Industrial Policy in a Globalized Economy: Firm Foreignness and US Subsidy Allocation

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Abstract

Industrial policy (IP) supports strategically significant industries to serve national interests. In a globalized economy, however, IP benefits often extend to foreign firms, such as the US government's $6.6 billion subsidy to Taiwan's TSMC for a project in Arizona. This raises questions about the determinants of IP support distribution, including what explains the allocation of industrial subsidies to firms in a globalized economy. I argue that political incentives drive politicians to support firms to secure backing from businesses and workers and international competition compels governments to favor large domestic firms in key sectors like manufacturing and energy. Using data on US publicly traded firms and industrial subsidies from 2000 to 2023, I find that American firms—especially large ones collaborating with local suppliers and serving American customers—receive more subsidies than foreign ones. This trend has amplified since 2008 amid rising global competition, with large US firms benefiting more than non-US companies. While the discussion on industrial policy often focuses on its effects and consequences, this paper contributes to our understanding of the distribution of industrial policy from both domestic and international perspectives.

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Introduction

Industrial policy is commonly perceived as a tool to advance national interests, by fostering the growth of crucial industries, and political interests, by targeting politically valuable workers and firms. Many governments are ramping up industrial policies, particularly industrial subsidies, to enhance their competitiveness and spur innovation. However, unlike previous eras of industrial policy, we live in a highly globalized economy. The benefits of industrial policy are very likely to redound to outsiders – foreign companies, workers, or economies – who provide no strategic or political benefit to the state. A tech company receiving subsidies might outsource production to foreign suppliers or sell mostly to foreign consumers; a US-based auto company might employ a significant number of foreign workers offshore or itself be foreign. This dynamic creates a discrepancy between the intended objectives and the actual outcomes of industrial policy. While the goal is to boost the national economy and create jobs for local workers, the benefits might extend to foreign firms, suppliers, and workers, diluting the intended impact. This raises a critical question: How do governments distribute the benefits of industrial policy in a globalized economy?

This paper examines the distribution of industrial subsidies among firms, focusing on the political motivations behind industrial policy. While governments use industrial policy to foster national economic development, they also leverage it to gain voter support and political resources from businesses. In a globalized economy, however, many benefits of industrial policy can flow to foreign suppliers, workers, and consumers. For instance, a pharmaceutical company receiving government subsidies might manufacture its products abroad or primarily serve international customers. Similarly, a US-based electronics firm might rely heavily on a foreign workforce or be owned by an overseas corporation. These foreign customers and workers are unlikely to return political support to the government subsidizing these firms. This means industrial subsidies may inadvertently benefit foreign entities, thereby reducing the political returns from domestic constituencies.

In a globalized economy, politicians consider two key factors: domestic political support and international industrial competition. First, incumbents, such as presidents and governors, often direct industrial subsidies to companies based within their own country or state to maximize political support from voters and businesses. Policymakers would have strong incentives to prioritize domestic companies over foreign ones, as subsidized firms are likely to reciprocate with various forms of political backing. Second, in response to international competition, governments tend to preferentially support domestic firms, especially in strategically important industries. Since the 2008 Global Crisis, the global trade landscape has

been reshaped and industrial and technological competition between countries has intensified. As a result, governments intend to support leading companies within their own country rather than foreign companies, recognizing the importance of industrial policy in fostering crucial industries.

Building on these observations, my main hypothesis is that industrial subsidies are predominantly allocated to domestic firms. I also expect that companies working with local suppliers, serving domestic consumers, and employing a local workforce receive more industrial subsidies than those connected to foreign counterparts. This predisposition toward domestic companies has likely intensified since 2008, as international trade competition has heightened. Given that large firms are more likely to be politically proactive and industry leaders, these effects are expected to be more pronounced among larger firms. By examining the distribution of industrial subsidies, we can better understand how domestic and international political incentives drive incumbents to prioritize support for domestically focused companies, shedding light on the politics of industrial policy.

To test these propositions, I focus on the case of the United States, examining industrial subsidies provided to publicly traded U.S. firms from 2000 to 2023. The industrial subsidy data is sourced from Subsidy Tracker, which measures the count and amount of subsidies given to each firm per year. The main explanatory variable is whether the firm is a U.S. national company or a non-U.S./foreign one, based on the location of its headquarters. To assess the foreignness of suppliers and customers, I use Compustat historical segments, as firms report all major transactions each year. Additional important firm information, such as size, location, and industry, is obtained from Compustat Fundamentals. I also proxy the foreignness of workers by counting the number of foreign subsidiaries, considering potential offshoring activities. Moreover, I measure foreign employment by firms using data from the U.S. Citizenship and Immigration Services (USCIS) H-1B Employer Data Hub. By merging these firm-level databases, I examine the relationships between a firm's foreignness and the industrial subsidies it receives.

The results from the empirical testing largely support my hypotheses, indicating that political incentives play a significant role in the distribution of industrial policy benefits. When controlling for year, state, and industry fixed effects, as well as firm size, U.S. companies and firms with American suppliers receive significantly more subsidies, both in count and amount. Initially, firms serving American customers receive fewer subsidies, but this relationship reverses once controls and fixed effects are applied. The analysis concerning foreign workers is more complex and contradicts my prediction that firms employing a local

workforce would receive more governmental support. Instead, the findings show that firms with a higher proportion of foreign subsidiaries are more likely to receive subsidies, and those making more H-1B visa applications also garner increased industrial support. Overall, the results indicate that large American companies receive more industrial support from the government, and while American suppliers and customers benefit from these policies, local workers do not necessarily receive similar support through industrial subsidies.

The contributions of this research are significant for the literature on industrial policy and political economy. By examining the firm-level distribution of industrial subsidies, this study provides new insights into the nuances of subsidy allocation across states and sectors. The results reveal a clear predisposition in industrial policy benefits favoring domestic entities. Additionally, the study deepens the understanding of how firm characteristics—such as nationality, and the foreignness of suppliers, customers, and workers—affect who benefits from industrial subsidies. It also highlights the influence of firm size and global competition on subsidy distribution, revealing the nuanced impact of large, frontier firms on industrial policy outcomes. These findings advance the discourse on the political economy of industrial policy by elucidating the complex motivations and mechanisms behind subsidy distribution.

The findings are crucial for understanding the world as they uncover the misalignment between industrial policy goals and actual outcomes. The research shows that while subsidies support firms with American suppliers, bolstering domestic supply chains and economic resilience, they do not necessarily benefit firms that cater to domestic consumers or employ American workers. The greater support for firms with foreign subsidiaries and H1B visa employees suggests a need to re-evaluate subsidy allocation to better serve national interests and domestic economic goals. Additionally, further investigation is required to understand how contemporary trade frictions and competition influence these dynamics. By addressing these issues, policymakers can create more equitable and effective industrial policies that promote inclusive economic growth and better align with national objectives.

Industrial policy and its effects on various groups

Definition and scope Industrial policy refers to government strategies aimed at reshaping the economic landscape to achieve public goals, as broadly defined by scholars[1](Juhász, Lane,

[1] The OECD offers a more detailed definition of industrial policy, describing it as government assistance to businesses aimed at boosting or reshaping specific economic activities. This support is often targeted at firms based on their activity, technology, location, size, or age. Governments use industrial policies

and Rodrik, 2023). These strategies utilize a range of tools including tariffs, tax incentives, subsidies, low-interest loans, trade restrictions, worker training programs, infrastructure investments, and more. These are all designed to stimulate economic growth and transform industrial structures. Given the significant budgetary commitments required, industrial subsidies are predominantly determined and provided by federal or state governments.

The formulation and implementation of industrial policies involve various government officials and politicians, primarily at the federal or state level due to the significant budgetary commitments required. Politicians aim to achieve economic objectives while gaining political advantages, necessitating an analysis of their motivations to understand the political economy of industrial policy.

Despite the importance of understanding industrial policy and its implications, its vague conceptualization complicates operationalization and measurement, revealing a need for systematic analysis in the literature. This paper will focus on industrial subsidies—an aspect of industrial policy that includes capital transfers, tax credits, loans, grants, and enterprise zones. These subsidies, being quantifiable, provide insight into government priorities and decision-making mechanisms, allowing for consistent measurement of their monetary value.
Effects on various groups Recent studies underscore that industrial policies significantly strengthen targeted industries and sectors, boosting regional economic performance[2]. This paper explores the broad yet differential effects of industrial policy across key interest groups, which is essential for understanding the political motivations behind these policies.

One major beneficiary of industrial policies are specific industries and businesses, which gain through mechanisms like grants and subsidies. These supports reduce operational expenses and enhance competitiveness on both domestic and international levels[3]. Such support stimulates expansion and investment in innovation and technological advancements, significantly impacting total factor productivity[4]. Additionally, the growth of primary industries creates a ripple effect, benefiting upstream and downstream suppliers through increased

to address economic, social, and environmental challenges that markets cannot solve independently, such as accelerating the green transition or improving the robustness of value chains for critical products and services.

[2] See Aghion et al. (2015), Kalouptsidi (2017), Criscuolo et al. (2019), Rotemberg (2019), Manelici and Pantea (2021), and Choi and Levchenko (2021) for discussions on how industrial policies boost targeted industries and regional economies.

[3] Aghion et al. (2015), Kalouptsidi (2017), Rotemberg (2019).

[4] Lee (1996), Kim, Lee, and Shin (2021).

demand and sales, thereby strengthening the entire supply chain[5].

The workforce within supported industries also benefits from government support through improved job prospects, potential wage increments, increased access to training, and enhanced job mobility[6]. These benefits are not limited to current employees but extend to future workers as industry competitiveness increases, providing broader advantages.

Although the benefits to consumers may not be immediate, subsidies and tax incentives enable firms to reduce production costs, which can lead to lower consumer prices or allow firms to maintain prices while improving product quality and diversifying product offerings[7]. Overarching economic growth driven by industrial policy also enhances aggregate welfare, stimulating investment and employment[8].

In summary, industrial policies often act as catalysts for strengthening targeted industries and businesses, with benefits extending to workers and consumers within related sectors. This paper emphasizes the need for a nuanced understanding of these policies' multidimensional consequences, acknowledging significant distributive effects and the potential for disproportionately favoring certain entities.

Motivations for Industrial Policy

Industrial policy, which encompasses government interventions aimed at improving the economic performance of specific sectors or industries, is primarily driven by two key motivations: fostering national economic development and serving as a tool for distributive politics. These motivations reflect the dual role of industrial policy in enhancing a nation's economic capabilities and securing political gains for policymakers. The intersection of these objectives reveals the complex interplay between economic strategies and political incentives.

National Economic Development and Global Competition

A primary motivation for industrial policy is to promote national economic development. Governments implement industrial policies to stimulate economic growth, create jobs, and enhance the competitiveness of domestic industries on the global stage. By providing subsidies and other forms of support, policymakers aim to bolster the capabilities of domestic

[5] Rotemberg (2019), Choi and Levchenko (2021), Manelici and Pantea (2021).

[6] Harrison and Rodríguez-Clare (2010).

[7] Kalouptsidi (2017).

[8] Liu (2019), Choi and Levchenko (2021), Criscuolo et al. (2019).

firms, enabling them to innovate and compete more effectively against foreign companies. This strategic allocation of subsidies can help industries expand, fostering overall economic growth[9].

Moreover, globalization and international competition significantly influence industrial policy. The international race to attract capital and industries via tax incentives and subsidies is a critical factor shaping policy decisions. Studies have examined how governments use tax incentives and subsidies to lure investments, which in turn affects the economic landscape[10]. For example, Impullitti (2010) found that U.S. R&D subsidies were optimally set to respond to increased international competition from the 1970s to the 1990s. This highlights how strategic policy measures are employed to counteract competitive pressures from abroad.

Additionally, the dynamics of trade costs play a significant role in shaping industrial policy. Lower trade costs lead both less-industrialized and highly-industrialized countries to offer reduced R&D subsidies, while higher trade costs prompt greater subsidies to industries[11]. These findings indicate that trade frictions can elevate subsidy levels in a competitive environment, illustrating the responsive nature of industrial policy to global economic conditions.

Distributive Politics and Political Gains

Industrial policy also serves as a tool for distributive politics, where politicians use subsidies and other forms of support to garner political support and resources. This motivation is rooted in the potential political gains that come from distributing economic benefits to targeted groups[12].

By promoting industrial policies, politicians highlight their potential to spur economic growth, create jobs, and ensure business success. They justify substantial spending on industrial support by emphasizing the expected benefits for companies, workers, and consumers,

[9] Research shows that countries with proportional representation (PR) systems tend to provide more generous government assistance to geographically dispersed industries, while those with plurality systems allocate more subsidies to geographically concentrated beneficiaries (Rickard, 2018).

[10] See Wilson (1986), Wildasin (1988), Kind, Knarvik, and Schjelderup (2000), and Baldwin and Krugman (2004) for discussions on how tax incentives and subsidies impact the competition for capital and industries.

[11] Kondo (2013) discusses how trade costs influence the level of R&D subsidies offered by countries.

[12] Incumbents often distribute subsidies to garner votes, leveraging industrial policy to their political advantage (Dewatripont and Seabright, 2006; Buts, Jegers, and Jottier, 2012; Rickard, 2018).

even though it may come at the expense of taxpayers. When industrial support results in positive outcomes, it can bolster voter support for policymakers, thereby aiding their re-election prospects or advancing their political careers. This explains why politicians frequently undertake the risk of substantial spending on industrial policies despite the significant investment involved and the initial uncertainty about their outcomes.

Politicians anticipate that groups benefiting from industrial policy will reward them in several ways. Firms receiving government support are more likely to contribute to and endorse the politicians or parties responsible for their assistance. This support often extends to companies indirectly benefiting from the subsidies, fostering a network of corporate backing for the government[13]. Similarly, workers benefiting from these policies may support the government through voting and union endorsements, recognizing the positive impact of subsidies on their livelihoods. Additionally, consumers who benefit from industrial policies may express their gratitude through votes and small-donor contributions. Politicians can bolster their claims of success and anticipate support from both workers and consumers by highlighting prominent success stories of industrial support.

Overall, the distribution of industrial subsidies can help policymakers secure support and resources from directly subsidized companies, related firms, and groups perceiving government actions as beneficial. This reciprocal relationship between policymakers and the beneficiaries of industrial subsidies underscores the strategic importance of these policies in securing broad-based political support and resources.

In conclusion, the motivations for industrial policy are deeply intertwined with national economic development and political gains. By focusing on these dual motivations, policymakers can design industrial policies that not only enhance national competitiveness in a globalized economy but also secure political support and resources to sustain their governance. This dual approach ensures that industrial policy remains a vital tool for both economic growth and political strategy. This paper focuses on how politicians distribute industrial policy benefits in a globalized context, considering this double-sided motivation.

Industrial policy in a globalized economy

In today's interconnected world, the impact of industrial policy is more complex and has broader implications for multiple actors. This complexity largely comes from the fact that

[13]Businesses may influence the government to seek industrial support, further solidifying political alliances and endorsements (Jansa and Gray, 2016).

benefits from industrial policies often end up with foreign entities. For instance, in the United States, about 25% of industrial subsidies are given to companies based outside the US, as part of efforts to attract foreign investment. These subsidies not only help the subsidized firms but also benefit their international partners, as well as customers and workers outside the US. Essentially, while industrial subsidies are intended to support domestic companies and boost the local economy, a significant share of their advantages goes to foreigners.

However, foreign beneficiaries of these policies offer comparably little political benefit to the policymakers who implement them. Since these entities are outside the domestic political system, they cannot vote, donate to campaigns, endorse candidates, or engage in active political lobbying. This situation underscores a crucial point about industrial policy in a global setting: the economic gains from such policies can spread across borders, yet the political rewards remain confined within the country. As a result, the considerations for industrial policy in a globalized world are more complex, adding to the list of factors that politicians must weigh.

As decision-makers of industrial subsidies, politicians aim to optimize subsidy distribution to maximize public and special interest benefits while evading the allocation of funds to non-targeted entities. Considering both national economic interests and political support, incumbents tend to distribute benefits to firms and businesses that are based in the home country. As a result, firms with a pronounced domestic orientation are more likely to secure government support. This domestic focus is examined through four dimensions in this paper: firm's nationality (headquarters location), supply chain relationships, customer base, and workforce composition. By evaluating these aspects, governments can estimate the likelihood of subsidies inadvertently benefiting unintended, non-domestic parties. Thus, the central hypothesis of this study suggests that governments are inclined to subsidize firms in a manner that maximizes the benefit to voters and domestic businesses and minimizes the spillage of benefits beyond the intended recipients. The subsequent part will outline the political determinants of industrial policy.

In their role as allocators of industrial subsidies, politicians aim to distribute these funds in a way that maximizes benefits for both the public and specific interest groups while minimizing the chances of these subsidies reaching unintended foreign recipients. Consequently, companies with a strong domestic focus tend to be more successful in securing government support. This paper examines the domestic orientation, or foreignness, of firms through four key dimensions: the nationality of the firm (location of headquarters), supply chain relationships, customer base, and workforce composition. By examining these factors, governments

can better assess the risk of subsidies inadvertently benefiting foreign parties. Therefore, the core hypothesis of this study is that governments prefer to grant subsidies to firms in a way that optimizes advantages for local voters and domestic companies, aiming to keep the benefits within the country and limit any unintended international spillover. The following part will explore the political factors that influence industrial policy decisions.

Hypothesis 1. Governments are more likely to award industrial subsidies to firms where the benefits of industrial policy are less likely to leak to foreign entities.

Hypothesis 1 then naturally leads to four more specific hypotheses. First, domestic firms are expected to receive more significant industrial subsidies than foreign firms. This preference stems from the fact that industrial support not only enhances productivity and market share, aiding in long-term growth, but also because domestic firms are more likely to reciprocate this support politically. In contrast, foreign firms offer limited political returns in the host country. Politicians, recognizing voter preference for subsidizing domestic businesses and considering the greater political engagement and stability of these firms, are inclined to offer them more generous subsidies. Foreign firms, with higher mobility and lesser political involvement, receive more restrained support. Thus, the tendency to prioritize domestic firms in industrial policy is driven by a combination of economic and political considerations, with politicians aiming to maximize political returns.

Hypothesis 1a. Domestics firms are more likely to receive industrial supports than foreign firms.

Second, firms integrated in domestic supply chains are more likely to receive industrial subsidies compared to those involved in global or foreign supply chains. This is due to the fact that subsidies to a firm often benefit its local upstream and downstream suppliers. In cases where a firm is part of a global supply chain, there's a higher chance that these subsidy benefits will spill over to foreign entities. On the other hand, subsidies to a firm within a domestic supply chain amplify benefits across local suppliers, creating greater positive regional impacts. Domestic suppliers are also more likely to offer political support in return, a factor policymakers consider when allocating industrial benefits. Recent studies show firms lobbying along their supply chains, influencing policy decisions. Therefore, governments tend to prefer awarding subsidies to firms central to domestic supply chains over those in global networks, aiming to maximize both economic impact and political reciprocation.

Hypothesis 1b. Firms with domestic upstream and downstream suppliers are more likely to receive industrial assistance than those embedded in global supply chains.

Governments are more inclined to subsidize firms serving domestic consumers over those targeting global markets, as this approach ensures that the benefits of industrial policy directly impact local public welfare. Subsidies enable firms to invest in technology and improve product quality, potentially leading to stabilized or reduced consumer prices. When subsidies are directed at firms primarily exporting, these benefits do not directly aid domestic consumers, who are pivotal voters for politicians. By supporting firms with a domestic customer base, including government agencies, small businesses, and retailers, governments not only gain public approval but also recirculate economic benefits within the country, thereby aligning with broader governmental objectives.

Hypothesis 1c. Firms serving domestic customers are more likely to receive subsidies than those catering to foreign consumers.

Firms that create local employment and hire domestically are more likely to receive government support than those engaging in offshoring or outsourcing. This preference stems from the fact that industrial assistance to local employers enhances job prospects, provides training opportunities, and contributes to developing a skilled labor force. In contrast, firms that rely on foreign labor through offshoring or outsourcing do not significantly benefit domestic workers, reducing the effectiveness of industrial policies. Politicians, recognizing the electoral advantages of supporting job creation and the influence of labor unions, particularly in unionized sectors, are thus more inclined to support firms that contribute to local employment. This tendency is more pronounced in labor-intensive industries, where the impact of subsidies on job creation is more direct. In summary, firms contributing to local job opportunities are better positioned to secure government assistance, aligning with political and economic objectives of fostering employment and reducing unemployment.

Hypothesis 1d. Firms employing domestic workforce are more likely to receive subsidies than those using foreign workers through offshoring and outsourcing.

In summary, politicians are inclined to grant industrial subsidies to domestic companies, particularly those engaged in domestic supply chains, serving local markets, or employing local workers. This preference is based on the belief that subsidizing these companies is less likely to favor foreign interests, thereby maximizing the political gains for the policymakers. An interesting observation is that in a more globalized economy, industrial policy tends to

favor domestically-oriented firms due to these political incentives. This argument introduces a new theoretical perspective to the political economy literature on industrial policy, exploring how each firm characteristic influence the distribution of industrial policy in a globalized world.

Data and Research Design

Data and variables

This paper's theory predicts the levels of industrial subsidies that governments provide to individual firms. Therefore, the natural unit of analysis for this examination is the firm-year. To investigate the impact of firm characteristics, including labor foreignness, on the distribution of government subsidies, this study will examine four main databases: Compustat, Subsidy Tracker, Compustat's historical segments on customers and suppliers, and the U.S. Citizenship and Immigration Services (USCIS)'s H-1B Employer Data Hub. Each database offers unique firm-level data; Compustat's Fundamental Annuals provide the population of US public firms with official information from balance sheets, while Subsidy Tracker offers a comprehensive record of industrial subsidies provided to firms. The USCIS's H-1B Employer Data Hub is utilized as a proxy to gauge the labor foreignness of each firm, offering an innovative dimension to the analysis. In the following paragraphs, I will briefly describe the data and present several variables that have been extracted or created from these datasets.

Subsidy Tracker

Subsidy Tracker, the first national search engine for economic development subsidies and other forms of government financial assistance to business, was assembled by Good Jobs First[14]. Subsidy Tracker provides extensive data on 669,937 firm-level industrial subsidy awards, covering from the first announced subsidy in Michigan in 1966 to the present. This dataset includes detailed information about subsidies awarded by local, state, and federal governments, including the program type, industry, amount, and the number of jobs created or preserved. While Subsidy Tracker encompasses all businesses that have received subsidies, I will focus on publicly traded firms to ensure integrity and consistency with the Compustat data. Additionally, considering that sufficiently large businesses can wield po-

[14]Good Jobs First is a nonprofit, nonpartisan group that promotes accountability in economic development. For more information, please refer to `http://www.goodjobsfirst.org/about-us`.

litically significant influence, concentrating on public firms is reasonable. Using this data, I will examine how the foreignness of firms determines the government's decision to provide industrial assistance to specific companies.

I will offer a succinct overview of the key observations from the data, while related tables and figures can be found in the appendix. US-based companies represent 74% of the total; however, the headquarters of firms are spread across 45 countries. Japan, Germany, the United Kingdom, Canada, and France are leading with the highest number of subsidiary firms, while China is in the 8th position. It's noteworthy that, in terms of subsidy volume, South Korean firms rank third, and Taiwanese firms sixth, with China at the 12th rank. This suggests that certain foreign firms benefit from larger industrial subsidies than their counterparts. Over the years, the pattern of subsidy allocation has shown an upward trend, with a notable increase from the year 2000, reaching its highest amounts in 2013 and 2022. It should be noted that the data covering the period from the 1970s to the 1990s are subject to limitations in quantitative details such as subsidy amounts, which could affect the interpretation of long-term trends. Consequently, the dataset utilized for statistical analysis has been truncated to cover the period from 2000 to 2023.

The dataset further breaks down the role of the U.S. government in granting these subsidies, categorizing them into federal, state, and local levels. The federal government is responsible for 22.5% of all subsidies, being the largest single provider in both count and volume. In contrast, state governments dispense approximately 52% of the subsidies, with a notable disparity among them. New York, for instance, accounts for 29% of the total state subsidies, which translates to 16.6% of the total subsidy volume. Following New York are states like Louisiana, Michigan, Texas, Washington, and North Carolina. As for the types of subsidies, the Megadeal —a subsidy package valued at $50 million or more, with recent examples including agreements with companies like Canoo, Billerud, and Ford Motors— represents the largest amounts. This is followed by tax credits and rebates, while federal grants also constitute a significant proportion of the subsidies awarded to firms.

In conclusion, the Subsidy Tracker database serves as the source of the two primary dependent variables for this study: *the number of industrial subsidies* each firm received from governmental entities and *the amount of subsidy* each firm was granted. Due to the high skewness of these variables, logarithmic transformations were applied for analytical purposes. Additionally, Subsidy Tracker offers insights into *the number of new jobs* and *the amount of investment* either created or anticipated as a result of the subsidy. These two variables have been incorporated as controls to elucidate the impact of the expectation effect

of subsidies on the awarding of subsidies. Furthermore, the analysis includes the *subsidy level* —indicating which level of the U.S. government awarded the industrial subsidy to firms— as a fixed effect and further disaggregates it into different models.

Compustat Fundamentals Annual

The Compustat Fundamentals Annual database provides comprehensive information on the population of U.S. firms, encompassing both active and inactive publicly traded companies since 1967. This research aims to ascertain which firms have received government support; hence, it is crucial to examine the entirety of the U.S. public firm sample across the relevant years. The primary company identifier in Compustat is "gvkey," along with additional firm identifiers such as "cik," "cusip," and "ticker." Furthermore, Compustat furnishes data on *total revenue* and *the number of employees*, both serving as a proxy for firm size. Consequently, the foundation of the final dataset is based on Compustat, onto which data regarding customers and suppliers, as well as Subsidy Tracker information, have been incorporated.

Compustat Historical Segments – Customer and Supplier

To investigate the hypothesis that firms with a predominantly domestic customer base are more likely to receive government subsidies, I delved into additional firm-level data concerning the customer base of each firm. The Compustat Historical Customer Segment[15] records all disclosed customers of U.S. public firms from 1976 to 2023. Moreover, it details the type and name of each major customer, alongside the dollar amount of annual revenues generated from these customers, including the geographical code and type of their customers. Utilizing this data, I developed a variable for the "customer base." Each customer was classified using a binary indicator to differentiate between domestic and foreign customers. Subsequently, I quantified the proportion of domestic customers relative to the overall total, in terms of both the number of customers and the sales amount generated. Then, the final variable included in the model is *a weighted value* of these two measures: *the number of domestic customers* and *the sales amount*.

In a similar manner, the Compustat Supplier Segment[16] provides historical data on the

[15]The Compustat customer segment adheres to the Financial Accounting Standards Board (FASB) and Securities and Exchange Commission (SEC) mandates, requiring public firms to disclose the revenue amounts derived from each major customer.

[16]This WRDS Analytics Tool is predicated on the historical customer data from Compustat Segment information. Supplier identifiers are linked to historical CRSP and Compustat company data through a

business suppliers of each firm.[17] Leveraging this information, I constructed a variable for "supplier" by categorizing each supplier as either a domestic or foreign entity, and then calculated the proportion of domestic suppliers, in terms of both quantity and monetary value. Likewise, the final variable included in the model is *a weighted value* of the two measures: *the number of domestic suppliers* and *the transaction amount*.

USCIS H-1B Employer Data Hub

The United States Citizenship and Immigration Services (USCIS) H-1B Employer Data Hub offers comprehensive information on entities that have filed petitions for employing H-1B nonimmigrant workers from the fiscal year 2009 through fiscal year 2023.[18] The H-1B Employer Data Hub dataset offers a variety of information, such as fiscal year, employer name, city, state, zip code, and NAICS code. It also contains information on initial determinations made by the USCIS regarding petitions for both initial and subsequent employment phases. The Hub identifies employers using the last four digits of their tax identification numbers, encompassing a spectrum of entities, predominantly firms, spanning both public and private sectors. For the purposes of this study, the dataset was refined to specifically include U.S. public firms, and subsequently integrated with data from Compustat.

In the context of this research, the H1B application process is employed as a proxy variable, offering insights into the quantity of foreign employers each firm sought to hire and for whom they intended to secure working visas within the U.S. Although it is observed that larger and foreign-origin firms in the U.S. exhibit a higher propensity to apply for the H1B program, *Number of H1B applications* serves as a tangible indicator of the extent of foreign worker engagement by each firm. This study employs the aggregate number of H1B applications as a predictive measure of the degree of foreignness within the workforce,

fuzzy name-matching algorithm and subsequently verified manually. These records are further refined and augmented with publicly available data and contributions from researchers. (**?**Cohen, 2007)

[17]It is crucial to acknowledge that, given Compustat's focus on U.S. companies, the dataset is inherently biased towards domestic suppliers. Nonetheless, the Compustat segment constitutes a robust data source, as it is derived from official SEC filings. It is also pertinent to note that the observed expansion in Compustat's coverage of small firms over the sample period may represent an in-sample phenomenon, rather than a broader macroeconomic trend, which does not necessarily reflect broader economic patterns (Patatoukas, 2012; Cohen and Li, 2020).

[18]The H-1B program permits employers within the United States to temporarily engage foreign workers in specialized occupations that necessitate both theoretical and practical application of highly specialized knowledge, along with a bachelor's degree or higher in the specific specialty, or its equivalent.

thereby testing Hypothesis 1d.

Table A1 in the appendix gives an overview of both dependent and independent variables used in our analysis. The dataset contains a total number of 279,999 observations for variables such as Subsidy Count, Subsidy Amount, and their logarithmic transformations. However, it is noteworthy that the number of observations varies across different variables; for instance, *American Customer* variable has 93,418 observations and *US Suppliers* has 33,039 observations, while the total observation is 243,649. This discrepancy in observation counts could potentially impact the robustness of statistical inferences. To address this issue, I will explore various methodologies that could mitigate the effects of this limitation and enhance the statistical power of the analysis.

Research Design

Single variable models with fixed effects

Using firm-level industrial subsidy data, I first test Hypotheses 1a to 1d by including the main explanatory variables in an Ordinary Least Squares (OLS) model one by one:

$$\begin{aligned} ln \text{ Subsidy Count/Amount}_{it} =& \beta_0 + \beta_1 X_{it} + \beta_2 \text{Firm Size}_{it} \\ &+ \alpha_t^{\text{Year}} + \alpha_i^{\text{State}} + \alpha_i^{\text{2d NAICS}} + \varepsilon_{it} \end{aligned} \tag{1}$$

These models examine the impact of firms' foreignness on subsidy count and amount, with the values log-transformed to address right-skewness. Note that X_{it} represents the variables *US Companies*, *US Suppliers*, *American Customers*, *Foreign Subsidiaries*, and *H1B Application* for each respective model. I include four versions of each of these models: one without any controls; one with year and state fixed effects; one with year, state, government level, and industry fixed effects; and one with all fixed effects and the firm size control. The inclusion of fixed effects for industry (using 2-digit NAICS codes), subsidy-providing government levels (federal, state, and local), year, and state allows for control over unobserved variability across different industries, policy-making units, temporal changes, and regional differences. This approach ensures a more precise estimation of the variables of interest by isolating the influence of operational factors, such as the foreignness of suppliers, customers, and workers, on subsidy allocation.

Testing Hypothesis 1 involves examining the β_1 coefficients across five cases from Equation 1. Hypothesis 1a posits that American companies receive more subsidies, with the binary *US Companies* variable (1 for American firms, 0 for foreign firms) leading to the expectation $\beta_1 >$

0. Hypothesis 1b suggests that companies with American suppliers receive more industrial support, where the *US Suppliers* variable (binary) also implies $\beta_1 > 0$. Hypothesis 1c indicates that companies serving American customers will obtain more subsidies, translating similarly to $\beta_1 > 0$ with the *American Customers* variable (binary). Hypothesis 1d asserts that firms with more American workers receive more support. Here, *Foreign Subsidiaries* and *H1B Applications* are proxies for worker foreignness; $\beta_1 < 0$ for both, reflecting the tendency to outsource or hire foreign workers.

Multiple variable models with fixed effects

To further test Hypothesis 1, I incorporate all five explanatory variables into a single OLS model with fixed effects and firm size control:

$$\begin{aligned} ln\ \text{Subsidy Count/Amount}_{it} = \beta_0 &+ \beta_1 \text{US Companies}_{it} + \beta_2 \text{US Suppliers}_{i,t-1} \\ &+ \beta_3 \text{American Customer}_{i,t-1} + \beta_4 \text{Foreign Subsidiaries}_{it} \\ &+ \beta_5 \text{H1B Applications}_{i,t-1} + \beta_6 \text{Firm Size}_{it} \\ &+ \alpha_t^{\text{Year}} + \alpha_i^{\text{State}} + \alpha_i^{\text{2d NAICS}} + \varepsilon_{it} \end{aligned} \tag{2}$$

This comprehensive model evaluates the combined impact of firms' characteristics on subsidy count and amount. The model includes the variables *US Companies*, *US Suppliers*, *American Customers*, *Foreign Subsidiaries*, and *H1B Applications*, controlling for firm size and incorporating fixed effects for industry, government level, year, and state. Again, the multiple variable model is estimated in four versions: one without any controls; one with year and state fixed effects; one with year, state, government level, and industry fixed effects; and one with all fixed effects and the firm size control.

Furthermore, the theoretical expectations for the β coefficients are consistent with those in the single variable models: $\beta_1 > 0$ for *US Companies*, $\beta_2 > 0$ for *US Suppliers*, $\beta_3 > 0$ for *American Customers*, $\beta_4 < 0$ for *Foreign Subsidiaries*, and $\beta_5 < 0$ for *H1B Applications*, reflecting the anticipated relationships between these variables and subsidy allocation.

Results

Findings from single variable models

I first report the findings of single variable models, testing Hypothesis 1a to 1d. First, Table 1 presents the results of our analysis testing Hypothesis 1a, which examines the relationship

between firm nationality and the receipt of industrial subsidies. Overall, the results support Hypothesis 1a, which predicts that US companies will receive more industrial support from governments.

Table 1: Testing Hypothesis 1a - Firm Nationality and Industrial Subsidies

	Log Count of Industrial Subsidy			
	1	2	3	4
US Companies > 0	0.0284**	0.0572**	0.0626**	0.0633**
	(0.001)	(0.001)	(0.013)	(0.014)
	Log Amount of Industrial Subsidy			
	1	2	3	4
US Companies > 0	0.3270**	0.6536**	0.7162**	0.7336**
	(0.010)	(0.014)	(0.158)	(0.164)
Firm Size Control	No	Yes	Yes	Yes
Year & State FE	No	No	Yes	Yes
Industry FE	No	No	No	Yes
Observations	243649	170727	170727	170681

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

Starting with the logged count of industrial subsidies, the results indicate a significant positive association between being a U.S. company and the number of industrial subsidies received. In Model 1, the coefficient is 0.0284, significant at the 1% level. This association strengthens after controlling for various factors, with Model 2 (firm size control) showing a coefficient of 0.0572, Model 3 (year and state fixed effects) showing 0.0626, and Model 4 (industry fixed effects) showing 0.0633, all significant at the 1% level. Substantively, this implies that U.S. companies have a 6.54% higher chance of receiving an industrial subsidy, holding all other factors constant.

In the logged amount of industrial subsidies, U.S. companies also show a positive association. Model 1 has a coefficient of 0.3270, significant at the 1% level. Including firm size control in Model 2 increases the coefficient to 0.6536, which remains significant at the 1% level. Model 3, with year and state fixed effects, presents a coefficient of 0.7162, significant at the 1% level. Model 4, with industry fixed effects, shows a coefficient of 0.7336, also significant at the 1% level. Substantively, this implies that U.S. companies tend to receive 108.27% more in subsidy amounts, holding all other factors constant.

These findings suggest that US companies are more likely to receive industrial subsidies and in greater amounts. The consistently significant coefficients across all models for both the count and amount of subsidies indicate that firm nationality influences subsidy allocation. The effect remains strong even with additional controls such as firm size, year, state, and industry fixed effects. Overall, the results support Hypothesis 1a, indicating that US firms have a higher likelihood and amount of industrial subsidies compared to non-US firms.

Table 2 tests Hypothesis 1b, which examines the impact of supplier nationality on industrial subsidies. The results generally support the prediction of Hypothesis 1b, indicating that firms with American suppliers will receive more industrial subsidies from governments. Beginning with the log count of industrial subsidies, there is a significant positive relationship between having US suppliers in the previous period and the number of industrial subsidies received. In Model 1, the coefficient is 0.0702, significant at the 1% level. This positive association remains in Models 2, 3, and 4, with coefficients of 0.0822, 0.0569, and 0.0573, respectively, all significant at the 1% level. Substantively, this implies that companies working exclusively with American suppliers tend to receive 5.9% more benefits compared to companies working only with foreign suppliers, holding all other factors constant.

Table 2: Testing Hypothesis 1b - Supplier Nationality and Industrial Subsidies

	Log Count of Industrial Subsidy			
	1	2	3	4
US Suppliers$_{t-1} > 0$	0.0702**	0.0822**	0.0569**	0.0573**
	(0.009)	(0.009)	(0.009)	(0.005)
	Log Amount of Industrial Subsidy			
	1	2	3	4
US Suppliers$_{t-1} > 0$	0.8367**	0.9706**	0.7608**	0.7427**
	(0.101)	(0.098)	(0.098)	(0.097)
Firm Size Control	No	Yes	Yes	Yes
Year & State FE	No	No	Yes	Yes
Industry FE	No	No	No	Yes
Observations	33039	32647	32647	32647

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

For the log amount of industrial subsidies, having US suppliers in the previous period is also associated with a significantly higher amount of subsidies. Model 1 shows a coefficient

of 0.837, significant at the 1% level. This positive effect increases in Models 2, with a coefficient of 0.971, and is slightly lower in Models 3 and 4, with coefficients of 0.761 and 0.743, respectively, all significant at the 1% level. Substantively, this implies companies working with US suppliers tend to receive 110.15% more in subsidies, holding all other factors constant.

These findings reveal that firms sourcing from US suppliers are more frequently and generously awarded industrial subsidies. Even after accounting for variables such as firm size, year, state, and industry-specific factors, the data consistently show significant positive correlations for both the frequency and magnitude of subsidies. This underscores the importance of supplier nationality in the distribution of subsidies. Consequently, these results robustly affirm Hypothesis 1b, highlighting that firms with US suppliers receive a greater number and higher amounts of industrial subsidies.

Table 3 presents the results of our analysis testing Hypothesis 1c, which examines the relationship between customer nationality and the receipt of industrial subsidies. The initial finding contradicts the hypothesis that governments provide more support for firms serving domestic consumers. For the log count of industrial subsidies, the results show a significant negative relationship between having American customers in the previous period and the number of industrial subsidies received. In Model 1, the coefficient is -0.035, significant at the 1% level. However, this negative association turns positive in Models 2, 3, and 4, with coefficients of 0.018, 0.006, and 0.006, respectively, all significant at the 1% or 5% level. Yet, the substantive effect is quite small, implying that firms catering only to American customers have a 0.6% higher chance of receiving an industrial subsidy compared to firms that exclusively export.

In the second section, examining the log amount of industrial subsidies, the presence of American customers in the previous period is also associated with significantly lower subsidy amounts in Model 1, with a coefficient of -0.424, significant at the 1% level. This effect changes direction in Models 2, 3, and 4, with positive coefficients of 0.184, 0.072, and 0.069, respectively, all significant at the 1% or 5% level. Substantively, this implies that companies serving American customers tend to receive 7.14% more in subsidy amounts, holding all other factors constant.

These findings suggest that while firms having American customers initially receive fewer industrial subsidies and in smaller amounts, this relationship becomes positive when controlling for additional factors such as firm size, year, state, and industry fixed effects. The initial significant negative coefficients in Model 1 indicate that customer nationality plays

Table 3: Testing Hypothesis 1c - Customer Nationality and Industrial Subsidies

	Log Count of Industrial Subsidy			
	1	2	3	4
Åmerican Customers$_{t-1} > 0$	-0.0350**	0.0181**	0.0055*	0.0057*
	(0.003)	(0.003)	(0.003)	(0.003)
	Log Amount of Industrial Subsidy			
	1	2	3	4
American Customers$_{t-1} > 0$	-0.4244**	0.1839**	0.0719*	0.0689*
	(0.036)	(0.033)	(0.033)	(0.033)
Firm Size Control	No	Yes	Yes	Yes
Year & State FE	No	No	Yes	Yes
Industry FE	No	No	No	Yes
Observations	93418	92180	92180	92180

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

a crucial role in subsidy allocation. However, the positive coefficients in subsequent models suggest that other factors, including firm size, may moderate this relationship. These results provide partial support for Hypothesis 1c, indicating a complex relationship where firms with American customers might initially receive fewer and smaller subsidies, but this effect is influenced by additional variables.

Tables 4 and 5 present the results of our analysis testing Hypothesis 1d, which examines the relationship between worker nationality — proxied by the proportion of foreign subsidiaries and the number of H1B applications — and the receipt of industrial subsidies. The findings are quite mixed, yet they overall contradict the hypothesis, as firms more likely to employ foreign workers are actually receiving more industrial support from the government.

Starting with Table 4, which investigates the impact of foreign subsidiaries, the results show a mixed relationship between the proportion of foreign subsidiaries and the receipt of industrial subsidies. In the log count of industrial subsidies, Model 1 and 2 show significant negative coefficients of -0.0124 and -0.0382 at the 1% level, indicating that firms with foreign subsidiaries are less likely to receive subsidies. However, in Models 3 and 4, which include year, state, and industry fixed effects, the coefficients turn positive (0.0364 and 0.0276, respectively) and remain significant at the 1% level. Similarly, in the log amount of industrial subsidies, Model 1 and 2 shows a significant negative coefficient of -0.1458 and -0.4406 at

Table 4: Testing Hypothesis 1d
- Worker Nationality (Proportion of Foreign Subsidiary) and Industrial Subsidies

	Log Count of Industrial Subsidy			
	1	2	3	4
Foreign Subsidiaries < 0	-0.0124**	-0.0382**	0.0364**	0.0276**
	(0.001)	(0.001)	(0.003)	(0.003)
	Log Amount of Industrial Subsidy			
	1	2	3	4
Foreign Subsidiaries < 0	-0.1458**	-0.4406**	0.3907**	0.2902**
	(0.010)	(0.015)	(0.031)	(0.031)
Firm Size Control	No	Yes	Yes	Yes
Year & State FE	No	No	Yes	Yes
Industry FE	No	No	No	Yes
Observations	241665	169502	169502	169456

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

the 1% level. This negative effect shifts to positive in Models 3 and 4 (0.3907 and 0.2902, respectively), all significant at the 1% level. All in all, holding all other factors constant, firms with exclusively foreign subsidiaries are 2.796% more likely to receive an industrial subsidy in count and 33.6% more in amount.

Table 5, which examines the impact of H1B applications, shows a consistent positive relationship between the number of H1B applications and the receipt of industrial subsidies. Contrary to my prediction that firms hiring foreign workers would receive fewer subsidies, 8 out of 8 coefficients indicate the opposite relationship. In the log count of industrial subsidies, Model 1 shows a significant positive coefficient of 0.053, and this positive association remains stable in Models 2, 3, and 4 (0.0195, 0.0088, and 0.0068, respectively), all significant at the 1% level. In the log amount of industrial subsidies, the logged number of H1B applications is associated with a higher amount of subsidies across all models. Model 1 shows a coefficient of 0.7099, significant at the 1% level. This positive effect decreases in Models 2 and 3 (0.3341 and 0.1866, respectively), remaining significant at the 1% level. In Model 4, the coefficient is 0.1623, also significant at the 1% level.

These findings suggest a nuanced relationship between worker nationality proxies and industrial subsidies. Initially, firms with a higher proportion of foreign subsidiaries appear

Table 5: Testing Hypothesis 1d
- Worker Nationality (Number of H1B Applications) and Industrial Subsidies

	Log Count of Industrial Subsidy			
	1	2	3	4
H1B Applications$_{t-1} < 0$	0.0530**	0.0195**	0.0088**	0.0068**
	(0.002)	(0.002)	(0.002)	(0.002)
	Log Amount of Industrial Subsidy			
	1	2	3	4
H1B Applications$_{t-1} < 0$	0.7099**	0.3341**	0.1866**	0.1623**
	(0.024)	(0.023)	(0.023)	(0.023)
N	204702	150606	150606	150565
Firm Size Control	No	Yes	Yes	Yes
Year & State FE	No	No	Yes	Yes
Industry FE	No	No	No	Yes
Observations	204702	150606	150606	150565

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

less likely to receive subsidies. However, this relationship becomes positive and significant when additional fixed effects are considered. Conversely, the number of H1B applications consistently predicts a higher likelihood and amount of subsidies, although the effect diminishes slightly with the inclusion of fixed effects. These results support Hypothesis 1d, indicating that both the presence of foreign subsidiaries and the number of H1B applications are significant factors in subsidy allocation, moderated by model specifications.

The analysis tests Hypotheses 1a to 1d, examining the relationship between firm characteristics and the receipt of industrial subsidies. Hypothesis 1a finds that U.S. companies receive more industrial subsidies, with significant positive coefficients for both the count and amount of subsidies in all models. Hypothesis 1b shows that firms with American suppliers receive more subsidies, with positive and significant coefficients, suggesting that supplier nationality impacts subsidy allocation. Hypothesis 1c has mixed findings: significant negative coefficients in the initial model indicate that the foreignness of customers decreases subsidy allocation, but a positive relationship emerges when firm size control and fixed effects are included. Hypothesis 1d's results mostly contradict the prediction: firms with foreign subsidiaries receive more subsidies when accounting for fixed effects, while those with more

H1B applications consistently receive more subsidies. Overall, the findings suggest that firm nationality, supplier and customer nationality, and worker nationality proxies influence industrial subsidy allocation, moderated by firm size and other controls.

In summary, single-variable models support Hypotheses 1a, 1b, and 1c but contradict Hypothesis 1d. Specifically, the results indicate that U.S. companies and those with American suppliers receive more industrial subsidies from the government, and firms serving American customers are more likely to be subsidized. Conversely, firms employing American workers receive less support, as firms hiring foreign workers and those with foreign subsidiaries receive more industrial subsidies. This is surprising, given that industrial subsidies are often promoted for local job creation and employment effects. These findings necessitate further discussion.

Findings from multi-variable models

Table 6 presents a comprehensive analysis testing Hypothesis 1, which examines the relationship between various firm foreignness measures and the receipt of industrial subsidies. The results are mostly consistent with single-variable models, partly supporting Hypothesis 1, that firms serving national interests receive more industrial support from governments. Note that the number of observations has reduced since each explanatory variable has limited coverage of firm-year units.

The analysis shows that US companies are significantly positively associated with subsidies across all models, with the coefficient decreasing from 0.272 in Model 1 to 0.192 in Model 4, indicating the influence of additional controls. Firms working with American suppliers also show a positive relationship with subsidies, with coefficients ranging from 0.062 to 0.033 in Models 1 to 4. Conversely, firms serving American customers initially exhibit a negative relationship with subsidies in Model 1 with a coefficient of -0.036, but this trend reverses in Models 2 to 4 with positive coefficients ranging from 0.026 to 0.042, highlighting changes introduced by additional controls. Foreign subsidiaries display a strong positive association with subsidies, with coefficients decreasing from 0.415 in Model 1 to 0.147 in Model 4, remaining significant, which shows that the fixed effects moderate but do not nullify this relationship. Finally, H1B applications show a positive association in Models 1 and 2, with coefficients from 0.024 to 0.007, while Models 3 and 4 show a minimal to negative association, highlighting the moderating effect of multiple fixed effects. Overall, the findings are consistent with the single-variable models.

For the analysis of the amount of industrial subsidy (Table 7), the coefficients are sig-

Table 6: Testing Hypothesis 1 - All Firm Foreignness Factors and Subsidy Count

	Log Count of Industrial Subsidy			
	1	2	3	4
US Companies	0.2715**	0.2368**	0.2094**	0.1918**
	(0.013)	(0.012)	(0.075)	(0.074)
US Suppliers$_{t-1}$	0.0616**	0.0327**	0.0329**	0.0325**
	(0.011)	(0.010)	(0.011)	(0.011)
American Customers$_{t-1}$	-0.0362**	0.0259**	0.0381**	0.0424**
	(0.008)	(0.008)	(0.007)	(0.007)
Foreign Subsidiaries	0.4148**	0.1434**	0.1489**	0.1470**
	(0.016)	(0.015)	(0.014	(0.014)
H1B Applications$_{t-1}$	0.0238**	0.0073**	-0.0001	0.0007
	(0.003)	(0.003)	(0.003)	(0.003)
Firm Size Control	No	Yes	Yes	Yes
Year & State FEs	No	No	Yes	Yes
Industry FEs	No	No	No	Yes
Observations	26732	26613	26613	26613

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

nificantly more substantial, yet the trends remain consistent. The analysis shows that US companies have a significantly positive association with subsidies across all models, with coefficients decreasing from 2.998 in Model 1 to 2.140 in Model 4, indicating the influence of additional controls. Firms working with American suppliers also display a positive relationship with subsidies, with coefficients ranging from 0.880 to 0.587 across all models, suggesting consistent positive associations even after controlling for various factors. In contrast, firms serving American customers initially show a negative relationship with subsidies in Model 1 with a coefficient of -0.504, but this becomes positive in subsequent models, reaching 0.448 in Model 4. Foreign subsidiaries exhibit a strong positive association with subsidies, with coefficients decreasing from 4.674 in Model 1 to 1.571 in Model 4, showing that firm size moderates but does not eliminate this relationship. Finally, H1B applications also show a positive association across all models, with coefficients ranging from 0.422 in Model 1 to 0.095 in Model 4, highlighting the moderating effect of firm size and other controls.

The analysis in Table 6 supports Hypothesis 1, indicating that firms aligned with national interests are more likely to receive industrial subsidies. US companies and those working with American suppliers consistently show a positive relationship with subsidies, while firms serv-

Table 7: Testing Hypothesis 1 - All Firm Foreignness Factors and Subsidy Amount

	Log Amount of Industrial Subsidy			
	1	2	3	4
US Companies	2.9983**	2.6016**	2.3720**	2.1395*
	(0.157)	(0.143)	(0.899)	(0.884)
US Suppliers$_{t-1}$	0.8802**	0.5561**	0.5923**	0.5872**
	(0.118)	(0.112)	(0.111)	(0.111)
American Customers$_{t-1}$	-0.5039**	0.1943*	0.3917**	0.4478**
	(0.102)	(0.095)	(0.094)	(0.094)
Foreign Subsidiaries	4.6741**	1.6175**	1.5953**	1.5706**
	(0.192)	(0.177)	(0.172)	(0.172)
H1B Applications$_{t-1}$	0.4215**	0.2356**	0.0850*	0.0945*
	(0.040)	(0.037)	(0.039)	(0.039)
Firm Size Control	No	Yes	Yes	Yes
Year & State FEs	No	No	Yes	Yes
Industry FEs	No	No	No	Yes
Observations	26732	26613	26613	26613

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

ing American customers also benefit, albeit with varying effects based on additional controls. The influence of foreign subsidiaries and the application for H1B visas on industrial subsidies appears mostly positive but moderates with further controls. Table 7 further reinforces these findings, showing that US companies and those connected with American suppliers receive higher subsidy amounts. Although firms serving American customers initially receive fewer subsidies, this trend reverses with added controls. The relationship between foreign subsidiaries and subsidy amounts is strong but diminishes with controls. Overall, the analysis suggests that government support is influenced by firms' foreignness in the supply chain, customer base, and workforce, with varying degrees of impact based on different controls.

Conclusion

I will summarize the contributions and then discuss the implications of this research for the future of industrial policy. Industrial policy has been a controversial issue in contemporary trade and globalized economies. While industrial policy aims to pursue national interests by enhancing comparative advantage and developing strategically important industries, the

liberalized economic order has made its implications and consequences more complex than ever. The literature suggests that politicians utilize industrial policy to enhance their political resources. Incumbents promote industrial policies to spur local economic growth and support local employment, thereby garnering political support from voters. As economic performance is a substantial factor in elections and constituencies, industrial policy has played a significant role in real politics.

An outstanding question in the literature is what determines the distribution of industrial subsidies. Studies on industrial policy have found that political institutions (McGillivray, 2004; Rickard, 2018), interstate competition (Baldwin and Krugman, 2004; Impullitti, 2010), and business capture (Jansa and Gray, 2016) are the most important factors explaining the making and implementation of industrial policy across countries and states. The underlying logic of each factor is that politicians have incentives to target specific entities and constituencies to garner political support and resources. Focusing on these motivations, I argue that incumbents direct industrial policy benefits to particular firms.

This paper builds upon the existing literature and makes several contributions. First, it focuses on the firm-level distribution of industrial subsidies, providing new insights for industrial policy across states and sectors. Second, it examines both theoretically and empirically the firm characteristics that represent the multifaceted nature of the contemporary economy. By considering the nationality of firms and the foreignness of their suppliers, customers, and workers, this study reveals who benefits or loses from industrial subsidy policies. Third, by examining firm size and uncovering its nuanced impact on the distribution of industrial subsidies, this paper underscores the influence of large firms in industrial policy. These contributions advance the literature on the political economy of industrial policy (McGillivray, 2004; Rickard, 2018; Slattery, 2023).

I find two main trends: one aligns with my theoretical prediction, while the other contradicts it. First, firms based in the United States and those with American businesses as their primary suppliers benefit from industrial policy subsidies. Supporting domestic firms and suppliers helps American businesses, and incumbents benefit from these subsidized companies' political support and potential reciprocation through campaign contributions and lobbying. Second, firms catering to domestic consumers and employing American workers receive less industrial support compared to firms with more foreign subsidiaries and those employing foreign workers through H1B visas, which receive more subsidies. This intriguing finding suggests that industrial policy does not directly benefit people as politicians often claim. While further examination is needed, I find that firm size is a confounding factor in

the relationship between these foreignness measures and industrial subsidy allocation.

The findings of this paper have significant implications for the future of industrial policy. They highlight the complexity and unintended consequences of current subsidy distribution practices. First, support for firms with American suppliers indicates that industrial policy can bolster domestic supply chains and strengthen national economic resilience. However, the lesser support for firms serving domestic consumers and employing American workers reveals a misalignment between policy goals and outcomes, as the benefits do not directly reach the intended populace.

Additionally, the greater subsidies for firms with foreign subsidiaries and those employing foreign workers through H1B visas raise questions about the national interest focus of these policies. Policymakers may need to re-evaluate subsidy allocation criteria to prioritize domestic economic and employment benefits. Furthermore, the influence of firm size on subsidy allocation highlights the disproportionate benefits received by larger firms, which could perpetuate economic inequality and market concentration. Future industrial policies should incorporate measures to ensure a more equitable distribution of benefits across firms of varying sizes, promoting more inclusive economic growth.

Finally, these findings suggest that rethinking industrial policy is necessary to better align subsidy distribution with national economic objectives and ensure that the benefits are broadly shared among all stakeholders. This research contributes to the discourse on the political economy of industrial policy, offering insights for more effective and equitable policy-making in the future.

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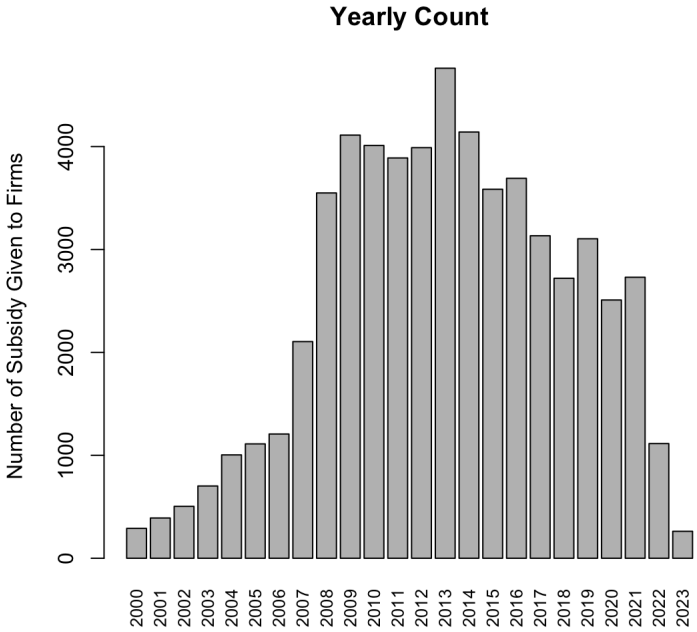
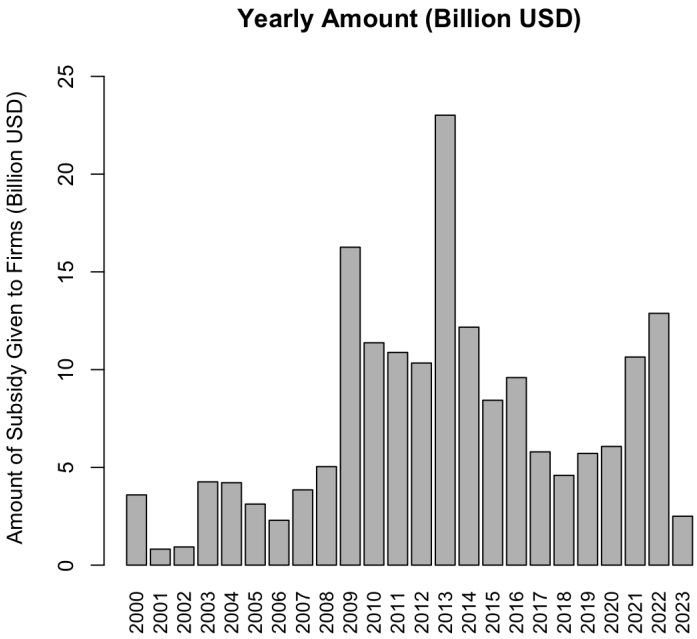
Appendix A

Table A1: Summary Statistics

	Count	Mean	SD	Min	Max
Subsidy Count	243649	0.09	0.89	0.00	196.00
Log of Subsidy Count	243649	0.05	0.21	0.00	5.28
Subsidy Amount	243649	0.00	0.00	0.00	0.00
Log of Subsidy Amount	243649	0.56	2.58	0.00	22.90
US Firms	243649	0.73	0.44	0.00	1.00
American Customers (t-1)	93418	0.44	0.31	0.00	1.00
US Suppliers (t-1)	33039	0.86	0.25	0.00	1.00
Foreign Subsidiary	241665	0.74	0.41	0.00	1.00
H1B Applications	243649	1.06	17.82	0.00	1817.00
Log Number of H1B Applications (t-1)	204702	0.10	0.49	0.00	7.51


Yearly Count
Number of Subsidy Given to Firms
0
1000
2000
3000
4000
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023


Yearly Amount (Billion USD)
Amount of Subsidy Given to Firms (Billion USD)
0
5
10
15
20
25
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023

Appendix B

Table A2: Industrial Subsidy for Exporting/Importing Industries

	Log Count of Industrial Subsidy				Log Amount
Exporting	0.0153**	0.0255*	0.0240*	0.0240*	0.1436*
	(0.005)	(0.011)	(0.011)	(0.011)	(0.067)
Importing	-0.0175**	-0.0375**	-0.0337**	-0.0337**	-0.1891**
	(0.005)	(0.011)	(0.010)	(0.010)	(0.066)
US Customers		0.5518**	0.4652**	0.4652**	1.7531**
		(0.071)	(0.073)	(0.073)	(0.481)
US Suppliers		0.0453	-0.0338	-0.0338	-0.1402
		(0.059)	(0.057)	(0.057)	(0.412)
Domestic Subsidiaries			0.5300**	0.5300**	2.8968**
			(0.060)	(0.060)	(0.416)
H1B Applications			0.0515**	0.0515**	0.1094*
			(0.008)	(0.008)	(0.049)
Firm size	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
NAICS 2-digit FE	Yes	Yes	Yes	Yes	Yes
Observations	5979	3171	3170	3170	3170

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

Appendix C

Table A3: Models including Interaction terms with logged Number of Employee

	Log Count of Industrial Subsidy				
ln Employment	0.0571**	0.0716**	0.0963**	0.1020**	0.0930**
	(0.001)	(0.005)	(0.002)	(0.001)	(0.001)
US Binary	-0.0034				
	(0.013)				
US Companies X Emp. Size	0.0517**				
	(0.002)				
US Suppliers (t-1)		-0.0747**			
		(0.010)			
US Suppliers X Emp. Size		0.0598**			
		(0.005)			
American Customers (t-1)			-0.0114**		
			(0.003)		
American Customers X Emp. Size			0.0168**		
			(0.003)		
Foreign Subsidiary Prop.				0.0602**	
				(0.002)	
Foreign Subsidiaries X Emp. Size				-0.0315**	
				(0.002)	
ln Number of H1B Applications (t-1)					-0.0190**
					(0.002)
H1B Applications X Emp. Size					0.0121**
					(0.001)
State FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes

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

Table A4: Models including Interaction terms with logged Number of Employee

	Log Amount of Industrial Subsidy				
ln Employment	0.6472**	0.8899**	1.1529**	1.1721**	1.0496**
	(0.015)	(0.057)	(0.020)	(0.013)	(0.011)
US Binary	-0.0359				
	(0.161)				
US Companies X Emp. Size	0.5969**				
	(0.019)				
US Suppliers (t-1)		-0.5575**			
		(0.124)			
US Suppliers X Emp. Size		0.5898**			
		(0.063)			
American Customers (t-1)			-0.0396		
			(0.032)		
American Customers X Emp. Size			0.1066**		
			(0.041)		
Foreign Subsidiary Prop.				0.6834**	
				(0.029)	
Foreign Subsidiaries X Emp. Size				-0.3814**	
				(0.023)	
H1B Applications (t-1)					-0.2798**
					(0.032)
H1B Applications X Emp. Size					0.2068**
					(0.018)
State FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes

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

Table A5: Models including Interaction terms with logged Revenue

	Log Count of Industrial Subsidy				
ln Revenue	0.0185**	0.0446**	0.0439**	0.0326**	0.0310**
	(0.000)	(0.003)	(0.001)	(0.000)	(0.000)
US Binary	-0.0512**				
	(0.011)				
US Companies X Rev. Size	0.0178**				
	(0.000)				
US Suppliers (t-1)		-0.1417**			
		(0.020)			
US Suppliers X Rev. Size		0.0281**			
		(0.003)			
American Customers (t-1)			0.0071		
			(0.005)		
American Customers X Rev. Size			-0.0034**		
			(0.001)		
Foreign Subsidiary Prop.				0.0963**	
				(0.002)	
Foreign Subsidiaries X Rev. Size				-0.0076**	
				(0.001)	
H1B Applications (t-1)					-0.1121**
					(0.005)
H1B Applications X Rev. Size					0.0161**
					(0.001)
State FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes

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

Table A6: Models including Interaction terms with logged Revenue

	Log Amount of Industrial Subsidy				
ln Revenue	0.2116**	0.5500**	0.5184**	0.3803**	0.3534**
	(0.005)	(0.034)	(0.008)	(0.004)	(0.004)
US Binary	-0.5970**				
	(0.135)				
US Companies X Rev. Size	0.2090**				
	(0.006)				
US Suppliers (t-1)		-1.2283**			
		(0.248)			
US Suppliers X Rev. Size		0.2818**			
		(0.037)			
American Customers (t-1)			0.1427*		
			(0.060)		
American Customers X Rev. Size			-0.0505**		
			(0.015)		
Foreign Subsidiary Prop.				1.1229**	
				(0.029)	
Foreign Subsidiaries X Rev. Size				-0.0981**	
				(0.007)	
ln Number of H1B Applications (t-1)					-1.5561**
					(0.072)
H1B Applications X Rev. Size					0.2305**
					(0.011)
State FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes

$+ \ p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Appendix D

Table A7: Republican governors allocate more industrial subsidies to foreign firms, with no significant increase for domestic-oriented companies.

	Log Count of Industrial Subsidy									
Republican Governor	0.003+	0.073*	0.008	-0.002	0.009**	0.007*	0.003*	0.003*	0.004**	0.005**
	(0.001)	(0.032)	(0.005)	(0.016)	(0.002)	(0.003)	(0.001)	(0.001)	(0.002)	(0.002)
US Firms	0.122**	0.157**								
	(0.017)	(0.027)								
US Firms X Rep. Governor		-0.07*								
		(0.032)								
US Suppliers (t-1)			0.06**	0.054**						
			(0.009)	(0.013)						
US Suppliers X Rep. Governor				0.012						
				(0.017)						
US Customers (t-1)					-0.0004	-0.0018				
					(0.003)	(0.004)				
US Customers X Rep. Governor						0.003				
						(0.005)				
Foreign Subsidiary							0.054**	0.052**		
							(0.005)	(0.006)		
For. Subsidiary X Rep. Governor								0.004		
								(0.009)		
H1B Applications (t-1)									0.001	0.003
									(0.002)	(0.002)
H1B X Rep. Governor										-0.005
										(0.003)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Size Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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

Table A8: Republican governors tend to favor foreign firms with more industrial subsidies, without significantly increasing support for domestic-oriented companies

	Log Amount of Industrial Subsidy									
Republican Governor	0.0467*	0.853*	0.094	0.1796	0.11**	0.068	0.052**	0.057**	0.069**	0.077**
	(0.012)	(0.426)	(0.067)	(0.204)	(0.027)	(0.043)	(0.019)	(0.018)	(0.020)	(0.020)
US Companies	1.488**	1.893**								
	(0.218)	(0.363)								
US Firms X Rep. Governor		-0.807+								
		(0.426)								
US Suppliers (t-1)			0.68**	0.732**						
			(0.112)	(0.165)						
US Suppliers X Rep. Governor				-0.098						
				(0.221)						
American Customers (t-1)					-0.018	-0.068				
					(0.034)	(0.052)				
US Customers X Rep. Governor						0.090				
						(0.067)				
Foreign Subsidiary Prop.							0.685**	0.74**		
							(0.057)	(0.081)		
For. Subsidiary X Rep. Governor								-0.115		
								(0.116)		
H1B Applications (t-1)									0.076**	0.092**
									(0.023)	(0.028)
H1B X Rep. Governor										-0.046
										(0.040)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Size Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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

Table A9: Republican presidents direct more industrial subsidies to foreign firms and suppliers, yet they support firms serving American customers.

	Log Count of Industrial Subsidy									
Republican President	0.007**	0.01**	0.033*	0.061**	0.009+	0.004	0.007**	0.007**	0.01**	0.011**
	(0.002)	(0.002)	(0.013)	(0.021)	(0.005)	(0.005)	(0.002)	(0.002)	(0.003)	(0.004)
US Companies	0.014**	0.016**								
	(0.003)	(0.003)								
US Firms X Rep. President		-0.003**								
		(0.001)								
US Suppliers (t-1)			-0.003	0.017						
			(0.008)	(0.012)						
US Suppliers X Rep. President				-0.035*						
				(0.015)						
American Customers (t-1)					-0.003*	-0.010**				
					(0.001)	(0.002)				
US Customers X Rep. President						0.013**				
						(0.002)				
Foreign Subsidiary Prop.							0.012**	0.013**		
							(0.002)	(0.002)		
For. Subsidiary X Rep. President								-0.001		
								(0.001)		
H1B Applications (t-1)									0.001	0.002
									(0.001)	(0.001)
H1B X Rep. President										-0.002
										(0.002)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Size Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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

Table A10: Republican presidents are more inclined to provide industrial subsidies to foreign firms, yet they support firms serving American customers.

	Log Amount of Industrial Subsidy									
Republican President	0.04**	0.054**	0.098	0.205	0.031	-0.005	0.037**	0.039**	0.025	0.028
	(0.012)	(0.015)	(0.090)	(0.128)	(0.038)	(0.040)	(0.012)	(0.012)	(0.026)	(0.026)
US Companies	0.085**	0.095**								
	(0.021)	(0.022)								
US Firms X Rep. President		-0.018+								
		(0.011)								
US Suppliers (t-1)			-0.049	0.027						
			(0.045)	(0.078)						
US Suppliers X Rep. President				-0.133						
				(0.091)						
American Customers (t-1)					0.018+	-0.036+				
					(0.010)	(0.020)				
US Customers X Rep. President						0.089**				
						(0.022)				
Foreign Subsidiary Prop.							0.061**	0.067**		
							(0.012)	(0.014)		
For. Subsidiary X Rep. President								-0.012		
								(0.012)		
H1B Applications (t-1)									0.011	0.014
									(0.010)	(0.012)
H1B X Rep. President										-0.009
										(0.016)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Size Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

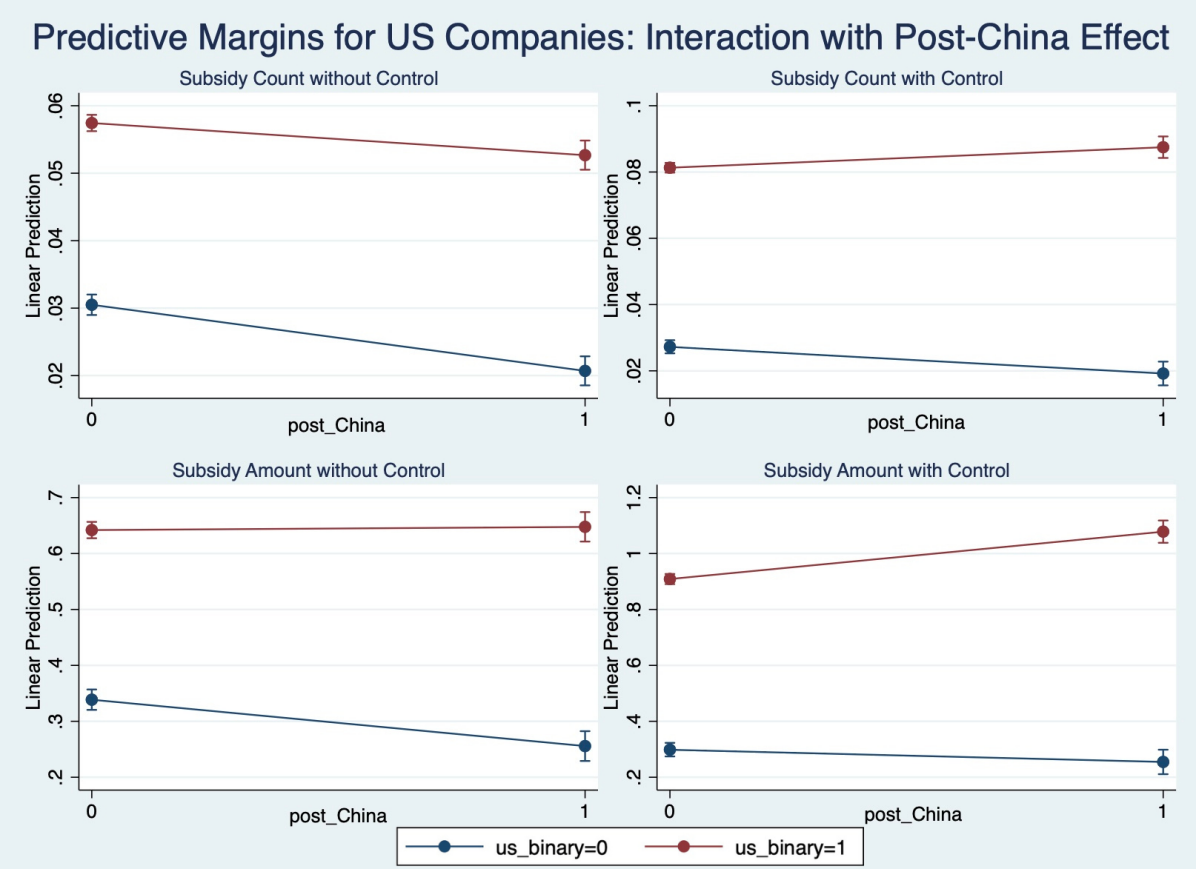
$+ p < 0.10$, $* p < 0.05$, $** p < 0.01$

Appendix E

Table A11: Industrial Subsidy and US Companies After Global Trade Competition

	(1)	(2)	(3)	(4)	(5)
US Binary	0.0284**	0.0572**	0.0560**	0.0613**	0.0627**
	(0.001)	(0.001)	(0.001)	(0.013)	(0.014)
US * Global Competition			0.0062**	0.0070*	0.0030
			(0.002)	(0.003)	(0.003)
Firm Size Control	No	Yes	Yes	Yes	Yes
State FE	No	No	No	Yes	Yes
Year FE	No	No	No	Yes	Yes
Industry FE	No	No	No	No	Yes
Observations	243649	170727	170727	170727	170681

$+ \ p < 0.10$, $^{*} \ p < 0.05$, $^{**} \ p < 0.01$



Appendix F

Table A12: Subsidy Allocation by Government Levels in the US

	All Subsidized		Local		State		Federal	
US Companies	0.0206*	0.0853**	-0.0307+	-0.0239	0.0382**	0.0880**	0.0719	0.3104*
	(0.009)	(0.019)	(0.016)	(0.033)	(0.010)	(0.021)	(0.048)	(0.137)
US Suppliers		-0.0656*		0.0349		0.0235		-0.7909**
		(0.028)		(0.037)		(0.019)		(0.199)
American Customers		0.0357*		0.0574*		0.0527**		-0.1133
		(0.014)		(0.026)		(0.017)		(0.090)
Foreign Subsidiary Prop.		0.0871**		0.0373		0.0927**		0.1879
		(0.024)		(0.040)		(0.026)		(0.179)
H1B Applications		-0.0092**		-0.0070		-0.0049		-0.0541**
		(0.003)		(0.009)		(0.004)		(0.019)
Firm Size Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13989	7238	2744	1394	9898	5294	1297	514