESG norms.

Figure 3.6 shows the base models and the models with control variables, including industry- or customer firm-fixed effects. The blue square points are the result of our first measure, the number of suppliers' ESG incidents, and the red circle points are the results of using the second measure, the number of suppliers with any ESG incidents. Our primary model is the one with firm-year fixed effects ("Firm FE"). For both suppliers' ESG risk measures, customer firms' lobbying efforts tend to increase significantly. Also, the effect is more significant as the number of risky suppliers increases, although the standard errors are bigger.

The results are available in Table 3.1. Including the results of our main model with firm-year fixed effects in Column (6), coefficients are positive and statistically significant across all models. If supplier-driven ESG risks increase, customer firms tend to spend more money on lobbying. Specifically, if the number of suppliers' ESG incidents increases by 1%, customer

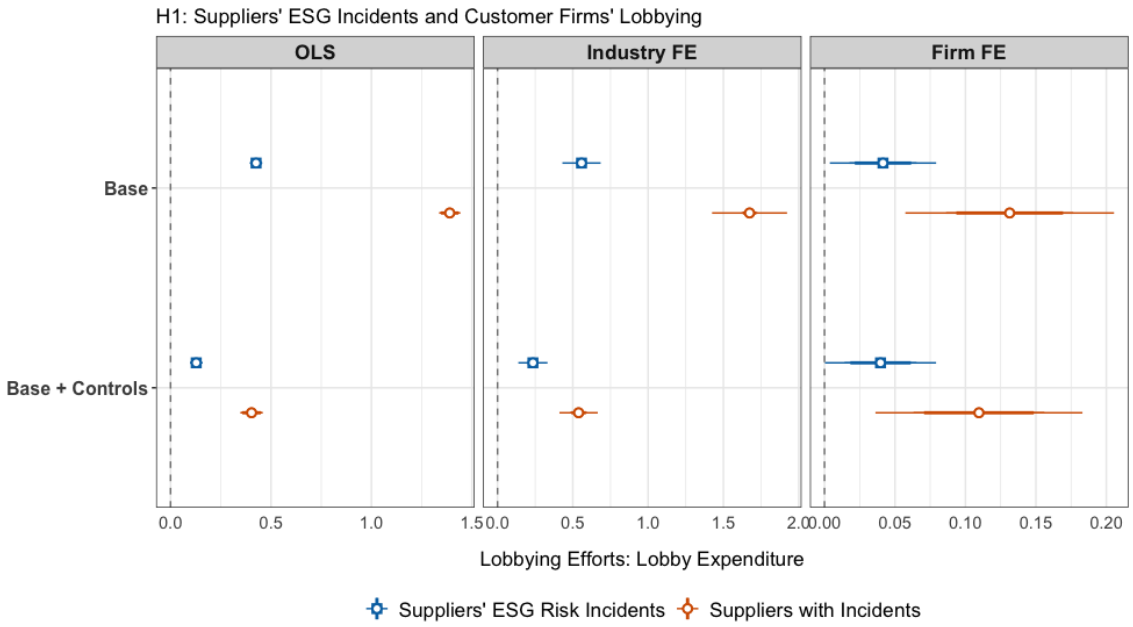


Figure 3.6: Supplier-driven ESG Risk and Customers' Lobbying Efforts

firms tend to spend 0.04% more on lobbying, holding constant the average effects of each firm each year. Given that the average firm in our sample spends approximately 511,640 dollars and their suppliers have about 144 ESG incidents,[33] an average customer firm encountering 1.4 more ESG incidents from its suppliers are likely to spend about 204.7 dollars more on lobbying. As shown in Table C.4, the significance is sustained with controls for their own ESG incidents, asset size, returns, relationship duration, and other significant firm characteristics. Notably, the effect of customer firms' own ESG incidents is greater than that of supplier-driven risks. 1% increase in customer firms' ESG incidents tends to increase their lobbying expenditure by 0.09%. It suggests that 1.4 more ESG incidents of its suppliers might lead an average customer firm to spend 460.5 dollars more on lobbying. Consistent with the well-known tendency of large firms to engage more in lobbying, asset size positively influences firms' lobby spending.[34]

Table 3.2 shows the effect of supplier-driven ESG risks measured by the number of risky suppliers, producing results largely consistent with those in Table 3.1. The number of supplier firms with ESG incidents positively affects customer firms' lobbying expenditures. As risky

[33] Descriptive statistics are available in Table B.2

[34] 1% increase in a customer firm's asset size tends to increase its lobbying expenditure by 7.1%.

suppliers increase by 1%, customer firms will likely spend 0.11% more on lobbying. For an average firm with 10.5 risky suppliers, one more risky supplier is likely to lead a firm to spend 562.8 dollars more on lobbying. All models with controls, year-industry, and year-firm fixed effects support our hypothesis that customer firms tend to intensify their lobbying efforts when their suppliers' ESG risks increase. In both models with different measures of suppliers' ESG risks, customer firms tend to spend more when their own ESG risks increase, and their spending increase is larger with the increase in their own ESG incidents than their suppliers' incidents. The results remain consistent and statistically significant in the models where we use the number of lobbying reports as an alternative measure for lobbying efforts. The results are in Table C.9, C.10 in Appendix.[35]

Table 3.1: Suppliers' ESG Incidents and Customer Firms' Lobbying Expenditure - (A) Number of Suppliers' ESG Incidents

	Dependent variable:					
	log(Lobbying Expenditure+1)$_{cus,t+1}$					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
log(Suppliers' ESG Incidents)	0.426***	0.128***	0.558***	0.235***	0.042**	0.040**
	(0.015)	(0.016)	(0.061)	(0.047)	(0.019)	(0.020)
Controls		✓		✓		✓
Industry FE			✓	✓		
Customer Firm FE					✓	✓
Year FE			✓	✓	✓	✓
Observations	27,529	27,457	27,529	27,457	27,474	27,402
Adjusted R^2	0.027	0.282	0.077	0.335	0.846	0.848

Note: The result of our main model is in Column (6), with standard errors clustered at the firm level. Standard errors are clustered at the industry level in (3) and (4). More results are available in Table C.4. *p<0.1; **p<0.05; ***p<0.01

[35]Table C.9, C.10 present that 1% increase in suppliers' ESG incidents or number of risky suppliers tend to increase lobby expenditure by 0.01% or 0.02%, respectively.

Table 3.2: Suppliers with ESG Risks and Customer Firms' Lobbying Expenditure - (B) Number of Risky Suppliers

	Dependent variable:					
	log(Lobbying Expenditure)$_{cus,t+1}$+1					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
log(Number of Risky Suppliers)	1.390***	0.403***	1.674***	0.538***	0.131***	0.110***
	(0.026)	(0.028)	(0.120)	(0.061)	(0.038)	(0.037)
Controls		✓		✓		✓
Industry FE			✓	✓		
Customer Firm FE					✓	✓
Year FE			✓	✓	✓	✓
Observations	27,529	27,457	27,529	27,457	27,474	27,402
Adjusted R^2	0.027	0.282	0.077	0.335	0.846	0.848

Note: The result of our main model is in Column (6), with standard errors clustered at the firm level. Standard errors are clustered at the industry level in (3) and (4). More results are available in Table C.5. *p<0.1; **p<0.05; ***p<0.01

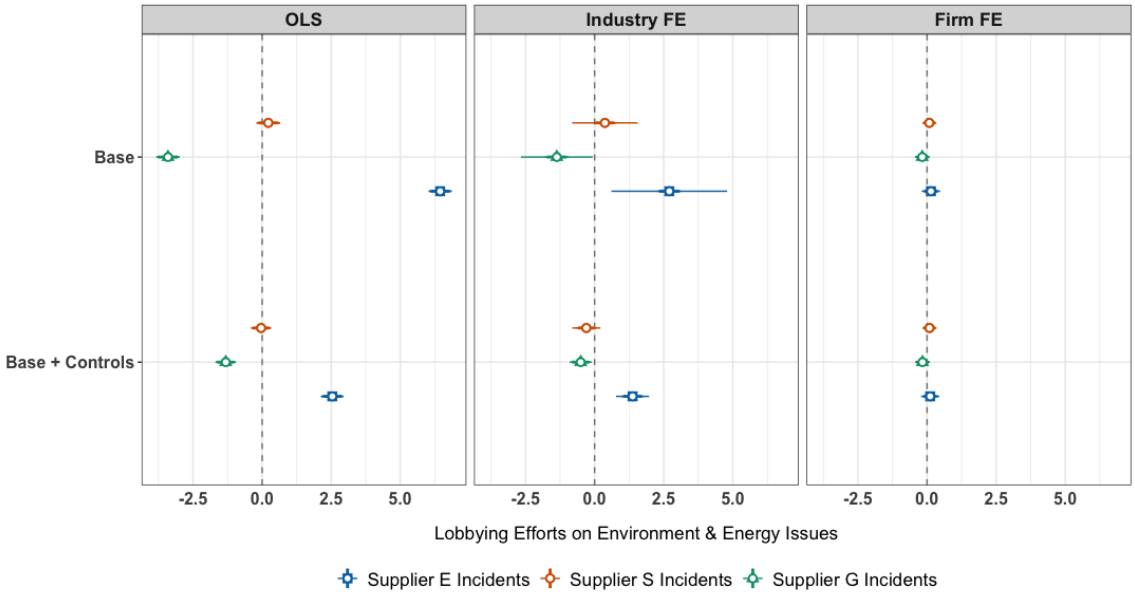
Next, narrowing more on the specific ESG categories, we test our main hypothesis, **H1** again by strengthening the relevance between suppliers' incidents and customers' lobbying issues. By separating suppliers' environmental, social, and governance incidents, we examine the effect of each ESG category on customer firms' lobbying. For each independent variable, we use the ratio of "E" incidents to all ESG incidents including cross-cutting incidents. Based on the exploratory factor analysis, we group *Environmental Policy* with CAW(Clean Air & Water), CDT(Commodities), ENG(Energy), ENV(Environment), RRR(Railroads), UTI(Utility), and WAS(Waste -hazardous/solid/interstate/nuclear). Firms that lobby for environmental issues also tend to lobby for energy, utility, and transportation. As we look through in the individual lobbying reports, the environmental issues encompass various specific issues such as climate change, ethical sourcing, green buildings, and recyclability.[36] We use the group of issues because issues like clean energy, sustainability, and climate change issues are often related to energy and transportation, not limited to environmental policy per se. Figure 3.7 shows the results of the base models and the models with control variables and different fixed effects. The result of our main model is the one with firm-year fixed effects ("Firm FE"). The blue dots in the bottom indicate the effect of suppliers' E incidents on customers' environmental lobbying. In the models with firm-year fixed effects, coefficients are positive, but small and statistically insignificant.

Table 3.3 shows the specific results. This table examines the relationship between suppliers' E, S, or G incidents and their customers' environmental lobbying. In particular, we focus on whether customer firms interact more with the government to discuss environmental policies when their suppliers engage in environmental issues. We are most interested in Column (6) with firm-year fixed effects and controls. Among E, S, and G, suppliers' environmental and governance incidents are significantly associated with their customers' lobbying for environmental policy. However, the significance disappears in the models with firm-year fixed effects.

Industry-year fixed effects control for unobserved heterogeneity across industries in years.

[36]For example, *Starbucks* in 2020 contacted Environmental Protection Agency (EPA) for discussing "ethical sourcing, sustainability, and green buildings." Under the same issue code, ENV, *Starbucks* also reached out to White House Office, U.S. Agency for International Development (USAID) for issues like "sustainability, waste reduction and clean energy."

Figure 3.7: Suppliers' E, S, G Incidents and Customers' Lobbying for Environmental Policy



Demeaning the data by industry-year pairs, we can interpret Column (4) results that suppliers' E or G incidents increase customers' environmental lobbying when differences between industries, such as industry-year-specific regulations and market conditions, are constant.[37] Similarly, firm-year fixed effects in Column (6) control for unobserved heterogeneity across firm-years.

Column (6) presents the results when we fix the differences between firm-year variations, such as corporate strategies and firm-specific events in a particular year. Losing statistical significance might suggest multicollinearity between the firm-year fixed effects and suppliers' E or G incidents because the firm-year fixed effects absorb much of the variation in customers' environmental lobbying. It is also possible that the firm-year fixed effects capture much of the variation that was previously attributed to industry differences.[38] For example, strong within-industry competition might lead firms within the same industry to lobby similarly, especially for environmental and energy issues. Unlike the effect of suppliers' E and G incidents, the effect of

[37]Governance issues include the cases that suppliers manipulate the truth, i.e., *greenwashing* and false advertising, fraud, and corruption. Given that the negative impact of suppliers' governance issues might be passed on to customer firms, customers might avoid engaging with the issues.

[38]The existence of firm-specific characteristics that are not captured by other variables in the model is another possibility.

suppliers' social incidents on the customer firms' lobbying is consistently insignificant across all models, which supports our hypothesis partially substantiating the connection between suppliers' ESG risk and customers' lobbying.[39]

Unlike environmental lobbying, Figure C.7 and Table C.11 in the Appendix show that suppliers' environmental incidents likely increase customers' lobbying for trade policies. When we hold the average effects of each firm-year constant, 1% increase in suppliers' E incidents is likely to lead their customer firms to spend 0.4% more on trade lobbying.[40] As in the example of trade sanctions on palm oil in 2020, suppliers' ESG risk can create a negative economic impact on their customer firms, motivating their response to it. As we hypothesized in the previous chapter, customer firms can lobby on relevant policies when replacing risky suppliers or rectifying suppliers' malpractice is too costly in the short term. Although earlier studies point out that the government can use trade sanctions as a policy instrument to diffuse ESG norms (Vogel, 2009; Locke et al., 2009; Bradford, 2020), the detailed mechanism still calls for future studies.[41]

[39]The full models are available in Table C.6, Table C.7, and Table C.8 in Appendix.

[40]Detailed results are available in the full models in Table C.12, Table C.13, and Table C.14 in the Appendix.

[41]Similar to "California effect"(Vogel, 2009), 'Brussels effect" emphasizes the importance of customer-supplier relationships in terms of diffusion of ESG standards. With a focus on European countries, Bradford (2020) argues that countries export not only technical standards but also their values of environmental stewardship, labor standards, and consumer rights through trade and regulations.

Table 3.3: Suppliers' E, S, G Risk and Customers' Lobbying on Environmental Policies

	Dependent variable:					
	log(Lobbying Expenditure on Environment Policy + 1)$_{cus,t+1}$					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
Model (A)						
log(Suppliers' E Incidents)	6.441^{***}	2.539^{***}	2.703^{**}	1.375^{***}	0.142	0.114
	(0.211)	(0.208)	(1.010)	(0.289)	(0.170)	(0.169)
Model (B)						
log(Suppliers' S Incidents)	0.224	−0.037	0.373	−0.300	0.083	0.088
	(0.218)	(0.182)	(0.571)	(0.245)	(0.119)	(0.119)
Model (C)						
log(Suppliers' G Incidents)	-3.406^{***}	-1.317^{***}	-1.367^{**}	-0.503^{**}	−0.174	−0.164
	(0.214)	(0.187)	(0.625)	(0.189)	(0.132)	(0.133)
Controls		✓		✓		✓
Industry FE			✓	✓		
Customer Firm FE					✓	✓
Year FE			✓	✓	✓	✓
Observations	17,840	17,840	17,840	17,840	17,840	17,840

Note: (A), (B), (C) are separate models. We are interested in the results in Column (6), with standard errors clustered at the firm level. Standard errors are clustered at the industry level in (3) and (4). More results are available in Table C.6, Table C.7, and Table C.8. *p<0.1; **p<0.05; ***p<0.01

3.6 Discussion and Conclusion

By examining the relationship between supplier-driven EGS risks and corporate lobbying, we have shown that firms can lobby to manage the risks from their suppliers. The models with different measures of supplier-driven ESG risk consistently present that suppliers' ESG risks increase customer firms' lobbying efforts. The results are largely sustained when we strengthen the relevance between suppliers' incidents and customers' lobbying issues. Increasing suppliers' environmental risks tend to drive customer firms to lobby more for environmental and trade policies. Given that the collaboration between customers and suppliers is often costly in the short-term (Vachon and Klassen, 2008), customer firms might increase lobbying with their growing needs to manage ESG risks embedded in their supply chain. On a side note, we also report that firms' own ESG risks work as stronger motives than their suppliers when firms intensify lobbying.

While the need for effective supply chain management grows, a growing number of studies examine their impacts on the risk (e.g., Wang and Sarkis, 2013; Baldwin and Freeman, 2022; Forum, 2023). However, how firms respond and manage supplier-driven risks has received little attention. By suggesting lobbying as a means to manage supply chain risks, this paper contributes to the literature on corporate lobbying. Moreover, as an extension of recent findings that firms engage in political activities beyond the policy issues directly linked to their business(Cory et al., 2021),[42] our study documents the extensive lobbying of customer firms to manage ESG risks inherent in their supply chains. Firms lobby not only for the issues directly linked to their business but also for the issues related to the suppliers.

A growing body of evidence suggests that ESG activities can reduce firm risk (Gillan et al., 2021). Based on our findings that firms lobby for managing supplier-driven ESG risks, the next step would be investigating the underlying economic drivers. In particular, despite our assumption

[42]Unlike the common belief that carbon-intensive firms would fight against climate actions, Cory et al. (2021) found that the majority of opposition came from outside the highest emitting industries. In their study, the opposition from non-emitting industries is primarily driven by policy exposure via carbon-intensive inputs and sales to downstream emitters.

that replacing original suppliers is more costly than lobbying in the short term, the economic value of each supplier relationship might differ depending on input specificity, availability of competitive alternatives, market concentration of customers and suppliers, or pressure from the investors. For example, some suppliers might have developed relational resources with customer firms Argyres et al. (2016); Srivastava and Gnyawali (2011). Customers might rely on the resources and capabilities of specific suppliers more heavily (Hillman et al., 2009). Although there is heterogeneity in the value of relationships, we assume the only significant difference comes from inherent ESG risks. The industry structure also affects the relative cost of lobbying compared to replacing or disciplining suppliers that accompany ESG risks.

Moreover, identifying the direct causal linkage between suppliers' ESG incidents and their customers' lobbying efforts calls for future work, although we documented some cases after looking through hundreds of individual lobbying reports. Two contributors can play a role. First, due to negative public perception of lobbying, firms tend to have strong incentives to hide their lobbying. As a result, identifying the specific issues or direction of lobbying requires innovation in lobbying research. Second, the industry competition might affect the returns from lobbying, and as a result, customers' incentive to lobby (Bombardini and Trebbi, 2012). If the market for suppliers is competitive, searching for and replacing original suppliers might be less costly, reducing customers' incentive to lobby. Depending on the competition in the customers' industry, the impact of supplier-driven ESG risk on customer firms might also differ. Both of them pose interesting questions for further research.

With the advancement of globalization, an increasing number of firms engage in transactions with low-cost suppliers (Whitford, 2005). Since the late 1980s, the prospect of factor-cost savings has been a solid corporate motive to purchase factor inputs and outsource tasks to external entities (Grossman and Helpman, 2005; Grossman and Rossi-Hansberg, 2008). Of the total production value of American cars in 1990s, "30% of the car's value was allocated to Korea for assembly, 17.5% to Japan for components and advanced technology, 7.5% to Germany for design, 4% to Taiwan and Singapore for minor parts, 2.5% to the United Kingdom for advertising and marketing

services and 1.5% to Ireland and Barbados for data processing (World Trade Organization, 1998, p.36)." The contribution of the U.S. to the production value of an American car was only 37%. For the last few decades, the global resource allocation and task distribution network has expanded.

The dark side of global sourcing is that emerging countries bear the cost of negative externalities for the sake of growth and prosperity in the future. The negative externalities such as poor labor conditions, child labor, destroyed natural resources, and pollution not admittable in advanced countries are often tolerated in emerging countries. The asymmetry in environmental and social standards has created a cost advantage, creating value for customers in advanced countries and low-cost suppliers in emerging countries. However, the growing pressure from various stakeholders, including shareholders, customers, employees, and lawmakers, has emerged, demanding firms to enhance ESG along their supply chain. Societal pressure changes the assumption of asymmetry, where firms should engage in suppliers' problems.

If customers' lobbying represents their growing need to manage suppliers' incidents, our study highlights that government actions can offer direct incentives to firms to monitor and manage their supply chain. Policies and sanctions can effectively improve norms if increasing lobbying presumes firms need to maintain the relationships. Some firms, indeed, appoint C-level executives to execute the strategies for enhancing sustainability across various issues (Ioannou et al., 2016). On the negative side, however, lobbying also can suggest firms' resistance to improving the suppliers' conditions, which would result in a continuous *race to the bottom*. Customers' rent-seeking lobby might further increase negative externalities in emerging countries. Extending our findings to the actual change in suppliers' ESG practices will be a valuable avenue for future research.

The recent changes in the policy environment are in a way that motivates more corporate lobbying. The government-led shift toward clean energy has added another layer of outsourcing decisions where political considerations come into play. The Biden administration enacted the Inflation Reduction Act (IRA), which provides tax credits for products sourced domestically under the Defense Production Act (White House, 2021). While raw material production, re-

finement, and processing largely depend on developing countries like China to reduce costs, governmental incentives are structured to curtail such dependencies. When the government draws the boundaries, sets the standards, and regulates or deregulates the industries, ambiguity often rises, motivating firm lobbying. With the growing number of studies in the supply chain, ESG, and lobbying, it will be interesting to study the impact of their interactions on corporate environments.

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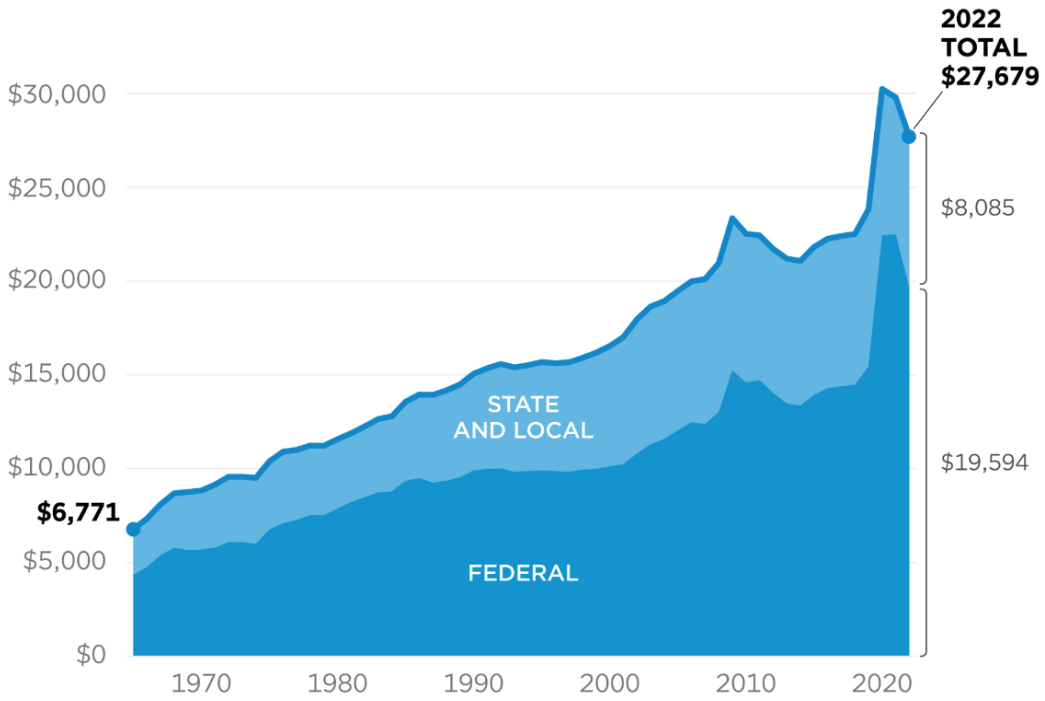
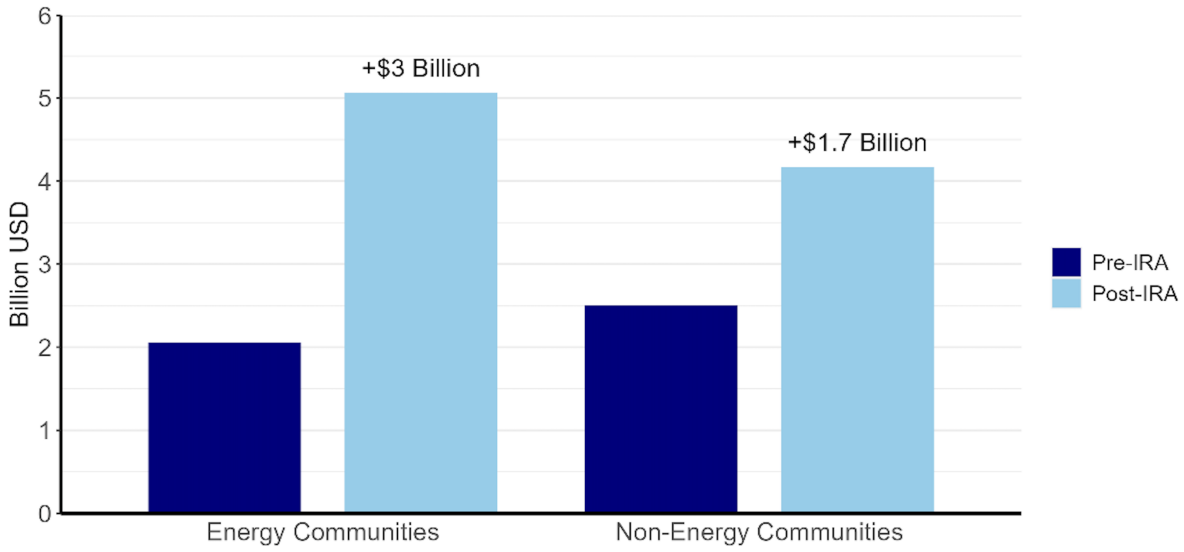
Appendix A: Theories of Why Firms Lobby

A.1 Examples of Industry Response to Policy Change



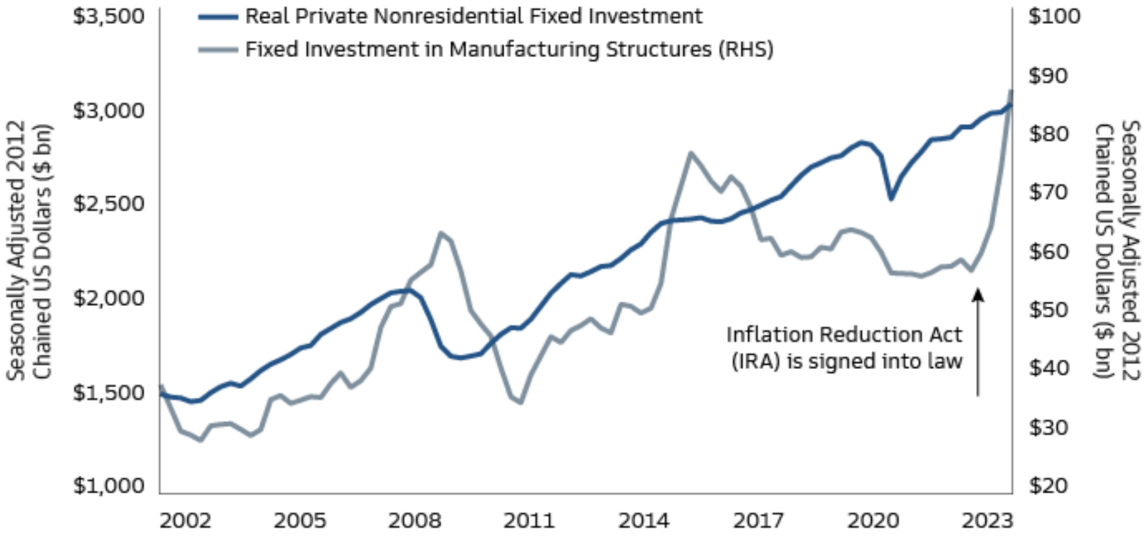
(Source: heritage.org; OMB; U.S. Census Bureau; St. Louis Federal Reserve)

Figure A.1: Government spending per capita (Constant in 2023 US dollars)



(Source: The Department of Treasury; Rhodium Group and MIT Center for Energy and Environmental Policy Research (CEEPR)

Figure A.2: Clean Energy Investments Before and After the IRA



(Source: Goldman Sachs Asset Management; Federal Reserve Bank of St. Louis, US Bureau of Economic Analysis. Data as of August 30, 2023. Seasonally adjusted 2012 chained US dollars.

Figure A.3: Clean Energy Investments Before and After the IRA

Appendix B: Vertical Integration and Corporate Lobbying: Alternative Measures and Drivers of Lobbying

B.1 Data Description

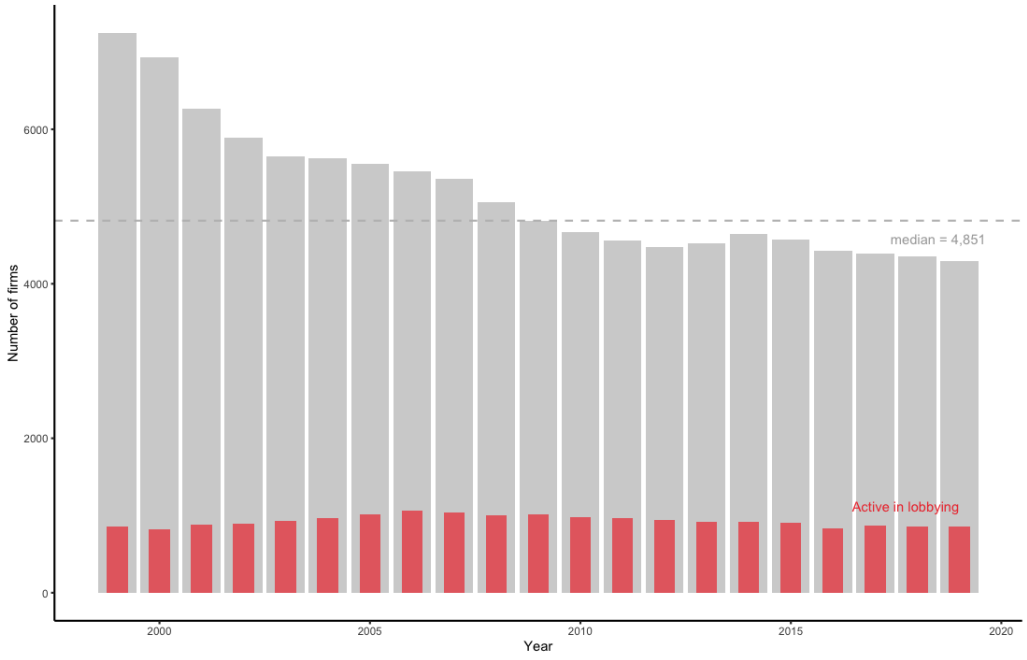
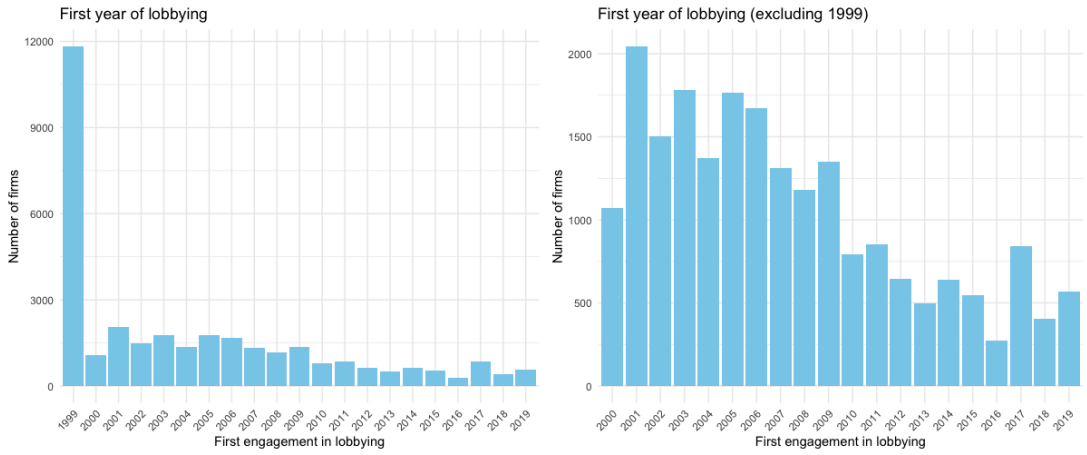


Figure B.1: Sample Firms and the Number of Firms Active in Lobbying

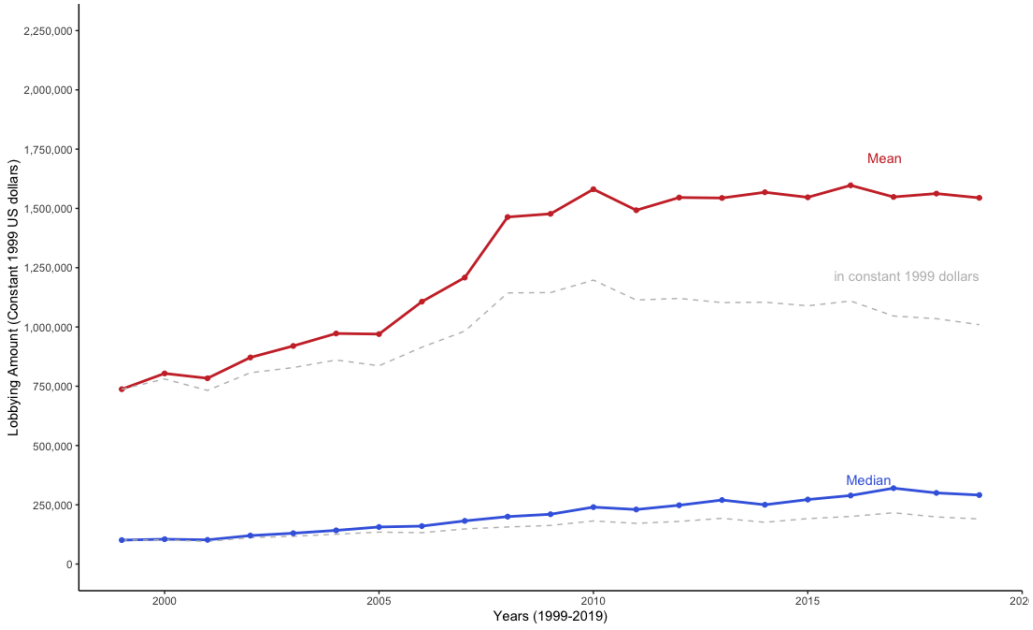


Notes: The submission requirement of lobbying reports was initiated in 1999.

Figure B.2: Number of Firms Active in Lobbying: Including 1999 vs. Excluding 1999

Year	Number of firms			Annual lobby expenditure (in thousands)	
	Total	Active in lobbying	% of Total	Average	Average (constant 1999 dollars)
1999	7,248	860	11.9%	87.4	87.4
2000	6,932	824	11.9%	95.5	92.8
2001	6,262	876	14.0%	109.5	102.3
2002	5,887	890	15.1%	131.6	121.8
2003	5,645	928	16.4%	151.1	136.1
2004	5,622	966	17.2%	166.9	147.7
2005	5,558	1021	18.4%	178.0	153.5
2006	5,468	1064	19.5%	215.1	177.8
2007	5,394	1038	19.2%	232.3	188.8
2008	5,095	1003	19.7%	287.8	224.8
2009	4,851	1012	20.9%	307.8	238.6
2010	4,708	984	20.9%	330.0	250.0
2011	4,600	969	21.1%	314.0	234.3
2012	4,506	938	20.8%	321.4	232.9
2013	4,563	922	20.2%	311.6	222.5
2014	4,673	917	19.6%	307.3	216.4
2015	4,609	906	19.7%	303.7	213.8
2016	4,454	831	18.7%	297.6	206.7
2017	4,420	871	19.7%	304.8	205.9
2018	4,379	859	19.6%	306.2	202.8
2019	4,313	857	19.9%	306.6	200.4
1999-2019	5,199	930	18.3%	241.2	183.7

Figure B.3: Number of Firms in the Sample and Average Annual Lobby Spending



Note: Constant in 1999 dollars

Figure B.4: Trend in Lobby Expenditure

B.2 Trends in Corporate Lobbying

Rank	1999		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009	
	Issue Code	Count	Issue Code	Count	Issue Code	Count	Issue Code	Count	Issue Code	Count	Issue Code	Count	Issue Code	Count	Issue Code	Count	Issue Code	Count	Issue Code	Count	Issue Code	Count
1	TAX	1,116	TAX	1,148	TAX	1,135	TAX	1,131	TAX	1,246	TAX	1,323	TAX	1,293	TAX	1,349	TAX	1,557	TAX	2,840	TAX	2,701
2	TRD	646	TRD	783	HCR	707	DEF	781	DEF	825	DEF	835	BUD	959	BUD	1,020	BUD	1,046	BUD	1,706	ENG	1,884
3	DEF	611	HCR	674	TRD	656	BUD	779	BUD	751	BUD	805	DEF	888	DEF	952	DEF	1,031	ENG	1,651	HCR	1,809
4	HCR	587	BUD	638	DEF	625	HCR	761	HCR	708	HCR	744	HCR	791	HCR	859	HCR	972	DEF	1,649	BUD	1,715
5	TEC	586	TEC	621	BUD	568	TRD	728	TEC	581	TEC	609	TEC	689	TEC	718	ENG	972	HCR	1,561	DEF	1,503
6	ENV	577	DEF	594	TEC	563	ENG	629	ENG	572	TRD	561	ENG	681	TRD	688	TRD	703	TRD	1,284	ENV	1,192
7	BUD	531	ENV	526	ENG	484	TEC	620	TRD	563	ENG	536	TRD	665	ENG	676	MMM	668	ENV	1,152	FIN	1,030
8	ENG	340	ENG	398	ENV	435	MMM	465	MMM	522	MMM	516	MMM	548	MMM	581	TEC	653	MMM	1,072	TRD	992
9	MMM	277	MMM	346	MMM	371	ENV	448	FIN	417	FIN	420	TRA	430	FIN	434	CPT	535	TEC	1,029	TEC	946
10	LBR	270	TRA	310	LBR	286	FIN	420	TRA	357	TRA	413	FIN	395	ENV	385	ENV	497	CPT	868	LBR	907
11	BAN	269	LBR	308	FIN	284	TRA	394	ENV	355	ENV	341	ENV	389	CPT	377	HOM	448	FIN	839	MMM	885
12	TRA	262	FIN	274	TRA	273	AVI	332	BAN	288	HOM	282	CPT	317	HOM	371	FIN	440	HOM	678	CPT	763
13	FIN	244	AVI	256	AVI	271	LBR	294	TOR	256	TOR	275	HOM	305	RET	342	TRA	369	BAN	622	TRA	660
14	CPT	233	BAN	239	BAN	244	GOV	281	AVI	255	BAN	249	RET	288	TRA	335	BAN	359	LBR	610	HOM	640
15	UTI	220	CPT	226	GOV	206	BAN	276	COM	253	LBR	241	COM	283	COM	331	LBR	332	TRA	571	BAN	588
16	CAW	197	UTI	213	CPT	205	COM	258	LBR	232	GOV	241	BAN	270	BAN	311	COM	316	COM	538	CAW	441
17	COM	193	CSP	196	UTI	196	UTI	246	GOV	229	RET	217	TOR	261	LBR	227	GOV	261	CSP	446	COM	388
18	AVI	186	CAW	190	COM	189	INS	234	RET	215	COM	213	GOV	218	INS	221	CSP	260	CAW	428	AVI	384
19	GOV	172	COM	178	CSP	187	CPT	228	HOM	192	AVI	206	INS	216	GOV	220	AGR	257	AVI	418	CSP	343
20	WAS	150	BNK	168	CAW	161	CSP	200	CPT	191	CPT	197	LBR	215	CSP	214	AVI	241	AGR	411	GOV	316
20									CSP	191							INS	241				

Rank	2010		2011		2012		2013		2014		2015		2016		2017		2018		2019	
	Issue Code	Count	Issue Code	Count	Issue Code	Count	Issue Code	Count	Issue Code	Count	Issue Code	Count	Issue Code	Count	Issue Code	Count	Issue Code	Count	Issue Code	Count
1	TAX	3,104	TAX	3,087	TAX	3,387	TAX	3,619	TAX	3,799	TAX	3,721	TAX	3,406	TAX	4,210	TAX	3,341	TAX	2,807
2	ENG	1,884	ENG	1,740	BUD	1,632	BUD	1,636	HCR	1,531	BUD	1,611	BUD	1,554	HCR	1,594	TRD	1,741	TRD	1,893
3	HCR	1,742	BUD	1,683	ENG	1,573	HCR	1,601	ENG	1,514	TRD	1,561	HCR	1,527	BUD	1,546	HCR	1,586	HCR	1,604
4	BUD	1,669	HCR	1,569	HCR	1,520	ENG	1,580	BUD	1,506	HCR	1,517	TRD	1,418	TRD	1,382	BUD	1,570	BUD	1,433
5	DEF	1,510	DEF	1,361	FIN	1,195	DEF	1,129	TRD	1,216	ENG	1,461	ENG	1,344	ENG	1,252	ENG	1,180	ENG	1,168
6	FIN	1,456	FIN	1,252	DEF	1,170	TRD	1,106	DEF	1,118	DEF	1,100	TEC	1,069	DEF	1,057	DEF	1,117	DEF	1,156
7	ENV	1,238	ENV	1,120	TEC	1,098	TEC	1,073	TEC	1,092	TEC	1,080	DEF	1,055	FIN	1,008	TEC	1,026	TEC	1,071
8	TEC	975	TRD	1,086	TRD	1,057	FIN	1,017	FIN	1,068	CPT	1,045	FIN	1,013	TEC	994	FIN	982	FIN	976
9	TRD	974	TEC	1,046	ENV	1,016	ENV	858	CPT	972	FIN	1,029	CPT	825	MMM	797	TRA	840	MMM	867
10	LBR	761	CPT	964	TRA	804	CPT	793	ENV	822	TRA	880	MMM	770	TRA	785	MMM	840	TRA	844
11	CPT	749	MMM	789	HOM	737	HOM	784	HOM	764	ENV	833	TRA	758	ENV	713	ENV	691	ENV	729
12	MMM	747	TRA	757	MMM	719	MMM	740	MMM	745	HOM	810	ENV	751	HOM	689	HOM	637	LBR	615
13	TRA	717	HOM	629	CPT	652	TRA	629	TRA	704	MMM	793	HOM	694	LBR	627	LBR	612	BAN	604
14	BAN	678	BAN	620	BAN	591	IMM	621	LBR	562	BAN	581	LBR	639	CPT	587	BAN	603	HOM	582
15	HOM	653	LBR	599	LBR	566	BAN	554	IMM	556	LBR	578	BAN	516	BAN	572	CPT	539	CSP	541
16	CAW	516	CAW	519	CAW	471	LBR	529	BAN	532	CSP	522	CSP	489	GOV	448	CSP	480	CPT	527
17	COM	416	COM	421	CSP	441	AGR	459	INS	434	IMM	448	GOV	417	CSP	421	IMM	430	COM	432
18	CSP	388	CSP	414	AGR	395	CAW	426	CSP	403	COM	394	COM	400	IMM	395	COM	413	IMM	361
19	GOV	337	AGR	332	COM	384	CSP	426	CAW	398	CAW	391	AVI	382	COM	381	GOV	396	GOV	341
20	EDU	333	EDU	327	GOV	324	COM	376	COM	396	GOV	382	EDU	339	AVI	348	AGR	376	AVI	316

Figure B.5: Top 20 Lobby Issues (1999-2019)

Code	Description	Code	Description
ACC	Accounting	HOM	Homeland Security
ADV	Advertising	HOU	Housing
AER	Aerospace	IMM	Immigration
AGR	Agriculture	IND	Indian/Native American Affairs
ALC	Alcohol & Drug Abuse	INS	Insurance
ANI	Animals	LBR	Labor Issues/Antitrust/Workplace
APP	Apparel/Clothing Industry/Textiles	INT	Intelligence and Surveillance
ART	Arts/Entertainment	LAW	Law Enforcement/Crime/Criminal Justice
AUT	Automotive Industry	MAN	Manufacturing
AVI	Aviation/Aircraft/Airlines	MAR	Marine/Maritime/Boating/Fisheries
BAN	Banking	MED	Medical/Disease Research/Clinical Labs
BNK	Bankruptcy	MIA	Media (Information/Publishing)
BEV	Beverage Industry	MMM	Medicare/Medicaid
BUD	Budget/Appropriations	MON	Minting/Money/Gold Standard
CAW	Clean Air & Water (Quality)	NAT	Natural Resources
CDT	Commodities (Big Ticket)	PHA	Pharmacy
CHM	Chemicals/Chemical Industry	POS	Postal
CIV	Civil Rights/Civil Liberties	RRR	Railroads
COM	Communications/Broadcasting/Radio/TV	RES	Real Estate/Land Use/Conservation
CPI	Computer Industry	REL	Religion
CSP	Consumer Issues/Safety/Protection	RET	Retirement
CON	Constitution	ROD	Roads/Highway
CPT	Copyright/Patent/Trademark	SCI	Science/Technology
DEF	Defense	SMB	Small Business
DOC	District of Columbia	SPO	Sports/Athletics
DIS	Disaster Planning/Emergencies	TAR	Miscellaneous Tariff Bills
ECN	Economics/Economic Development	TAX	Taxation/Internal Revenue Code
EDU	Education	TEC	Telecommunications
ENG	Energy/Nuclear	TOB	Tobacco
ENV	Environmental/Superfund	TOR	Torts
FAM	Family Issues/Abortion/Adoption	TRD	Trade (Domestic & Foreign)
FIR	Firearms/Guns/Ammunition	TRA	Transportation
FIN	Financial Institutions/Investments/Securities	TOU	Travel/Tourism
FOO	Food Industry (Safety, Labeling, etc.)	TRU	Trucking/Shipping
FOR	Foreign Relations	URB	Urban Development/Municipalities
FUE	Fuel/Gas/Oil	UNM	Unemployment
GAM	Gaming/Gambling/Casino	UTI	Utilities
GOV	Government Issues	VET	Veterans
HCR	Health Issues	WAS	Waste (hazardous/solid/interstate/nuclear)
		WEL	Welfare

Note: On the LD-1DS and LD-2DS forms, lobbyists select the lobbying issue codes by using pull down lists for issue codes.

Figure B.6: Lobbying Issues

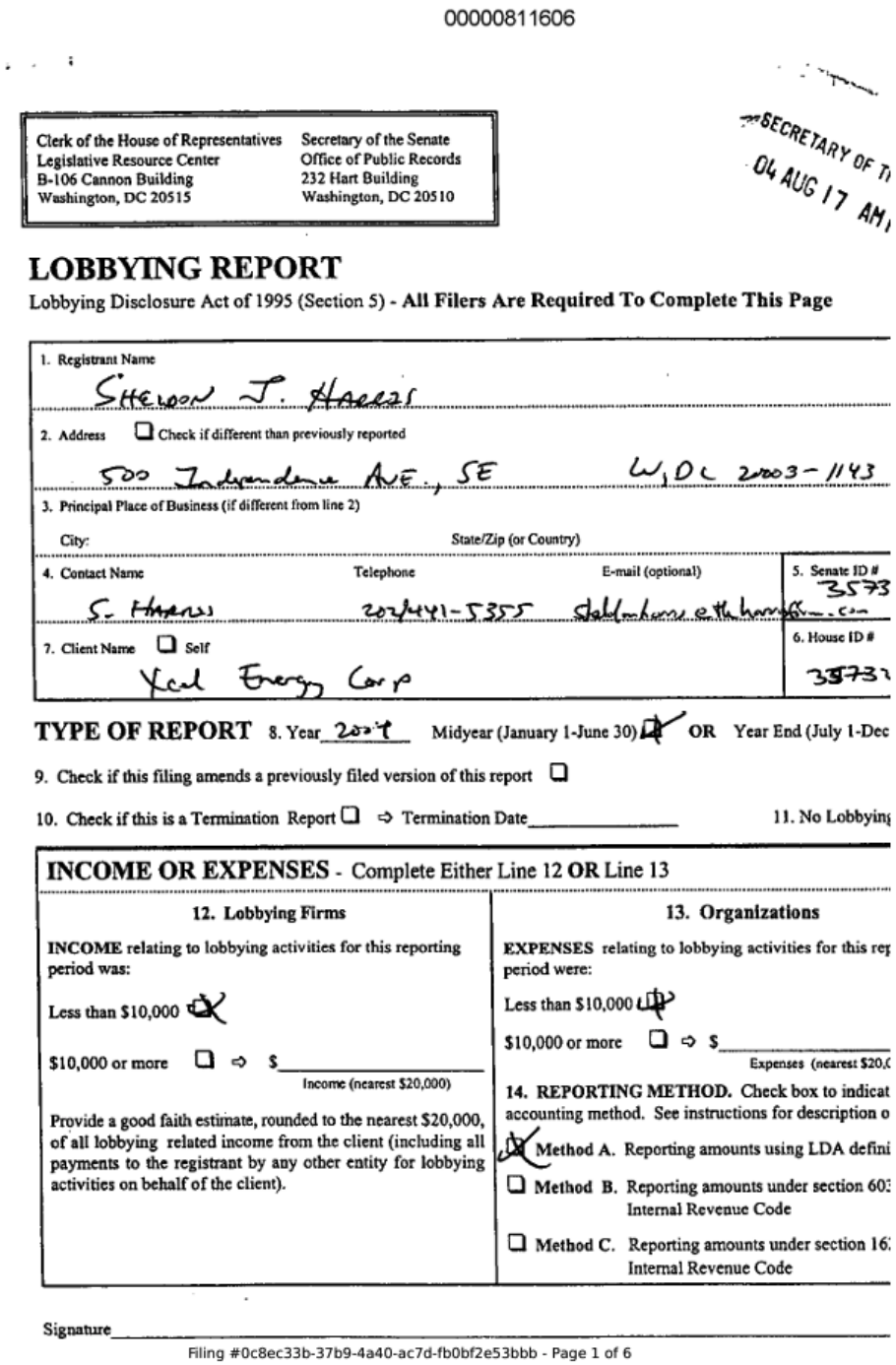
Year	Number of firms			Annual lobby expenditure (in thousands)	
	Total	Active in lobbying	% of Total	Average	Average (constant 1999 dollars)
1999	7,248	859	11.9%	87.4	87.4
2000	6,932	823	11.9%	95.5	92.8
2001	6,262	875	14.0%	109.5	102.3
2002	5,887	889	15.1%	131.6	121.8
2003	5,645	927	16.4%	151.1	136.1
2004	5,622	965	17.2%	166.9	147.7
2005	5,558	1020	18.4%	178.0	153.5
2006	5,456	1063	19.5%	215.1	177.8
2007	5,356	1037	19.4%	232.3	188.8
2008	5,057	1002	19.8%	287.8	224.8
2009	4,817	1011	21.0%	307.8	238.6
2010	4,672	983	21.0%	330.0	250.0
2011	4,563	968	21.2%	314.0	234.3
2012	4,471	937	21.0%	321.4	232.9
2013	4,528	921	20.3%	311.6	222.5
2014	4,639	916	19.7%	307.3	216.4
2015	4,576	905	19.8%	303.7	213.8
2016	4,423	830	18.8%	297.6	206.7
2017	4,390	870	19.8%	304.8	205.9
2018	4,353	858	19.7%	306.2	202.8
2019	4,288	856	20.0%	306.6	200.4
1999-2019	5,178	929	18.4%	241.2	183.7

Figure B.7: Number of Firms and Average Lobbying Expenditure

Year	Num of Entrants	Lobby spending (median, $)	Lobby/Sales (median)	R&D Intensity (median)	Dependence on Contracted Lobbyists
2000	63	25,335	0.004 %	1.0%	79.6%
2001	140	22,000	0.008 %	6.6%	100.0%
2002	102	41,500	0.013 %	7.7%	63.5%
2003	125	40,750	0.010 %	3.3%	100.0%
2004	95	62,000	0.008 %	6.0%	67.7%
2005	127	42,000	0.011 %	2.2%	100.0%
2006	113	33,800	0.009 %	3.1%	94.1%
2007	89	42,007	0.009 %	5.6%	100.0%
2008	88	40,000	0.004 %	1.2%	100.0%
2009	131	60,000	0.008 %	3.1%	83.3%
2010	67	75,000	0.008 %	4.3%	80.0%
2011	71	44,000	0.007 %	0.4%	90.9%
2012	55	60,000	0.009 %	3.0%	83.3%
2013	49	60,000	0.008 %	9.4%	100.0%
2014	50	65,000	0.005 %	1.9%	83.8%
2015	60	61,000	0.009 %	14.1%	67.2%
2016	33	62,000	0.012 %	8.4%	67.7%
2017	99	70,000	0.010 %	3.4%	85.7%
2018	59	60,000	0.017 %	11.2%	100.0%
2019	70	61,000	0.013 %	6.1%	85.2%
Average (2000-2019)	84	51,370	0.009 %	5.1%	86.6%

Figure B.8: Characteristics of Entrants in Lobbying

B.3 Examples of Lobbying Reports



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Clerk of the House of Representatives
Legislative Resource Center
B-106 Cannon Building
Washington, DC 20515

Secretary of the Senate
Office of Public Records
232 Hart Building
Washington, DC 20510

SECRETARY OF T
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LOBBYING REPORT

Lobbying Disclosure Act of 1995 (Section 5) - **All Filers Are Required To Complete This Page**

1. Registrant Name
Sheldon J. Hazen

2. Address ☐ Check if different than previously reported
500 Independence Ave., SE W, DC 20003-1143

3. Principal Place of Business (if different from line 2)

City: State/Zip (or Country)

4. Contact Name: S. Hazen | Telephone: 202/441-5355 | E-mail (optional): shall@hunton&williams.com | 5. Senate ID #: 3573

7. Client Name ☐ Self: Xcel Energy Corp | 6. House ID #: 35737

TYPE OF REPORT 8. Year 2004 Midyear (January 1-June 30) ☒ **OR** Year End (July 1-Dec

9. Check if this filing amends a previously filed version of this report ☐

10. Check if this is a Termination Report ☐ ⇨ Termination Date_____ 11. No Lobbying

INCOME OR EXPENSES - Complete Either Line 12 **OR** Line 13

12. Lobbying Firms

INCOME relating to lobbying activities for this reporting period was:

Less than $10,000 ☒

$10,000 or more ☐ ⇨ $_____
Income (nearest $20,000)

Provide a good faith estimate, rounded to the nearest $20,000, of all lobbying related income from the client (including all payments to the registrant by any other entity for lobbying activities on behalf of the client).

13. Organizations

EXPENSES relating to lobbying activities for this rep period were:

Less than $10,000 ☒

$10,000 or more ☐ ⇨ $_____
Expenses (nearest $20,(

14. REPORTING METHOD. Check box to indicat accounting method. See instructions for description o

☒ **Method A.** Reporting amounts using LDA defini

☐ **Method B.** Reporting amounts under section 60 Internal Revenue Code

☐ **Method C.** Reporting amounts under section 16 Internal Revenue Code

Signature_____

Filing #0c8ec33b-37b9-4a40-ac7d-fb0bf2e53bbb - Page 1 of 6

Figure B.9: Examples of Lobbying Report - (1) Xcel Energy Corp., 2004, Page 1

...Continued on next page

00000811607

Registrant Name Sheldon J. Harris Client Name Xcel Energy Corp

LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the engaged in lobbying on behalf of the client during the reporting period. **Using a separate page for each co** information as requested. Attach additional page(s) as needed.

15. General issue area code UTI (one per page)

16. Specific lobbying issues

Energy legislation related issues

17. House(s) of Congress and Federal agencies contacted ☐ Check if None

US House of Representatives
US Senate

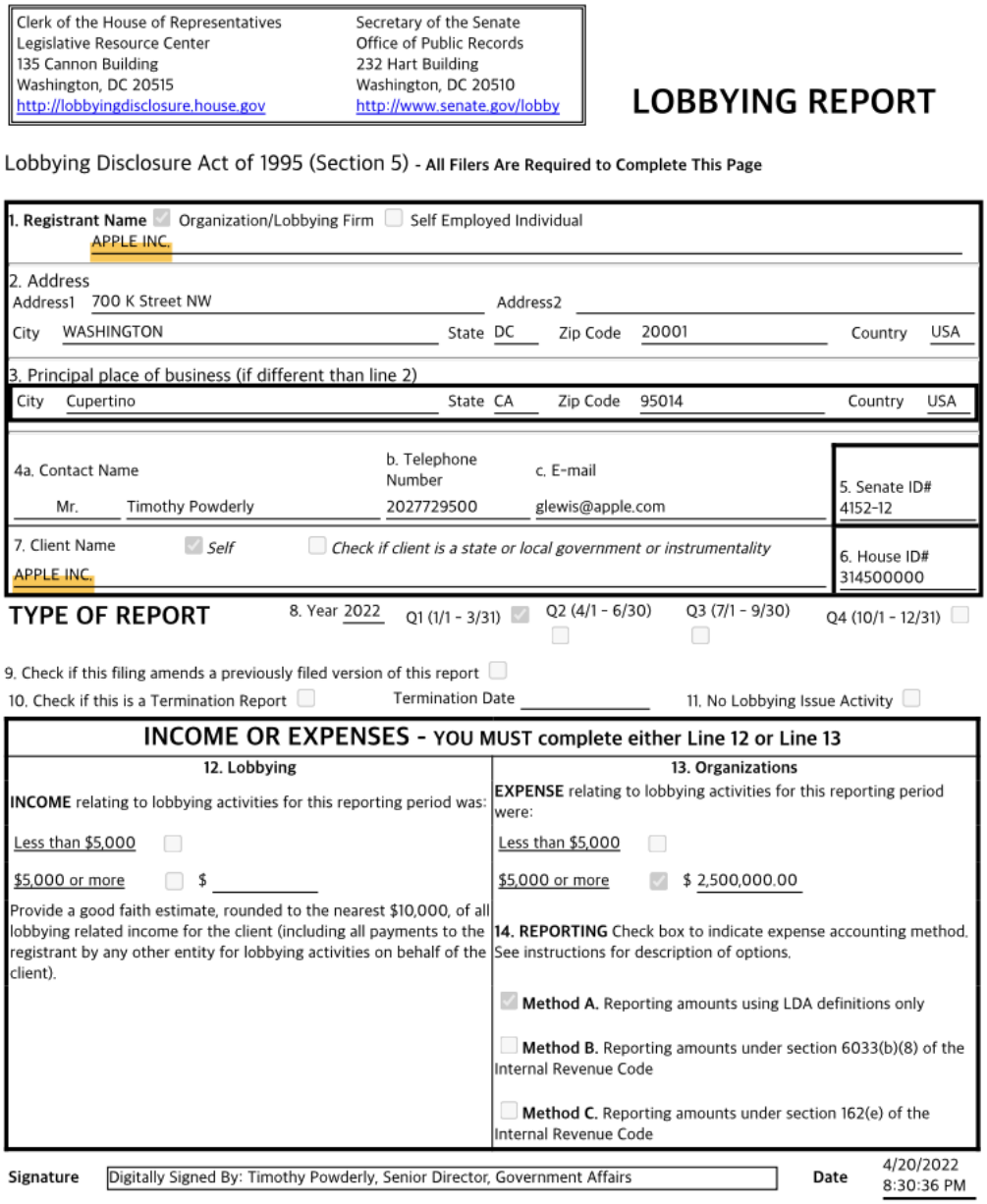
18. Name of each individual who acted as a lobbyist in this issue area

Name	Covered Official Position (if applicable)
Sheldon Harris	

19. Interest of each foreign entity in the specific issues listed on line 16 above ☒ Check if None

Signature _____ Date _____

Figure B.10: Examples of Lobbying Report - (2) Xcel Energy Corp., 2004, Page 2



Clerk of the House of Representatives
Legislative Resource Center
135 Cannon Building
Washington, DC 20515
http://lobbyingdisclosure.house.gov

Secretary of the Senate
Office of Public Records
232 Hart Building
Washington, DC 20510
http://www.senate.gov/lobby

LOBBYING REPORT

Lobbying Disclosure Act of 1995 (Section 5) - All Filers Are Required to Complete This Page

1. Registrant Name ☑ Organization/Lobbying Firm ☐ Self Employed Individual
APPLE INC.

2. Address
Address1 700 K Street NW Address2
City WASHINGTON State DC Zip Code 20001 Country USA

3. Principal place of business (if different than line 2)
City Cupertino State CA Zip Code 95014 Country USA

4a. Contact Name: Mr. Timothy Powderly
b. Telephone Number: 2027729500
c. E-mail: glewis@apple.com
5. Senate ID# 4152-12

7. Client Name ☑ Self ☐ Check if client is a state or local government or instrumentality
APPLE INC.
6. House ID# 314500000

TYPE OF REPORT 8. Year 2022 Q1 (1/1 - 3/31) ☑ Q2 (4/1 - 6/30) ☐ Q3 (7/1 - 9/30) ☐ Q4 (10/1 - 12/31) ☐

9. Check if this filing amends a previously filed version of this report ☐
10. Check if this is a Termination Report ☐ Termination Date _____ 11. No Lobbying Issue Activity ☐

INCOME OR EXPENSES - YOU MUST complete either Line 12 or Line 13

12. Lobbying
INCOME relating to lobbying activities for this reporting period was:
Less than $5,000 ☐
$5,000 or more ☐ $ _____
Provide a good faith estimate, rounded to the nearest $10,000, of all lobbying related income for the client (including all payments to the registrant by any other entity for lobbying activities on behalf of the client).

13. Organizations
EXPENSE relating to lobbying activities for this reporting period were:
Less than $5,000 ☐
$5,000 or more ☑ $ 2,500,000.00

14. REPORTING Check box to indicate expense accounting method. See instructions for description of options.
☑ Method A. Reporting amounts using LDA definitions only
☐ Method B. Reporting amounts under section 6033(b)(8) of the Internal Revenue Code
☐ Method C. Reporting amounts under section 162(e) of the Internal Revenue Code

Signature: Digitally Signed By: Timothy Powderly, Senior Director, Government Affairs
Date: 4/20/2022 8:30:36 PM

Figure B.11: Examples of Issues in Lobbying Reports - (1) Apple Inc., 2022

...Continued on next page

LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the registrant engaged in lobbying on behalf of the client during the reporting period. Using a separate page for each code, provide information as requested. Add additional page(s) as needed.

15. General issue area code ENV

16. Specific lobbying issues

Climate change
Providing information on clean energy provisions in H.R. 5376, the Build Back Better Act
Providing general information about Apples environmental policy

17. House(s) of Congress and Federal agencies ☐ Check if None

U.S. HOUSE OF REPRESENTATIVES, U.S. SENATE

18. Name of each individual who acted as a lobbyist in this issue area

First Name	Last Name	Suffix	Covered Official Position (if applicable)	New
Alexis	Marks Mosher			☐

19. Interest of each foreign entity in the specific issues listed on line 16 above ☑ Check if None

LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the registrant engaged in lobbying on behalf of the client during the reporting period. Using a separate page for each code, provide information as requested. Add additional page(s) as needed.

15. General issue area code TRD

16. Specific lobbying issues

Issues related to the US-EU Privacy Shield
Issues related to international discussions of digital regulation
Issues related to foreign regulatory proposals and proposals related to competition

17. House(s) of Congress and Federal agencies ☐ Check if None

U.S. HOUSE OF REPRESENTATIVES, U.S. SENATE, Commerce - Dept of (DOC)

18. Name of each individual who acted as a lobbyist in this issue area

First Name	Last Name	Suffix	Covered Official Position (if applicable)	New
Timothy	Powderly			☐
Alexis	Marks Mosher			☐

19. Interest of each foreign entity in the specific issues listed on line 16 above ☑ Check if None

Figure B.12: Examples of Issues in Lobbying Reports - (2) Apple Inc., 2022

...Continued on next page

LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the registrant engaged in lobbying on behalf of the client during the reporting period. Using a separate page for each code, provide information as requested. Add additional page(s) as needed.

15. General issue area code CSP

16. Specific lobbying issues

General consumer privacy issues
Providing information about online child safety

17. House(s) of Congress and Federal agencies ☐ Check if None

U.S. HOUSE OF REPRESENTATIVES, U.S. SENATE

18. Name of each individual who acted as a lobbyist in this issue area

First Name	Last Name	Suffix	Covered Official Position (if applicable)	New
Alexis	Marks Mosher			☐
ZJ	Hull			☐
Jeff	Dobrozsi			☐

19. Interest of each foreign entity in the specific issues listed on line 16 above ☑ Check if None

LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the registrant engaged in lobbying on behalf of the client during the reporting period. Using a separate page for each code, provide information as requested. Add additional page(s) as needed.

15. General issue area code LBR

16. Specific lobbying issues

Issues related to competition in digital markets, including H.R. 3816/S. 2992, the American Choice and Innovation Online Act; H.R. 3849, the Augmenting Compatibility and Competition by Enabling Service Switching (ACCESS) Act; H.R. 3843/S. 228, the Merger Filing Fee Modernization Act; H.R. 3460, the State Antitrust Enforcement Venue Act; and S. 2710/H.R. 5017, Open App Markets Act.

17. House(s) of Congress and Federal agencies ☐ Check if None

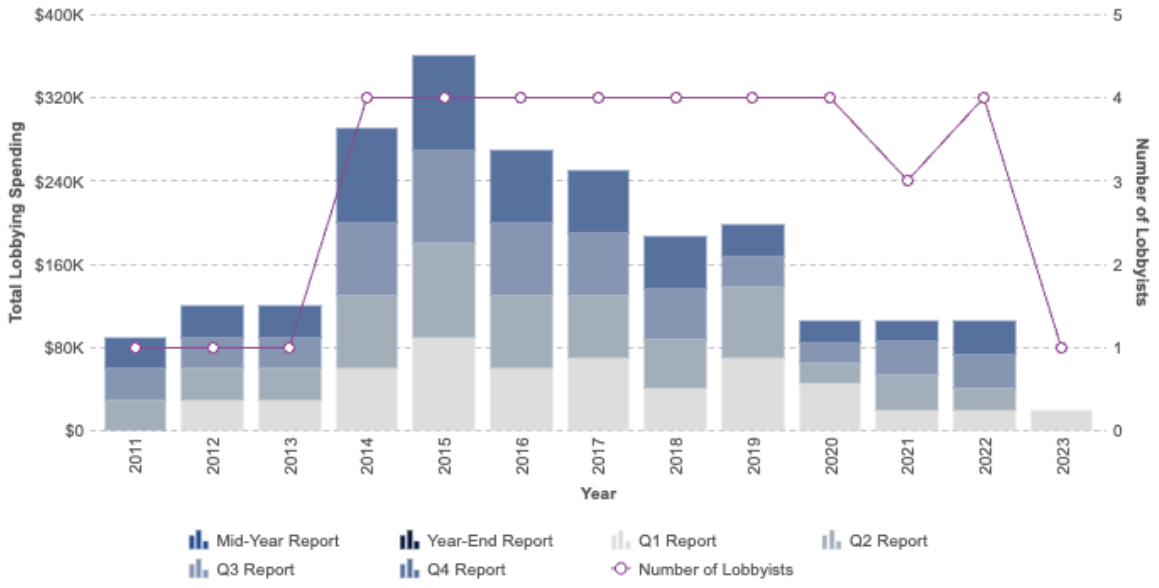
U.S. HOUSE OF REPRESENTATIVES, U.S. SENATE, Executive Office of the President (EOP), Justice - Dept of (DOJ), Commerce - Dept of (DOC), Homeland Security - Dept of (DHS)

18. Name of each individual who acted as a lobbyist in this issue area

First Name	Last Name	Suffix	Covered Official Position (if applicable)	New
Timothy	Powderly			☐
Jeff	Dobrozsi			☐
ZJ	Hull			☐
Alexis	Marks Mosher			☐
Robert	Harris			☐
April	Jones			☐
Nick	Rossi			☐

19. Interest of each foreign entity in the specific issues listed on line 16 above ☑ Check if None

Figure B.13: Examples of Issues in Lobbying Reports - (3) Apple Inc., 2022



Source: *OpenSecrets*

Figure B.14: Annual Lobbying by 23andMe Inc.

1999-2006

Rank	Company Name	Industry	Lobby Issues		Lobby Expenditure		Spending per Issue		Vertical Scope		Horizontal Scope	
			(Total)	(Avg.)	(Total, $ mn)	(Avg., $ mn)	(Total, $ mn)	(Avg., $ mn)	(Avg.)	(Avg. change, YoY)	(Avg.)	(Avg. change, YoY)
1	AT&T Inc.	INFO	1,532	192	200.8	25.1	0.13	0.13	0.0132	8.9%	6.38	7.7%
2	Verizon Communications Inc.	INFO	1,375	172	117.8	14.7	0.09	0.09	0.0099	5.2%	11.00	14.1%
3	Lockheed Martin Corporation	MFG	1,315	164	94.0	11.8	0.07	0.07	0.0108	3.5%	12.50	7.3%
4	Norfolk Southern Corporation	TRS	1,276	160	172.5	21.6	0.14	0.14	0.0403	16.1%	8.38	149.4%
5	Wyeth LLC	MFG	1,213	152	102.2	12.8	0.08	0.08	0.0031	-7.8%	4.38	2.7%
6	General Electric Company	MFG	1,190	149	183.0	22.9	0.15	0.15	0.0333	-4.2%	23.38	2.9%
7	Goodrich Corporation	MFG	1,148	144	93.8	11.7	0.08	0.08	0.0211	4.7%	12.75	28.8%
8	Altria Group, Inc.	MFG	1,146	143	133.4	16.7	0.12	0.12	0.0191	2.5%	11.75	6.6%
9	Bank of America Corporation	FIN	988	124	330.5	41.3	0.33	0.33	0.0007	32.2%	5.38	3.2%
10	United Parcel Service, Inc.	TRS	895	112	62.2	7.8	0.07	0.07	0.0145	17.0%	5.88	2.0%
11	Warner Media, LLC	INFO	847	106	57.1	7.1	0.07	0.07	0.0108	3.2%	23.13	27.0%
12	Motors Liquidation Company	MFG	840	105	77.4	9.7	0.09	0.09	0.0330	5.5%	8.38	7.7%
13	The Boeing Company	MFG	840	105	90.2	11.3	0.11	0.11	0.0190	1.6%	6.50	48.6%
14	Level 3 Parent, LLC	INFO	801	100	29.7	3.7	0.04	0.04	0.0120	4.7%	22.88	2.6%
15	Northrop Grumman Corporation	MFG	753	94	102.1	12.8	0.14	0.14	0.0128	37.3%	7.86	65.6%
16	Bristol-Myers Squibb Company	MFG	682	85	53.2	6.6	0.08	0.08	0.0052	3.3%	7.13	102.6%
17	Merck & Co., Inc.	MFG	671	84	76.8	9.6	0.11	0.11	0.0036	248.7%	4.25	76.4%
18	H&R Block, Inc.	PRO	665	83	40.4	5.0	0.06	0.06	0.0052	6.0%	17.00	3.9%
19	Federal National Mortgage Association	FIN	659	82	84.6	10.6	0.13	0.13	0.0015	29.5%	15.60	10.0%
20	Genentech, Inc.	MFG	645	81	61.3	7.7	0.10	0.10	0.0017	-2.1%	4.75	3.4%
	Average		974	122	108.2	13.5	0.11	0.11	0.0135	20.8%	10.96	28.6%

2007-2009 Financial Crisis

Rank	Company Name	Industry	Lobby Issues		Lobby Expenditure		Spending per Issue		Vertical Scope		Horizontal Scope	
			(Total)	(Avg.)	(Total, $ mn)	(Avg., $ mn)	(Total, $ mn)	(Avg., $ mn)	(Avg.)	(Avg. change, YoY)	(Avg.)	(Avg. change, YoY)
1	Bank of America Corporation	FIN	988	329	313.7	104.6	0.32	0.32	0.0018	106.6%	6.67	27.8%
2	Verizon Communications Inc.	INFO	987	329	77.9	26.0	0.08	0.08	0.0162	6.0%	21.00	27.9%
3	Norfolk Southern Corporation	TRS	902	301	94.2	31.4	0.10	0.10	0.0485	-6.3%	12.33	2.8%
4	General Electric Company	MFG	878	293	130.9	43.6	0.15	0.15	0.0207	-4.6%	21.00	-4.1%
5	Goodrich Corporation	MFG	865	288	56.4	18.8	0.07	0.07	0.0181	-21.7%	11.67	-8.4%
6	Oracle Corporation	INFO	794	265	34.3	11.4	0.04	0.04	0.0008	146.7%	18.67	6.3%
7	Lockheed Martin Corporation	MFG	650	217	51.0	17.0	0.08	0.08	0.0102	-2.1%	10.67	-14.2%
8	Level 3 Parent, LLC	INFO	639	213	37.9	12.6	0.06	0.06	0.0152	-3.3%	27.33	11.5%
9	United Parcel Service, Inc.	TRS	608	203	45.7	15.2	0.08	0.08	0.0104	-11.3%	6.00	0.0%
10	Amgen Inc.	MFG	592	197	60.2	20.1	0.10	0.10	0.0033	9.6%	17.00	13.9%
11	AT&T Inc.	INFO	568	189	69.7	23.2	0.12	0.12	0.0064	31.8%	8.67	-6.7%
12	The Boeing Company	MFG	528	176	55.2	18.4	0.10	0.10	0.0171	-3.1%	6.33	5.6%
13	Progress Energy, Inc.	UTI	487	162	24.6	8.2	0.05	0.05	0.0154	-8.9%	10.00	7.0%
14	Altria Group, Inc.	MFG	468	156	56.3	18.8	0.12	0.12	0.0137	1.7%	2.67	-37.3%
15	Microsoft Corporation	INFO	466	155	37.8	12.6	0.08	0.08	0.0045	-23.5%	20.33	1.8%
16	Motorola Solutions, Inc.	MFG	465	155	23.8	7.9	0.05	0.05	0.0106	416.0%	19.00	-2.3%
17	H&R Block, Inc.	PRO	447	149	21.3	7.1	0.05	0.05	0.0015	-48.6%	13.67	-13.3%
18	Honeywell International Inc.	MFG	445	148	22.1	7.4	0.05	0.05	0.0380	6.3%	21.33	10.6%
19	Walmart Inc.	RTL	443	148	21.0	7.0	0.05	0.05	0.0205	12.4%	9.00	14.3%
20	Exxon Mobil Corporation	MFG	420	140	80.5	26.8	0.19	0.19	0.0144	84.3%	9.67	-26.0%
	Average		632	211	65.7	21.9	0.10	0.10	0.0144	34.4%	13.65	0.9%

2010-2019

Rank	Company Name	Industry	Lobby Issues		Lobby Expenditure		Spending per Issue		Vertical Scope		Horizontal Scope	
			(Total)	(Avg.)	(Total, $ mn)	(Avg., $ mn)	(Total, $ mn)	(Avg., $ mn)	(Avg.)	(Avg. change, YoY)	(Avg.)	(Avg. change, YoY)
1	General Electric Company	MFG	5,211	521	441.3	44.1	0.08	0.08	0.0185	61.2%	12.20	-6.4%
2	Oracle Corporation	INFO	4,356	436	148.2	14.8	0.03	0.03	0.0048	18.8%	19.70	-0.6%
3	Bank of America Corporation	FIN	3,912	391	1052.1	105.2	0.27	0.27	0.0005	11.1%	7.90	-1.6%
4	Norfolk Southern Corporation	TRS	3,423	342	256.2	25.6	0.07	0.07	0.0513	3.1%	11.20	-4.3%
5	Microsoft Corporation	INFO	2,783	278	125.2	12.5	0.04	0.04	0.0025	3.9%	18.60	1.4%
6	Alphabet Inc.	INFO	2,634	263	184.5	18.4	0.07	0.07	0.0057	7.4%	12.10	7.4%
7	Verizon Communications Inc.	INFO	2,431	243	163.7	16.4	0.07	0.07	0.0149	2.5%	24.80	-1.7%
8	The Boeing Company	MFG	2,261	226	200.4	20.0	0.09	0.09	0.0134	-2.0%	6.40	-0.8%
9	United Parcel Service, Inc.	TRS	2,111	211	213.5	21.3	0.10	0.10	0.0103	-1.1%	6.70	2.3%
10	AT&T Inc.	INFO	2,070	207	217.2	21.7	0.10	0.10	0.0131	3.3%	13.00	11.1%
11	Lockheed Martin Corporation	MFG	1,973	197	169.6	17.0	0.09	0.09	0.0096	0.9%	9.00	1.0%
12	General Dynamics Corporation	MFG	1,972	197	146.6	14.7	0.07	0.07	0.0132	5.3%	17.30	9.9%
13	Exxon Mobil Corporation	MFG	1,940	194	138.2	13.8	0.07	0.07	0.0222	-0.9%	1.00	0.0%
14	Altria Group, Inc.	MFG	1,901	190	142.4	14.2	0.07	0.07	0.0102	-5.1%	2.00	0.0%
15	Federal Express Corporation (US)	TRS	1,855	186	162.0	16.2	0.09	0.09	0.0180	8.7%	6.70	13.5%
16	Honeywell International Inc.	MFG	1,797	180	75.5	7.6	0.04	0.04	0.0308	-5.5%	12.70	-9.7%
17	Intel Corporation	MFG	1,680	168	57.3	5.7	0.03	0.03	0.0070	0.2%	12.40	3.2%
18	Motors Liquidation Company	MFG	1,657	166	107.1	10.7	0.06	0.06	0.0067	-11.6%	5.90	-6.0%
19	H&R Block, Inc.	PRO	1,625	163	109.6	11.0	0.07	0.07	0.0010	38.6%	8.00	-2.8%
20	Level 3 Parent, LLC	INFO	1,598	228	83.5	11.9	0.05	0.05	0.0154	2.3%	29.00	-0.2%
	Average		2,460	249	209.7	21.2	0.09	0.08	0.0135	7.1%	11.83	0.8%

Figure B.15: Top 20 Firms By the Number of Lobbying Issues

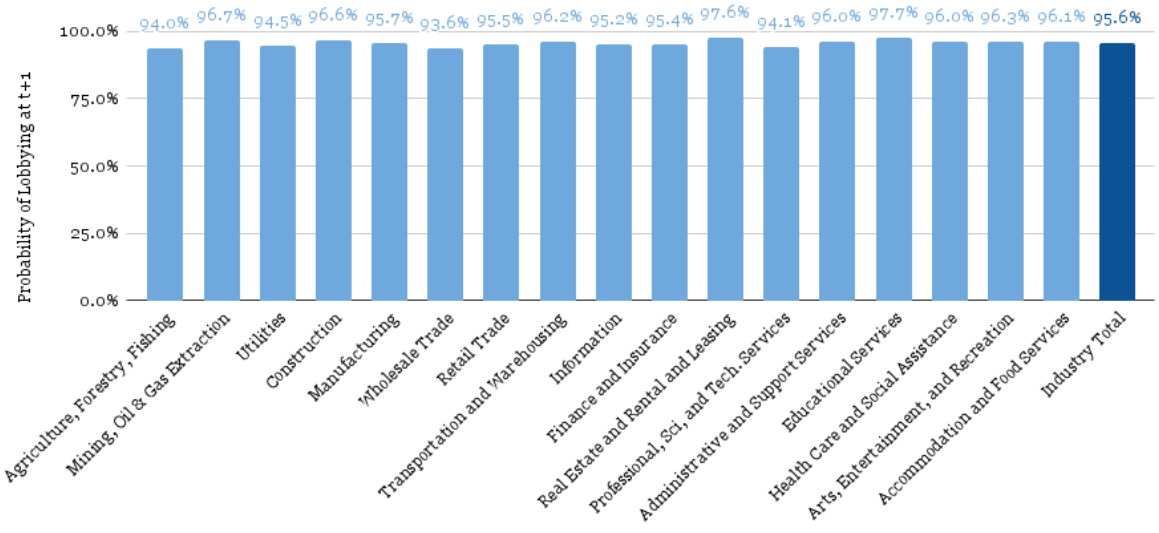


Figure B.16: Conditional Probability of Lobbying at *t+1*

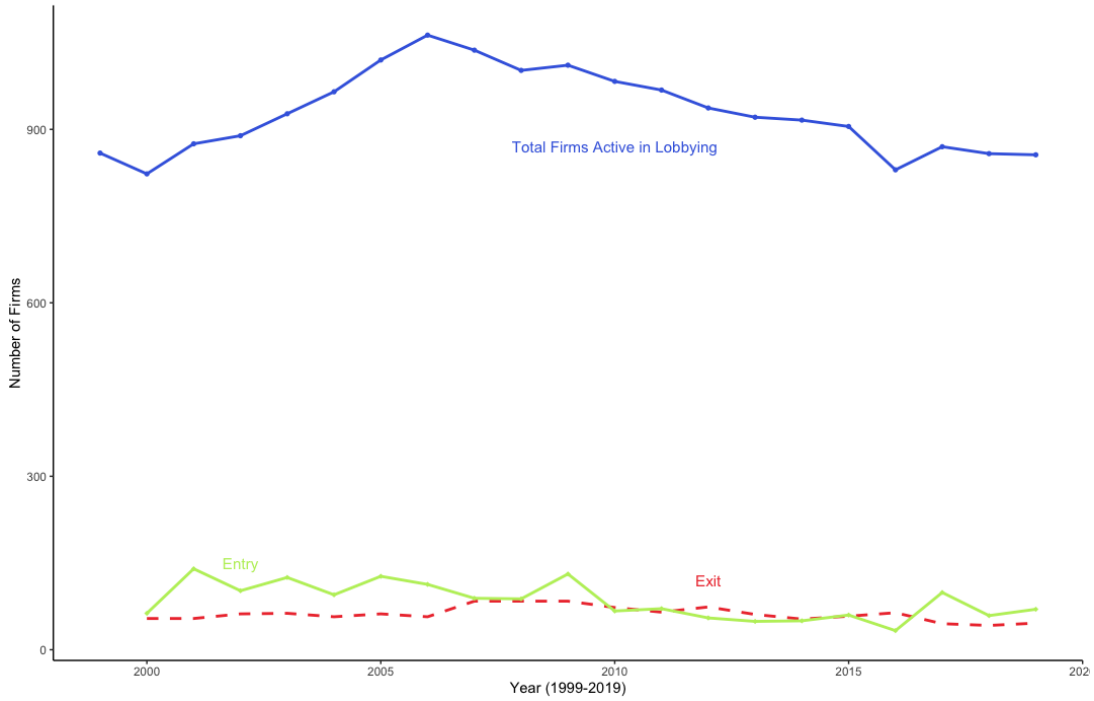


Figure B.17: Stability of Lobbying Participation - Entry and Exit

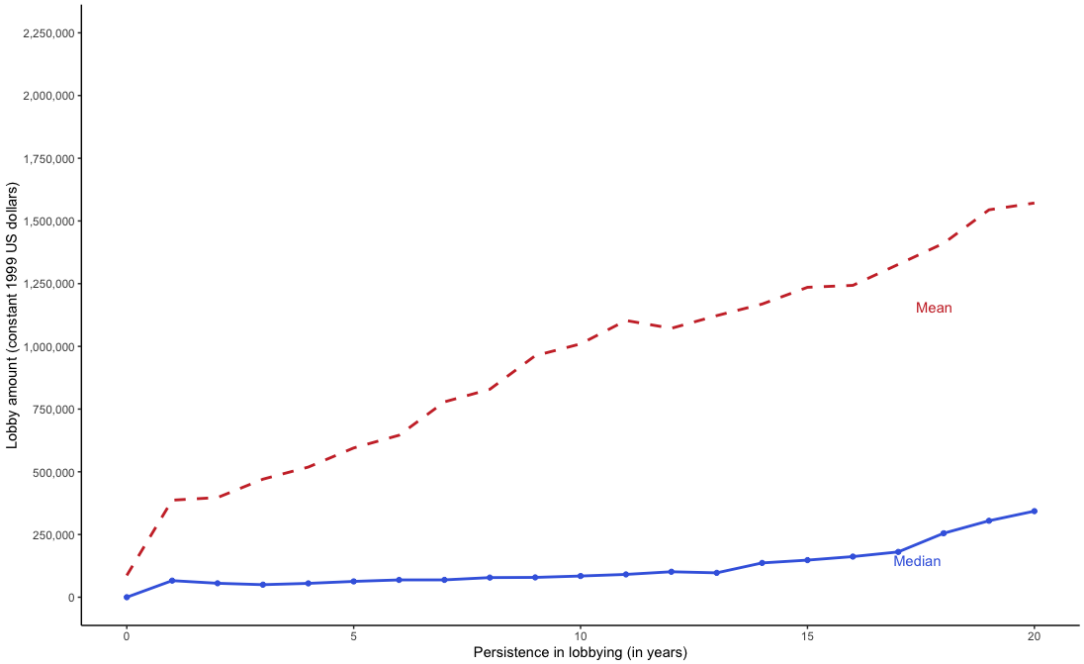


Figure B.18: Persistence and Lobby Spending

B.4 Trends in Corporate Lobbying

Figure B.19: Lobbying Intensity - Trends in Lobby Expenditure and Number of Issues by Industry

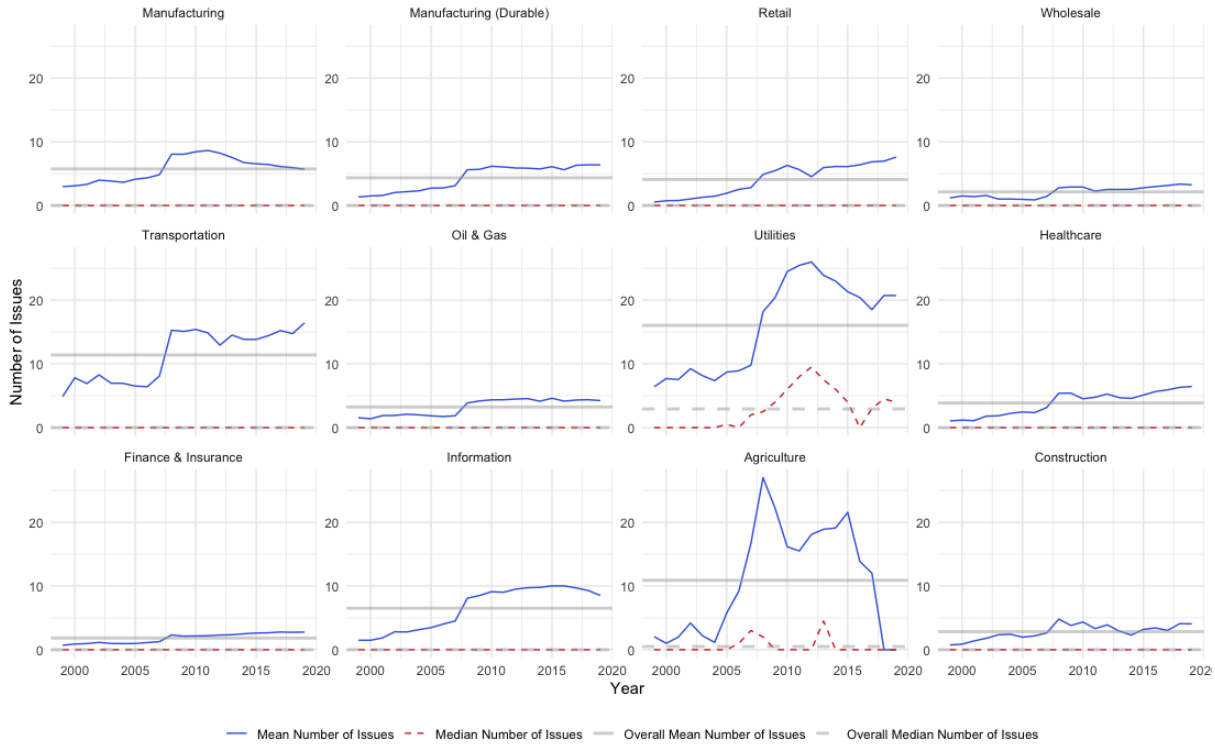


Figure B.20: Lobbying Breadth - Trends in the Number of Issues by Industry

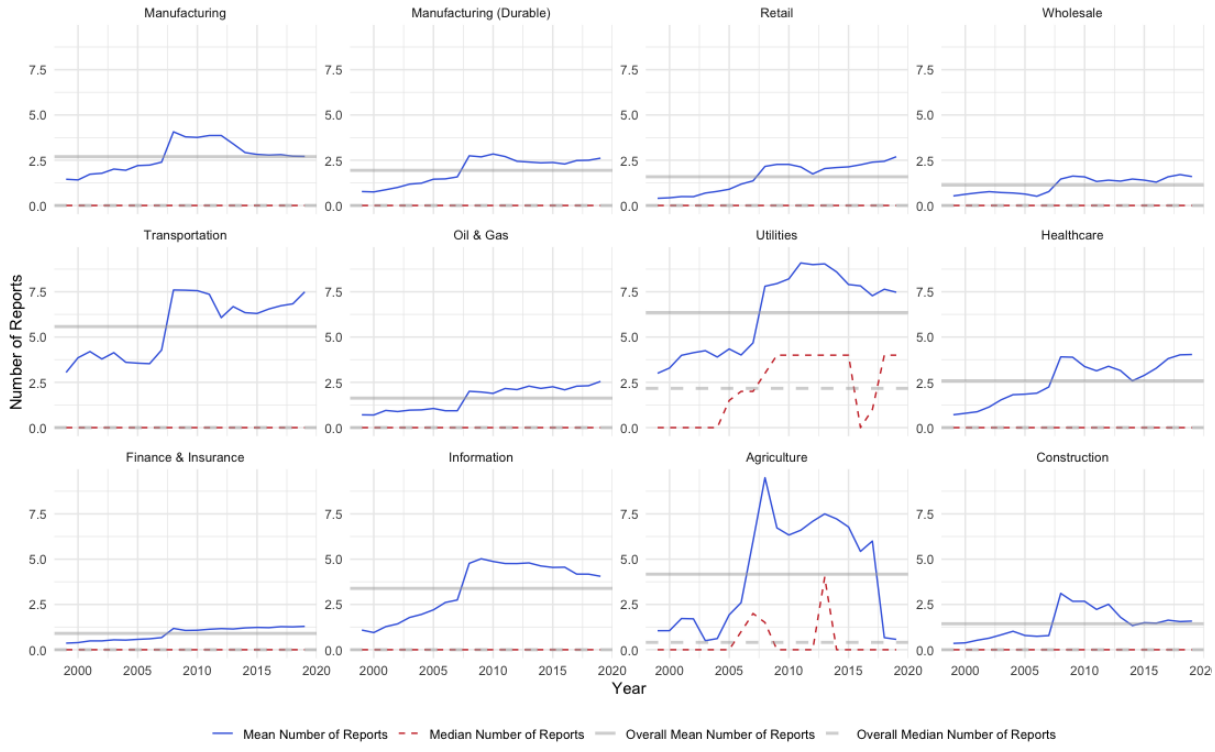


Figure B.21: Lobbying Breadth - Trends in Number of Lobby Reports by Industry

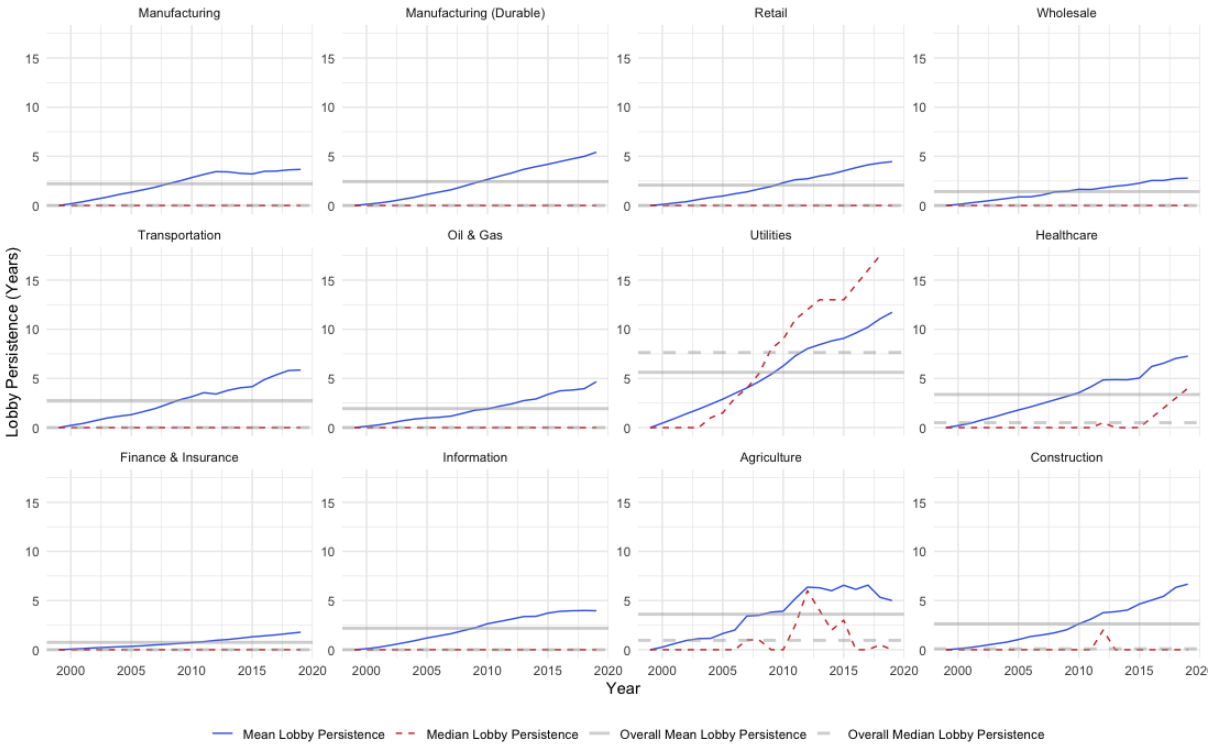


Figure B.22: Lobbying Persistence - Trends in the Number of Years in Lobby by Industry

B.5 Trends in Vertical and Horizontal Scope of the Firms

Figure B.23: Horizontal Scope - Trends in Product Market Scope by Industry

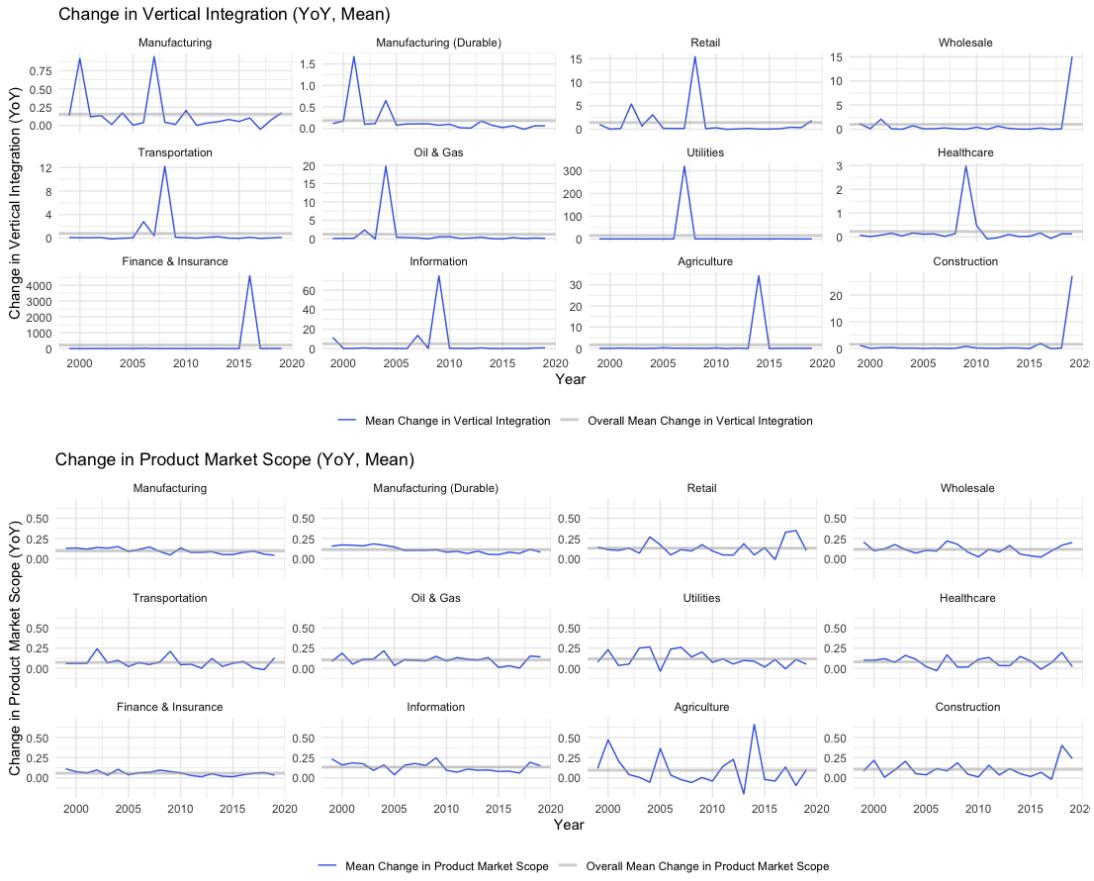


Figure B.24: Change in Firm Scope - Mean Change in Vertical Integration and Product Market Scope by Industry

B.6 Variables and Descriptive Statistics

Table B.1: Variable Descriptions

Construct & Measure	Definition & Operationalization
Lobbying Intensity: Lobby Expenditure	Self-reported expenditure that a lobbyist or a firm spends on lobbying activities. Some lobbyists submitted reports without any amount, which included specific activities but reported zero, or specified the amount less than the minimum requirement. Due to the misprocessing of the handwritten reports, the input values in the reports that report the small or no amount of spending are inconsistent. Instead of coding these cases as zero, I coded them using the median amount of the values less than the minimum. According to the LDA, the minimum required to report the specific lobby spending is $ 13,000 for in-house lobbying and 3,000. During 1999-2019, in-house median spending for in-house lobbying was $10,000; outsourcing was $2,000. I did not adjust the inflation for consistency except to make the trend plots.
Lobbying Breadth: Number of Issues	Sum of self-reported issue codes. Because reporting relevant issues is not a part of the requirements, some left the issues blank. Based on the high correlation between the number of issues and the number of reports ($r = 0.94$ $p < 0.01$), I use report counts as complementary to measure the breadth. The assumption is that firms with more issues tend to engage in various lobbying activities, so more reports are submitted. The results are available in the Appendix.
Lobby Persistence: Number of Years in Lobbying	The number of years from the first year each firm started lobbying. The operationalization of this variable depends on Engagement in lobbying, which is a binary variable that indicates whether a firm engages in lobbying in a particular year. I assumed that the firms that did not submit the lobbying reports required by the Lobbying Disclosure Act of 1995 (henceforth LDA) were not active in lobbying. Since most firms entered the data in 1999, I deleted 1999. The persistence is calculated from 2000 to 2019 with a minimum of 0 and a maximum of 19 years.
Vertical Scope: Vertical Integration	The extent to which a given firm is vertically integrated. `TNIC` Vertical Integration Score is used. Based on the BEA's input-output accounts and the 10-K business descriptions of a given firm, it measures the extent of vertical integration of a given firm based on whether its business description contains word pairs that are vertically related. It does not necessarily indicate the physical shipment.
Horizontal Scope: Product Market Scope	Product market scope based on the 10-K business descriptions of a given firm. The horizontal scope measure is an outcome of reducing high-dimensional word vectors that contain firm-to-firm pairwise similarity scores.

Table B.2: Descriptive Statistics

	N	Median	Mean	Std. Dev.	Min	Pctl(25)	Pctl(75)	Max
Main variables								
Lobby Expenditure	108,762	0.00	229.57	1,851.66	0.00	0.00	0.00	152,299
Number of Lobby Issues	108,762	0	3.88	18.40	0	0	0	593
*Num of Lobby Reports	108,762	0	1.86	8.21	0	0	0	282
Persistence - Num of Years	108,762	0	1.65	4.00	0	0	0	20
Vertical Integration	96,356	0.01	0.01	0.01	0.00	0.002	0.01	0.10
Product Market Scope	96,356	8	9.25	6.02	1	5	13	35
Control Variables								
log(Asset)	108,762	6.54	6.32	2.07	0.0001	4.88	7.50	14.80
Profitability	108,762	0.15	−4,916	63,089	−4,437,700	0.04	0.29	40,680
Market-to-Book Ratio	108,762	0.68	6.39	1,209.25	0.0000	0.17	1.48	385,470
Firm Age	108,762	12	15.36	13.92	0	5	22	69
Return on Assets (ROA)	108,762	0.01	−0.25	27.00	−5,560	−0.02	0.05	226
PP&E / Asset	108,762	0.08	0.19	0.23	0.00	0.01	0.26	1.00
R&D Intensity	108,762	0.002	3,124.72	43,487	−1,640	0.00	0.08	2,812,510
Capital Intensity	108,762	0.02	701.29	44,917	−1,050	0.01	0.06	7,527,300

Note: * *Number of Lobbying Reports* is an alternative measures of *Lobbying Breadth*.*Lobby expenditure* is in thousands.

Table B.3: Descriptive Statistics for the Subset - (A) Active in Lobbying

	N	Median	Mean	Std. Dev.	Min	Pctl(25)	Pctl(75)	Max
Main variables								
Lobby Expenditure	32,950	22.00	757.76	3,304.13	0.00	0.00	284.01	152,299
Number of Lobby Issues	32,950	2	12.80	31.68	0	0	11	593
*Number of Lobby Reports	32,950	2	6.15	14.01	0	0	6	282
Number of Years in Lobby	32,950	4	5.45	5.67	0	0	9	20
Vertical Integration	32,699	0.01	0.01	0.01	0.00	0.003	0.01	0.10
Product Market Scope	32,699	9	9.89	6.39	1	5	13	35
Control Variables								
log(Asset)	32,950	7.40	7.30	2.27	0.50	5.77	8.83	14.80
Profitability	32,950	0.14	−4,587	71,713	−4,437,700	0.05	0.25	71.14
Market-to-Book Ratio	32,950	0.94	1.61	2.65	0.0004	0.47	1.84	151.28
Firm Age	32,950	17	21.45	17.02	0	8	32	69
Return on Assets (ROA)	32,950	0.03	−0.04	0.44	−34.77	−0.02	0.07	2.69
PP&E / Asset	32,950	0.16	0.24	0.24	0.00	0.05	0.37	0.99
R&D Intensity	32,950	0.02	2,486.81	39,107	−1,640	0.00	0.11	2,102,770
Capital Intensity	32,950	0.04	1,487.22	75,302	−1.34	0.02	0.08	7,527,300

Note: *_Number of Lobbying Reports_ is an alternative measures of *Lobbying Breadth*. *Lobby expenditure* is in thousands.

Table B.4: Descriptive Statistics for the Subset - (B) Inactive in Lobbying

	N	Median	Mean	Std. Dev.	Min	Pctl(25)	Pctl(75)	Max
Main variables								
Vertical Integration	63,657	0.005	0.01	0.01	0.00	0.002	0.01	0.10
Product Market Scope	63,657	8	8.92	5.79	1	5	12	35
Control Variables								
log(Asset)	75,812	6.16	5.90	1.83	0.0001	4.59	7.06	13.61
Op. Profitability	75,812	0.16	−5,060	58,948	−2,990,140	0.04	0.29	40,680
Market-to-Book Ratio	75,812	0.54	8.47	1,448.39	0.0000	0.16	1.31	385,470
Firm Age	75,812	10	12.71	11.35	0	4	18	69
Return on Assets (ROA)	75,812	0.01	−0.33	32.34	−5,560	−0.03	0.04	226.29
PP&E / Asset	75,812	0.05	0.16	0.22	0.00	0.01	0.23	1.00
R&D Intensity	75,812	0.00	3,402	45,256	−220	0.00	0.07	2,812,510
Capital Intensity	75,812	0.02	360	20,719	−1,050	0.01	0.05	4,304,050

B.7 Examples of Companies with Different Firm Scope

Product Market Scope (Avg.)		Company Name	Industry	Vertical Integration (Avg.)	Lobby Issues (Avg.)	Lobby Expenditure (Avg. mn)
Top 10%	28.0	TFCF Corporation	INFO	0.0090	71.1	6.2
	27.3	The Walt Disney Company	INFO	0.0101	36.4	4.1
	26.8	DuPont de Nemours, Inc.	MFG	0.0349	82.3	8.2
	26.6	Warner Media, LLC	INFO	0.0100	116.2	9.2
	26.0	Level 3 Parent, LLC	INFO	0.0139	168.8	8.4
	25.8	Broadcom Corporation	MFG_durable	0.0217	6.2	0.2
	25.1	Paramount Global	INFO	0.0079	76.5	6.5
	24.4	QUALCOMM Incorporated	MFG_durable	0.0104	80.2	7.9
	22.5	Comcast Corporation	INFO	0.0108	0.3	0.0
	20.5	Microsoft Corporation	INFO	0.0052	182.7	11.9
20%	16.0	Oracle Corporation	INFO	0.0030	275.3	10.7
	15.7	Alcoa Inc.	MFG_durable	0.0265	47.6	2.5
	15.6	Alphabet Inc.	INFO	0.0053	183.8	12.4
	15.3	Nextel Communications, Inc.	INFO	0.0083	9.8	1.2
	14.8	TEGNA Inc.	INFO	0.0086	3.3	0.2
	14.7	Intel Corporation	MFG_durable	0.0084	102.7	5.1
	14.7	3M Company	MFG	0.0239	103.0	3.5
	14.0	Texaco Inc.	MFG	0.0201	33.0	1.9
	13.9	Altaba Inc.	INFO	0.0058	53.4	2.4
30%	13.3	Oracle America, Inc.	MFG_durable	0.0047	22.3	0.8
	13.3	Verizon Business Global LLC	INFO	0.0122	28.8	3.5
	13.1	Amgen Inc.	MFG	0.0031	131.7	12.6
	13.0	Atlantic Richfield Company	MFG	0.0205	57.0	3.9
	12.8	Sprint FON Group	INFO	0.0097	62.4	5.2
	12.7	Tellabs, Inc.	MFG_durable	0.0112	0.8	0.0
	12.6	NetApp, Inc.	MFG_durable	0.0036	5.0	0.1
	12.2	Xilinx, Inc.	MFG_durable	0.0088	1.5	0.0
	12.2	Applied Materials, Inc.	MFG_durable	0.0195	33.0	1.2
	12.0	Enron Creditors Recovery Corp.	WS	0.0114	79.0	4.5
40%	11.3	iHeartMedia, Inc.	INFO	0.0086	22.8	2.3
	11.1	Motorola Solutions, Inc.	MFG_durable	0.0093	84.8	5.1
	11.1	Alltel Corporation	INFO	0.0092	3.1	0.2
	10.8	Merck & Co., Inc.	MFG	0.0030	102.1	8.9
	10.7	Bristol-Myers Squibb Company	MFG	0.0035	91.0	5.6
	10.3	VMware, Inc.	OTHERS	0.0019	25.1	0.5
	10.3	PepsiCo, Inc.	MFG	0.0157	55.0	3.6
	10.0	Baxalta Incorporated	MFG	0.0009	44.0	1.0
	9.9	AT&T Inc.	INFO	0.0122	198.6	23.2
50%	9.6	Walmart Inc.	RTL	0.0178	108.7	6.2
	9.6	BellSouth, LLC	INFO	0.0125	60.0	7.1
	9.3	Eli Lilly and Company	MFG	0.0035	97.1	8.5
	9.2	Akamai Technologies, Inc.	INFO	0.0031	1.9	0.0
	8.9	DIRECTV, LLC	INFO	0.0257	43.2	2.9
	8.8	The Home Depot, Inc.	RTL	0.0100	51.5	1.3
	8.6	The Coca-Cola Company	MFG	0.0103	83.1	5.4
	8.6	AbbVie Inc.	MFG	0.0009	91.3	6.7
	8.3	EIDP, Inc.	MFG	0.0248	78.5	4.7
60%	8.0	GTE Corporation	INFO	0.0107	23.0	6.8
	8.0	Warner-Lambert Company LLC	MFG	0.0065	26.0	2.7
	7.9	Twitter, Inc.	INFO	0.0030	26.3	0.9
	7.7	Motors Liquidation Company	MFG_durable	0.0195	140.5	11.0
	7.6	Dell EMC	MFG_durable	0.0025	27.1	1.5

Note: Product market scope is in decile. The examples include a part of the companies with large market value, which do not represent the sample.

Figure B.25: Companies and Product Market Scopes (1) - Highest 10% to 60%

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Product Market Scope (Avg.)		Company Name	Industry	Vertical Integration (Avg.)	Lobby Issues (Avg.)	Lobby Expenditure (Avg. mn)
70%	7.0	Pharmacia & Upjohn Company LLC	MFG	0.0050	4.0	0.1
	6.9	Corning Incorporated	MFG_durable	0.0151	36.9	1.1
	6.8	Mondelez International, Inc.	MFG	0.0158	35.8	1.8
	6.4	The Boeing Company	MFG_durable	0.0161	172.8	16.5
	6.4	CA, Inc.	INFO	0.0014	20.8	0.8
	6.3	United Parcel Service, Inc.	TRS	0.0119	172.1	15.3
	6.3	McDonald's Corporation	OTHERS	0.0082	38.4	1.3
	6.0	Hewlett Packard Enterprise Company	MFG_durable	0.0084	5.0	0.2
	6.0	Texas Instruments Incorporated	MFG_durable	0.0122	39.6	2.2
	5.9	Abbott Laboratories	MFG	0.0024	73.0	4.8
80%	5.8	Pharmacia LLC	MFG	0.0086	40.5	3.1
	4.9	The Gap, Inc.	RTL	0.0020	9.0	0.3
	4.9	International Business Machines Corpo	OTHERS	0.0054	67.2	6.3
	4.8	Genentech, Inc.	MFG	0.0017	101.4	8.8
	4.6	Target Corporation	RTL	0.0031	33.2	1.5
90%	4.0	Automatic Data Processing, Inc.	INFO	0.0086	13.6	0.6
	4.0	Uber Technologies, Inc.	TRS	0.0071	109.0	3.6
	3.8	Wyeth LLC	MFG	0.0032	154.0	14.1
	3.5	Amazon.com, Inc.	RTL	0.0047	74.4	5.6
	3.3	Exxon Mobil Corporation	MFG	0.0252	136.2	13.7
	3.3	Kimberly-Clark Corporation	MFG	0.0246	35.2	0.3
	2.7	Anheuser-Busch Companies, LLC	MFG	0.0189	70.8	3.5
	2.6	Johnson & Johnson	MFG	0.0014	102.0	7.5
	2.5	Walgreens Boots Alliance, Inc.	RTL	0.0032	29.0	2.1
Bottom 10%	2.5	Colgate-Palmolive Company	MFG	0.0048	4.1	0.3
	2.5	International Paper Company	MFG	0.0205	29.4	3.6
	2.3	Dell Technologies Inc.	MFG_durable	0.0067	42.1	2.3
	2.3	Meta Platforms, Inc.	INFO	0.0015	98.9	11.4
	2.0	Compaq Computer Corp.	MFG_durable	0.0022	13.3	0.5
	1.8	The Gillette Company	MFG_durable	0.0142	0.2	0.0
	1.0	Gateway, Inc.	MFG_durable	0.0063	10.9	0.2
	1.0	The Procter & Gamble Company	MFG	0.0045	65.3	4.0

Note: Product market scope is in decile. The examples include a part of the companies with large market value, which do not represent the sample.

Figure B.26: Companies and Product Market Scopes (2) - Highest 70% to 100%

B.8 Companies with Different Number of Lobbying Issues

Number of Issues	Company Name	Industry	Vertical Integration	Product Scope	Lobby Issues	
					Average	Sum
Top 20% (cutoff = 26)	General Electric Company	MFG (durable)	0.0244	17.7	346.6	7279
	Bank of America Corporation	FIN	0.0008	6.8	280.4	5888
	Oracle Corporation	INFO	0.0030	16.0	275.3	5782
	Verizon Communications Inc.	INFO	0.0132	19.0	228.2	4793
	AT&T Inc.	INFO	0.0122	9.9	198.6	4170
	Alphabet Inc.	INFO	0.0053	15.6	183.8	2941
	Microsoft Corporation	INFO	0.0052	20.5	182.7	3837
	United Parcel Service, Inc.	TRS	0.0119	6.3	172.1	3614
	Altria Group, Inc.	MFG	0.0141	5.8	167.4	3515
	Exxon Mobil Corporation	MFG	0.0252	3.3	136.2	2860
	Walmart Inc.	RTL	0.0178	9.6	108.7	2282
	Intel Corporation	MFG (durable)	0.0084	14.7	102.7	2156
	JPMorgan Chase & Co.	FIN	0.0014	9.2	102.1	2145
	Merck & Co., Inc.	MFG	0.0030	10.8	102.1	2144
	Johnson & Johnson	MFG	0.0014	2.6	102.0	2142
	Meta Platforms, Inc.	INFO	0.0015	2.3	98.9	791
	Citigroup Inc.	FIN	0.0039	16.1	94.2	1978
	AbbVie Inc.	MFG	0.0009	8.6	91.3	639
	The Coca-Cola Company	MFG	0.0103	8.6	83.1	1746
	Chevron Corporation	MFG	0.0153	19.5	76.4	1604
	Abbott Laboratories	MFG	0.0024	5.9	73.0	1532
	Federal National Mortgage Association	FIN	0.0014	17.3	70.5	564
	The Procter & Gamble Company	MFG	0.0045	1.0	65.3	1372
	Apple Inc.	MFG (durable)	0.0092	12.6	60.0	1259
	PepsiCo, Inc.	MFG	0.0157	10.3	55.0	1156
40% (cutoff = 9)	APA Corporation	OIL	0.0042	10.4	9.4	198
	American Tower Corporation	INFO	0.0114	5.8	9.3	196
	The Estée Lauder Companies Inc.	MFG	0.0015	9.0	9.0	190
	The Gap, Inc.	RTL	0.0020	4.9	9.0	188
	Northern Trust Corporation	FIN	0.0015	8.8	8.9	187
	Stryker Corporation	MFG (durable)	0.0064	13.3	8.4	177
	Fiserv, Inc.	INFO	0.0046	8.5	8.4	177
	Kinder Morgan Kansas, Inc.	UTI	0.0147	18.6	8.3	141
	Fifth Third Bancorp	FIN	0.0011	8.8	7.9	165
	Marathon Oil Corporation	MFG	0.0156	18.2	7.5	157
	Broadcom Corporation	MFG (durable)	0.0217	25.8	6.2	99
	Hewlett Packard Enterprise Company	MFG (durable)	0.0084	6.0	5.0	20
	Workday, Inc.	INFO	0.0013	3.9	5.0	35
	Colgate-Palmolive Company	MFG	0.0048	2.5	4.1	87
60% (cutoff = 4)	M&T Bank Corporation	FIN	0.0016	14.7	2.8	59
	Staples, Inc.	RTL	0.0094	7.7	2.5	45
	Activision Blizzard, Inc.	INFO	0.0038	6.5	2.4	29
	Crown Castle Inc.	FIN	0.0095	6.8	2.5	52
	May Department Stores Co.	RTL	0.0001	2.0	2.2	13
	Cox Communications, Inc.	INFO	0.0226	16.8	2.0	12
	Duke Energy Corporation	UTI	0.0152	13.9	1.8	37
	EOG Resources, Inc.	OIL	0.0034	9.7	1.7	35
	The TJX Companies, Inc.	RTL	0.0029	7.5	1.5	31
	NOV Inc.	MFG (durable)	0.0167	14.9	1.9	40
	Precision Castparts Corp.	MFG (durable)	0.0448	24.3	1.8	31
	Arista Networks, Inc.	MFG (durable)	0.0018	22.2	1.3	8
80% (cutoff = 1)	Nordstrom, Inc.	RTL	0.0008	1.3	0.9	18
	Danaher Corporation	MFG (durable)	0.0233	13.3	0.6	12
	Raytheon Company	MFG (durable)	0.0076	12.8	0.6	12
	Costco Wholesale Corporation	RTL	0.0123	8.5	0.5	11
	Comcast Corporation	INFO	0.0108	22.5	0.3	6
	XTO Energy Inc.	OIL	0.0017	1.3	0.3	3
	Macy's, Inc.	RTL	0.0023	2.6	0.2	5
	The Gillette Company	MFG (durable)	0.0142	1.8	0.2	1
	Sears, Roebuck and Co.	RTL	0.0056	4.7	0.2	1
	The Southern Company	UTI	0.0083	9.4	0.1	2

Note: Number of issues are in quintile. Firms with no lobbying issue are assigned to the lowest 20%. The examples include a part of the companies with large market value, which do not represent the sample.

Figure B.27: Companies and Lobbying Breadth

B.9 Full Models

Table B.5: Firm Scope and Lobbying Intensity

	Dependent variable:					
	log(Lobby Expenditure +1)					
	OLS			*Fixed Effect Models*		
	(1)	(2)	(3)	(4)	(5)	(6)
Vertical Integration	48.395***	6.701***	40.469***	−22.850**	0.997	−2.477
	(1.623)	(1.538)	(13.679)	(9.028)	(4.245)	(4.247)
Product Market Scope	0.082***	0.021***	0.075***	0.032***	0.029***	0.016***
	(0.003)	(0.002)	(0.010)	(0.010)	(0.006)	(0.006)
log(Asset)		0.819***		1.049***		0.539***
		(0.007)		(0.055)		(0.039)
Profitability		−0.000***		−0.000***		−0.000
		(0.000)		(0.000)		(0.000)
Market-to-Book Ratio		0.00001		0.00001***		0.000***
		(0.00001)		(0.000)		(0.000)
Firm Age		0.064***		0.055***		0.032
		(0.001)		(0.005)		(0.033)
ROA		−0.001**		−0.001***		−0.0004**
		(0.001)		(0.0003)		(0.0002)
PP&E / Asset		1.150***		0.060		0.184
		(0.063)		(0.404)		(0.233)
R&D Intensity		−0.000***		−0.000***		−0.000*
		(0.000)		(0.000)		(0.000)
Capital Intensity		0.000		0.000		0.000
		(0.000)		(0.000)		(0.000)
Constant	1.265***	−4.182***				
	(0.032)	(0.046)				
Controls		✓		✓		✓
Year FE			✓	✓	✓	✓
Industry FE			✓	✓		
Firm FE					✓	✓
Observations	96,356	96,356	96,356	96,356	95,127	95,127
R^2	0.020	0.228	0.064	0.289	0.794	0.797
Adjusted R^2	0.020	0.228	0.064	0.288	0.769	0.773

Note: *p<0.1; **p<0.05; ***p<0.01

Table B.6: Firm Scope and Lobbying Breadth

	Dependent variable:					
	log(Number of Lobby Issues +1)					
	OLS			*Fixed Effect Models*		
	(1)	(2)	(3)	(4)	(5)	(6)
Vertical Integration	10.769^{***}	0.925^{***}	9.563^{***}	-5.126^{**}	0.253	−0.462
	(0.354)	(0.327)	(3.011)	(2.211)	(0.927)	(0.932)
Product Market Scope	0.019^{***}	0.005^{***}	0.016^{***}	0.006^{***}	0.006^{***}	0.003^{***}
	(0.001)	(0.001)	(0.003)	(0.002)	(0.001)	(0.001)
log(Asset)		0.191^{***}		0.237^{***}		0.111^{***}
		(0.002)		(0.013)		(0.008)
Profitability		-0.000^{***}		-0.000^{***}		−0.000
		(0.000)		(0.000)		(0.000)
Market-to-Book Ratio		0.000		0.000^{***}		
		(0.000)		(0.000)		
Firm Age		0.016^{***}		0.014^{***}		0.006
		(0.0002)		(0.001)		(0.008)
ROA		-0.0003^{**}		-0.0003^{***}		-0.0001^{***}
		(0.0001)		(0.0001)		(0.00004)
PP&E / Asset		0.241^{***}		0.008		0.044
		(0.013)		(0.081)		(0.047)
R&D Intensity		-0.000^{**}		-0.000^{***}		-0.000^{*}
		(0.000)		(0.000)		(0.000)
Capital Intensity		−0.000		−0.000		−0.000
		(0.000)		(0.000)		(0.000)
Constant	0.198^{***}	-1.078^{***}				
	(0.007)	(0.010)				
Controls		✓		✓		✓
Year FE			✓	✓	✓	✓
Industry FE			✓	✓		
Firm FE					✓	✓
Observations	96,356	96,356	96,356	96,356	95,127	95,127
R^2	0.021	0.265	0.068	0.319	0.835	0.838
Adjusted R^2	0.021	0.265	0.068	0.318	0.816	0.819
Note:						*p<0.1; **p<0.05; ***p<0.01

Table B.7: Firm Scope and Lobbying Persistence

	Dependent variable:					
	log(Persistence in Lobbying +1)					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
Vertical Integration	8.744^{***}	-0.887^{***}	7.697^{**}	-3.707^{**}	-3.745^{***}	-3.892^{***}
	(0.294)	(0.273)	(2.907)	(1.470)	(0.955)	(0.958)
Product Market Scope	0.015^{***}	0.010^{***}	0.008^{**}	0.005^{***}	0.003^{***}	0.003^{**}
	(0.0005)	(0.0004)	(0.003)	(0.002)	(0.001)	(0.001)
log(Asset)		0.112^{***}		0.141^{***}		0.026^{***}
		(0.001)		(0.006)		(0.008)
Profitability		-0.000^{***}		-0.000^{*}		-0.000
		(0.000)		(0.000)		(0.000)
Market-to-Book Ratio		0.000		0.000^{***}		-0.000
		(0.000)		(0.000)		(0.000)
Firm Age		0.020^{***}		0.017^{***}		0.002
		(0.0002)		(0.001)		(0.007)
ROA		-0.0001		-0.0002^{***}		-0.0001
		(0.0001)		(0.0001)		(0.0001)
PP&E / Asset		0.127^{***}		-0.035		-0.017
		(0.011)		(0.068)		(0.051)
R&D Intensity		-0.000^{***}		-0.000^{***}		-0.000^{*}
		(0.000)		(0.000)		(0.000)
Capital Intensity		-0.000^{**}		-0.000		-0.000
		(0.000)		(0.000)		(0.000)
Constant	0.250^{***}	-0.664^{***}				
	(0.006)	(0.008)				
Controls		✓		✓		✓
Year FE			✓	✓	✓	✓
Industry FE			✓	✓		
Firm FE					✓	✓
Observations	96,356	96,356	96,356	96,356	95,127	95,127
R^2	0.020	0.258	0.132	0.335	0.827	0.828
Adjusted R^2	0.020	0.258	0.132	0.335	0.807	0.807
Note:						*p<0.1; **p<0.05; ***p<0.01

B.10 Robustness Check

Table B.8: Vertical Integration and Lobbying Breath - Number of Lobby Reports

	Dependent variable:					
	log(Number of Lobby Reports +1)					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
Vertical Integration	7.883^{***}	0.235	6.723^{***}	-4.922^{**}	-0.446	-1.051
	(0.287)	(0.268)	(2.334)	(1.758)	(0.706)	(0.705)
Product Market Scope	0.016^{***}	0.005^{***}	0.014^{***}	0.006^{***}	0.005^{***}	0.003^{***}
	(0.0005)	(0.0004)	(0.002)	(0.002)	(0.001)	(0.001)
Controls		✓		✓		✓
Year FE			✓	✓	✓	✓
Industry FE			✓	✓		
Firm FE					✓	✓
Observations	96,356	96,356	96,356	96,356	95,127	95,127
Adjusted R^2	0.021	0.252	0.067	0.310	0.815	0.818
Note:						*p<0.1; **p<0.05; ***p<0.01

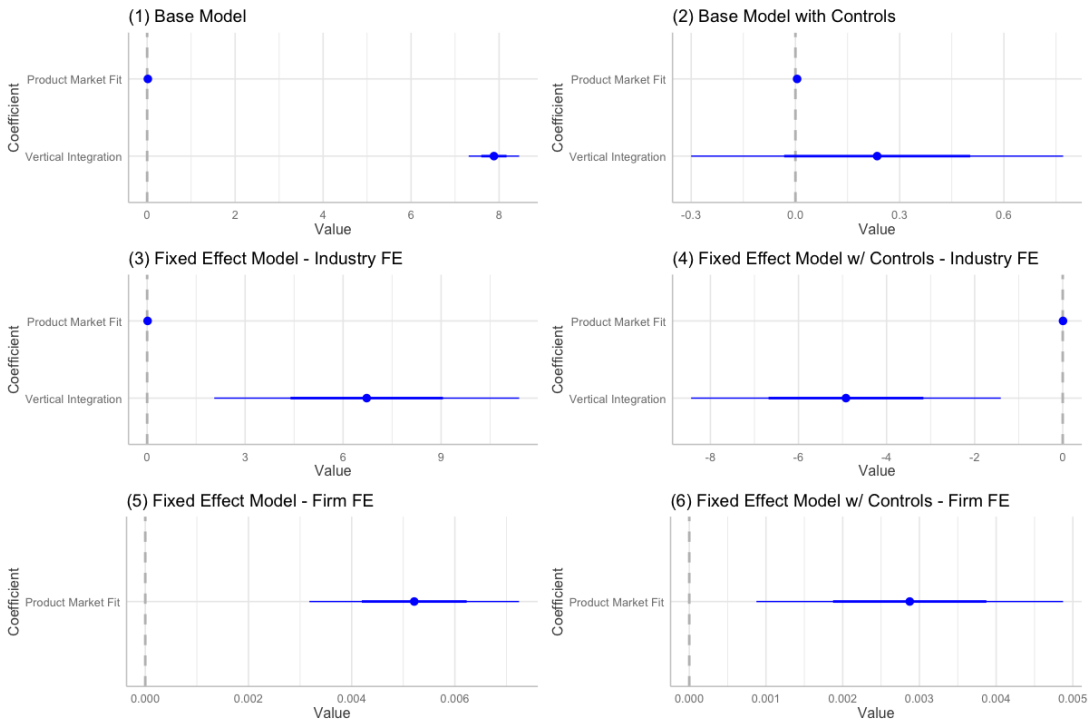


Figure B.28: Vertical Integration and Lobbying Breadth - Number of Lobbying Reports

Table B.9: Firm Scope and Number of Lobbying Reports: Full Model

	Dependent variable:					
	log(Number of Lobby Reports +1)					
	OLS			*Fixed Effect Models*		
	(1)	(2)	(3)	(4)	(5)	(6)
Vertical Integration	7.883^{***}	0.235	6.723^{***}	-4.922^{**}	-0.446	-1.051
	(0.287)	(0.268)	(2.334)	(1.758)	(0.706)	(0.705)
Product Market Scope	0.016^{***}	0.005^{***}	0.014^{***}	0.006^{***}	0.005^{***}	0.003^{***}
	(0.0005)	(0.0004)	(0.002)	(0.002)	(0.001)	(0.001)
log(Asset)		0.152^{***}		0.191^{***}		0.094^{***}
		(0.001)		(0.011)		(0.007)
Profitability		-0.000^{***}		-0.000^{***}		-0.000
		(0.000)		(0.000)		(0.000)
Market-to-Book Ratio		0.000		0.000^{***}		0.000^{**}
		(0.000)		(0.000)		(0.000)
Firm Age		0.012^{***}		0.011^{***}		0.003
		(0.0002)		(0.001)		(0.006)
ROA		-0.0002^{**}		-0.0002^{***}		-0.0001^{**}
		(0.0001)		(0.0001)		(0.00003)
PP&E / Asset		0.183^{***}		-0.006		0.041
		(0.011)		(0.071)		(0.038)
R&D Intensity		-0.000^{**}		-0.000^{***}		-0.000^{*}
		(0.000)		(0.000)		(0.000)
Capital Intensity		-0.000		0.000		0.000
		(0.000)		(0.000)		(0.000)
Constant	0.181^{***}	-0.829^{***}				
	(0.006)	(0.008)				
Controls		✓		✓		✓
Year FE			✓	✓	✓	✓
Industry FE			✓	✓		
Firm FE					✓	✓
Observations	96,356	96,356	96,356	96,356	95,127	95,127
R^2	0.021	0.252	0.067	0.310	0.835	0.837
Adjusted R^2	0.021	0.252	0.067	0.310	0.815	0.818

Note: *p<0.1; **p<0.05; ***p<0.01

Table B.10: Vertical Integration and Number of Lobbying Issues - Ordered Logit Models

	Dependent variable:				
	Decile Groups of Lobby Issues (Bottom 10% to Top 10%)				
	(1)	(2A)	(2B)	(3)	(4)
Vertical Integration	22.185^{***}	22.133^{***}	22.235^{***}	8.110^{***}	-13.677^{***}
	(0.756)	(0.792)	(0.00001)	(0.881)	(0.006)
Product Market Scope	0.038^{***}	-0.007^{***}	-0.007^{***}	0.009^{***}	0.012^{***}
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
log(Asset)		0.660^{***}	0.659^{***}	0.576^{***}	0.767^{***}
		(0.005)	(0.004)	(0.006)	(0.007)
Year			0.003^{***}		
			(0.00002)		
Profitability				-0.001^{*}	-0.001^{**}
				(0.0004)	(0.0004)
Firm Age				0.026^{***}	0.019^{***}
				(0.001)	(0.001)
ROA				−0.001	−0.001
				(0.0004)	(0.0005)
PP&E/Asset				0.759^{***}	0.174^{***}
				(0.037)	(0.058)
R&D Intensity				−0.0001	−0.001
				(0.001)	(0.001)
Capital Intensity				−0.0001	−0.0001
				(0.0003)	(0.0003)
Year FE				✓	✓
Industry FE					✓
Observations	96,356	96,356	96,356	96,356	96,356

Note: R&D Intensity and *Capital Intensity* is divided by 1,000.
*p<0.1; **p<0.05; ***p<0.01

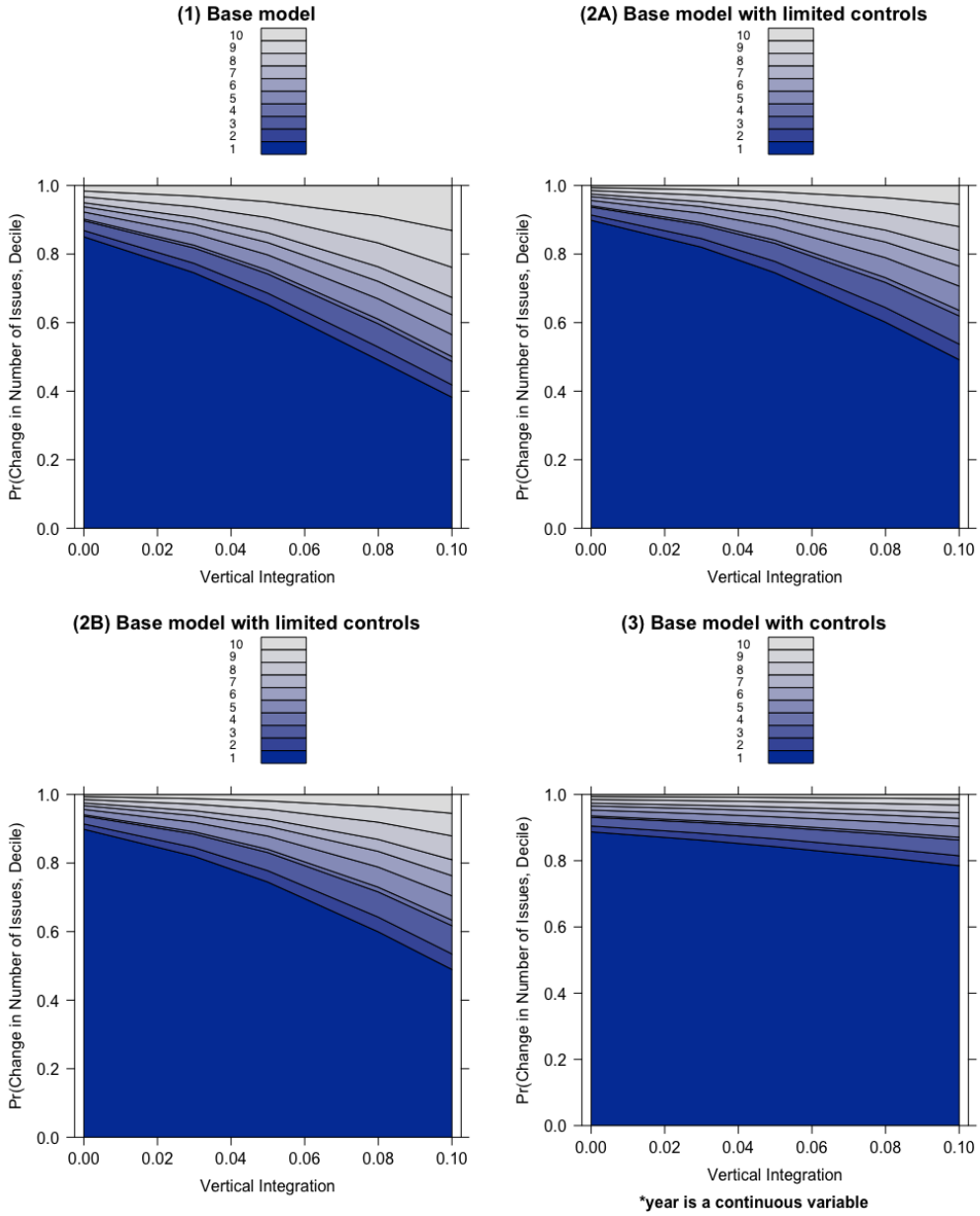
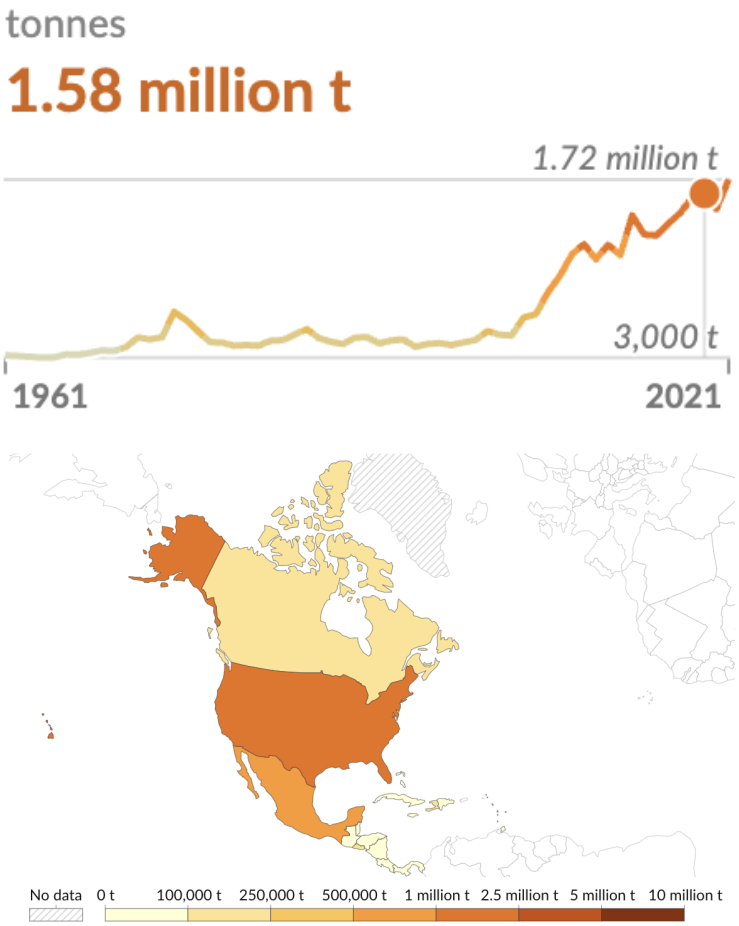


Figure B.29: Predicted Probabilities of Each Groups of Vertical Integration and Number of Lobbying Issues

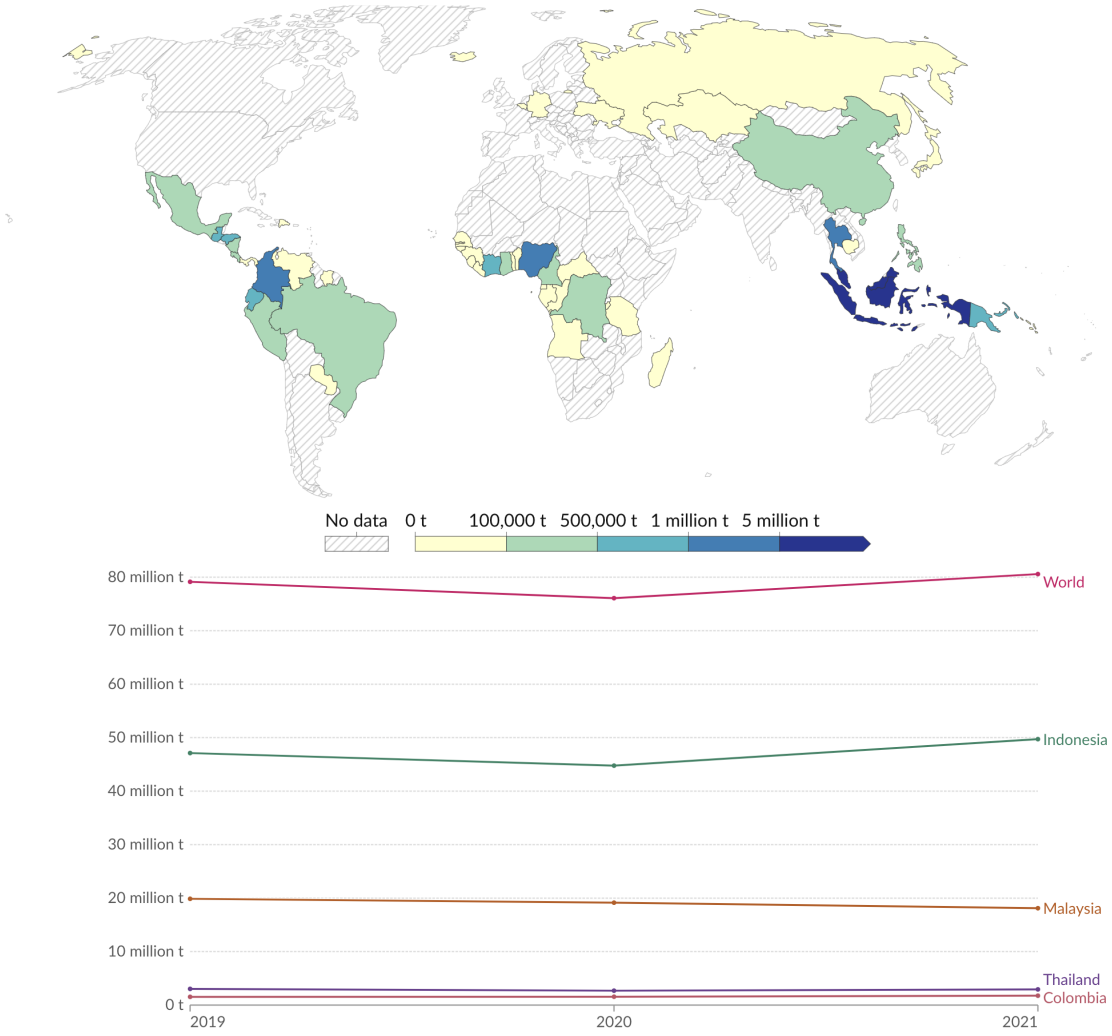
Appendix C: Chains of Lobbying: How Do Supply Chain Relationships Affect Corporate Political Activities?

C.1 Motivating Examples



(Source: ourworldindata.org; FAO)

Figure C.1: Palm Oil Imports of the U.S., 2019



Note: The map illustrates the global palm oil production in 2019. Palm oil production is measured in tonnes. (Source: ourworldindata.org; FAO)

Figure C.2: Indonesia and Malaysia's Global Share of Palm Oil Production

C.2 Data Description

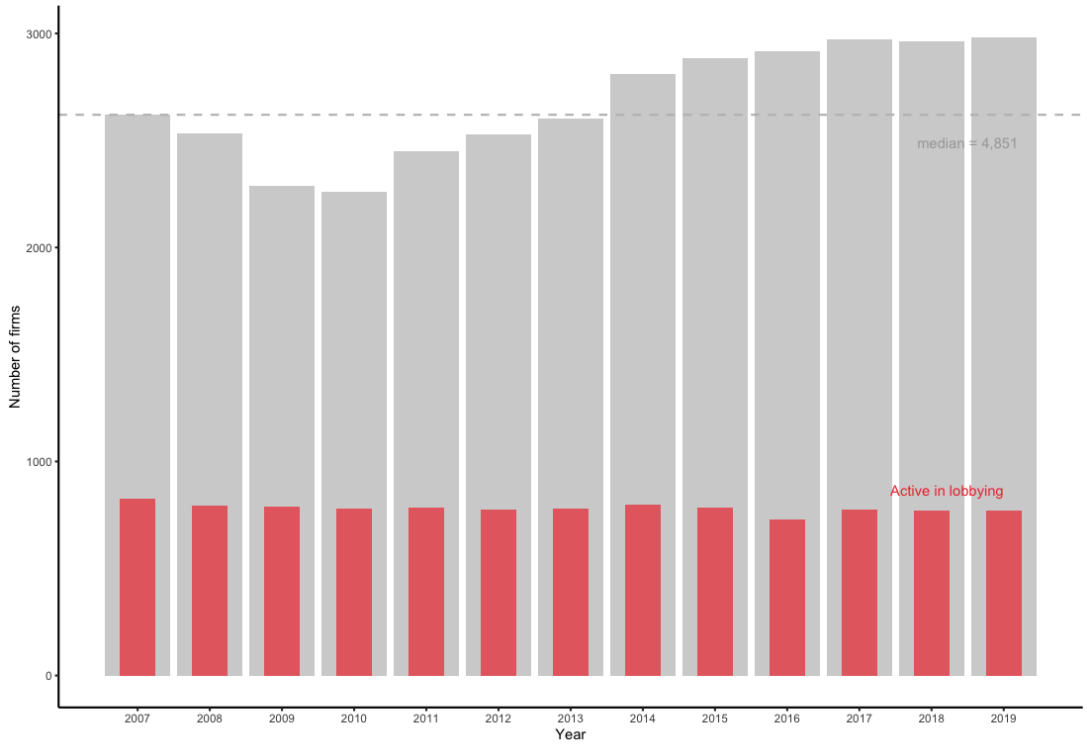


Figure C.3: Sample Firms and the Number of Firms Active in Lobbying

C.3 Descriptive Statistics

Table C.1: Variable Descriptions - (1) Dependent and Independent Variables

Variable	Description	Source
Lobbying Expenditure	A dollar amount of a firm's annual lobby expenditure. We followed the coding procedures delineated in *Chapter 2*.	*LobbyView*
Num of Lobbying Reports	The total counts of a firm's annual lobbying reports. We aggregated the number of quarterly or semi-annual reports to a year. The coding procedures are equal to those delineated in *Chapter 2*.	*LobbyView*
Lobbying on Environmental Policy	A dollar amount of a firm's annual lobbying expenditure multiplied by the number of environmental issues. We categorized the issues by using exploratory factor analysis.	*LobbyView*
Num of Suppliers' ESG Incidents	The total counts of suppliers' ESG-related incidents. We aggregated the number of incidents to the customer firm level.	*RepRisk*
Num of Risky Suppliers	The number of suppliers that have at least one ESG-related incidets in a given year. We aggregated the number of risky suppliers to the customer firm level.	*RepRisk*
Suppliers' E-incident Proportion	The proportion of suppliers' environmental incidents over Number of Suppliers' ESG Incidents. We applied the same rule and coded *Suppliers' S-incident Proportion* and *G-incident Proportion*. The number of incidents are aggregated to the customer firm level.	*RepRisk*
Num of ESG Incidents	The total counts of a customer firm's ESG-related incidents.	*RepRisk*

Note: We combined four sets of firm-level data: *LobbyView, Revere, ASSET4*, and *Compustat*.

...Continued on next page

Table C.2: Variable Descriptions - (2) Control Variables

Variable	Description	Source
Relationship Duration	The contract duration. We calculated the median of a customer firm's duration of contracts with its suppliers	*RepRisk*
Firm Age	The number of years after a firm's incorporation	*Compustat*
Asset Size	A log of firm's asset size	*Compustat*
Sales Growth	Annual growth of a firm's gross revenue of products or services sold over a given period of time	*Compustat*
Profitability	A firm's operating profits over sales	*Compustat*
Market-to-Book	A firm's book value divided by its market capitalization	*Compustat*
ROA(Return On Asset)	The revenue a firm can generate from its assets	*Compustat*
PP&E/Asset	A firm's property, Plant, and Equipment over asset. A proxy for tangible assets that a firm owns	*Compustat*
Capital Intensity	A firm's capital expenditures over sales	*Compustat*
R&D Intensity	A firm's R&D expenditures over sales	*Compustat*

Note: We combined four sets of firm-level data: *LobbyView, Revere, ASSET4*, and *Compustat*. In addition to customer firms' *Firm Age, Asset, Sales Growth, Profitability, Market-to-Book Ratio, Capital Intensity, R&D Intensity, PP&E/Asset, ROA,* and *Relationship Duration*, we also controlled their suppliers' *Asset, Profitability, ROA, PP&E/Asset*, and *R&D Intensity*. When contolling the characteristics of suppliers, we take the median of suppliers' values for a customer firm.

Table C.3: Descriptive Statistics

Statistic	N	Median	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Dependent Variables								
Lobby Expenditure	29.848	0.00	511.64	2,951.61	0.00	0.00	50.0	152,299.3
Num of Lobbying Reports	29,848	0	4.11	12.41	0	0	4	279
Lobbying on Env. Policy	29,276	0.00	7,235.16	109,035,326	0.00	0.00	0.00	6,050,280.4
Independent Variables								
Sup Num of ESG Incidents	32,038	10	143.61	397.41	0	0	93	12,035
Number of Risky Suppliers	32,038	3	10.54	27.28	0	0	10	631
Sup E-incident Proportion	21,282	0.11	0.18	0.19	0.00	0.03	0.27	1.00
Sup S-incident Proportion	21,282	0.30	0.30	0.19	0.00	0.19	0.40	1.00
Sup G-incident Proportion	21,282	0.18	0.21	0.19	0.00	0.08	0.30	1.00
Control Variables								
Cus ESG Incidents	34,814	0	4.72	24.61	0	0	0	647
log(Asset)	34,814	7.05	6.99	2.19	0.16	5.47	8.46	14.80
Firm Age	34,814	16	19.65	16.51	0	6	28	69
Sales Growth	34.8	0.006	347.2	25,245.4	−23.7	−0.003	0.017	4,002,000
Profitability	34,814	0.08	−10,436	104,892	−5,326,840	−0.003	0.18	119
Market-to-Book Ratio	34,814	96.59	1,437	109,663	−963,4	26.09	331.20	17,989,205
ROA	34,814	0.02	−0.04	1.91	−33.13	−0.04	0.06	226.29
PP&E/Asset	34,814	0.12	0.22	0.25	0.00	0.04	0.33	0.99
R&D Intensity	34,814	0.01	6,791	69,353	−91	0.00	0.15	2,812,510
Capital Intensity	34,814	0.03	1,285.18	68,619.21	−1.34	0.01	0.08	7,527,300
Duration of Relationships	32,038	1.00	1.44	1.37	0.00	1.00	2.00	16.00
Sup log(Asset)	31,952	7.30	7.36	2.51	0.001	5.94	8.96	18.27
Sup Profitability	31,952	0.08	−180.16	11,322.72	−1,761,370.00	0.03	0.14	36.90
Sup ROA	31,952	0.02	0.004	0.33	−28.05	0.005	0.05	26.06
Sup PP&E/Asset	31,952	0.09	0.16	0.18	0.00	0.05	0.19	1.17
Sup R&D Intensity	31,952	0.02	73.57	4,109.16	0.00	0.00	0.09	430,670

Note: Sup indicates suppliers' *Cus* indicates customers.' *Lobby Expenditure* and *Lobbying on Environment & Energy Policy*, *Sales Growth* are in thousand dollars.

C.4 Dimension Reduction of Lobbying Issues

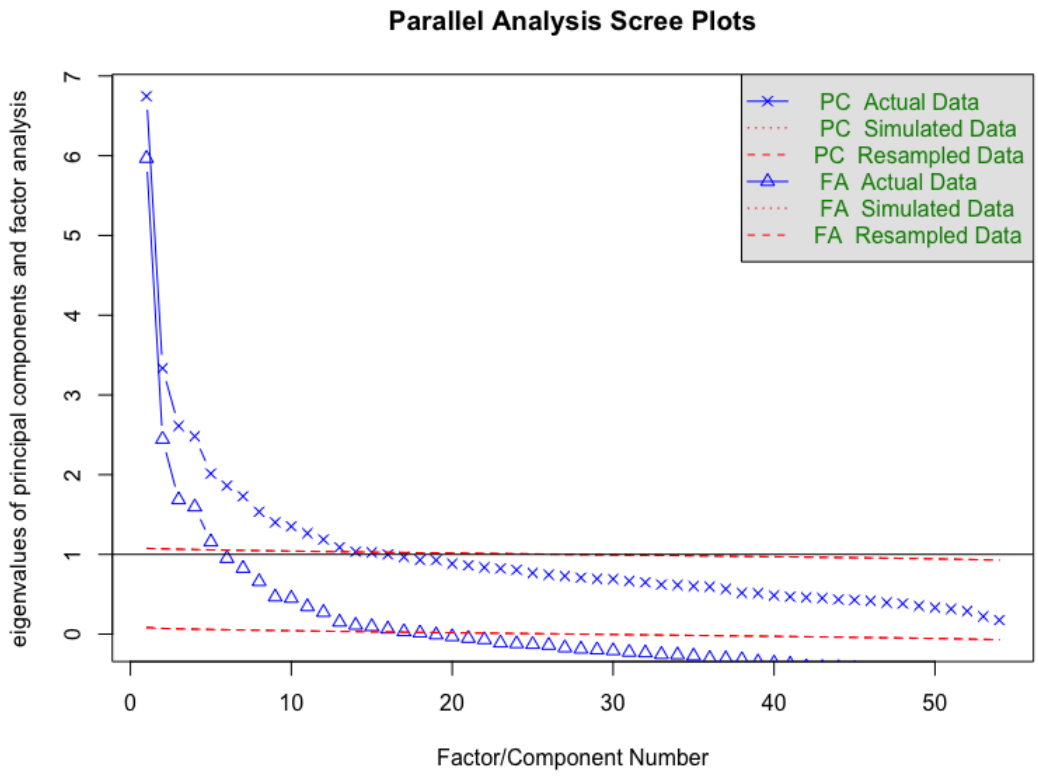


Figure C.4: Issue Categorization by Exploratory Factor Analysis - Scree Plot

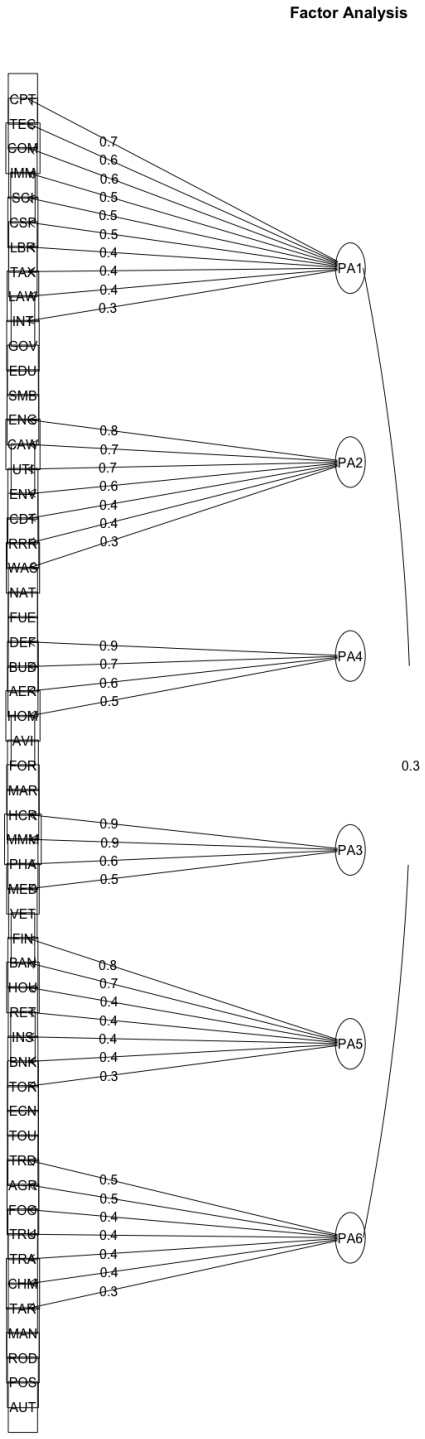


Figure C.5: Issue Categorization by Exploratory Factor Analysis - Issues and Factors

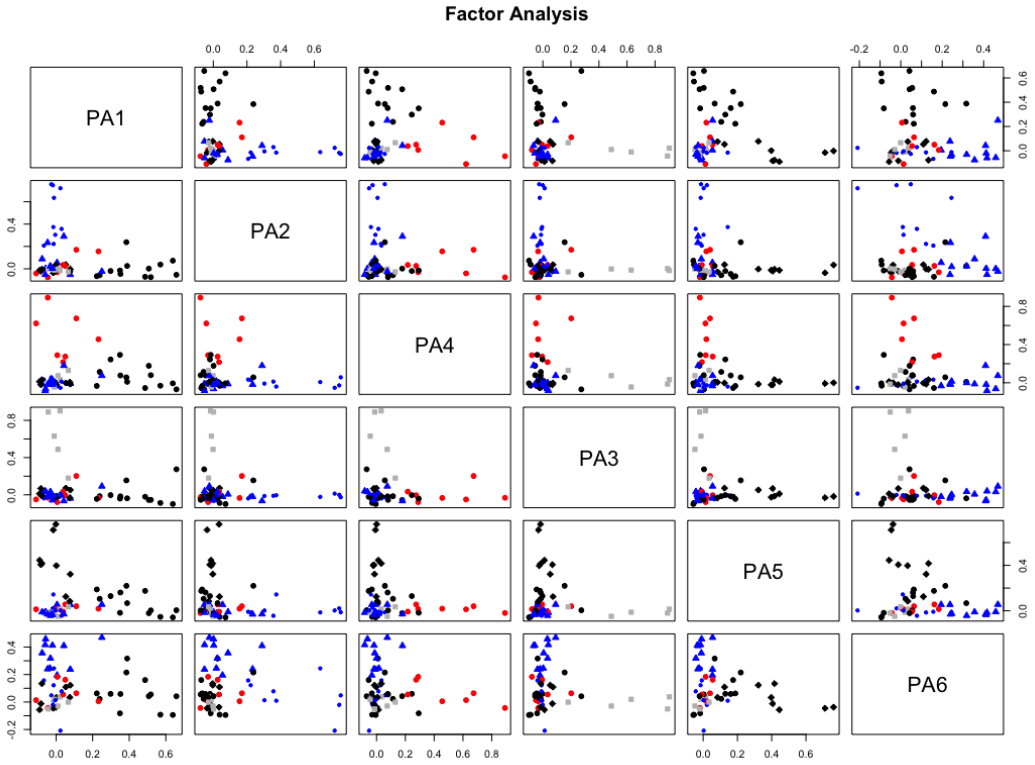


Figure C.6: Issue Categorization by Exploratory Factor Analysis - Issues and Factors

C.5 Full Models

Table C.4: Suppliers' ESG Incidents and Customer Firms' Lobbying Expenditure - (A) Number of Suppliers' ESG incidents

	Dependent variable:					
	log(Lobbying Expenditure+1)$_{cus,t+1}$					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
log(Suppliers' ESG Incidents)	0.426^{***}	0.128^{***}	0.558^{***}	0.235^{***}	0.042^{**}	0.040^{**}
	(0.015)	(0.016)	(0.061)	(0.047)	(0.019)	(0.020)
log(Customer's ESG Incidents)		1.051^{***}		1.052^{***}		0.097^{***}
		(0.036)		(0.080)		(0.037)
Firm Age		0.028^{***}		0.023^{**}		-0.011
		(0.002)		(0.008)		(0.036)
log(Asset)		0.952^{***}		1.094^{***}		0.709^{***}
		(0.019)		(0.089)		(0.082)
PP&E/Asset		0.660^{***}		0.555		0.674
		(0.148)		(0.633)		(0.617)
ROA		-0.402^{***}		-0.271		-0.140^{***}
		(0.061)		(0.170)		(0.053)
Relationship Duration		0.034		-0.042		0.016
		(0.023)		(0.034)		(0.017)
log(Suppliers' Asset)		-0.141^{***}		-0.107^{**}		-0.019
		(0.014)		(0.049)		(0.017)
Suppliers' ROA		0.031		0.007		0.033
		(0.093)		(0.093)		(0.049)
Suppliers' PP&E/Asset		-0.626^{***}		-0.867		0.129
		(0.199)		(0.631)		(0.243)
Controls		✓		✓		✓
Industry FE			✓	✓		
Customer Firm FE					✓	✓
Year FE			✓	✓	✓	✓
Observations	27,529	27,457	27,529	27,457	27,474	27,402
Adjusted R^2	0.027	0.282	0.077	0.335	0.846	0.848

Note: The results of our main model is in column (6), with standard errors clustered at the firm level. Standard errors are clustered at the industry level in (3) and (4). Control variables with coefficients less than 0.0000 are not shown in the table. *p<0.1; **p<0.05; ***p<0.01

Table C.5: Suppliers with ESG Risks and Customer Firms' Lobbying Expenditure -(B) Number of Risky Suppliers

	Dependent variable:					
	log(Lobbying Expenditure +1)$_{cus,t+1}$					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
log(Number of Risky Suppliers)	1.390***	0.403***	1.674***	0.538***	0.131***	0.110***
	(0.026)	(0.028)	(0.120)	(0.061)	(0.038)	(0.037)
log(Customer's ESG Incidents)		0.951***		0.959***		0.092**
		(0.037)		(0.085)		(0.037)
Firm Age		0.027***		0.021**		−0.010
		(0.002)		(0.009)		(0.035)
log(Asset)		0.919***		1.038***		0.701***
		(0.019)		(0.090)		(0.083)
PP&E/Asset		0.665***		0.627		0.662
		(0.148)		(0.622)		(0.617)
ROA		−0.384***		−0.247		−0.139***
		(0.061)		(0.157)		(0.053)
Relationship Duration		0.034		−0.040		0.019
		(0.023)		(0.035)		(0.018)
log(Suppliers' Asset)		−0.138***		−0.083*		−0.017
		(0.013)		(0.041)		(0.017)
Suppliers' ROA		0.005		−0.016		0.029
		(0.093)		(0.086)		(0.049)
Suppliers' PP&E/Asset		−0.444**		−0.634		0.145
		(0.199)		(0.642)		(0.243)
Controls		✓		✓		✓
Industry FE			✓	✓		
Customer Firm FE					✓	✓
Year FE			✓	✓	✓	✓
Observations	27,529	27,457	27,529	27,457	27,474	27,402
Adjusted R^2	0.027	0.282	0.077	0.335	0.846	0.848

Note: The results of our main model is in column (6), with standard errors clustered at the firm level. Standard errors are clustered at the industry level in (3) and (4). Control variables with coefficients less than 0.0000 are not shown in the table. *p<0.1; **p<0.05; ***p<0.01

Table C.6: (A) Suppliers' Environmental Risk and Customers' Lobbying on Environmental Policy

	Dependent variable:					
	log(Lobbying Expenditure on Environment Policy + 1)$_{cus,t+1}$					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
log(Suppliers' E Incidents)	6.441^{***}	2.539^{***}	2.703^{**}	1.375^{***}	0.142	0.114
	(0.211)	(0.208)	(1.010)	(0.289)	(0.170)	(0.169)
log(Customer's ESG Incidents)		1.183^{***}		1.239^{***}		-0.062
		(0.036)		(0.163)		(0.051)
Firm Age		0.053^{***}		0.034^{***}		-0.012
		(0.002)		(0.009)		(0.011)
log(Asset)		0.329^{***}		0.439^{***}		0.350^{***}
		(0.021)		(0.076)		(0.102)
PP&E/Asset		2.818^{***}		2.817^{**}		0.413
		(0.171)		(1.078)		(0.586)
ROA		-0.407^{***}		-0.237		-0.096^{*}
		(0.076)		(0.191)		(0.055)
Relationship Duration		0.018		-0.054^{*}		0.041^{**}
		(0.027)		(0.031)		(0.021)
log(Suppliers' Asset)		-0.076^{***}		0.019		0.016
		(0.016)		(0.025)		(0.016)
Suppliers' ROA		1.197^{**}		1.065^{**}		-0.073
		(0.483)		(0.458)		(0.210)
Suppliers' PP&E/Asset		2.096^{***}		0.280		0.370
		(0.245)		(1.105)		(0.324)
Controls		✓		✓		✓
Industry FE			✓	✓		
Customer Firm FE					✓	✓
Year FE			✓	✓	✓	✓
Observations	17,840	17,840	17,840	17,840	17,840	17,840
R^2	0.050	0.310	0.160	0.370	0.855	0.855
Adjusted R^2	0.050	0.310	0.158	0.368	0.819	0.819

Note: The results of our main model is in column (6), with standard errors clustered at the firm level. Standard errors are clustered at the industry level in (3) and (4). Control variables with coefficients less than 0.0000 are not shown in the table. *p<0.1; **p<0.05; ***p<0.01

Table C.7: (B) Suppliers' Social Risk and Customers' Lobbying on Environmental Policy

	Dependent variable:					
	log(Lobbying Expenditure on Environmental Policy + 1)$_{cus,t+1}$					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
log(Suppliers' S Incidents)	0.224	−0.037	0.373	−0.300	0.083	0.088
	(0.218)	(0.182)	(0.571)	(0.245)	(0.119)	(0.119)
log(Customer's ESG Incidents)		1.184***		1.243***		−0.062
		(0.036)		(0.164)		(0.051)
Firm Age		0.055***		0.035***		−0.013
		(0.002)		(0.009)		(0.011)
log(Asset)		0.340***		0.445***		0.350***
		(0.021)		(0.076)		(0.102)
PP&E/Asset		3.064***		2.945**		0.418
		(0.171)		(1.112)		(0.586)
ROA		−0.410***		−0.227		−0.094*
		(0.077)		(0.188)		(0.055)
Relationship Duration		0.023		−0.055*		0.042**
		(0.027)		(0.031)		(0.021)
log(Suppliers' Asset)		−0.079***		0.019		0.016
		(0.016)		(0.027)		(0.016)
Suppliers' ROA		1.093**		1.023**		−0.064
		(0.485)		(0.462)		(0.210)
Suppliers' PP&E/Asset		3.180***		0.790		0.388
		(0.230)		(1.171)		(0.324)
Controls		✓		✓		✓
Industry FE			✓	✓		
Customer Firm FE					✓	✓
Year FE			✓	✓	✓	✓
Observations	17,840	17,840	17,840	17,840	17,840	17,840
R^2	0.0001	0.305	0.153	0.368	0.855	0.855
Adjusted R^2	0.00	0.304	0.151	0.367	0.819	0.819

Note: The results of our main model is in column (6), with standard errors clustered at the firm level. Standard errors are clustered at the industry level in (3) and (4). Control variables with coefficients less than 0.0000 are not shown in the table. *p<0.1; **p<0.05; ***p<0.01

Table C.8: (C) Suppliers' Governance Risk and Customers' Lobbying on Environmental Policy

	Dependent variable:					
	log(Lobbying Expenditure on Environmental Policy + 1)$_{cus,t+1}$					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
log(Suppliers' G Incidents)	-3.406^{***}	-1.317^{***}	-1.367^{**}	-0.503^{**}	-0.174	-0.164
	(0.214)	(0.187)	(0.625)	(0.189)	(0.132)	(0.133)
log(Customer's ESG Incidents)		1.187^{***}		1.241^{***}		-0.063
		(0.036)		(0.163)		(0.051)
Firm Age		0.054^{***}		0.034^{***}		-0.013
		(0.002)		(0.009)		(0.011)
log(Asset)		0.342^{***}		0.444^{***}		0.349^{***}
		(0.021)		(0.076)		(0.102)
PP&E/Asset		2.982^{***}		2.920^{**}		0.414
		(0.171)		(1.103)		(0.585)
ROA		-0.417^{***}		-0.230		-0.095^{*}
		(0.077)		(0.189)		(0.055)
Relationship Duration		0.015		-0.055^{*}		0.042^{**}
		(0.027)		(0.031)		(0.021)
log(Suppliers' Asset)		-0.076^{***}		0.018		0.016
		(0.016)		(0.026)		(0.016)
Suppliers' ROA		1.070^{**}		1.059^{**}		-0.069
		(0.485)		(0.446)		(0.210)
Suppliers' PP&E/Asset		2.880^{***}		0.676		0.375
		(0.233)		(1.148)		(0.325)
Controls		✓		✓		✓
Industry FE			✓	✓		
Customer Firm FE					✓	✓
Year FE			✓	✓	✓	✓
Observations	17,840	17,840	17,840	17,840	17,840	17,840
Adjusted R^2	0.014	0.306	0.153	0.367	0.819	0.819

Note: The results of our main model is in column (6), with standard errors clustered at the firm level. Standard errors are clustered at the industry level in (3) and (4). Control variables with coefficients less than 0.0000 are not shown in the table. *p<0.1; **p<0.05; ***p<0.01

C.6 Robustness Check

Table C.9: Suppliers' ESG Incidents and Customer Firms' Lobbying - (A) Number of Suppliers' ESG Incidents and Lobbying Reports

	Dependent variable:					
	log(Number of Lobbying Reports +1)$_{cus,t+1}$					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
log(Suppliers' ESG Incidents)	0.089^{***}	0.028^{***}	0.115^{***}	0.049^{***}	0.007^{**}	0.007^{**}
	(0.003)	(0.003)	(0.012)	(0.009)	(0.003)	(0.003)
log(Customer's ESG Incidents)		0.252^{***}		0.255^{***}		0.021^{***}
		(0.007)		(0.018)		(0.007)
Firm Age		0.005^{***}		0.004^{**}		-0.002
		(0.0004)		(0.002)		(0.007)
log(Asset)		0.183^{***}		0.209^{***}		0.139^{***}
		(0.003)		(0.019)		(0.014)
PP&E/Asset		0.079^{***}		0.033		0.176^{*}
		(0.028)		(0.124)		(0.102)
ROA		-0.075^{***}		-0.051		-0.024^{***}
		(0.011)		(0.035)		(0.009)
Relationship Duration		0.009^{**}		-0.006		0.003
		(0.004)		(0.006)		(0.003)
log(Suppliers' Asset)		-0.030^{***}		-0.025^{**}		-0.004
		(0.003)		(0.011)		(0.003)
Suppliers' ROA		0.003		-0.002		0.002
		(0.017)		(0.017)		(0.008)
Suppliers' PP&E/Asset		-0.194^{***}		-0.244^{*}		0.026
		(0.037)		(0.132)		(0.039)
Controls		✓		✓		✓
Industry FE			✓	✓		
Customer Firm FE					✓	✓
Year FE			✓	✓	✓	✓
Observations	27,529	27,457	27,529	27,457	27,474	27,402
Adjusted R^2	0.032	0.323	0.082	0.378	0.891	0.893

Note: The results of our main model is in column (6), with standard errors clustered at the firm level. Standard errors are clustered at the industry level in (3) and (4). Control variables with coefficients less than 0.0000 are not shown in the table. *p<0.1; **p<0.05; ***p<0.01

Table C.10: Suppliers' ESG Incidents and Customer Firms' Lobbying - (B) Number of Risky Suppliers and Lobbying Reports

	Dependent variable:					
	log(Number of Lobbying Reports +1)$_{cus,t+1}$					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
log(Num of Risky Suppliers)	0.297^{***}	0.096^{***}	0.353^{***}	0.123^{***}	0.022^{***}	0.018^{***}
	(0.005)	(0.005)	(0.026)	(0.013)	(0.006)	(0.006)
log(Customer's ESG Incidents)		0.226^{***}		0.231^{***}		0.020^{***}
		(0.007)		(0.018)		(0.007)
Firm Age		0.004^{***}		0.004^{*}		-0.002
		(0.0004)		(0.002)		(0.007)
log(Asset)		0.175^{***}		0.195^{***}		0.137^{***}
		(0.003)		(0.019)		(0.014)
PP&E/Asset		0.079^{***}		0.050		0.174^{*}
		(0.027)		(0.117)		(0.102)
ROA		-0.070^{***}		-0.045		-0.024^{***}
		(0.011)		(0.032)		(0.009)
Relationship Duration		0.009^{**}		-0.006		0.004
		(0.004)		(0.006)		(0.003)
log(Suppliers' Asset)		-0.031^{***}		-0.021^{**}		-0.004
		(0.002)		(0.009)		(0.003)
Suppliers' ROA		-0.003		-0.008		0.002
		(0.017)		(0.016)		(0.008)
Suppliers' PP&E/Asset		-0.150^{***}		-0.188		0.028
		(0.037)		(0.136)		(0.039)
Controls		✓		✓		✓
Industry FE			✓	✓		
Customer Firm FE					✓	✓
Year FE			✓	✓	✓	✓
Observations	27,529	27,457	27,529	27,457	27,474	27,402
Adjusted R^2	0.115	0.329	0.181	0.384	0.891	0.893

Note: The results of our main model is in column (6), with standard errors clustered at the firm level. Standard errors are clustered at the industry level in (3) and (4). Control variables with coefficients less than 0.0000 are not shown in the table. *p<0.1; **p<0.05; ***p<0.01

Figure C.7: Suppliers' E, S, G Incidents and Customers' Lobbying for Trade Policy

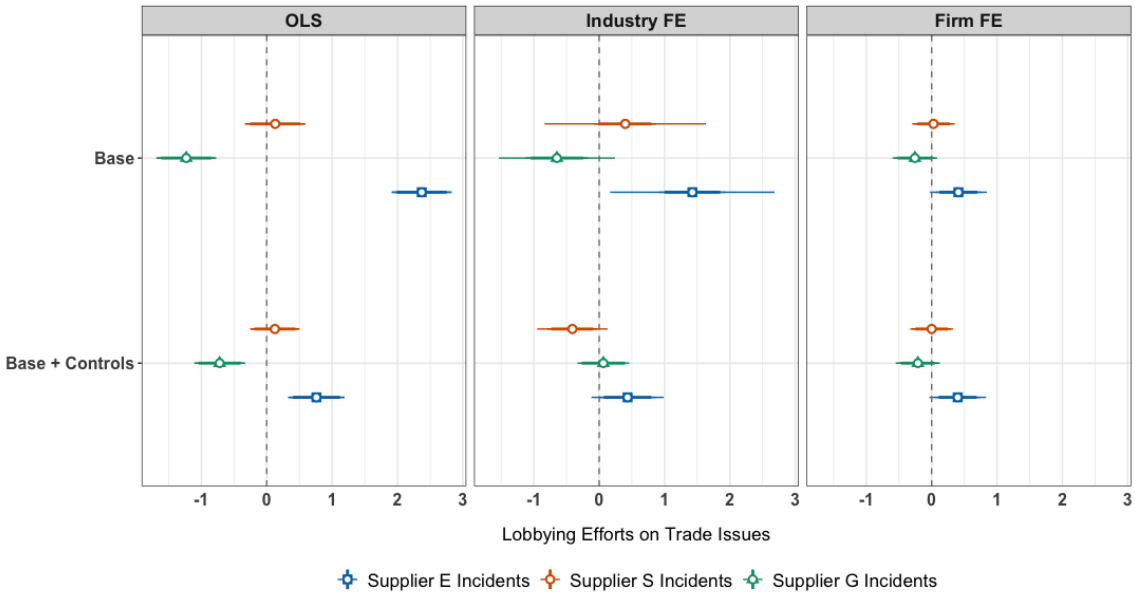


Table C.11: Suppliers' E, S, G Risk and Customer Firms' Lobbying on Trade Policies

	Dependent variable:					
	$log(log(\text{Lobbying Expenditure on Trade Policy} + 1)_{cus,t+1}$					
	OLS		*Fixed Effect Models*			
	(1)	(2)	(3)	(4)	(5)	(6)
Model (A)						
log(Suppliers' E Incidents)	2.371^{***}	0.759^{***}	1.426^{**}	0.434	0.409^{*}	0.399^{*}
	(0.233)	(0.219)	(0.606)	(0.267)	(0.222)	(0.221)
Model (B)						
log(Suppliers' S Incident)	0.129	0.124	0.398	−0.410	0.028	0.0004
	(0.235)	(0.191)	(0.595)	(0.260)	(0.167)	(0.168)
Model (C)						
log(Suppliers' G Incidents)	-1.231^{***}	-0.720^{***}	−0.647	0.064	−0.257	−0.211
	(0.233)	(0.197)	(0.428)	(0.145)	(0.174)	(0.173)
Controls		✓		✓		✓
Industry FE			✓	✓		
Customer Firm FE					✓	✓
Year FE			✓	✓	✓	✓
Observations	17,840	17,840	17,840	17,840	17,840	17,840

Note: (A), (B), (C) are separate models. We are interested in the results in Column (6), with standard errors clustered at the firm level. Standard errors are clustered at the industry level in (3) and (4). More results are available in Table C.12, Table C.13, and Table C.14. *p<0.1; **p<0.05; ***p<0.01C.6,C.7, C.8. *p<0.1; **p<0.05; ***p<0.01

Table C.12: (A) Suppliers' Environmental Risk and Customer Firms' Lobbying Efforts on Trade Policies

	log(Lobbying Expenditure on Trade Policy + 1)$_{cus,t+1}$					
	(1)	(2)	(3)	(4)	(5)	(6)
log(Suppliers' E Incidents)	2.371^{***}	0.759^{***}	1.426^{**}	0.434	0.409^{*}	0.399^{*}
	(0.233)	(0.219)	(0.606)	(0.267)	(0.222)	(0.221)
log(Customer's ESG Incidents)		1.648^{***}		1.616^{***}		0.280^{***}
		(0.038)		(0.117)		(0.064)
Firm Age		0.051^{***}		0.043^{***}		0.036^{**}
		(0.002)		(0.010)		(0.016)
log(Asset)		0.502^{***}		0.701^{***}		0.370^{***}
		(0.022)		(0.089)		(0.108)
PP&E/Asset		-0.128		0.680		0.114
		(0.180)		(0.665)		(0.587)
ROA		-0.157^{*}		-0.034		-0.069
		(0.080)		(0.193)		(0.045)
Relationship Duration		0.020		-0.061^{*}		-0.019
		(0.029)		(0.031)		(0.021)
log(Suppliers' Asset)		-0.167^{***}		-0.039^{*}		0.002
		(0.017)		(0.020)		(0.021)
Suppliers' ROA		1.173^{**}		0.136		0.295
		(0.509)		(0.260)		(0.286)
Suppliers' PP&E/Asset		-0.870^{***}		-0.766		-0.030
		(0.258)		(0.761)		(0.398)
Controls		✓		✓		✓
Industry FE			✓	✓		
Customer Firm FE					✓	✓
Year FE			✓	✓	✓	✓
Observations	17,840	17,840	17,840	17,840	17,840	17,840
Adjusted R^2	0.006	0.345	0.051	0.388	0.781	0.783

Note: The results of our main model is in column (6), with standard errors clustered at the firm level. Standard errors are clustered at the industry level in (3) and (4). Control variables with coefficients less than 0.0000 are not shown in the table. *p<0.1; **p<0.05; ***p<0.01

Table C.13: (B) Suppliers' Social Risk and Customers' Lobbying Efforts on Trade Issues

	log(Lobbying Expenditure on Trade Policy + 1)$_{cus,t+1}$					
	(1)	(2)	(3)	(4)	(5)	(6)
log(Suppliers' S Incident)	0.129	0.124	0.398	−0.410	0.028	0.0004
	(0.235)	(0.191)	(0.595)	(0.260)	(0.167)	(0.168)
log(Customer's ESG Incidents)		1.648***		1.619***		0.281***
		(0.038)		(0.117)		(0.064)
Firm Age		0.052***		0.044***		0.034**
		(0.002)		(0.010)		(0.017)
log(Asset)		0.506***		0.703***		0.371***
		(0.022)		(0.089)		(0.108)
PP&E/Asset		−0.057		0.724		0.118
		(0.179)		(0.673)		(0.588)
ROA		−0.160**		−0.029		−0.067
		(0.081)		(0.191)		(0.045)
Relationship Duration		0.021		−0.061*		−0.019
		(0.029)		(0.031)		(0.021)
log(Suppliers' Asset)		−0.168***		−0.039*		0.002
		(0.017)		(0.020)		(0.021)
Suppliers' ROA		1.144**		0.100		0.289
		(0.509)		(0.286)		(0.287)
Suppliers' PP&E/Asset		−0.548**		−0.589		0.036
		(0.241)		(0.766)		(0.402)
Controls		✓		✓		✓
Industry FE			✓	✓		
Customer Firm FE					✓	✓
Year FE			✓	✓	✓	✓
Observations	17,840	17,840	17,840	17,840	17,840	17,840
Adjusted R^2	0.006	0.345	0.051	0.388	0.781	0.783

Note: The results of our main model is in column (6), with standard errors clustered at the firm level. Standard errors are clustered at the industry level in (3) and (4). Control variables with coefficients less than 0.0000 are not shown in the table. *p<0.1; **p<0.05; ***p<0.01

Table C.14: (C) Suppliers' Governance Risk and Customers' Lobbying Efforts on Trade Issues

	log(Lobbying Expenditure on Trade Policy + 1)$_{cus,t+1}$					
	(1)	(2)	(3)	(4)	(5)	(6)
log(Suppliers' G Incidents)	-1.231^{***}	-0.720^{***}	-0.647	0.064	-0.257	-0.211
	(0.233)	(0.197)	(0.428)	(0.145)	(0.174)	(0.173)
log(Customer's ESG Incidents)		1.650^{***}		1.617^{***}		0.279^{***}
		(0.038)		(0.117)		(0.064)
Firm Age		0.051^{***}		0.043^{***}		0.034^{*}
		(0.002)		(0.010)		(0.017)
log(Asset)		0.506^{***}		0.703^{***}		0.370^{***}
		(0.022)		(0.089)		(0.108)
PP&E/Asset		-0.099		0.722		0.118
		(0.179)		(0.676)		(0.587)
ROA		-0.161^{**}		-0.031		-0.066
		(0.080)		(0.192)		(0.045)
Relationship Duration		0.018		-0.061^{*}		-0.018
		(0.029)		(0.031)		(0.021)
log(Suppliers' Asset)		-0.166^{***}		-0.039^{*}		0.002
		(0.017)		(0.020)		(0.021)
Suppliers' ROA		1.129^{**}		0.128		0.296
		(0.508)		(0.270)		(0.286)
Suppliers' PP&E/Asset		-0.709^{***}		-0.598		0.018
		(0.245)		(0.759)		(0.402)
Controls		✓		✓		✓
Industry FE			✓	✓		
Customer Firm FE					✓	✓
Year FE			✓	✓	✓	✓
Observations	17,840	17,840	17,840	17,840	17,840	17,840
Adjusted R^2	0.006	0.345	0.051	0.388	0.781	0.783

Note: The results of our main model is in column (6), with standard errors clustered at the firm level. Standard errors are clustered at the industry level in (3) and (4). Control variables with coefficients less than 0.0000 are not shown in the table. *p<0.1; **p<0.05; ***p<0.01