The Effect of Firm Lobbying on High-Skilled Visa Adjudication*

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Abstract

Skilled foreign-born workers are critical to firms. Yet political or cultural factors can lead governments to restrict skilled immigration. To what extent, and how, does lobbying help firms overcome immigration barriers? This study explores these questions by focusing on the case of U.S. firms and an exogenous increase in H-1B high-skilled visa denial rates following the election of Trump in 2016. I construct an original firm-level dataset that combines the universe of U.S. temporary high-skilled visa petitions through 2017 with firms' immigration lobbying reports and financial information. Leveraging the data and text analysis, I document key stylized facts about U.S. immigration lobbying behavior: who, how, and what firms lobby. Using a difference-in-differences design, I find that firms' bureaucratic lobbying under the Trump administration reduced denial rates on their visa petitions by at least 4.5 percentage points. These findings bridge existing research on immigration policymaking and lobbying effectiveness.

Key Words: Immigration, Firms, Lobbying, Visas, Bureaucracy

Short Title: The Effect of Firm Lobbying

*Replication files are available in the *JOP* Dataverse (https://dataverse.harvard.edu/dataverse/jop). The empirical analysis has been successfully replicated by the *JOP* replication analyst. An appendix with supplementary material is available in the online edition.

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Introduction

Highly skilled foreign-born workers are critical to firms' productivity and performance (Kerr and Lincoln 2010). Despite firms' need for these workers or the broader benefits they bring to the economy,[1] political or cultural factors can still lead governments to restrict their entry (Hopkins 2010; Norris and Inglehart 2019). When confronted with unfavorable policy environments, firms are known to lobby.[2] In fact, studies show that firms spend significantly more money on lobbying than other means such as campaign contributions (Figueiredo and Richter 2014)

Yet, despite the prominence of firm lobbying, our understanding of its influence on immigration policymaking has been limited. On the one hand, the immigration literature has focused mainly on public attitudes and overlooked firms.[3] This is a critical oversight because studies frequently find a notable gap between hostile public attitudes and more receptive government policy outputs, suggesting that interest groups and businesses may play a key role (Freeman and Tendler 2012). Furthermore, the structure of skilled admissions is often designed to allow firms themselves to select the workers they want (Kerr, Kerr, and Lincoln 2015, p. 148). Thus, firms should play a central role in, at the very least, skilled immigration policymaking. On the other hand, the empirical

[1]For example, benefits regarding innovation (Kerr and Lincoln 2010) and tax contributions (National Academies 2017, p. 422).

[2]Following Bombardini and Trebbi (2020), I define lobbying as "the process of political influence by corporations and other business interests on the adoption, retention, or amendment of public policy through selective communication of information and material exchange with political officials."

[3]The important seminal work by Peters (2014, 2017) on firms and low-skilled immigration policy is a rare exception and brings the focus back to firms.

lobbying literature emphasizes firms, but it has neglected immigration compared to other key policy areas of economic globalization, such as trade and finance (Figueiredo and Richter 2014, p. 168). Since policy barriers to immigration and trade can jointly shape firms' decision to stay or move overseas (Peters 2014, 2017), the underdevelopment of firms' immigration lobbying in the literature thus precludes insights on issues such as the politics of global value chains, trade, and offshoring (e.g., Owen and Johnston 2017; Rickard 2021).

An important emerging literature has sought to improve our understanding by examining firms' immigration lobbying activities (e.g., Kerr, Lincoln, and Mishra 2014; Peters 2014, 2017). However, most of this research has focused on explaining lobbying behavior (e.g., Kerr, Lincoln, and Mishra 2014), as opposed to identifying the effects of lobbying. Furthermore, extant attempts at assessing firms' lobbying impact on immigration policy have only been able to do so indirectly at an aggregated industry level (e.g., Facchini, Mayda, and Mishra 2011; Peters 2017). To the best of my knowledge, no study has examined its impact on policy outcomes directly at the *firm* level. For many researchers, data availability and inference challenges have limited studies on the causal effect of lobbying behavior (Figueiredo and Richter 2014). Thus, while lobbying is often assumed to be effective, empirical assessments of whether and how lobbying helps firms overcome immigration barriers, especially under hostile political environments, are still lacking.

This study provides such a firm-level assessment. To overcome challenges to causal inference, I use a Difference-in-Differences (DiD) research design that focuses on the case of U.S. firms and an exogenous increase in H-1B high-skilled visa denial rates triggered by the election of Donald Trump in November 2016. While Trump's anti-immigration stance was well known during his campaign (Timm 2016), the election results came as a shock—all major vote forecasters predicted a Clinton victory (Kennedy et al. 2018). Since the start of the Trump administration in 2017, it

actively sought to restrict the entry of H-1B high-skilled foreign workers through increased visa denial rates (National Foundation for American Policy 2020), higher processing fees as well as longer wait times (Anderson 2020), and outright bans.[4] Notably, these restrictions have taken the form of changes in rulemaking and implementation instead of new laws (USCIS 2017a), which created room for firms to lobby for firm-specific protection.[5] As such, my identification strategy exploits increases in the value and lobbying of skilled visas that stemmed from the unexpected election result. Specifically, I assess whether firms that lobbied on immigration during the Trump administration (the treatment group) experienced smaller increases in high-skilled visa denial rates than firms that did not lobby during the same period (the control group). By comparing the before-and-after changes in denial rates for both treatment and control groups, the DiD design helps account for biases due to (1) systematic differences between firms that lobby and those that do not (Kerr, Lincoln, and Mishra 2014), and (2) general lobbying trends in the United States.

To overcome data challenges, I constructed an original dataset that merges the universe of all U.S. firms that petitioned for temporary high-skilled visa workers (H-1B and L-1) between 1991 and 2017 ($\approx$ 480,000 firms) with their immigration lobbying reports ($\approx$ 7300 reports between 1999 and 2017) and financial information (2008–2017), yielding a total of nearly 1.25 million firm-year observations. The petitions data come from a large Freedom of Information Act (FOIA) request I submitted to the U.S. Citizenship and Immigration Services (USCIS). Overall, the dataset provides vital information needed in the analyses, such as petition totals and statuses, lobbying

[4]See the proclamation from the Trump administration: https://trumpwhitehouse.archives.gov/presidential-actions/proclamation-suspending-entry-aliens-present-risk-u-s-labor-market-following-coronavirus-outbreak/.

[5]See You (2017) on the positive association between rulemaking and particularistic lobbying.

intensity (i.e., total reports and expenditure), lobbying report content (e.g., specific issues and agencies targeted), industry, and size. Furthermore, it covers both publicly listed and private firms, mitigating potential concerns about sample selection and generalizability. Lastly, the firm-level matching of visa petitions with detailed lobbying reports enables precise empirical tests more closely linked to potential lobbying mechanisms.

I hypothesize that firms' lobbying may influence visa decisions in three main ways. First, building on a fast-growing literature on bureaucratic lobbying (e.g., Boehmke, Gailmard, and Patty 2013; Libgober 2020a; You 2017), I expect firms to directly lobby agencies in charge of visa adjudication, e.g., the USCIS, to influence adjudication processes and final determinations. Second, drawing on recent research on the lobbying of president's offices (Haeder and Yackee 2015; West and Raso 2012), I posit that firms may also lobby agencies and offices higher up in the bureaucratic hierarchy, e.g., the Department of Homeland Security (DHS) or the Executive Office of the President (EOP), to indirectly pressure visa-adjudicating agencies into more favorable determinations. Third, since legislators have incentives (Ritchie 2018) and various techniques to influence bureaucrats' decision making (Hall and Miler 2008), firms may also try to influence visa-adjudicating agencies by lobbying indirectly through legislators.

To corroborate the feasibility of these lobbying strategies and guide subsequent empirical analyses, I first document stylized facts about U.S. firms' lobbying activities in recent years based on my dataset. At the national level, I find that while immigration lobbying declined during the second term of the Obama administration, this trend reversed in the first year of the Trump administration, with increased targeting of executive agencies that hold influence over immigration policy implementation. This is consistent with the literature's findings that the lobbying of bureaucracies, in addition to legislatures, increases on issues that are more conflictual (McKay

2011) or have more room for particularistic benefits (You 2017). At the firm level, I find that few firms lobbied on immigration under the Trump administration, but those that did tend to be more persistent and larger (as measured by total sales), which is consistent with broader findings in the literature (e.g., Kerr, Lincoln, and Mishra 2014). Applying a structural topic model to quarterly immigration lobbying reports between 2008 and 2017, I find that "H-1B Visas" was the second most common lobbying topic (following "Comprehensive Immigration Reform").

Building on these stylized facts, I then conduct DiD analyses of the effect of firm lobbying on visa adjudication using data on all high-skilled visa petitions filed from 1991 through 2017. While H-1B denial rates generally increased under the first year of the Trump administration, I find that firms' immigration lobbying under Trump attenuated denial rate increases by around 4.5 percentage points, even after controlling for the effect of firm- and industry-specific characteristics. This result suggests a sizeable payoff, given an average H-1B denial rate that is about 7% throughout the period. Furthermore, consistent with the H-1B adjudication process and the bureaucratic lobbying literature, I find more pronounced effects when the treatment condition is narrowly defined as only counting immigration lobbying activities that mention specific texts ("skilled", "H-1B", and "visas") or target relevant bureaucracies (e.g., the USCIS). Additionally, I find that lobbying congressional members alone had no statistically discernable effect on H-1B denial rates during this period, suggesting that the effect stems mainly from lobbying bureaucracies. Lastly, a range of placebo tests rules out the possibility that the findings are driven by pre-treatment trends, untheorized temporal shocks, or unobserved firm characteristics.

The study contributes to our understanding of immigration policymaking and lobbying effectiveness. First, it goes beyond the immigration literature's focus on public attitudes and responds to calls to bring interest groups, especially firms, back into immigration policymaking (Freeman

and Tendler 2012; Peters 2017), providing a more complete picture of immigration politics. Second, it joins an emerging literature that sheds light on the influence of bureaucracies in immigration policy decision making and implementation (e.g., Ellermann 2005). Third, its findings add to a fast-growing empirical literature that explores the means and effectiveness of lobbying across various issue areas (Figueiredo and Richter 2014; Huneeus and Kim 2021).

The H-1B Visa Program

The H-1B Specialty Occupation Visa is the largest temporary high-skilled immigration program in the United States (Kerr, Kerr, and Lincoln 2015), with an estimated population of around 583,000 as of September 2019 (USCIS 2019). The visa is firm-sponsored, which means that firms first identify the foreign-born workers they want to hire and then file a petition to the U.S. government to obtain visas for the workers. The petitioning process consists of two main steps. First, firms need to apply for and receive Labor Condition Application (LCA) certification from the Department of Labor (DOL), stating that their hiring complies with specific labor requirements.[6] Second, firms submit completed forms, and the DOL-certified LCA, to the USCIS for adjudication. Once approved, H-1B workers are authorized to stay in the United States for up to three years, with the duration extendable to a maximum of six years. Beginning in the Fiscal Year (FY) 2004, H-1B visas have been subject to a numerical cap of 65,000 new visas per year, with a 20,000 exemption for workers who have a master's degree or higher from a U.S. institution and additional exemptions for hiring in higher education institutions and non-profit organizations.[7]

[6]For example, workers are paid the "prevailing wage" compared to similarly qualified workers.

[7]See Appendix Table A.1 for a comparison between the H-1B visa and the L-1 Intra-Company Transferee Visa, the second-largest temporary high-skilled immigration program.

Firms highly demand H-1B visas. Since the creation of the H-1B category under the Immigration Act of 1990, more than 670,000 U.S. employers have relied on it to hire skilled foreign workers, according to the FOIA data. Furthermore, the annual H-1B cap has been exhausted every fiscal year since 2004 (National Foundation for American Policy 2020), often within days of the first day of filing (American Immigration Lawyers Association 2016). Given the high demand, the USCIS began to use a computer-generated random selection process ("lottery") in FY 2008 to allocate H-1B visas during years when petitions exceed the cap within the filing period (American Immigration Lawyers Association 2016).

The increase in H-1B denial rates under the Trump administration raised costs and caused delays in firms' hiring. The National Foundation for American Policy (2020) reports that denial rates for H-1B petitions regarding "initial" (new) employment have more than tripled, increasing from 6% in FY 2015 to 21% in FY 2019. Similarly, denial rates for "continuing" (extended) employment increased fourfold from 3% in FY 2015 to 12% in FY 2019. The main reason for such increases in denial rates stems from changes in the legal standards used by the USCIS to adjudicate cases. Following Trump's April 2017 "Buy American and Hire American Executive Order", the USCIS implemented a series of changes in rulemaking, policy memoranda, and operations on H-1B adjudication (USCIS 2017a). For example, the USCIS changed its interpretation of what qualifies as a "specialty occupation" and now requires proof of the potential projects assigned to visa workers within the first three years of employment (National Foundation for American Policy 2020). Furthermore, it issued a policy memorandum in October 2017 rescinding previous agency policy that "when adjudicating petition extensions involving the same parties and underlying facts as the initial petition, to defer to prior determinations of eligibility, except in certain, limited circumstances" (USCIS 2017b). Such heightened scrutiny led to a substantial increase in the

percentage of cases with Requests for Evidence (RFEs), nearly doubling from 22.3% in FY 2015 to 40.2% in FY 2019, which have been incredibly costly and time-consuming for firms (National Foundation for American Policy 2020).

Firm Lobbying and H-1B Visa Adjudication

How might firms lobby in response to increased denial rates on H-1B visa petitions under the Trump administration? The most straightforward strategy is to lobby federal agencies that are in charge of visa adjudication *directly*. A fast-growing literature examines how business interests influence policy outputs by lobbying bureaucratic implementation.[8] The literature shows that while most interest groups lobby the legislature, a majority of them also lobby the bureaucracy (Boehmke, Gailmard, and Patty 2013). Furthermore, business interests tend to dominate bureaucratic rulemaking, e.g., during notice and comment procedures (Yackee and Yackee 2006). Building on this literature, I expect firms to lobby two federal agencies to influence the H-1B visa adjudication process: the USCIS and the DOL. As previously discussed, the DOL certifies whether firms' hiring meets labor requirements, and the USCIS reviews and makes the final determinations on H-1B visa petitions. By lobbying the two agencies, firms may be able to reduce the chance of failing labor condition certification or being issued evidence requests, which should decrease their H-1B denial rates.

Meanwhile, firms may also try to lobby visa-adjudicating agencies *indirectly* through offices and agencies higher up in the bureaucratic hierarchy. One potentially valuable target is the president, who sits at the top of the entire bureaucracy. Scholars have recently begun to explore the un-

[8]See, e.g., Boehmke, Gailmard, and Patty (2013), Haeder and Yackee (2015), Libgober (2020a,b), McKay (2011), Yackee and Yackee (2006), Yackee (2006), and You (2017).

derstudied interaction between presidents and interest groups and whether it affects bureaucratic policymaking. For example, recent studies show that business' lobbying of the U.S. president's Office of Management and Budget (OMB) or the Office of Information or Regulatory Affairs (OIRA, a subunit of OMB) is associated with subsequent changes in federal agencies' rulemaking (e.g., Haeder and Yackee 2015, 2020). Such lobbying can be effective because it provides the president's offices with both strong signals of business interests and the technical details of policy ramifications (e.g., Haeder and Yackee 2015). The president can then use the rule review powers of these offices to "identify, modify, and occasionally block" agency rulemaking that conflicts with "the priorities of the White House and its key constituents" (West and Raso 2012, p. 501). Building on this literature, I posit that firms may lobby Trump's Executive Office (consisting of the White House Office, the OMB, etc.) as an indirect way to influence the USCIS' decision making. Another potentially valuable target is the DHS, the direct parent agency of the USCIS. Given the hierarchical nature between the two agencies, firms may also aim to lobby the Secretary of Homeland Security's offices to create pressure on the USCIS' decision making in H-1B petitions.

A third strategy focuses on the indirect lobbying of visa-adjudicating agencies but goes through legislators instead. An extensive literature shows that legislators can use various techniques (e.g., appropriations, hearings, or administrative rules and procedures) to influence bureaucrats' decision making (e.g., Hall and Miler 2008; McCubbins, Noll, and Weingast 1987). Given such powers, legislators are often called upon by interest groups to influence bureaucratic policymaking and output. For example, recent studies show that while a large part of U.S. lobbying activities aims to influence the bureaucratic implementation of passed legislation, nearly half of the lobbying targets are legislators (You 2017). Furthermore, legislators are also known to use their influence on bureaucracies as a covert way to satisfy conflicting interests from constituents and interest

groups (Ritchie 2018). In the context of H-1B visa adjudication, firms may thus lobby Senators or House Representatives in the hope of leveraging their influence to pressure the USCIS or the DOL into making quicker and more favorable determinations on their H-1B petitions.

Anecdotal evidence based on lobbying reports supports the feasibility of these strategies. On the one hand, some firms focus entirely on lobbying the bureaucracy. For example, during the fourth quarter of 2017, Amazon lobbied the USCIS, the DOL, and the White House on "Issues related to DACA, high-skilled immigration, and visa processing; workforce issues."[9] Amazon's venue choice suggests lobbying strategies more consistent with the direct lobbying of bureaucracies or indirect lobbying through higher-level bureaucracies. On the other hand, many firms lobby both bureaucracies and legislators. For example, in the second quarter of 2017, Oracle lobbied the DOL, the DHS, the EOP, the Senate, and the House on "Issues pertaining to immigrant and non-immigrant visas for skilled professionals; issues surrounding executive action on high-skilled immigration policy and VISA bulletin; issues related to lawful permanent residence" (Kim 2018). In this case, Oracle's venue selection suggests that all three lobbying strategies may be in play.

The natural question, then, is to what extent firms' lobbying can reduce their H-1B denial rates under a hostile environment and whether some strategies are more effective than others. Lobbying is often assumed to produce a payoff given firms' incurred costs (Figueiredo and Richter 2014). Lobbying on H-1B petitions may be even more likely to produce a payoff since the firm-specific nature of H-1B petitions should trigger less counter-lobbying by opposing firms or interest groups than immigration legislation. Yet H-1B petitions also faced significantly higher scrutiny during the Trump administration, which may reduce the firms' lobbying effectiveness. For example, the

[9]See Appendix Figure C.1 for details of the report.

USCIS has even publicly touted its accomplishments in restricting H-1B visas.[10] Thus, the net effect of firm lobbying can be unclear a priori, and I explore empirically below.

Data and Measures

To assess the effect of firms' lobbying on H-1B visa adjudication, I construct an original dataset that connects firms' petitions for temporary high-skilled visa workers (H-1B and L-1) to their lobbying activities and financial information. The dataset includes all U.S. firms (publicly traded or private) that filed such a petition between 1991 and 2017, yielding around 480,000 unique firms and nearly 1.25 million firm-year observations.

Petitions Data. The petitions data are based on original administrative data I acquired through a FOIA request submitted to the USCIS, including around 7.2 million petitions. The year 1991 marks the first year H-1B visa petitions were received, adjudications began in 1992, and 2017 is when the latest full-year data was available at the time of the FOIA request. The administrative data draws on information firms entered in the form I-129, "Petitioning for a Nonimmigrant Worker." The data includes key information related to the petitioner (e.g., name and address), the case (e.g., visa class, approval status, and year received), and the beneficiary (e.g., country of birth). For each petition, I link the petitioner's name (usually a firm) with standardized company identifiers (BvD IDs) from Bureau van Dijk's Orbis database, which contains information for more than 400 million companies and entities globally.[11] I then aggregate the data up to the firm level

[10] See USCIS' 2019 news release: https://www.uscis.gov/news/news-releases/uscis-commemorates-second-anniversary-of-buy-american-and-hire-american-executive-order.

[11] See Orbis (https://www.bvdinfo.com/en-us/) for details. Matching petitioner names to common firm IDs is a notoriously challenging task. For example, the names of the same firm can vary

and calculate H-1B Denial Rates for each firm and year, the outcome of interest.[12]

Lobbying Data. Data on firms' immigration lobbying activities come from the LobbyView database (Kim 2018). Specifically, I extracted all lobbying reports filed by firms between 1999 and 2017 that list "IMM" (Immigration) as one of the general issue area codes, yielding around 7,300 reports. The reports include information about the client's (firm's) name, address, lobbying expenditure, specific lobbying issues (open-ended), and target venues (e.g., Senate, House, federal agencies, etc.).[13] I then use the client BvD IDs in LobbyView to aggregate the data up to the firm-

depending on abbreviations, name changes, and even spelling errors. To systematically overcome this challenge, I follow LobbyView and employ Orbis' proprietary "batch search" function to extract unique firm identifiers from Orbis' database. I then restrict my dataset to firms with the highest confidence in matches ("A") according to Orbis. Appendix B describes the data merging and matching process in detail and shows that the function performed quite well.

[12]For each year, H-1B denial rates equal total denied petitions divided by total petitions (approved, denied, revoked, and administratively closed). The calculations include petitions for both initial employment (for new employees) and continuing employment (for existing employees).

[13]See Appendix Figure C.1 for an example. Beginning in 2008, the Honest Leadership and Open Government Act of 2007 requires lobbyists to file disclosure reports more frequently, from semi-annual to quarterly and by electronic filing. However, the basic structure of lobbying reports has remained the same. Note that reports filed before 2008 are in paper format and often filled out handwritten. LobbyView uses Optical Character Recognition technology to parse these documents, but accuracy issues still exist, especially regarding open-ended questions on specific lobbying issues and target venues. One common problem is missing LobbyView data despite available information in the reports. To ensure data quality, I manually checked 1,565 "IMM"-involving reports filed between 1999 and 2007 and corrected around 30 instances of inaccuracies.

year level and construct different measures of lobbying activity, the key predictor. They include, e.g., whether firms lobbied on immigration in 2017, total immigration lobbying reports firms filed in a given year, and whether firms mentioned specific keywords (e.g., "H-1B") or targeted specific agencies (e.g., the USCIS).

Financial data. Firm-level financial information comes from Orbis. It is important to note that Orbis only reports data for up to ten recent years, and thus the data is limited to the period between 2008 and 2017. Additionally, missing information is a common problem for many private firms and in earlier years. Thus, I focus on a set of variables known to predict lobbying behavior (Kerr, Lincoln, and Mishra 2014) but have less data missingness across firms and years. These variables include industry (4-digit code according to the North American Industry Classification System, NAICS), size (small, medium, large, very large), and public or private status.

Overall, the dataset is unique for two reasons. First, it covers both publicly listed and private firms, mitigating potential concerns about sample selection and generalizability. Indeed, biases related to firms' selection into lobbying have been a persistent concern in the literature (Figueiredo and Richter 2014). While recent studies on immigration lobbying have greatly expanded their sample to include most public firms,[14] selection can still be a concern as public firms tend to be larger and more likely to lobby than the average private firm. The administrative data I obtained help overcome this problem by including all public and private U.S. firms that have petitioned

Overall, only 1 out of 5,705 reports had missingness in specific lobbying issues since electronic filing began, only 36 out of 1,565 reports had missingness when reports were paper-filed, and no reports had missingness in target venues throughout the entire period.

[14]For example, the largest firm-level dataset on immigration lobbying to date from Kerr, Lincoln, and Mishra (2014) includes 3,260 publicly traded firms from 1998 to 2006.

before for temporary high-skilled visa workers, regardless of the outcome. As such, my dataset captures a more complete data-generating process, providing information regarding whether these firms lobbied on immigration under the Trump administration and, in turn, whether their petition was approved or denied.

Second, by linking visa petitions with details contained in lobbying reports, the dataset allows researchers to obtain cleaner estimated effects that are more closely linked to potential lobbying mechanisms. For example, given our contextual knowledge about the H-1B visa adjudication process, researchers can refine the treatment condition to only include lobbying activities that mention specific keywords such as "H-1B visas" or target particular venues like the USCIS. One caveat is that firms' open-ended responses on specific lobbying issues can be brief or vague. Thus, evaluating the effects of certain lobbying strategies can still be challenging, even with the additional information. For example, firms that simply list "H-1B visas" as the specific lobbying issue and only target legislators could be trying to indirectly influence visa adjudication, directly lobbying about H-1B-related legislation, or both. Nevertheless, in these cases, the additional information can still help refine estimates by excluding lobbying activities entirely unrelated to H-1B visas.

Stylized Facts

Drawing on the data, I document key stylized facts about recent immigration lobbying in the United States that corroborate lobbying strategies discussed in the theory section and guide the empirical analysis in the next section.

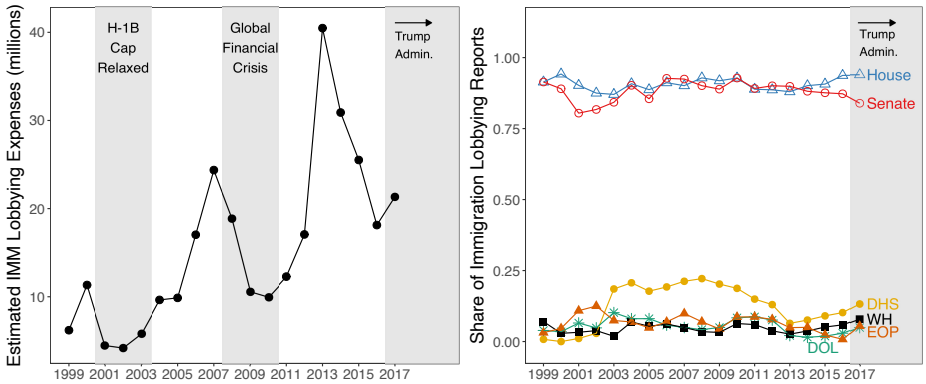

Figure 1: Immigration Lobbying by U.S. Firms, 1999–2017. The left panel shows that while firms' immigration lobbying expenses declined during the second term of the Obama administration, they began increasing again during the first year of the Trump administration. The right panel shows top government entities targeted by firms in their immigration lobbying reports, with a decline in legislators and an increase in bureaucrats and the president's offices in 2017.

National Trends in U.S. Immigration Lobbying

I begin with two main aggregate trends. On the one hand, firms' immigration lobbying declined during the second term of the Obama administration but rose during the Trump administration's first year. The left panel of Figure 1 plots immigration lobbying over time as measured by estimated lobbying expenditures.[15] It shows that immigration lobbying intensity has generally increased between 1999 and 2017. However, in recent years, immigration lobbying first declined during Obama's second term (Jan. 2013–Jan. 2017) and then rose again during Trump's first year (Jan. 2017–Jan. 2021). This trend reversal is consistent with the series of immigration restrictions the Trump administration implemented since 2017, as discussed earlier.

On the other hand, bureaucrats grew as lobbying targets under the Trump administration while legislators declined. The right panel of Figure 1 compares the prevalence of target venues

[15]Following LobbyView, I estimate immigration lobbying expenditures by (1) dividing the total lobbying expenditures in each report by the total number of issue areas appearing in the report and (2) summing up the results for all immigration reports by firms and years.

over time, as measured by the share of immigration reports that list a specific venue.[16] The panel shows an increase in 2017 in the lobbying of federal agencies and offices. Notably, the share of immigration lobbying reports targeting the Executive Office of the President (EOP) increased substantially from around 0.8% to 5.7%. In contrast, the panel shows a decline in the lobbying of congressional members (mostly Senators). These changes suggest a potential shift towards lobbying strategies that target bureaucracies directly or indirectly to influence immigration policy implementation. The pattern is consistent with the literature's findings that the lobbying of bureaucracies, in addition to legislatures, increases on issues that are more conflictual (McKay 2011) or have more room for particularistic benefits (You 2017).

Firm-Level Patterns in U.S. Immigration Lobbying

Next, I zoom in to the firm level to better understand which firms are lobbying on immigration during this period, how frequently they lobby, and what they are lobbying on. I document four key firm-level patterns that motivate and guide my empirical tests.

First, immigration lobbying was extremely rare under the Trump administration. Of the 49,843 firms that petitioned for temporary high-skilled workers in 2017, only 79 firms (or $79/49843 \approx 0.16\%$) lobbied on immigration. This number is considerably lower than the 10% the lobbying literature has documented (Kerr, Lincoln, and Mishra 2014). However, the result is not surprising as my data include both public and private firms, as opposed to extant studies' focus on public firms that are larger and more likely to lobby. Furthermore, firms may anticipate smaller lobbying payoffs under the Trump administration and thus reduce their activities. Appendix Table D.2 breaks down these petitioning firms by two-digit NAICS industries (when available) and presents

[16]Note that firms can lobby multiple venues on the same issue.

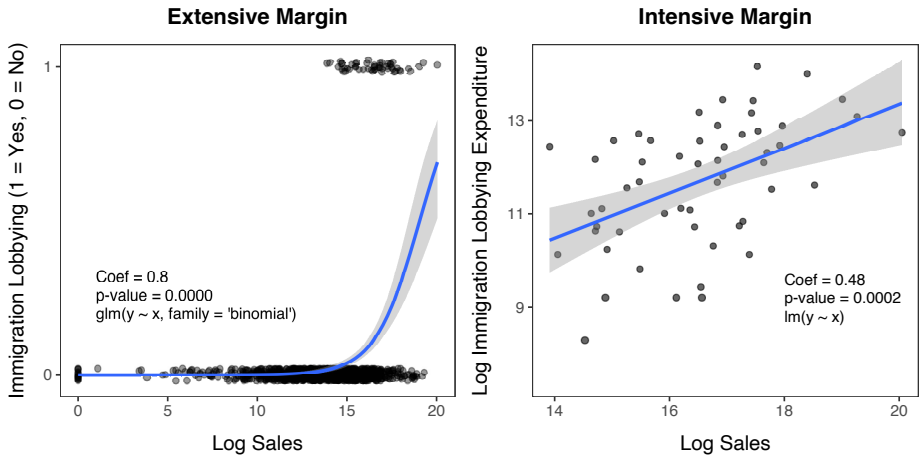

Figure 2: Firm Size and Immigration Lobbying, 2017. The figure shows a positive and statistically significant correlation between firms' 2017 sales (logged) and the extensive and intensive margins of immigration lobbying in 2017.

the percentage of immigration lobbying in each industry. The results show a wide variation across industries. While demand for temporary high-skilled workers concentrated mainly in industries related to "Professional, Scientific, and Technical Services" (9,547 firms) and "Manufacturing" (7,287 firms), only 0.1% and 0.4% of firms in these industries, respectively, lobbied on immigration. In contrast, fewer firms in sectors related to "Accommodation and Food Services" (494 firms) petitioned for temporary high-skilled workers, but a relatively larger percentage of these firms lobbied (1.2%). These patterns point to the importance of accounting for baseline industry-level differences in lobbying behavior and H-1B denial rates in empirical models.

Second, firms that did lobby on immigration under the Trump administration tend to be larger, which is consistent with findings in existing lobbying research (e.g., Huneeus and Kim 2021; Kerr, Lincoln, and Mishra 2014). Figure 2 suggests that this pattern holds on both extensive and intensive margins. The figure plots a firm's 2017 sales (logged) against whether the firm lobbied on immigration or not in 2017 in the left panel and 2017 immigration lobbying expenditures (logged) in the right panel. Both panels show a positive and statistically significant correlation.

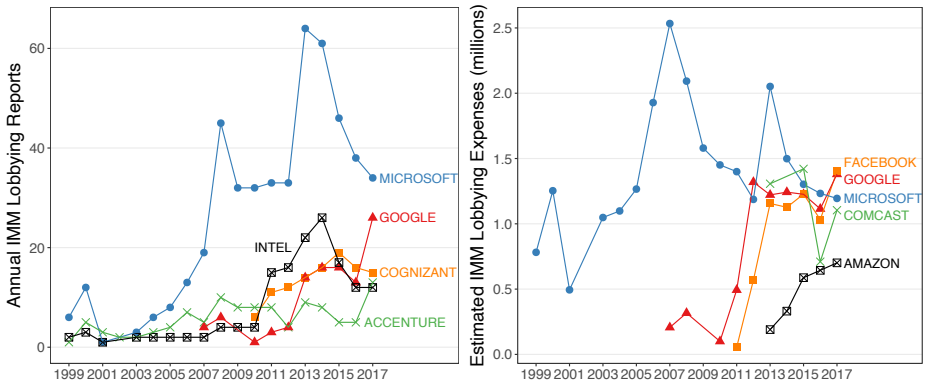

Figure 3: Top Firms Lobbying on Immigration, 2017. The left panel shows that Microsoft was the largest lobbyist on immigration in 2017 based on the number of reports filed (34). The right panel shows that Facebook was the largest lobbyist on immigration in 2017 based on estimated immigration lobbying expenses ($1.4 million).

Figure 3 identifies the top five firms lobbying on immigration in 2017 regarding the number of lobbying reports filed and estimated expenditures. Consistent with common perceptions, large firms in technology and software industries that rely on temporary high-skilled foreign workers lobbied the most. For example, Microsoft, a top immigration lobbying firm in 2017, filed 34 reports and spent an estimated $1.2 million.

Third, the immigration-lobbying firms above were also highly persistent in lobbying. Following Huneeus and Kim (2021), I track each firm's lobbying activities in two consecutive years as a conservative measure of persistence. As shown in Figure 4, around 86% of firms that lobbied on immigration in 2016 had also lobbied in 2017. Furthermore, nearly 100% of firms that did not lobby in 2016 did not lobby in 2017.[17] The finding joins existing studies that document the persistence of firm lobbying in immigration (Kerr, Lincoln, and Mishra 2014) and other economic issue areas (Figueiredo and Richter 2014; Huneeus and Kim 2021).

This pattern is an important motivation for the DiD research design. It suggests that firms that lobby are quite different compared to those that do not. Thus, even if one finds a negative

[17]Appendix Tables D.3 and D.4 present firms that lobbied in 2016 but not in 2017 (or vice versa).

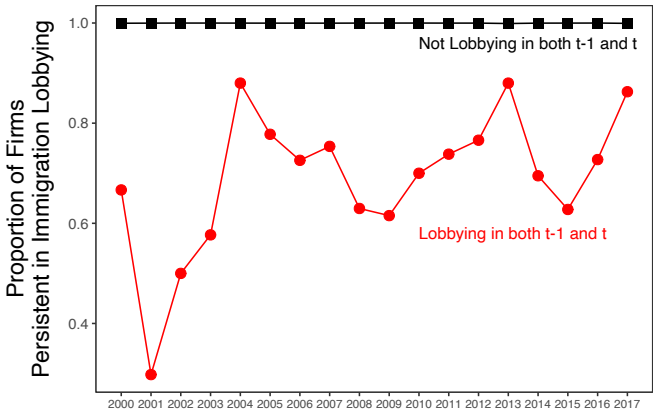

Figure 4: Persistence in Immigration Lobbying. The figure shows that around 86% of firms that lobbied on immigration in 2016 had also lobbied in 2017. Nearly all firms that did not lobby in 2016 did not lobby in 2017.

correlation between lobbying and H-1B visa denial rates, the results may be driven not by lobbying itself but by the characteristics of firms that choose to lobby. An aggressive way to address such differences is by employing firm fixed-effects, which can account for all time-invariant firm-specific factors. However, given the persistence in firms' lobbying behavior over time, little variation is often left in the data to estimate lobbying effects once firm fixed-effects are used. By exploiting temporal changes in lobbying activities stemming from an unexpected shock, the DiD design can deal with persistence issues in the data while still allowing the inclusion of firm fixed-effects that can address concerns about omitted variable bias (Figueiredo and Richter 2014, 170–171).

Turning to lobby content, a fourth and final pattern is that H-1B visas are among the most prevalent lobbying topics for U.S. firms in recent years. To systematically gauge main topics lobbied by U.S. firms, I apply a Structural Topic Model (Roberts et al. 2014) to quarterly immigration lobbying reports between 2008 and 2017.[18] During these ten years, 418 firms lobbied on immigration and filed 5,705 lobbying reports that list immigration as a general issue area. I use

[18]The year 2008 marks when firms were first required to file quarterly disclosure reports, and 2017 is the most recent year available in the analysis.

Figure 5: Top Five Topics in U.S. Immigration Lobbying, 2008–2017. This figure shows the five most common topics, expected topic proportions, and most highly associated words. The results are based on a Structural Topic Model applied to quarterly immigration lobbying reports.

the specific lobbying issues detailed in the reports as the text corpora to fit a simple model that includes firm and quarter fixed-effects. The results show that a five-topic model achieves the best balance between topic exclusivity and semantic coherence, two important criteria for selecting the number of topics (Roberts et al. 2014).[19]

As shown in Figure 5, I find that H-1B Visas (Topic 2) are the second most common immigration lobbying topic among firms, with an expected topic proportion of 0.22. Other prevalent topics include Comprehensive Immigration Reform (Topic 1), Border Security Act of 2013 (Topic 3), High-Skilled Immigration Acts (Topic 4), and Various Other Immigration-Related Legislation (Topic 5). Notably, the results suggest that the H-1B Visas topic is distinct from the High-Skilled Immigration Acts topic. The former focuses more on visa technicalities (e.g., specific issues regarding H-1B visa processes and procedures). In contrast, the latter consists of bills and acts on high-skilled immigration more broadly, covering permanent workers, temporary workers, and international students. Examples include various versions of the Immigration Innovation Act (S.169, S.153, S.2344, and H.R.6794), the STEM Jobs Act (H.R.6429, S.303, and S.98), and the SKILLS Visa Act (H.R.2131). One fundamental assumption underlying discussions surrounding the effect of

[19]See Appendix Figure C.2 for results on selecting the number of topics. As a robustness check, Appendix Figure C.3 shows that a four-topic model produces similar results.

firm lobbying on H-1B adjudication is whether firms actually lobbied on the topic in the first place. These results provide systematic evidence supportive of the assumption.[20] Building on the topic model results, I also explore temporal changes in topic prevalence. Appendix Figure C.4 provides suggestive evidence that firms' lobbying under the Trump administration shifted more towards influencing H-1B visa technicalities than broader high-skilled immigration legislation.

Overall, the stylized facts documented above suggest that large U.S. firms shifted their lobbying away from high-skilled immigration legislation and towards H-1B visas and bureaucratic implementation. The reported change in lobbying behavior provides descriptive evidence consistent with expected firm responses to rising H-1B visa restrictions imposed under the Trump administration.

Evaluating the Effects of Firm Lobbying

Building on the stylized facts, I turn to estimate the effect of firm lobbying on H-1B visa adjudication using a series of DiD analyses. The key identification assumption underlying DiD analysis is the parallel trends assumption, which assumes that treated units would follow the trends of untreated units had they not been treated. An informal visual examination of the data shows the plausibility of this assumption and previews the main results. Figure 6 presents average H-1B denial rates over time among firms that lobbied on immigration in 2017 (treatment group) and firms that did not (control group). The figure shows that pre-treatment trends were quite similar between the two groups, increasing confidence in the parallel trends assumption. It also shows

[20] Since firms can sometimes be vague on specific lobbying issues for unintentional or intentional reasons (e.g., stating "High-skilled immigration" instead of "H-1B visa adjudication"), the prevalence of the H-1B visa topic may be even higher.

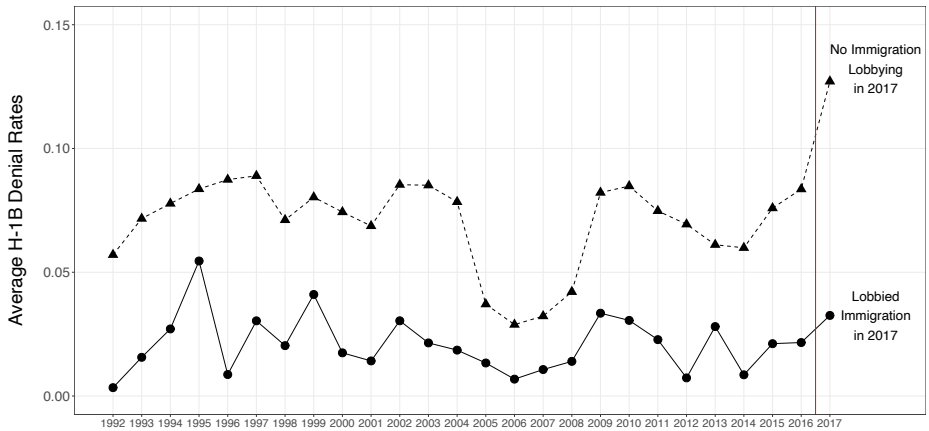

Figure 6: Trends in H-1B Denial Rates Grouped by Treatment Status, 1992–2017. The figure shows that pre-treatment trends were quite similar between the treatment and control groups. The red vertical line indicates the start of the Trump administration in January 2017.

a consistently higher average denial rate in the control group than the treatment group, which indicates that non-lobbying firms already experienced higher H-1B denial rates before the Trump administration. In 2017, denial rates increased in both groups, but firms in the treatment group saw a notably smaller increase than the control group. Assuming that the parallel trends assumption holds, the smaller increase among treated firms would thus suggest that their immigration lobbying reduced H-1B denial rates.[21]

To estimate the DiD effect more systematically, I fit the following regression model:

$$D_{it} \;=\; \tau(\lambda_i P_t) + \alpha_i + \gamma_t + \epsilon_{it}, \tag{1}$$

where the outcome variable D_{it} measures the H-1B denial rate for firm i in year t. The treatment-group dummy variable λ_i equals 1 if firm i lobbied on immigration in 2017 and 0 otherwise. The treatment-period dummy variable P_t equals 1 for year 2017 and 0 otherwise.[22] The variable α_i

[21]Appendix Figure D.1 shows that trends in total H-1B petitions have also been quite similar between firms in the treatment group and the control group, alleviating concerns that differences in the number of total petitions are driving changes in denial rates.

[22]Firm and year fixed-effects subsume the constitutive terms of the interaction in the equation.

represents firm fixed-effects and accounts for any time-invariant features of firms that are likely to correlate with lobbying and denial rates. For example, larger firms are more likely to lobby and may have more influence over visa decisions. Additionally, firms in different industries may vary widely in how often they petition and lobby, and USCIS' visa adjudication standards can vary across industries (National Foundation for American Policy 2020, p. 1). Since a firm's core NAICS industry does not change over time in the data, the inclusion of firm fixed-effects also absorbs industry fixed-effects that account for time-invariant industry characteristics. The variable γ_t represents year fixed-effects, which account for unit-invariant time trends in H-1B denial rates. I cluster standard errors by firms to allow for within-unit correlations of errors. The coefficient of interest is τ, which is the DiD estimate for the effect of firm lobbying.

I fit three versions of equation (1) to data between 1992 and 2017. I first fit a baseline model that includes the interaction term and the fixed effects but does not distinguish between specific texts or target venues. Results here serve as a baseline estimate for the effect of firms having *any* immigration lobbying activities in 2017. While these estimates may be noisier, they are still informative as firms can be vague in describing specific lobbying issues, as noted earlier. Next, I fit a text-specific model similar to the baseline but with a more refined treatment focused on immigration lobbying that explicitly mentioned the keywords "Visa" and either "Skilled" or "H-1B." Results from this model provide cleaner estimates of the lobbying effect pertaining to H-1B adjudication. The third set of venue and text-specific models further distinguishes the treatment by target venue: the USCIS, the DOL, the DHS, the White House and the EOP combined, and only Congress (House or Senate). Results from these models provide insights into the effectiveness of different lobbying strategies discussed in the Section "Firm Lobbying and H-1B Visa Adjudication."

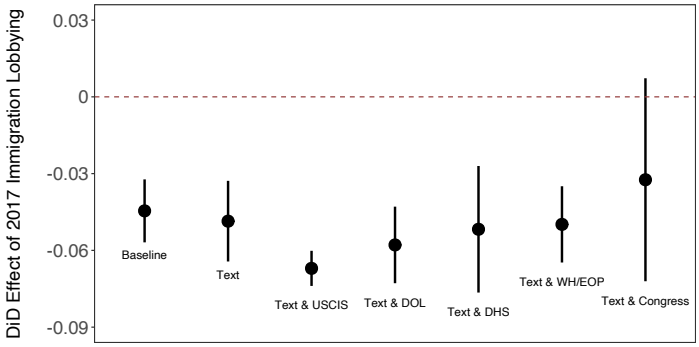

Figure 7: The Effect of Immigration Lobbying in 2017. This figure presents point estimates and 95% confidence intervals.

The results reveal three main findings. First, firms' immigration lobby in 2017 reduced H-1B denial rates. As shown in Figure 7, the baseline estimate indicates that immigration lobbying reduced firms' H-1B denial rate by around 0.045 (95% C.I. = -0.057 to -0.032).[23] How big is this effect in substantive terms? For firms with the mean H-1B denial rate of 0.07, it represents an approximately 64% decrease in denial rate. Given that one standard deviation in H-1B denial rates is around 0.23, it also means an effect size of about 0.2 standard deviations of the outcome. In comparison, the effect of increasing a firm's size—a strong predictor of the outcome—from small to very large (according to Orbis) reduces H-1B denial rates by around 0.034 (see column (3) of Appendix Table D.13). Hence, the effect of lobbying is approximately 132% of the effect size of firm magnitude. These results suggest that firms' lobbying produced a sizable payoff on H-1B visa adjudication.

Second, refining the definition of treated firms to only those that mention "H-1B"-related keywords in their lobbying report increases the point estimate to -0.049 (95% C.I. = -0.064 to -0.033). This result increases confidence that the findings above capture the effect of lobbying on H-1B per se and are not driven by immigration lobbying on non-related issues.

[23]See Appendix Table D.6 for details and Table D.1 for descriptive statistics.

Third, firms' lobbying on bureaucratic implementation appears to drive the effect.[24] For example, when firms target the USCIS in their lobbying, the effect of lobbying increases to around -0.067 (95% C.I. = -0.074 to -0.060), a nearly 50% increase compared to the basic text-specific estimate. Targeting the DOL also produces a larger effect of around -0.058 (95% C.I. = -0.073 to -0.043). These findings are consistent with the fact that the USCIS and the DOL are the main decisionmakers in the H-1B adjudication process, and thus directly lobbying them yields the largest payoff. In addition, when firms target the DHS or the WH/EOP, the effect size of lobbying also sees small increases, which supports the idea that applying pressure through parent agencies or offices can be an effective lobbying strategy. In contrast, when firms only target Congress in lobbying, the effect is only around 65% of the basic text-specific estimate and also imprecisely estimated (-0.032, 95% C.I. = -0.072 to 0.007). The smaller point estimate here, while still negative, suggests that the overall effects found earlier stem mainly from lobbying bureaucracies and not legislators. However, it is important to note that given the confidence intervals around these point estimates, the differences in effects between target venues or models can be imprecise, and thus the results here are suggestive rather than conclusive.

Indeed, assessing whether targeting legislators by itself is an effective lobbying strategy is difficult. As previously discussed, firms that focus on H-1B visas but only target legislators could also be lobbying about legislation (e.g., immigration reform). If firms' primary intention was not about influencing H-1B adjudication in the first place, then their lobbying should have less influence on denial rates. However, as firms' reported answers can be brief and unspecific, systematically distinguishing intentions is difficult even when the text on specific lobbying issues is available. The mixed intentions captured in the treatment measure here may have thus led to less

[24] Appendix Table D.5 presents all 27 firms that lobbied bureaucracies on immigration in 2017.

precise estimates. Note that restricting the sample period to recent years (e.g., 2016–2017), which increases policy environment similarity, does help yield more precise estimates (see column (3) of Appendix Table D.8). Nevertheless, what is at least clear and consistent from the overall results above is that firms benefit from lobbying bureaucracies in the case of H-1B visa adjudication.

To assess the robustness of the findings, I conduct a variety of placebo tests. First, I perform temporal placebo checks. In particular, I first interact the treatment-group dummy in equation (1) with a "fake" treatment-timing dummy, the year 2004 (i.e., the middle of the pre-treatment period) to see if immigration lobbying under the Trump administration affects changes in H-1B denial rates during the pre-treatment period (1991–2016) *before* the Trump administration. As shown in column (1) of Appendix Table D.14, the DiD estimate is small and imprecisely estimated. Next, instead of an arbitrary treatment-timing dummy, I follow Autor (2003) and interact the treatment-group indicator with time dummies for all periods except the last pre-treatment year (2016), the comparison baseline. The decomposition of the treatment effect over time allows me to conduct placebo tests for each year in the pre-treatment period. As shown in column (2) of Appendix Table D.14, all point estimates associated with treatment timing before 2016 are either small and imprecisely estimated or in the opposite direction. Meanwhile, the point estimate associated with the true treatment timing (2017) is still negative and statistically significant. Lastly, I interact a dummy variable for immigration lobbying before the Trump administration (2016) with the true treatment-timing dummy (2017) to see if pre-treatment lobbying affects changes in denial rates before and after the Trump administration. As shown in column (3) of Appendix Table D.14, the point estimate associated with pre-Trump immigration lobbying is again small and imprecisely estimated. Together, the results point to an effect of immigration lobbying under the Trump administration per se, as opposed to general trends in firm lobbying and H-1B denial rates or

untheorized temporal shocks.

Second, I conduct placebo treatment checks using firm lobbying in issue areas that are unlikely to be related to immigration.[25] In particular, I examine all lobbying reports in LobbyView between 1999 and 2017 and calculate how often each issue area is listed in a lobbying report that also includes immigration as an issue area. I then assume that issue areas that rarely co-exist with immigration are less likely to be related to immigration. I focus on three such issue areas: Tobacco (TOB), Beverage (BEV), and Commodities (CDT). For each issue area, I created a placebo treatment dummy variable that equals 1 if firms lobbied on the specific issue but not on immigration in 2017 and 0 otherwise. I then re-estimate equation (1) using these placebo treatment indicators. As shown in Appendix Table D.15, point estimates associated with the interaction terms are generally smaller and imprecisely estimated. Such results suggest that my findings on immigration lobbying are unlikely due to chance alone or unobserved firm characteristics that affect both firms' tendency to lobby and susceptibility to visa denials. Instead, the results show that the effects are confined to immigration lobbying, which has been closely linked to H-1B visas in recent years, as shown in Figure 5.

Lastly, I show that the main findings hold under several additional robustness checks. Appendix Table D.7 shows that the findings are robust to augmented measures of 2017 immigration lobbying based on a broader sample of reports that contained immigration keywords but did not list "IMM" as the general issue code. Appendix Table D.11 shows that the findings are robust to models with standard errors clustered by both firms and years. To alleviate concerns about the findings being driven by extremely large firms, I identify and exclude potential outliers based on 2017

[25] See https://lda.congress.gov/ld/help/default.htm?turl=Documents%2FAppCodes.htm for the full list of lobbying issue areas.

sales, employment, and estimated immigration lobbying expenses. Appendix Table D.12 shows substantively similar results. I also fit models that explicitly account for firm size and public listing status. Here, I exclude firm fixed-effects from the models as these covariates are entirely time-invariant and include industry fixed-effects instead. Appendix Table D.13 shows that the estimates are larger in magnitude than those estimated from equation (1). This is expected as firm fixed-effects used in the main model specification account for many unobserved factors beyond firm size, and thus results based on them are very conservative. Consistent with expectations, I also find that firm size and public listing status positively correlate with lower H-1B visa denial rates. To reduce potential concerns about the findings being driven by some observations having negative regression weights when using a DiD estimator where the number of time periods exceeds two (Imai and Kim 2021), I fit a DiD model focusing only on the two years right before and after the Trump administration (2016 vs. 2017). As shown in Appendix Table D.8, the results are substantively similar in this restricted sample but with more precise estimates for immigration lobbying that only target legislators (as noted earlier). Finally, to ensure that the DiD analysis is comparing similar firms while also restricting its estimation to the common support, I combine matching with DiD using the matching method for panel data proposed by Imai, Kim, and Wang (2022). Specifically, I focus on the period 2016–2017 to facilitate the comparison of results across different estimation approaches and exact match on a firm's industry and size. Appendix Table D.9 shows substantively similar results, with smaller but precisely estimated effects.

Conclusion

To what extent, and how, does lobbying help firms overcome immigration barriers? Focusing on the case of H-1B temporary high-skilled visas in the United States, this study shows that firms

lobbying under the Trump administration reduced their H-1B visa denial rates by at least 4.5 percentage points. Furthermore, firms targeting bureaucracies in their lobbying yielded even larger payoffs. Together, the results suggest that the ability to influence the bureaucratic implementation stage of immigration policy, e.g., visa adjudication, plays a key role in helping U.S. firms overcome immigration restrictions, especially after decades of immigration reform deadlock.

The study makes three main contributions. First, by examining the visa adjudication process for high-skilled temporary migrants, the study reveals new patterns and effects of behind-the-scenes "interest group politics" in immigration where policies have concentrated costs and benefits. This extends existing immigration research that has mostly focused on low-skilled permanent immigration, public attitudes, and "majoritarian politics" (Freeman and Tendler 2012). Furthermore, by focusing on the firm-level variation in visa adjudication, the study can hold constant the potential influence of public opinion and make cleaner inferences about lobbying effects. Overall, the study joins a growing empirical literature that seeks to improve our understanding of the domestic politics of immigration policymaking (e.g., Facchini, Mayda, and Mishra 2011; Peters 2014, 2017).

Second, the study responds to recent calls in the field for a better understanding of the economic policymaking of bureaucrats and agencies (Copelovitch and Pevehouse 2015, 466). Specifically, the study's findings in immigration join a growing literature that examines the impact of bureaucracies in rulemaking and implementation (e.g., Ellermann 2005; Libgober 2020a,b; Yackee and Yackee 2006; Yackee 2006). More research is needed on other ways the executive branch exerts influence on immigration (e.g., notice-and-comment rulemaking or executive actions) and firms' influence over those processes.

Third, the study's findings add to an emerging empirical literature that improves our under-

standing of the effectiveness and mechanisms of domestic lobbying on different economic policies (Bombardini and Trebbi 2020; Figueiredo and Richter 2014). To be sure, disentangling firms' lobbying strategies and comparing their effectiveness is extremely challenging as firms have incentives to obscure their political activities. However, the study's original dataset should help facilitate future research in this direction by linking firms' immigration petitions and lobbying activities. To further advance the research agenda, researchers can integrate additional information on connections between firm executives, lobbyists, bureaucrats, and bill-sponsoring legislators (Carpenter et al. 2020).

More broadly, the findings are also relevant for policy makers and public policy debates on the H-1B visa program (Torres 2017). Easier access to H-1B visas allows U.S. firms to hire the foreign talent they need, helping them remain innovative and competitive. But there are also concerns that some firms have taken advantage of the program to hire cheaper foreign workers, displacing American workers. The findings raise additional normative concerns about resource misallocation and political representation among firms. Few firms lobby on immigration, and those that do tend to be large and persistent. Thus, while lobbying can help firms overcome immigration barriers, it may also distort human capital allocation in the economy by creating unequal access to global talent across firms.

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Supplementary Information for

The Effect of Firm Lobbying on High-Skilled Visa Adjudication

Steven Liao[1]

Contents

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Appendix A Visa Policies

Table A.1: **Major U.S. Temporary High-Skilled Immigration Programs**

	H-1B Specialty Occupation	*L-1 Intra-Company Transferee*
Skill Level	High	High
Skill Type	Generic	Firm-specific
Purpose	Non-immigrant Temporary Work Visa	Non-immigrant Temporary Work Visa
Dual Intent	Yes	Yes
Annual Quota	65,000 + 20,000 (advanced degree exemption)	No limit
Employer Eligibility	Any U.S. based company, assuming other requirements are met	Only multinational firms qualify
Labor Condition Application	Required	Not required
Employee Eligibility	Specialized knowledge in the field	Worked for multinational firm for at least one continuous year (within the past three years) An executive/manager (L-1A) or a worker with specialized knowledge (L-1B)
Educational Requirement	At minimum a bachelor's degree	No degree requirement
Maximum Duration	6 years (Inital 3 + Ext. 3)	L-1A: 7 years (Initial 3 + Ext. 2 ×2) L-1B: 5 years (Initial 3 + Ext. 2)

Source: USCIS and Title 2 Section 214 of the Immigration and Nationality Act. See https://www.uscis.gov/working-in-the-united-states/temporary-nonimmigrant-workers for further details.

Appendix B Data Merging and Validation

As discussed in the Section "Data and Measures," the dataset I constructed merges three sources of data: visa petitions (FOIA), immigration lobbying (LobbyView), and financial (Orbis). This section provides further details of the data merging process.

Linking firm-level information across the three data sources requires unique firm identifiers. To do this, I rely on Orbis' BvD IDs, which are helpful in this study for three main reasons. First, Orbis generates BvD IDs for public and private firms globally (more than 400 million), which is substantially better coverage than, e.g., ticker symbols or CUSIP numbers that are only available for publicly traded firms. Such coverage is vital since the petitions data include both types of firms. Second, the firm-level financial data from Orbis are directly linked to BvD IDs. Third, LobbyView also provides BvD IDs as unique identifiers (Kim 2018).

As a result, the first step in the merging process is to obtain BvD IDs for petitioner firms. To systematically achieve this at a large scale of around 990,000 H-1B and L-1 visa petitioner names, I follow LobbyView and rely on Orbis' proprietary "batch search" function. The function allows users to upload a list of 1,000 firm names maximum per file and, if available, information about each firm's city or country. The function then matches the input information to records in Orbis' proprietary database, returning matches with assigned confidence scores from "A" (highest) to "E" (lowest). Inputs without a match do not receive scores. I break my full list of petitioner names into around 990 files and restrict firms' countries to the "US". I then upload the files for processing one at a time, which takes about 40 minutes per file. Overall, the process yielded around 50% "A" matches and 479,851 unique BvD IDs. I then restrict my dataset to these firms with the highest confidence in matches according to Orbis.

To gauge the quality of Orbis' "A" matches above, I analyzed the string distances between petitioner firm names and Orbis' batched-searched firm names. I compute string distances of the matches using the cosine distance method from stringdist (https://cran.r-project.org/package=stringdist). Cosine distances are between zero and one, with the former indicating an exact match and values closer to the latter suggesting larger differences in strings. As shown in Appendix Figure B.1, the results demonstrate that the function performed quite well. After removing punctuation, around 45% of all matched name pairs ($\approx$ 593,000) were exact matches. Around 99%

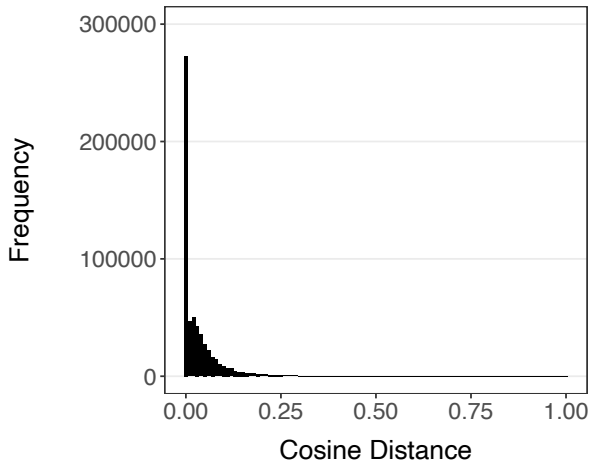


Figure B.1: **Frequency Distribution: String Distances Between Petitioner Firm Names and Orbis Batch-Searched Firm Names**. The figure show results based on cosine distances.

had a distance ≤ 0.25 (e.g., "FIDELITY NATIONAL INFORMATION SVCS" vs. "FIDELITY NATIONAL INFORMATION SERVICES INC"), and approximately 99.94% had a distance $\leq$ 0.5 (e.g., "INTERNATIONAL GAME TECHNOLOGIES Alias IGT " vs. "IGT"). In addition, I manually checked all remaining 0.06% (349) matches that had a distance > 0.50. Even among this small subset of matches with greater distances, I was still able to validate 122 matches ($\approx$ 35%) based on further state/zip code information from the petitions, Orbis, or internet searches. I find that a large proportion of these matches were due to name changes or mergers and acquisitions that Orbis has tracked in its database (e.g., "SUN MICROSYSTEMS INC" vs. "ORACLE CORP"). The remaining cases that were difficult to verify tend to be small firms missing location information in Orbis or the internet. However, these matches only comprise a tiny share of all matches, and nearly 100% of all matches had a distance ≤ 0.5. Overall, the results above should increase confidence in the quality of the matches.

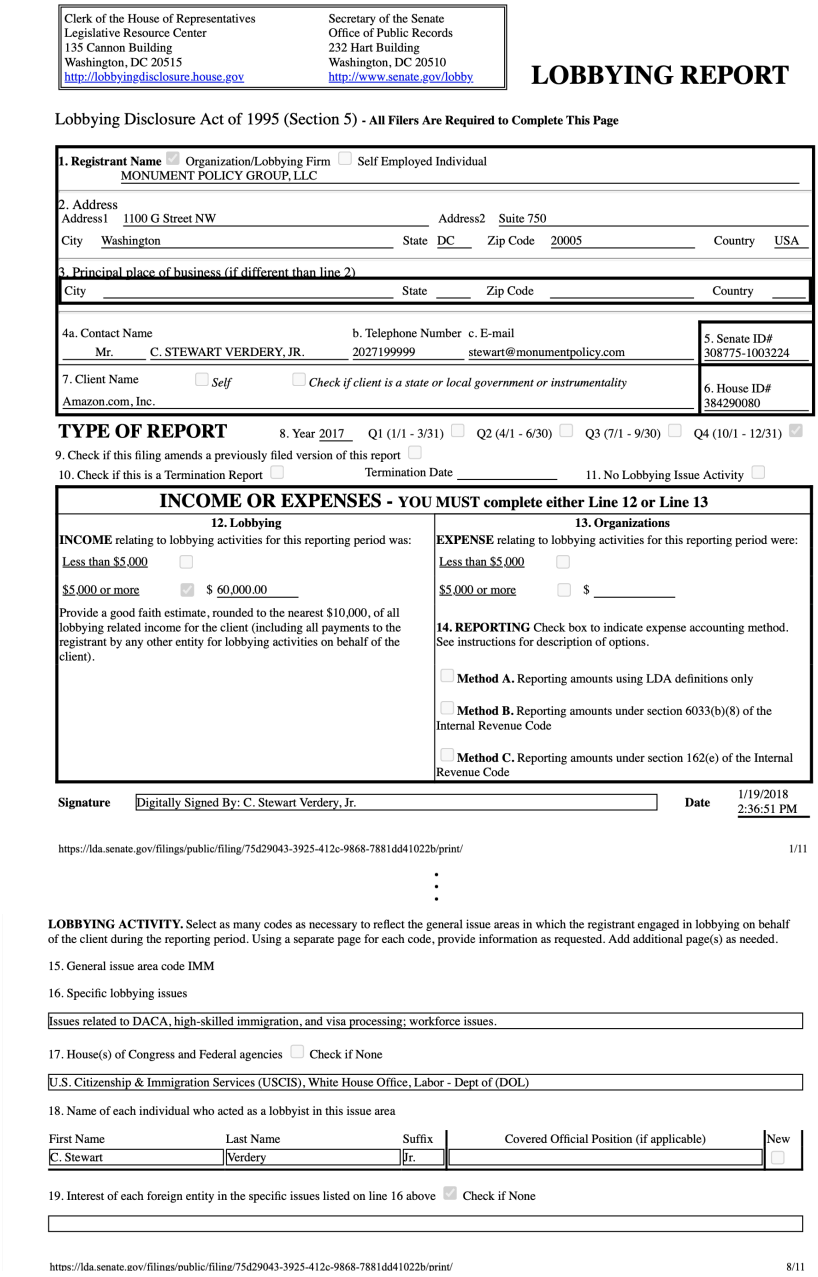
Next, Orbis frequently updates BvD IDs when new ownership, headquarters, or industry information arises, and thus they can change over time even for the same entity. To eliminate any potential differences in BvD IDs due to differences in timing when LobbyView and I obtained them, I used Orbis' "BvD ID Change Lookup Tool" (https://idchanges.bvdinfo.com/) to check and ensure that they were up-to-date and consistent across datasets at the time of the merge.

Equipped with updated BvD IDs for all three datasets, I merged the immigration lobbying and financial data described in the Section "Data and Measures" into the petitions data above.

The immigration lobbying data I extracted via LobbyView in October 2019 included 663 unique firms (BvD IDs) between 1999 and 2017, while the financial data included 475,179 unique firms (BvD IDs) between 2008 and 2017. The final merged dataset is an unbalanced panel of 479,851 unique firms (BvD IDs) between 1991 and 2017, yielding 1,243,396 firm-year observations.

Lastly, I manually checked each of the 127 firms that had filed a lobbying report in 2017 that included "IMM" as a general issue to see if they matched correctly to the visa petitions data. This check is essential since the treatment measures in my analyses are defined based on 2017 lobbying activities. I found that all of the matches were correct. Among the 127 firms, 79 had also petitioned for H-1B or L-1 visas in 2017 and were matched in the 2017 data. The remaining 48 firms either never petitioned before and therefore do not exist in the petitions data (23 firms) or petitioned before but not in 2017 (25 firms). Thus, as discussed in the Section "Stylized Facts," the results indicate that 79 out of the 49,843 petitioning firms in 2017 lobbied on immigration.

Appendix C Text Analysis



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
MONUMENT POLICY GROUP, LLC

2. Address
Address1 1100 G Street NW Address2 Suite 750
City Washington State DC Zip Code 20005 Country USA

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

4a. Contact Name
Mr. C. STEWART VERDERY, JR.
b. Telephone Number 2027199999
c. E-mail stewart@monumentpolicy.com
5. Senate ID# 308775-1003224

7. Client Name ☐ *Self* ☐ *Check if client is a state or local government or instrumentality*
Amazon.com, Inc.
6. House ID# 384290080

TYPE OF REPORT 8. Year 2017 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 ☑ $ 60,000.00
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 ☐ $ _____

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: C. Stewart Verdery, Jr. **Date** 1/19/2018 2:36:51 PM

https://lda.senate.gov/filings/public/filing/75d29043-3925-412c-9868-7881dd41022b/print/ 1/11

⋮

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 IMM

16. Specific lobbying issues
Issues related to DACA, high-skilled immigration, and visa processing; workforce issues.

17. House(s) of Congress and Federal agencies ☐ Check if None
U.S. Citizenship & Immigration Services (USCIS), White House Office, Labor - Dept of (DOL)

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
C. Stewart	Verdery	Jr.		☐

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

https://lda.senate.gov/filings/public/filing/75d29043-3925-412c-9868-7881dd41022b/print/ 8/11

Figure C.1: **Lobbying Report Example: Amazon, Q4, 2017**. This figure presents the Amazon lobbying report discussed in the Section "Firm Lobbying and H-1B Visa Adjudication." Reports usually include multiple pages. On the first page, filers are required to provide information on the registrant and client, report type, and expenses. Filers then need to create one separate page for each general issue area code in which they lobbied and provide details on specific lobbying issues, target venues, name of lobbyist, and foreign interests. Filers are required to complete all fields (Lobbying Disclosure Act (2 U.S.C. § 1604(b))) and check "None" for fields such as target venue if not applicable. To conserve space, I show the first page and the "IMM" (immigration) page, omitting the rest. For the full report, see https://lda.senate.gov/filings/public/filing/75d29043-3925-412c-9868-7881dd41022b/print/. My empirical analyses leverage the information on specific lobbying issues (open-ended) and target venues.

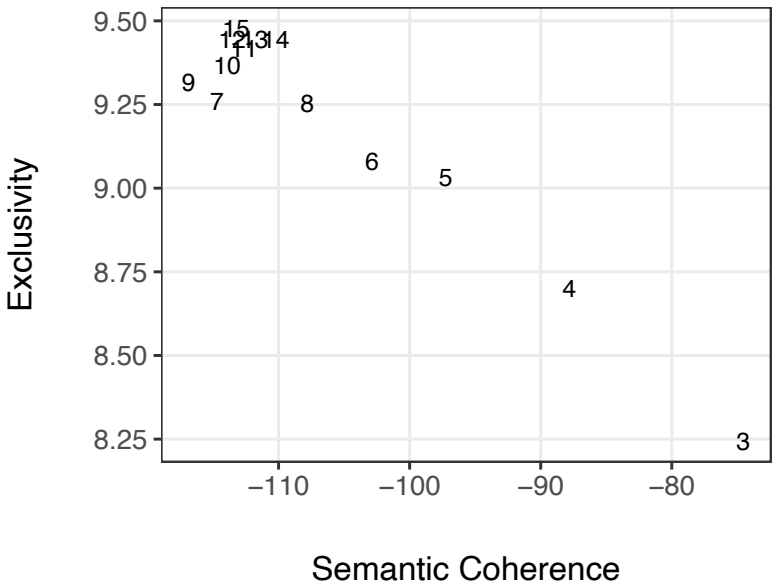


Figure C.2: **Selecting the Number of Topics**. This figure compares the average exclusivity and semantic coherence as the number of user-specified topics change based on the searchK function in the stm package (https://CRAN.R-project.org/package=stm). Higher values indicate higher levels of exclusivity and coherence. Thus, models closer to the top-right corner are more desirable. The study presents results from a five-topic model in the main text as it yields a good balance between the two criteria.

Figure C.3: **Top Four Topics in Immigration Lobbying, 2008–2017**. This figure presents results using a four-topic model instead of the five-topic model discussed in Figure 5. As shown in the figure, the results are similar: a four-topic model essentially combines Topics 4 and 5 of the main five-topic model.

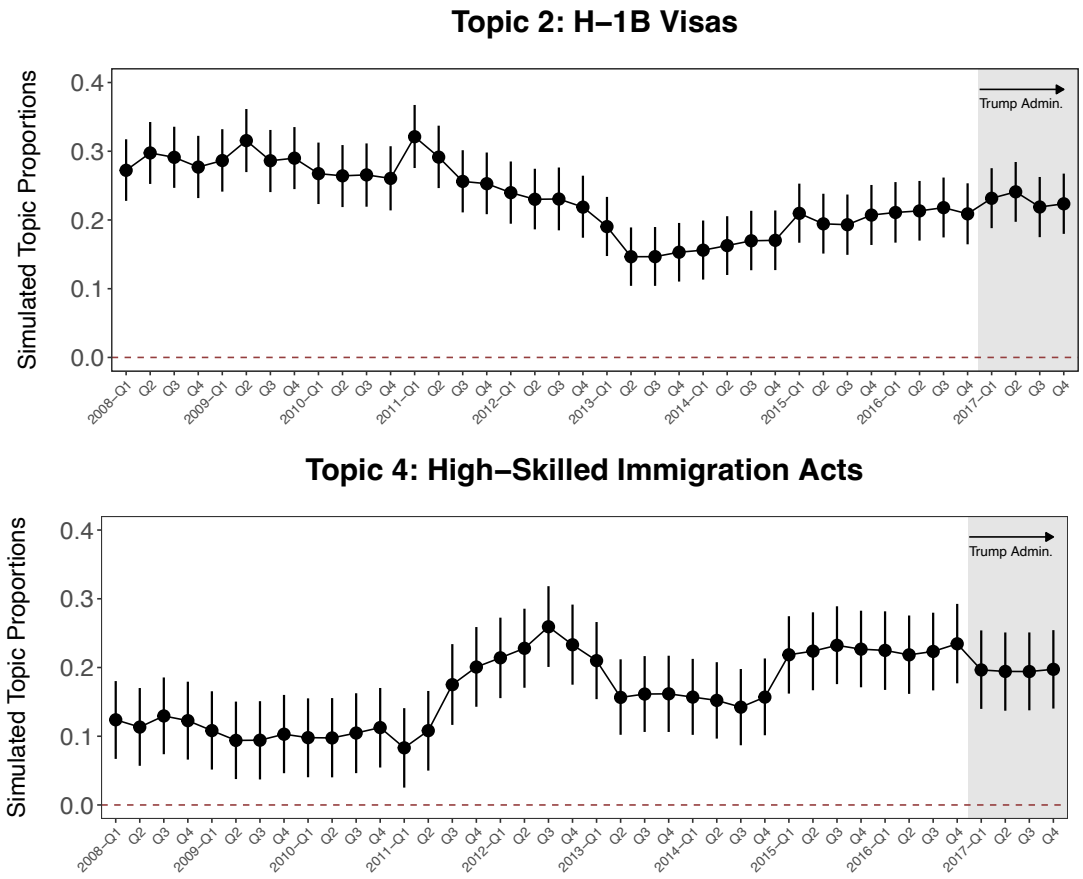


Figure C.4: **Quarterly Changes in Topic Prevalence, 2008–2017**. The figure shows that the topic prevalence of H-1B Visas increased right before and after the Trump administration. In contrast, the topic prevalence of High-Skilled Immigration Acts decreased during the same period. Building on the topic model results discussed in the Section "Stylized Facts," I first predict the proportion of the H-1B Visas topic among all immigration topics for each quarter between 2008 and 2017. The predictions are based on Monte Carlo simulations using the full model and the empirical distribution of the data. As shown in the top panel, while the predicted proportion of the topic first decreased from around 0.22 to 0.21 between the third and fourth quarter of 2016, it increased from 0.21 to 0.23 between the fourth quarter of 2016 and the first quarter of 2017, a difference of 0.02 (95% C.I. = 0.003 to 0.042). In contrast, the bottom panel shows that the prevalence of high-skilled immigration legislation as a topic decreased by 0.04 (95% C.I. = -0.074 to -0.006) between the fourth quarter of 2016 and the first quarter of 2017. Together, these patterns suggest changes in firms' lobbying priorities under the Trump administration, focusing more on influencing H-1B visa technicalities than broader high-skilled immigration legislation.

Appendix D DiD Analysis

Table D.1: **Descriptive Statistics for DiD Analysis**

Statistic	N	Mean	Median	St. Dev.	Min	Max
H-1B Denial Rate	981,096	0.0696	0	0.2346	0	1
2016 IMM Lobbying (any)	981,096	0.0011	0	0.0332	0	1
2017 IMM Lobbying (any)	981,096	0.0015	0	0.0390	0	1
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa")	981,096	0.0004	0	0.0204	0	1
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets USCIS)	981,096	0.00004	0	0.0062	0	1
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets DOL)	981,096	0.0001	0	0.0102	0	1
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets DHS)	981,096	0.0001	0	0.0119	0	1
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets WH/EOP)	981,096	0.0002	0	0.0148	0	1
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets Only Congress)	981,096	0.0001	0	0.0115	0	1
2017 Tobacco Lobbying Only	981,096	0.0001	0	0.0088	0	1
2017 Beverage Lobbying Only	981,096	0.0001	0	0.0083	0	1
2017 Commodities Lobbying Only	981,096	0.0001	0	0.0113	0	1
Public Firm	981,096	0.0185	0	0.1347	0	1
Size: Small	538,638	0.5172	1	0.4997	0	1
Size: Medium	538,638	0.2603	0	0.4388	0	1
Size: Large	538,638	0.1157	0	0.3199	0	1
Size: Very Large	538,638	0.1067	0	0.3087	0	1

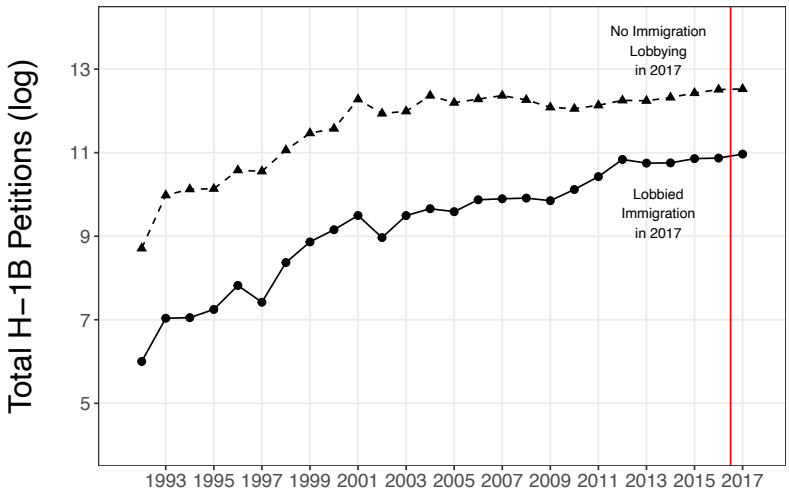


Figure D.1: **Trends in Total H-1B Petitions Grouped by Treatment Status, 1992–2017**. This figure shows that trends in total H-1B petitions have also been similar between treated firms (2017 immigration lobbying) and firms in the control group (no immigration lobbying in 2017). The red vertical line indicates the start of the Trump administration in 2017.

Table D.2: **Descriptive Statistics of 2017 Immigration Lobbying by NAICS 2-digit Industries**.

NAICS	Code	# Firms	% Lobbied	Example Firm
Agriculture, Forestry, Fishing, Hunting	11	131	0.8	LAND O'LAKES INC
Mining, Quarrying, and Oil/Gas Extraction	21	304	0.0	OCCIDENTAL PETROLEUM CORP
Utilities	22	179	0.0	PACIFIC GAS & ELECTRIC COMPANY
Construction	23	1263	0.1	LENNAR CORP
Manufacturing	31-33	7287	0.4	APPLE INC
Wholesale Trade	42	2440	0.1	NU SKIN ENTERPRISES INC
Retail Trade	44-45	1763	0.3	WALMART INC
Transportation and Warehousing	48-49	951	0.1	DELTA AIR LINES INC
Information	51	1772	0.6	MICROSOFT CORPORATION
Finance and Insurance	52	2396	0.0	THE WESTERN UNION CO
Real Estate and Rental and Leasing	53	451	0.0	CBRE GROUP INC
Professional, Scientific, Technical SVC	54	9547	0.1	ACCENTURE LLP
Management of Companies and Enterprises	55	444	0.5	SVB FINANCIAL GROUP
Admin., Waste Management, Remediation SVC	56	2673	0.1	EQUIFAX INC
Educational Services	61	706	0.3	SAS INSTITUTE INC
Health Care and Social Assistance	62	2699	0.0	COMMUNITY HEALTH SYSTEMS INC
Arts, Entertainment, and Recreation	71	271	1.1	FELD ENTERTAINMENT INC
Accommodation and Food Services	72	494	1.2	MCDONALDS CORP
Other Services (except Public Administration)	81	686	0.1	DESALES MEDIA GROUP INC
Public Administration	92	137	0.0	PAUL HASTINGS LLP

Table D.3: **Firms that Lobbied on Immigration in 2016 but not in 2017**

Firm Name
EMC CORP
MONSANTO CO
PROCTER & GAMBLE CO
SERCO INC
SIMPLOT COMPANY JR
STARWOOD HOTELS & RESORTS WORLDWIDE INC
YAHOO! INC

Table D.4: **Firms that Lobbied on Immigration in 2017 but not in 2016**

Firm Name
ADVANCED MICRO DEVICES INC
APPLE INC
ARAMARK SPORTS & ENT. SERVICES LLC
CA, INC.
CATERPILLAR INC
CROWE HORWATH LLP
CUMMINS INC
DEERE & COMPANY
DESALES MEDIA GROUP INC
DROPBOX INC
DUNKIN BRANDS INC
EBAY INC
FELD ENTERTAINMENT INC
GENERAL MILLS INC
HILTON WORLDWIDE HOLDINGS INC
KIPP INC
LENNAR CORP
MARS INC
MAXIMUS INC
MICRON TECHNOLOGY INC
NESTLE USA
NU SKIN ENTERPRISES INC
OCEAN SPRAY CRANBERRIES INC
RED HAT INC
SALESFORCE.COM, INC.
SAP AMERICA INC
SAS INSTITUTE INC
SPOTIFY USA INC
STARBUCKS CORP
SVB FINANCIAL GROUP
TWITTER, INC.
UNIVERSAL CORP
WALGREEN CO
WALMART INC
ZOETIS INC

Table D.5: **Firms that Lobbied Bureaucracies on Immigration in 2017**

Firm Name	Targeted Bureaucracy
ACCENTURE LLP	DHS
AMAZON.COM INC	USCIS, DOL, WH/EOP
APPLE INC	WH/EOP
ARAMARK SPORTS & ENT. SERVICES LLC	WH/EOP
CA, INC	WH/EOP
CATERPILLAR INC	DHS, WH/EOP
COGNIZANT TECH. SOLUTIONS CORP	DHS, WH/EOP
CUMMINS INC	DHS, WH/EOP
DELTA AIR LINES INC	DHS
DROPBOX INC	DHS
FACEBOOK INC	DOL, DHS, WH/EOP
FELD ENTERTAINMENT INC	USCIS, DHS
GEMALTO INC	DHS
GOOGLE INC	WH/EOP
HP INC	WH/EOP
INTEL CORP	USCIS, WH/EOP
MARRIOTT INTERNATIONAL INC	WH/EOP
MICROSOFT CORPORATION	DOL, DHS, WH/EOP
MOTOROLA SOLUTIONS INC	DHS, WH/EOP
ORACLE CORP	DOL, DHS, WH/EOP
SABRE GLBL INC	DHS
SALESFORCE.COM, INC	DHS
SAP AMERICA INC	DOL, DHS, WH/EOP
SPOTIFY USA INC	WH/EOP
TEXAS INSTRUMENTS INC	WH/EOP
TRUEBLUE INC	DOL, DHS
TWITTER, INC	WH/EOP

Table D.6: **DiD Regression Results: 1992–2017**

	Dependent Variable: H-1B Denial Rates						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2017 IMM Lobbying (any) × Trump Administration (2017)	-0.045^{***} (0.006)						
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa") × Trump Administration (2017)		-0.049^{***} (0.008)					
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets Only Congress) × Trump Administration (2017)			-0.032 (0.020)				
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets USCIS) × Trump Administration (2017)				-0.067^{***} (0.004)			
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets DOL) × Trump Administration (2017)					-0.058^{***} (0.008)		
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets DHS) × Trump Administration (2017)						-0.052^{***} (0.013)	
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets WH/EOP) × Trump Administration (2017)							-0.050^{***} (0.008)
Fixed Effects: Firm (BvD ID)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects: Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Group Size: Firms	384,462	384,462	384,462	384,462	384,462	384,462	384,462
Group Size: Years	26	26	26	26	26	26	26
Observations	981,096	981,096	981,096	981,096	981,096	981,096	981,096
R^2	0.658	0.658	0.658	0.658	0.658	0.658	0.658
Adjusted R^2	0.438	0.438	0.438	0.438	0.438	0.438	0.438

Note: Standard errors clustered by firms in parentheses. $^{*}p<0.05$; $^{***}p<0.01$; $^{***}p<0.001$. Note that firm and year fixed-effects subsume the constitutive terms of the interactions. Column (1) estimates the effect of immigration lobbying in 2017, ignoring specific lobbying issues and target venues. Column (2) estimates the effect when only considering 2017 immigration lobbying that specifies "Skilled"/"H-1B"/"Visa" in reports. Columns (3)–(7) further restrict the treatment condition to only firms that target specific government agencies.

Table D.7: **DiD Regression Results: Augmented Lobbying Measures**

	Dependent Variable: H-1B Denial Rates						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2017 IMM Lobbying (any) x Trump Administration (2017)	-0.047^{***} (0.006)						
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa") × Trump Administration (2017)		-0.053^{***} (0.009)					
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets Only Congress) × Trump Administration (2017)			-0.031 (0.017)				
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets USCIS) × Trump Administration (2017)				-0.067^{***} (0.004)			
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets DOL) × Trump Administration (2017)					-0.058^{***} (0.008)		
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets DHS) × Trump Administration (2017)						-0.052^{***} (0.013)	
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets WH/EOP) × Trump Administration (2017)							-0.049^{***} (0.007)
Fixed Effects: Firm (BvD ID)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects: Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Group Size: Firms	384,462	384,462	384,462	384,462	384,462	384,462	384,462
Group Size: Years	26	26	26	26	26	26	26
Observations	981,096	981,096	981,096	981,096	981,096	981,096	981,096
R^2	0.658	0.658	0.658	0.658	0.658	0.658	0.658
Adjusted R^2	0.438	0.438	0.438	0.438	0.438	0.438	0.438

Note: Standard errors clustered by firms in parentheses. *p<0.05; ***p<0.01; ***p<0.001. Note that firm and year fixed-effects subsume the constitutive terms of the interactions. The lobbying measures in the main text are constructed using all 2017 lobbying reports that listed "IMM" as one of their general issue codes. This approach assumes that petitioning firms will include and complete the "IMM"-part of their reports if they lobbied on H-1B visas as an immigration issue. The assumption seems feasible as firms need to "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" (Appendix Figure C.1). Thus, if firms lobbied on H-1B visas, it is possible, but it should be less common that they only listed, e.g., "HOM" (Homeland Security) or "LBR" (Labor) as general issue codes and not "IMM." While this approach may not fully capture petitioning firms' immigration lobbying efforts, it should capture a more conservative sample of firms with clearer intentions of H-1B visa lobbying. Note that the measures are at the firm-year level, and thus even if a firm filed reports in 2017 mentioning immigration keywords but did not list "IMM" as a general issue, as long as the firm filed one report that included "IMM" in 2017, it will still be counted as lobbying on immigration in 2017. Here, I explore whether the main findings are robust to augmented measures based on a broader-defined sample of 2017 lobbying reports that either included "IMM" as a general issue code or omitted "IMM" but contained some immigration-related keywords ("immigration", "visa", or "H-1B"). I find that the latter reports are associated with 16 additional petitioning firms compared to the 79 firms based on the main measures. This table presents results using the augmented measures and shows that they are substantively similar to the main findings in Appendix Table D.6, with slightly larger effects in columns (1) and (2).

Table D.8: **DiD Regression Results: 2016–2017**

	Dependent Variable: H-1B Denial Rates						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2017 IMM Lobbying (any) × Trump Administration (2017)	-0.030^{***} (0.006)						
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa") × Trump Administration (2017)		-0.042^{***} (0.007)					
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets Only Congress) × Trump Administration (2017)			-0.041^{**} (0.013)				
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets USCIS) × Trump Administration (2017)				-0.046^{***} (0.005)			
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets DOL) × Trump Administration (2017)					-0.048^{***} (0.013)		
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets DHS) × Trump Administration (2017)						-0.040^{**} (0.013)	
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets WH/EOP) × Trump Administration (2017)							-0.042^{***} (0.010)
Fixed Effects: Firm (BvD ID)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects: Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Group Size: Firms	57,306	57,306	57,306	57,306	57,306	57,306	57,306
Group Size: Years	2	2	2	2	2	2	2
Observations	75,731	75,731	75,731	75,731	75,731	75,731	75,731
R^2	0.880	0.880	0.880	0.880	0.880	0.880	0.880
Adjusted R^2	0.506	0.506	0.506	0.506	0.506	0.506	0.506

Note: Standard errors clustered by firms in parentheses. $^{*}p<0.05$; $^{***}p<0.01$; $^{***}p<0.001$. Note that firm and year fixed-effects subsume the constitutive terms of the interactions. Column (1) estimates the effect of immigration lobbying in 2017, ignoring specific lobbying issues and target venues. Column (2) estimates the effect when only considering 2017 immigration lobbying that specifies "Skilled"/"H-1B"/"Visa" in reports. Column (3)–(7) further restricts the treatment condition to only firms that target specific government agencies.

Table D.9: **DiD Estimation with Matching: 2016–2017**

	Dependent Variable: H-1B Denial Rates	
	(1) Baseline	(2) Matching
2017 IMM Lobbying (any) × Trump Administration (2017)	-0.029 (-0.046, -0.015)	-0.017 (-0.036, -0.002)
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa") × Trump Administration (2017)	-0.041 (-0.079, -0.023)	-0.031 (-0.06, -0.013)
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets Only Congress) × Trump Administration (2017)	-0.04 (-0.189, -0.012)	-0.037 (-0.156, -0.006)
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets USCIS) × Trump Administration (2017)	-0.044 (-0.096, -0.018)	-0.027 (-0.088, -0.002)
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets DOL) × Trump Administration (2017)	-0.047 (-0.191, -0.018)	-0.037 (-0.128, -0.009)
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets DHS) × Trump Administration (2017)	-0.039 (-0.14, -0.01)	-0.027 (-0.099, -0.0002)
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets WH/EOP) × Trump Administration (2017)	-0.04 (-0.101, -0.018)	-0.03 (-0.07, -0.009)

Note: The point estimates and 95% C.I. are obtained based on 1,000 block bootstrap iterations using PanelMatch (https://CRAN.R-project.org/package=PanelMatch). To facilitate the comparison of results across different estimation approaches, I focus on the two years right before and after the Trump Administration: 2016 (pre-treatment) and 2017 (post-treatment). Column (1) presents baseline DiD estimates after matching each treated firm to all available control firms in the data during the period. It excludes treated firms that did not exist in the data in 2016 (e.g., never petitioned for high-skilled visas before 2017) and hence had no pre-treatment history for control units to match. As expected, the results are quite similar to the DiD regression results in Appendix Table D.8. Column (2) then presents DiD estimates after exact matching on a firm's 2-digit NAICS industry code listed in Appendix Table D.2 and size according to Orbis (small, medium, large, very large). This approach ensures that the analysis is at least comparing firms in the same industry and size while also restricting the estimation to the common support. Appendix Table D.10 shows the improved covariate balances after matching, while Appendix Figure D.2 presents the frequency distributions of matched control firms. As shown in this table, the results are substantively similar. Effect sizes are generally smaller but statistically discernable from zero.

Table D.10: **Improved Covariate Balance**

	2017 IMM Lobbying (any)		2017 IMM Lobbying (text)	
	(1)	(2)	(3)	(4)
$t-1$	Baseline	Matching	Baseline	Matching
H-1B Denial Rate	-1.426	-0.183	-1.351	-0.046
2-Digit NAICS Code	0.261	0	0.133	0
Size	1.918	0	1.961	0
Public	1.333	0.664	1.718	0.868
Sales	0.692	0.628	0.839	0.764
Employment	0.794	0.723	0.873	0.795

Note: This table presents the average covariate difference (standard deviations) between treated and control units at $t-1$ (2016) before and after exact matching on NAICS Code and Size. Results are computed using PanelMatch. To ease the presentation, I focus on the first two treatment versions presented in Appendix Table D.9 as examples. Across treatments, the results show substantial improvement for the lagged outcome variable and notable improvements even on non-matched covariates (e.g., Public, Sales, and Employment). Note that further refined matches based on time-varying characteristics such as sales and employment is infeasible given that around 97.7% and 96.7% of the observations between 2016 and 2017 have missingness on the two variables, respectively. Covariate balances for the remaining treatments see similar improvements and will be available in the replication data.

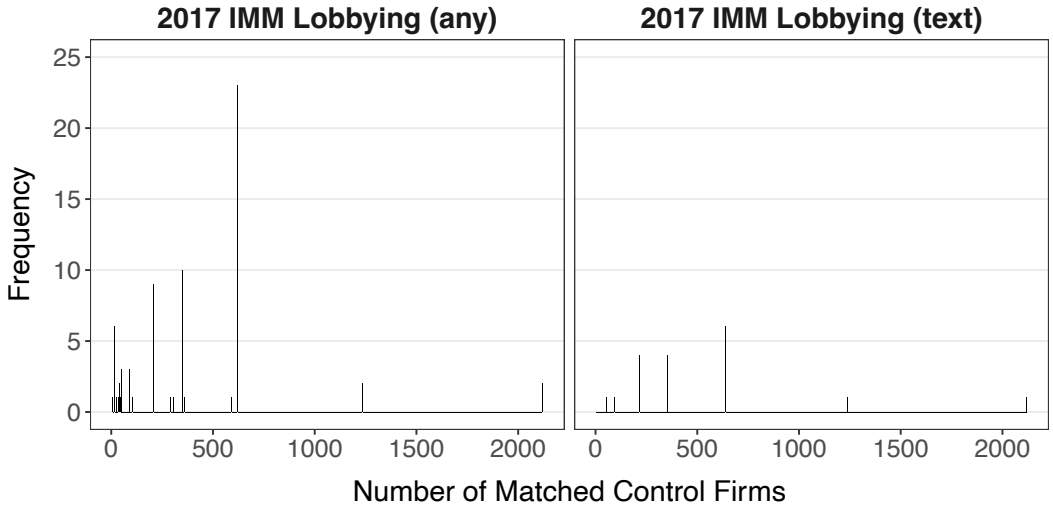


Figure D.2: **Frequency Distribution of the Number of Matched Control Firms**. This figure shows the distribution of the number of matched control firms in columns (2) and (4) of Appendix Table D.10. There are no treated firms without matched control firms. The minimum number of matched control firms is 5 in the left panel and 56 in the right panel.

Table D.11: **DiD Regression Results: Two-Way Clustered Standard Errors**

	Dependent Variable: H-1B Denial Rates					
	(1)	(2)	(3)	(4)	(5)	(6)
2017 IMM Lobbying (any) × Trump Administration (2017)	-0.045^{***} (0.003)					
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa") × Trump Administration (2017)		-0.049^{***} (0.003)				
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets USCIS) × Trump Administration (2017)			-0.067^{***} (0.002)			
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets DOL) × Trump Administration (2017)				-0.058^{***} (0.004)		
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets DHS) × Trump Administration (2017)					-0.052^{***} (0.004)	
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa" & targets WH/EOP) × Trump Administration (2017)						-0.050^{***} (0.003)
Fixed Effects: Firm (BvD ID)	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects: Year	Yes	Yes	Yes	Yes	Yes	Yes
Group Size: Firms	384,462	384,462	384,462	384,462	384,462	384,462
Group Size: Years	26	26	26	26	26	26
Observations	981,096	981,096	981,096	981,096	981,096	981,096
R^2	0.658	0.658	0.658	0.658	0.658	0.658
Adjusted R^2	0.438	0.438	0.438	0.438	0.438	0.438

Note: Standard errors clustered by both firms and years in parentheses. *p<0.05; ***p<0.01; ***p<0.001. Note that firm and year fixed-effects subsume the constitutive terms of the interactions. Column (1) estimates the effect of immigration lobbying in 2017, ignoring specific lobbying issues and target venues. Column (2) estimates the effect when only considering 2017 immigration lobbying that specifies "Skilled"/"H-1B"/"Visa" in reports. Columns (3)–(6) further restrict the treatment condition to only firms that target specific bureaucracies.

Table D.12: **DiD Regression Results: Excluding Large Outlier Firms**

	Dependent Variable: H-1B Denial Rates					
	Sales		Employment		IMM Lob. Expenses	
	(1)	(2)	(3)	(4)	(5)	(6)
2017 IMM Lobbying (any) × Trump Administration (2017)	−0.040***		−0.037***		−0.044***	
	(0.009)		(0.009)		(0.007)	
2017 IMM Lobbying ("Skilled"/"H-1B"/"Visa") × Trump Administration (2017)		−0.048**		−0.044**		−0.046***
		(0.015)		(0.017)		(0.011)
Fixed Effects: Firm (BvD ID)	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects: Year	Yes	Yes	Yes	Yes	Yes	Yes
Group Size: Firms	384,306	384,306	384,198	384,198	384,456	384,456
Group Size: Years	26	26	26	26	26	26
Observations	978,266	978,266	976,649	976,649	980,974	980,974
R^2	0.658	0.658	0.658	0.658	0.658	0.658
Adjusted R^2	0.437	0.437	0.437	0.437	0.438	0.438

Note: Standard errors clustered by firms in parentheses. *p<0.05; ***p<0.01; ***p<0.001. Note that firm and year fixed-effects subsume the constitutive terms of the interactions. Excluded large outlier firms are identified using the interquartile range (IQR) criterion (Q3 + 1.5 × IQR) on 2017 sales (columns (1)–(2)), 2017 employment (columns (3)–(4)), and 2017 estimated immigration lobbying expenses (columns (5)–(6)).

Table D.13: **DiD Regression Results: Controlling for Size**

	Dependent Variable: H-1B Denial Rates		
	(1)	(2)	(3)
Immigration Lobbying in 2017 (any)	−0.013***	−0.015***	−0.012***
	(0.003)	(0.003)	(0.003)
Immigration Lobbying in 2017 (any) × Trump Administration (2017)	−0.051***	−0.053***	−0.051***
	(0.006)	(0.006)	(0.006)
Size: Medium	−0.011***		−0.011***
	(0.001)		(0.001)
Size: Large	−0.025***		−0.025***
	(0.001)		(0.001)
Size: Very Large	−0.035***		−0.034***
	(0.001)		(0.001)
Public Firm		−0.023***	−0.001
		(0.001)	(0.001)
Fixed Effects: Year	Yes	Yes	Yes
Fixed Effects: Industry	Yes	Yes	Yes
Group Size: Years	26	26	26
Group Size: Industries	305	305	305
Observations	454,765	454,947	454,765
R^2	0.033	0.030	0.033
Adjusted R^2	0.032	0.029	0.032

Note: Standard errors clustered by firms in parentheses. *p<0.05; ***p<0.01; ***p<0.001. Note that year fixed-effects subsume the treatment-period constitutive term of the interactions.

Table D.14: **DiD Regression Results: Time Placebos**

	Dependent Variable: H-1B Denial Rates		
	(1)	(2)	(3)
2017 IMM Lobbying (any) × Placebo Timing (2004)	−0.008		
	(0.005)		
2017 IMM Lobbying (any) × Trump Administration (2017)		−0.027***	−0.034***
		(0.006)	(0.009)
2016 IMM Lobbying (any) × Trump Administration (2017)			−0.018
			(0.011)
2017 IMM Lobbying (any) × Placebo Timing (1992)		0.018*	
		(0.007)	
2017 IMM Lobbying (any) × Placebo Timing (1993)		0.012	
		(0.008)	
2017 IMM Lobbying (any) × Placebo Timing (1994)		0.024	
		(0.015)	
2017 IMM Lobbying (any) × Placebo Timing (1995)		0.049*	
		(0.024)	
2017 IMM Lobbying (any) × Placebo Timing (1996)		0.005	
		(0.007)	
2017 IMM Lobbying (any) × Placebo Timing (1997)		0.022	
		(0.014)	
2017 IMM Lobbying (any) × Placebo Timing (1998)		0.027**	
		(0.009)	
2017 IMM Lobbying (any) × Placebo Timing (1999)		0.035	
		(0.021)	
2017 IMM Lobbying (any) × Placebo Timing (2000)		0.029***	
		(0.008)	
2017 IMM Lobbying (any) × Placebo Timing (2001)		0.017**	
		(0.006)	
2017 IMM Lobbying (any) × Placebo Timing (2002)		0.026*	
		(0.012)	
2017 IMM Lobbying (any) × Placebo Timing (2003)		0.019	
		(0.010)	
2017 IMM Lobbying (any) × Placebo Timing (2004)		0.019	
		(0.010)	
2017 IMM Lobbying (any) × Placebo Timing (2005)		0.032***	
		(0.009)	
2017 IMM Lobbying (any) × Placebo Timing (2006)		0.028***	
		(0.005)	
2017 IMM Lobbying (any) × Placebo Timing (2007)		0.029***	
		(0.006)	
2017 IMM Lobbying (any) × Placebo Timing (2008)		0.022**	
		(0.007)	
2017 IMM Lobbying (any) × Placebo Timing (2009)		0.016	
		(0.013)	

2017 IMM Lobbying (any) × Placebo Timing (2010)		0.016	
		(0.013)	
2017 IMM Lobbying (any) × Placebo Timing (2011)		0.018	
		(0.010)	
2017 IMM Lobbying (any) × Placebo Timing (2012)		−0.001	
		(0.004)	
2017 IMM Lobbying (any) × Placebo Timing (2013)		0.019	
		(0.015)	
2017 IMM Lobbying (any) × Placebo Timing (2014)		0.006	
		(0.005)	
2017 IMM Lobbying (any) × Placebo Timing (2015)		0.006	
		(0.004)	
Fixed Effects: Firm (BvD ID)	Yes	Yes	Yes
Fixed Effects: Year	Yes	Yes	Yes
Group Size: Firms	374,725	384,462	384,462
Group Size: Years	25	26	26
Exclude Post-treatment 2017 Observations	Yes	No	No
Observations	942,834	981,096	981,096
R^2	0.663	0.658	0.658
Adjusted R^2	0.441	0.438	0.438

Note: Standard errors clustered by firms in parentheses. *p<0.05; ***p<0.01; ***p<0.001. Note that firm and year fixed-effects subsume the constitutive terms of the interactions. Column (2) decomposes the treatment effect over time by interacting the treatment group indicator with time dummies for each year except for 2016 (the last pre-treatment period). Thus, coefficients in the model represent the estimated effect in year t compared to that of 2016 (the omitted baseline).

Table D.15: **DiD Regression Results: Placebo Treatments**

	Dependent Variable: H-1B Denial Rates		
	(1)	(2)	(3)
Only Tobacco Lobbying in 2017 × Trump Administration (2017)	−0.037		
	(0.036)		
Only Beverage Lobbying in 2017 × Trump Administration (2017)		0.060	
		(0.106)	
Only Commodities Lobbying in 2017 × Trump Administration (2017)			0.031
			(0.091)
Fixed Effects: Firm (BvD ID)	Yes	Yes	Yes
Fixed Effects: Year	Yes	Yes	Yes
Group Size: Firms	384,462	384,462	384,462
Group Size: Years	26	26	26
Observations	981,096	981,096	981,096
R^2	0.658	0.658	0.658
Adjusted R^2	0.438	0.438	0.438

Note: Standard errors clustered by firms in parentheses. *p<0.05; ***p<0.01; ***p<0.001. Note that firm and year fixed-effects subsume the constitutive terms of the interactions.