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Globalization and Firm Lobbying*

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Abstract

Globalization affects firms in many ways, but firms also shape how globalization develops through their efforts to affect political outcomes. We study the lobbying behavior of 193 of the most innovative firms in the US during 2001-2006. We compare how firms' characteristics are associated with lobbying for different issues and for lobbying overall, focusing particularly on lobbying for immigration and trade. We then investigate how firms adjusted their lobbying activities in response to large policy changes related to the H-1B visa, finding significant effects.

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I. INTRODUCTION

Globalization is a controversial and growing force, one that shapes many aspects of our lives. The degree of integration among the world's economies governs the scope and nature of product, labor, and financial markets. Spans of these markets in turn influence competition levels and consumer prices, factors rewards to workers, innovation incentives, and much more.

Extensive research in a variety of fields has explored these relationships and how they shape our lives. Most of this work takes the degree of international integration for an industry as exogenous from the perspective of individual economic agents like firms or workers. There are some noticeable exceptions, however. Trade theory has long incorporated political economy elements and recent work has further explored these channels empirically.[1]

Throughout, this work stresses how impacted sectors seek to influence the laws and protections that govern markets and international integration. Likely due to data limitations, most of these studies draw upon data on campaign contributions. These expenditures make up only a small fraction of the resources devoted to influence the political process, however.[2] Indeed, Facchini, Mayda, and Mishra (2008) report that lobbying expenditures by interest groups outnumbered donations to political action committees by a factor of nine.[3]

Despite the progress that this work has made, we still have very little understanding of how individual firms shape globalization. This is especially true empirically. Changes in policies that determine the level of integration with international markets are not beyond the influence of very large firms, and the existing sectoral level work provides only a partial portrait. To

[1] See Bombardini (2008), Bombardini and Trebbi (2009), and Goldberg and Maggi (1999).
[2] See, for example, Goldberg and Maggi (1999), Gawande and Bandyopadhyay (2000), Snyder (1990), and Bronars and Lott (1997).
[3] Ansolabehere, de Figueiredo, and Snyder (2003) report similar figures for 1997-1998.

take one well known example, Bill Gates has argued extensively before Congress in favor of expanding the H-1B visa program.

We take a step towards understanding firms' efforts to influence political outcomes. We collect comprehensive data on the lobbying behavior of 193 large, innovative firms in the US during the 2001-2006 period. This data documents the overall lobbying expenditures by the firm and also identifies the issues that firms devoted resources to influence. Despite the modest size of our sample, this group of 193 firms accounts for more than $3 trillion worth of production annually, with significant operations outside of the US. Gabaix (2010) notes the particular influence of very large firms on aggregate economic outcomes, and our work continues in this vein to describe their efforts to shape the pace and character of globalization.[4]

Our first step characterizes overall entry by firms into lobbying and their total expenditures. Almost three quarters of our sample lobbies the federal government at some point during the 2001-2006 period, with firm size being the most important factor in explaining this behavior. The elasticities of expenditures with respect to firm size are quite high at 0.7-0.9. While simple, this step is important in documenting the very strong gradients in firm size for lobbying even among the largest firms in the economy.

After establishing this baseline, we further explore the extent to which firms lobby for the specific issues in which they have a particular stake. This has been a point of controversy among political economists; some suggest that general participation and policy influence is sufficient to advance a firm's interests, while others argue that firm lobbying is issue specific.

We begin by studying lobbying around high-skilled immigration, focusing particularly on the H-1B visa. This visa governs much high-skilled immigration to America for work in science

[4] This is not unique to the US; as an example from Gabaix (2010), worldwide sales by Nokia represented 26% of Finland’s GDP.

and engineering, and draws primarily from India and China. These workers are an important source of talent for the US. In the 2000 Census, immigrants accounted for 24% and 47% of all scientists and engineers with bachelors and doctorate educations, respectively.

We construct two measures of firm sensitivity to high-skilled immigration. The first metric is the extent to which the firm relies on inventors of Chinese and Indian ethnicity within the US. These dependencies can be quite high, well exceeding the shares in the general population. As an example, over 30% of Intel's US patents during this period come from Chinese and Indian workers. The second metric is the number of Labor Condition Applications applied for by the firm as an initial step in obtaining an H-1B worker visa.

We find strong evidence that firms lobby for their specific needs, even after removing detailed industry-year patterns and firm size covariates. Our estimates suggest that a 10% increase in either dependency measure, holding the other fixed, leads to a 0.2-0.3% higher probability of lobbying for high-skilled immigration. Unlike its role in determining overall lobbying status, firm size is not strongly related with respect to immigration lobbying once we account for these particular sensitivities. This contrasts with lobbying for trade where size remains the most important determinant, consistent with models of the political economy of trade such as Grossman and Helpman (1994). We further contrast these results with a number of placebo exercises. These tests help confirm that our results for immigration and trade are not being driven by omitted factors.

We then use the panel nature of our data to measure how lobbying behavior by firms responds to changes in conditions that matter to them. Specifically, we analyze firms' lobbying behavior in response to a large, predetermined decrease in the number of available H-1B visas. We find that H-1B dependent firms substantially changed their lobbying efforts around this program once these constraints became binding.

Our descriptive work contributes in several important ways. First, our empirical demonstration of the steep rise in general lobbying efforts by firm size is basic but very

important. Similar patterns have been found for campaign contributions in the political science literature, suggesting that this is an empirical regularity across different methods of affecting political outcomes. Gabaix (2010) emphasizes how a small group of very large firms contributes substantially to macroeconomic fluctuations. Similarly, our strong connection between lobbying and firm size emerges even among these 193 publicly traded firms. This suggests that greater attention is warranted in both theoretical and empirical research on the role of these very largest firms for shaping the globalization landscape.

Second, we demonstrate how specific lobbying efforts by firms depend upon their underlying characteristics and the economic conditions that they face. To our knowledge, no other study has investigated the determinants of the issues for which firms lobby. This is important, as the ability to influence targeted policy areas likely plays a significant role in the fact that lobbying expenditures vastly outnumber campaign contributions. We hope that our described heterogeneity can help inform the micro-foundations of future political economy models in international economics. It also points to the shortcomings of prominent theoretical models in the political economy literature, which are often either static or assume a representative firm. Our results suggest that this is an area of study that is likely to be fruitful.

II. DATA DESCRIPTION AND SUMMARY STATISTICS

In order to study the determinants of firm lobbying behavior we bring together information from a number of disparate sources. These include data on lobbying expenditures, international trade, applications for H-1B visas, and ethnic invention. We begin the construction of this data set by defining a balanced panel of 193 firms. These firms are publicly traded and account for at least 0.05% of US domestic patents.[5] Reflecting the extreme skewness of the firm size distribution, these firms typically account for a very large portion of US output. Figure 1 describes the evolution of two of these metrics for IBM, and

[5] This was done for 2001-2004, although the resulting list of firms that we consider was more or less insensitive to the period upon which the threshold was based. Extensive details on the construction of the firm panel are found in the Data Appendix.

Table 1 lists the most important firms in each area of firm operations. We describe the sources of each of these data in detail below.

A. Lobbying Expenditures

Lobbyists in the US can legally influence political outcomes through two main channels, lobbying and political action committees (PACs). As noted above, lobbying expenditures are an order of magnitude larger than PAC contributions but have received very little attention empirically. Individual companies and organizations are required to provide a substantial amount of information on their lobbying activities, starting with the introduction of the Lobbying Disclosure Act of 1995. Since 1996, intermediaries who lobby on behalf of companies and organizations have to file semi-annual reports to the Secretary of the Senate's Office of Public Records (SOPR).

These SOPR reports list the name of each client, the total funds that they have received from each client, and a pre-specified set of general issues for which they lobbied for each client.[6] All firms with in-house lobbying departments are similarly required to file reports.[7] Legislation requires the disclosure not only of the dollar amounts actually received/spent but also of the issues that were lobbied for. For each general issue, the filer is also required to list the specific issues which were lobbied for during the semi-annual period. Thus, unlike

[6] Appendix Figure 1 provides an illustrative report. According to the Lobbying Disclosure Act, the term "lobbying activities" refers to " lobbying contacts and efforts in support of such contacts, including preparation and planning activities, research and other background work that is intended, at the time it is performed, for use in contacts, and coordination with the lobbying activities of others." The term "lobbying contact" refers instead to "any oral or written communication (including an electronic communication) to a covered executive branch official or a covered legislative branch official that is made on behalf of a client with regard to (i) the formulation, modification, or adoption of Federal legislation (including legislative proposals); (ii) the formulation, modification, or adoption of a Federal rule, regulation, Executive order, or any other program, policy, or position of the United States Government; (iii) the administration or execution of a Federal program or policy (including the negotiation, award, or administration of a Federal contract, grant, loan, permit, or license); or (iv) the nomination or confirmation of a person for a position subject to confirmation by the Senate."

[7] This includes either in-house activities or in payments to external lobbyists. Appendix Table 1 shows the list of 76 general issues given to each respondent, at least one of which has to be entered.

PAC contributions, lobbying expenditures of companies can be associated empirically with very specific, targeted policy areas.

We compile comprehensive data on lobbying behavior from the websites of the Center for Responsive Politics (CRP) and the SOPR in Washington, D.C.[8] The report filed by Microsoft Corporation for its lobbying expenditures between January - June 2005 is shown in Appendix Figure 1. Microsoft lists "immigration" as a general issue and lists "H-1B visas", "L-1 visas" and "PERM (Program Electronic Review Management System)", as specific issues under immigration. Besides immigration, Microsoft also lists "trade" and seven other issues in this report.

Given our interest in studying high-skilled immigration, we examined the specific issues listed in each report and determined which firms were lobbying for what. The specific issues that are listed are often bills proposed in the US House and Senate. Bills before Congress or specific executive branch actions are required to be listed in the form. For example, H.R. 5744: Securing Knowledge, Innovation, and Leadership Act of 2006 and S. 1635: L-1 Visa Reform Act of 2004 are bills that we deemed to be relevant for high-skilled immigration.[9] In addition to mentioning specific bills, firms also directly list "H-1B visas," "L-1 visas," "high-skilled immigration" and the like in their lobbying reports. We define a firm to be lobbying for high-skilled immigration in any of these cases.

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[8] These data consist of semi-annual lobbying disclosure reports and are posted online. Annual lobbying expenditures are calculated by adding mid-year totals and year-end totals. Whenever there is a discrepancy between data on income and expenditures, CRP uses information from lobbying reports on expenditure.

[9] More specifically, H.R. 5744 included provisions for increasing the annual H-1B visa cap and revised student visa provisions. Other bills, such as H.R. 4437: Border Protection, Antiterrorism, and Immigration Control Act of 2005 and S. 2611: Comprehensive Immigration Reform Act of 2006, are related to immigration but do not include provisions directly related to high-skilled immigration. All the bills pertaining to high-skilled immigration are detailed in the Data Appendix. One important piece of legislation is H.R. 4818: Consolidated Appropriations Act, which in 2005 exempted up to 20,000 foreign nationals holding a master's or higher degree from the cap on H-1B visas. The bill was signed into law in December, 2004.

B. Firm Dependence on High-Skill Immigrants

We explore two indicators of a firm's dependence on workers holding H-1B visas: (i) patents filed by inventors of Chinese and Indian ethnicity and (ii) Labor Condition Applications (LCAs) filed by employers filed to obtain H-1B visas. The ability to construct a dependency measure using the patent data in part motivated our choice of a sample of highly innovative firms. We describe the construction of each metric below.

Patents

Data on firms' patents are obtained from the United State Patent and Trademark Office (USPTO). These include the individual records of all patents granted from January of 1975 to May 2009 and contain information on over eight million inventors on more than four million granted patents. Each record holds a wealth of information about the patent, including the individuals responsible for the invention. These include the patent's technology classification, the firm or institution that owns the patent, and the names of the individuals responsible for the invention.

We determine the ethnicities of the inventors on these patents using the methodology laid out in Kerr (2007, 2008) and Kerr and Lincoln (2010). The basic approach uses the fact that inventors with the surnames Chang or Wang are more likely to be of Chinese ethnicity than of Hispanic ethnicity, while the opposite is true for Martinez and Rodriguez. We use two commercial ethnic databases that were originally developed for marketing purposes, and the name matching algorithms have been extensively customized for the USPTO data. The match rate is 99% and is verified through several quality assurance exercises.

Given the numerical importance of the H-1B visa program,[10] we use the number of patents filed by inventors of Chinese and Indian ethnicities as a measure of the dependence of a firm

[10] The H-1B visa is the primary visa that businesses use to bring foreign nationals into the US in order to work. Another such visa is the L-1, which is used to bring foreign nationals already employed by

(continued)

on high-skilled immigrants. Figure 2 demonstrates how the Chinese and Indian ethnicities have experienced an exceptional growth in their share of patents filed by inventors in the US, increasing from under 2% to 9% and 6%, respectively. They are also more concentrated in high-tech sectors like computers and communications than in other fields.

Labor Condition Applications

H-1B visas are specifically used to employ workers in a "specialty occupation," a requirement that essentially ensures that all successful applicants hold at least a bachelor's degree. It is issued for three years and can be renewed once, for up to six years of total employment. The visa is used especially for science and engineering and computer-related occupations, which account for roughly 60% of successful applications. Approximately 40% and 10% of H-1B recipients over 2000-2005 came from India and China, respectively. Other countries account for less than 5% of recipients; most account for less than 3%

The potential sponsor if an H-1B worker must specify an individual candidate, necessitating that the employer-employee match be made prior to the submission of the application. Workers are tied to the firm that sponsored them and are required to be paid a measure of the prevailing wage for their job description. To hire a foreign worker under the H-1B program an employer must first submit an LCA application to the US Department of Labor (DOL).[11]

The DOL releases micro-records on all LCA applications it receives, numbering 1.8 million for 2001-2006. These records include firm names and proposed work locations. We use these data to measure firms' dependencies on highly-skilled immigrants. LCA approvals do not

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the firm into the US. Due to a number of restrictions, the L-1 is far less important in terms of the numbers of visas used (see Kerr and Lincoln (2010)).

[11] Once the LCA has been certified, the employer files a petition to the United States Citizenship and Immigration Services (USCIS). In the petition the employer needs to substantiate the potential worker's education and qualifications. Finally, once the USCIS has approved the petition, a visa will be issued by the State Department.

translate one-for-one into H-1B grants, but the two measures are highly correlated across firms in the cross-section. Data on the H-1B visa outside of these micro-records is limited.

C. Other Data

Firm characteristics like sales and R&D expenditures are taken from the Compustat database. Exports and foreign direct investment (FDI) sales are based on the Compustat operations segments file. Industry-level imports are taken from the data compiled by Robert Feenstra at The Center for International Data at the University of California, Davis.

III. SUMMARY STATISTICS

Table 2 summarizes the basic characteristics of our firm sample. 70% of the firms lobby in at least one year over the period 2001-2006. Roughly 20% lobby for immigration and 50% lobby for trade. Interestingly, almost all the firms which lobby for immigration also list trade as a general issue. Reflecting the high-tech nature of our sample, roughly three-fourths of firms that lobby for immigration specifically lobby for high-skill immigration. On average 19% of firms' patents are developed by inventors of Chinese and Indian ethnicity and the typical firm files 93 LCA applications annually.

One interesting feature of our sample is that firms' general lobbying engagements are extraordinarily persistent. Indeed, only 4% of all observations record firms switching their status from not lobbying to lobbying or vice-versa. A simple variance decomposition exercise finds that the vast majority (86%) of the variation in lobbying behavior is between firms, rather than within firms over time.

IV. EMPIRICAL ANALYSIS

A. Cross-Sectional Determinants of Lobbying Efforts

We begin with a descriptive exercise on the determinants of different lobbying activities. We consider the linear probability model, with firms indexed by i:

$$L_{it} = \alpha + \delta * HS_{it} + \gamma * T_{it} + \beta * X_{it} + s_I \bullet \nu_t + \varepsilon_{it} \quad (1)$$

With L_{it} we study the determinants of whether or not a firm lobbies and how much it spends. HS_{it} are the two measures of a firm's dependence on high-skill immigration, measured by the log number of patent applications filed by Chinese and Indian inventors and the log number of LCA applications filed by a firm. T_{it} measures a firm's exposure to foreign markets using information on exports, FDI, and imports.

X_{it} is a vector of firm specific characteristics. These traits include firm sales, R&D expenditures, types of technologies patented by the firm, the geographic region of the patented technologies, an indicator for whether the firm is headquartered in the US, and industry level imports. A vector of industry-year fixed effects ($s_I \bullet \nu_t$) controls for any industry-time varying characteristics that may affect lobbying behavior such as industry concentration or unionization.

The results from estimating equation (1) are shown in Table 3. The dependent variable L_{it} in Columns (1)-(4) is an indicator variable for a firm's overall lobbying status. We look at the results from progressively adding different covariates. Column (1) looks at the size of the firm measured by sales, Column (2) includes R&D expenditures, and Column (3) includes measures of trade and dependence on foreign workers. Column (4) introduces industry-year fixed effects and the additional controls listed above. All regressions include year fixed effects, are unweighted, control for whether the firm is headquartered outside US or not, and report standard errors clustered by firm.

The overall size of the firm is the most significant determinant of lobbying behavior: a 10% increase in sales is associated with a 1.5% higher probability of lobbying. The importance of firm sales has also been found for understanding the determinant of campaign contributions, which is reassuring given the high correlation between lobbying efforts and PAC contributions found by Facchini, Mayda, and Mishra (2008).[12] None of the other explanatory variables have significant explanatory power for understanding the extensive margin of lobbying over and above the effect of the size of the firm.

In Columns (5)-(8), we examine the determinants of lobbying expenditures. The size of the firm is an important determinant of the intensity of lobbying as well. The effect is large and statistically significant at conventional levels. A 10% higher level of sales is associated with a 7-9% increase in lobbying expenditures.[13]

In Table 4 we turn to understanding the determinants of lobbying for particular issues, first focusing on immigration. As noted above, the empirical literature on the political economy of international labor movements is quite thin with the exception of Facchini, Mayda, and Mishra (2008). This paper provides evidence that special interests play a significant role in determining immigration policy, finding that barriers to immigration are lower in sectors in which business lobby. Here, we find that the size of the firm has little effect on lobbying for immigration. A 10% expansion of sales or R&D expenditures increases the likelihood of lobbying for immigration by less than a percent. Trade dependence also has little effect.

Our measures of a firm's dependence on foreign workers have significant explanatory power in explaining lobbying behavior on immigration issues. A 10% increase in the number patents filed by ethnic Chinese and Indian inventors increases the likelihood of lobbying for immigration issues by 0.2%. A 10% increase in the number of LCA applications likewise

[12] See also Tripathi, Ansolabehere, and Snyder (2002).
[13] Unreported results indicate that firms headquartered outside the US have lower likelihood of lobbying, and tend to spend less. Similar results were also found by Hansen and Mitchell (2000) for political action committee contributions and congressional testimonies, although not for the number of lobbyists hired by the firm.

increases the likelihood of lobbying for immigration issues by 0.3%. The estimated elasticities are robust to including industry-year fixed effects and additional controls. In fact, these measures of a firm's dependence on foreign workers are the only variables that are statistically significant in explaining lobbying for immigration when we include the full set of covariates.

As discussed in Section II, the majority of the firms that lobby for immigration list high-skilled immigration in the specific issues sections of their reports. The estimated elasticities are therefore similar when we look at lobbying for high-skilled immigration. One interesting finding is that exports and FDI sales are also significant in explaining the likelihood of lobbying for high-skilled immigration issues. This could reflect the demand for certain types of visas like the L-1, which is used to bring firm employees working outside the US into the country.

In Table 5, we conduct a falsification exercise where we look at lobbying on three issues that are unrelated to immigration: "clean air and water", "consumer product safety" and "retirement".[14] Not surprisingly, a firm's dependence on high-skilled immigration does not explain lobbying for these issues. This gives us confidence that the estimated coefficients on ethnic patenting and LCA applications presented in Table 4 do not reflect omitted variables that determine lobbying behavior in general, but reflect firm-specific features that make them more likely to lobby on immigration issues.

Finally, we compare the elasticities that we find for immigration with another key aspect of globalization—trade. Table 6 presents the results. The size of a firm's sales remains a significant determinant of lobbying for trade in all specifications. A 10% rise in domestic sales increases the likelihood of lobbying for trade issues by about 1-2%. The elasticity is

[14] "Clean air and water" includes environment and energy issues (e.g., Clean Air Act); "consumer product safety" includes consumer-related issues (e.g., drug safety, data security and privacy); "retirement" includes social security reform and similar issues.

much larger than that found for lobbying on immigration issues. This is consistent with the "Protection for Sale" model of Grossman and Helpman (1994), where higher output increases the gains to specific factor owners and raises the incentives to lobby.

Surprisingly, neither the value of firm exports nor industry-level imports have significant explanatory power in explaining the likelihood of lobbying for trade issues. This may be a function of our sample; further study on this question is likely warranted. We do, however, find that the innovative activities of firms are related to lobbying for trade issues. A 10% higher expenditure on R&D is associated with a 0.2-0.5% higher likelihood of lobbying for trade. This is likely due to more innovative firms lobbying for access to foreign markets for their inventions, suggesting that the long understood market size effect on innovation has implications for countries' openness to trade. This is consistent with recent work by Aw, Roberts, and Xu (2010), who find in simulations that a larger foreign market induces firms to devote more resources to R&D. We are unaware of any studies that have explored this mechanism in the political economy literature.

As a robustness check, we ran all regressions in Tables 3-6 with the explanatory variables lagged by one year. The figures are quite similar, suggesting that our results are not being driven by the simultaneous choices that firms make. Estimating equation (1) with a probit model also yielded similar results.

B. Panel Analysis Around Binding H-1B Caps

Our analysis thus far has focused primarily on the cross-sectional determinants of firm lobbying behavior. We now analyze the extent to which firms adjust their lobbying behavior when conditions important to them deteriorate or improve. We continue this in the context of high-skilled immigration by examining lobbying regarding the H-1B program.

Since the Immigration Act of 1990, there has been a limit to the number of H-1B visas that can be issued. While other aspects of the program have remained relatively stable over time,

this cap has changed substantially and has been the subject of significant public debate.[15] Much of the lobbying towards the federal government attempts to influence the overall size of the program through adjustments of this cap.

Figure 3 documents the cap by year from 1990-2008. The cap was initially set at 65,000 visas until legislation in 1998 and 2000 significantly expanded the program to 195,000 visas.[16] These changes expired in 2004 and the cap fell to 65,000 visas. This limit has been binding since, even despite being raised by 20,000 in 2006 through an "advanced degree" exemption. Kerr and Lincoln (2010) have found that these changes significantly influenced the pace and character of innovation in the US.

Figure 4 shows descriptive evidence that lobbying efforts for immigration issues by firms in our sample intensified once the H-1B cap became binding for the private sector in 2004. The dashed line in Figure 4 represents the ratio of H-1B issuances to the numerical cap, building upon the basic series in Figure 3. Higher values of this ratio indicate a more constrained program, or greater challenges in obtaining visas, and the ratio increases sharply in 2004.[17]

Figure 4 demonstrates that this increase in difficulty to obtain H-1B visas was tightly associated with an increase in the fraction of firms lobbying for immigration issues. This group doubles from 6% of our sample in 2003 to 12% in 2004. The co-movements suggest that firms respond quickly to shifts in the conditions that are important to them.

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[15] The cap is only for new H-1B issuances. Applications for renewals for another three years are exempt from the cap. Universities, government research laboratories and certain nonprofit organizations are exempt from this cap starting in 2001.

[16] These two expansions were contained in the American Competitiveness and Workforce Improvement Act of 1998 and the American Competitiveness in the Twenty-First Century Act of 2000. See Reksulak et al. (2006) and Public Law 105-777, Division C, American Competitiveness and Workforce Improvement Law, Section 416(c)(2).

[17] The ratio can exceed one due to universities and similar institutions being exempt from the cap. Unfortunately, available data makes it very difficult to separate out the private sector accurately from the total visas issues issued. Nevertheless, it is known that the cap was reached by the private sector in 2004-2006, and the graphed ratio is indicative of overall visa demand.

In order to rigorously examine this issue, we extend equation (1) to consider a panel setting with firm fixed effects. We consider the regression specification:

$$L_{it} = \alpha + \delta * HS_i xCapbinds_t + \gamma * T_{it} + \beta * X_{it} + s_i + v_t + \varepsilon_{it} \qquad (2)$$

where the covariates are defined as in equation (1). We fix the dependency level of the firm HS_i at its 2001 value. We interact this measure with an indicator variable for years where the H-1B numerical cap was binding (2004-2006). Main effects for the two parts of the interaction are absorbed into the firm fixed effects s_i and year fixed effects v_t. These fixed effects further control for overall firm engagement in lobbying during 2001-2006, and aggregate trends.

Our hypothesis is that $\delta > 0$. The underlying idea is that firms that are more dependent on immigrant scientists and engineers lobbied more intensively for immigration issues once the H-1B visa cap became binding. As shown in Table 7, we find strong evidence that this was indeed the case. Firms with higher ethnic patenting by Chinese and Indian inventors and a higher number of LCA applications in 2001 lobbied more intensively for immigration-related issues when the H-1B cap became binding in 2004-2006. A firm with a 10% higher dependence on foreign-born workers is 0.2-0.4% more likely to lobby for immigration issues during 2004-2006.

In order to more fully understand these dynamics, we consider two additional estimation approaches. First, we investigate whether the cap binding had an effect on overall lobbying efforts. In Columns (5) and (6), we estimate equation (2) using an indicator variable for overall lobbying. We find little effect. Similar to our analyses of immigration and trade lobbying elasticities, we perform a placebo exercise for lobbying on other issues. Similar significant and positive coefficients would warn that our results for lobbying on immigration are being driven by omitted variables that determine lobbying propensity. We find that

immigration-dependent firms did not disproportionately intensify their lobbying efforts on trade during the years 2004-2006. The results in Table 7 are further robust to lagging our explanatory variables by one year.

These results confirm the role of large firms in attempting to shape the globalization surrounding them. Note only do large firms engage in lobbying efforts in ways that systematically reflect their specific needs, but they quickly adjust their efforts according to changes in the economic and political conditions that they face.

V. CONCLUSION

This paper provides initial evidence regarding firm lobbying for globalization. We have documented a variety of patterns regarding the overall importance of firm size for lobbying entry and expenditures, the tight link between firm sensitivities and specific issues advocated for, and the dynamic adjustments in the data. This is the first documentation of these firm-level lobbying patterns for international economics, providing an important baseline for thinking about how large firms shape the business environments surrounding them.

We are currently working on several extensions to be included in subsequent versions of this paper. The lobbying reports do not collect expenditures on specific issues, limiting their capacity for intensive margin analyses except at the aggregate level. We are developing metrics, however, based upon the number and specificity of issues lobbied for by firms that may provide additional insights into the relative efforts placed on different policies.

We are also more closely studying the entry margin. Lobbying exhibits many properties associated with fixed costs for entry. We are more formally modeling these costs and dynamics to provide a richer characterization of the entry decision. This is exciting given the advances made around many other fixed costs for international engagement following Melitz (2003). A better understanding of the interaction or overlay of these fixed costs would greatly improve our understanding of how firms enter into international operations.

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Fig. 1: Sample statistics for IBM

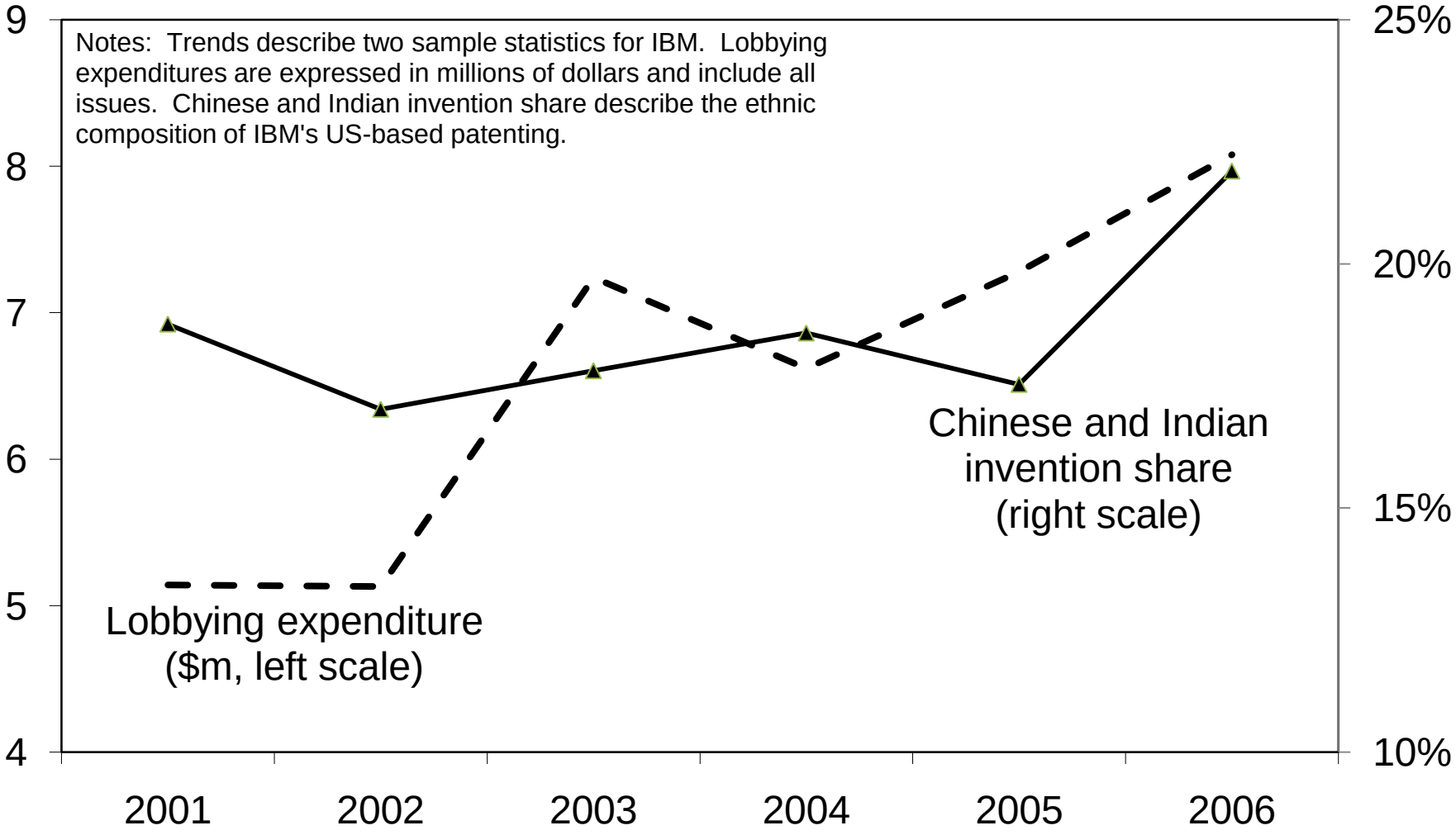

Fig. 2: Growth in US ethnic patenting

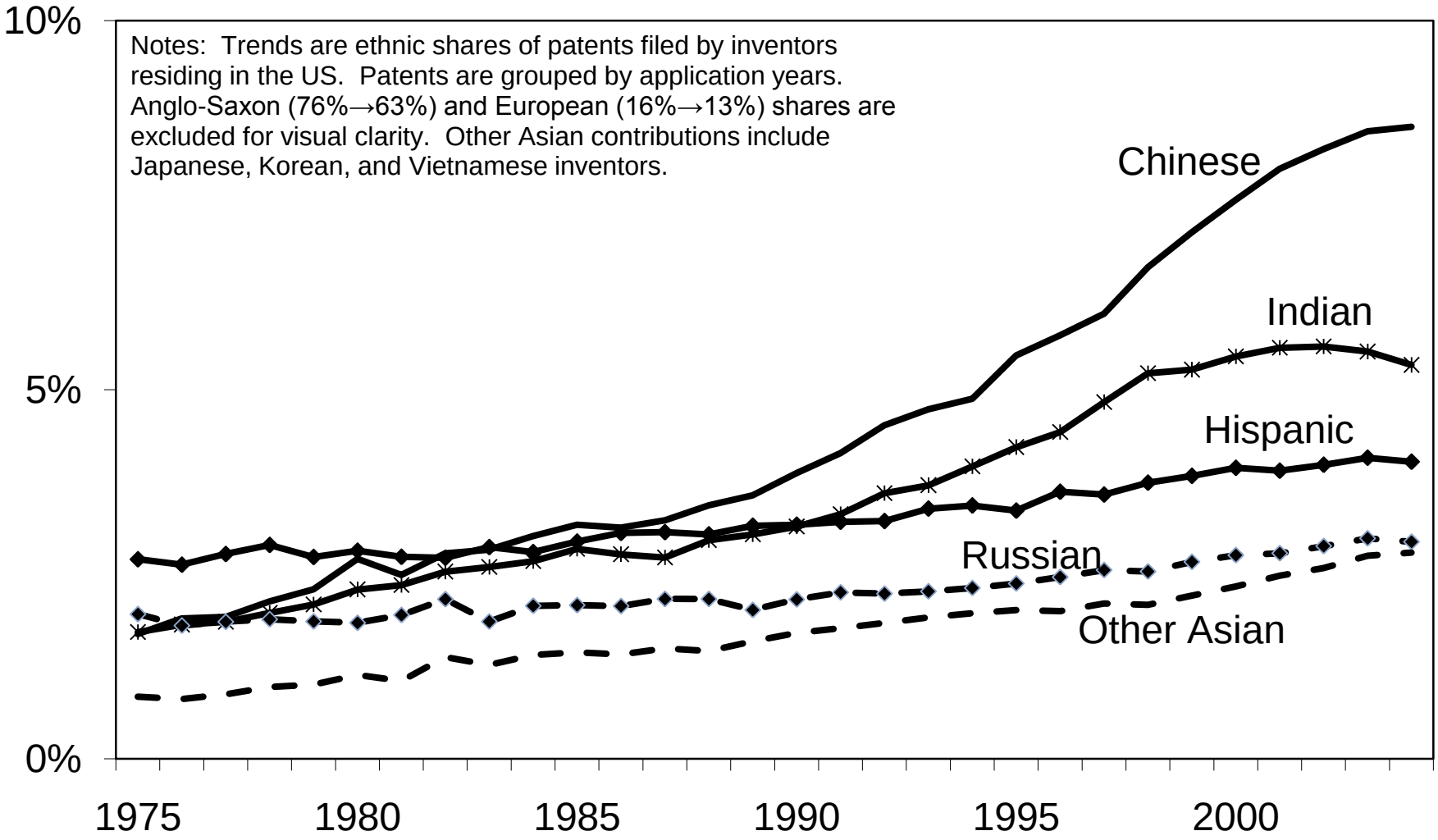

Fig. 3: H-1B cap and visa issuances

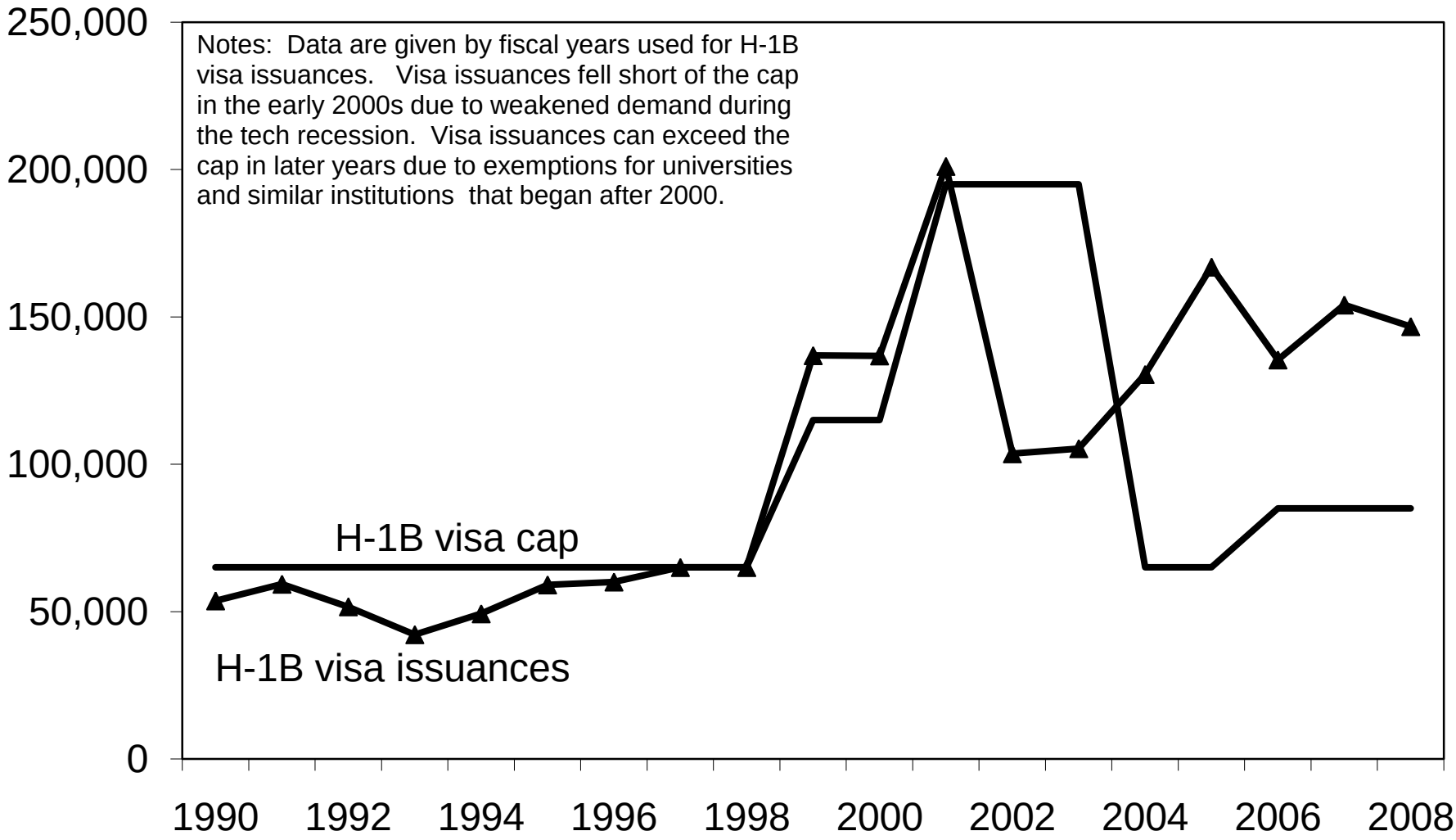

Fig. 4: H-1B visas and lobbying behavior

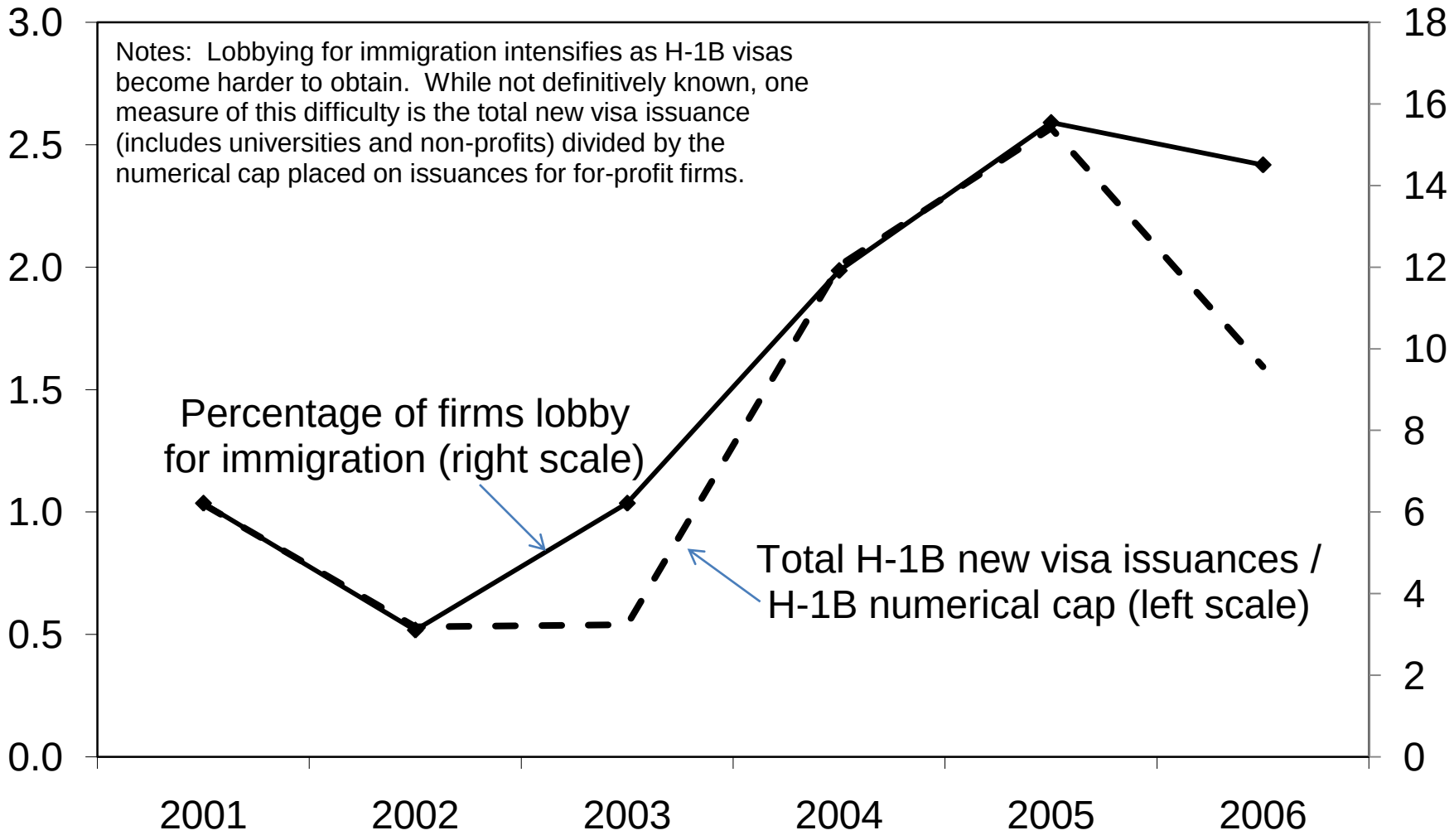

Table 1: Statistics on top firms in sample

Firm name	Value	Firm name	Value
Lobbying expenditures ($k)		LCA applications	
General Electric Company	18,972	Microsoft Corporation	2,254
Altria Group	13,956	IBM Corporation	1,266
Boeing Company	8,758	Oracle Corporation	1,126
Exxon Mobil Corporation	8,567	Intel Corporation	666
Lockheed Martin Corporation	8,493	Motorola Inc	625
General Motors Corporation	8,181	General Electric Company	599
Microsoft Corporation	8,153	Cisco Systems Inc	557
Ford Motor Company	6,939	Sun Microsystems Inc	425
IBM Corporation	6,582	Hewlett Packard-Compaq	415
Sprint-Nextel	6,347	Qualcomm Inc	394
Patents		Export and FDI revenues ($m)	
IBM Corporation	4,265	Exxon Mobil Corporation	194,758
Microsoft Corporation	2,462	DaimlerChrysler AG	123,784
Hitachi Limited	2,442	General Electric Company	57,198
Matsushita Electric Industrial Comp	2,410	Ford Motor Company	56,471
Fujitsu Limited	2,113	IBM Corporation	54,163
Sony Corporation	2,003	Hewlett Packard-Compaq	48,382
Micron Technology	1,603	Altria Group	36,584
Hewlett Packard-Compaq	1,548	Proctor and Gamble Company	30,061
General Electric Company	1,509	Intel Corporation	24,644
Intel Corporation	1,443	United Technologies Corporation	22,875

Notes: Values are annual averages over 2001-2006. Table 2 documents sources of data and broader statistics.

Table 2: Descriptive statistics for firm panel

	Mean	Median	Stand. Dev.	Minimum	Maximum
Lobbying efforts					
(0,1) lobbying for any issue	0.6	1.0	0.5	0	1
(0,1) lobbying for any issue, at least one year	0.7	1.0	0.5	0	1
(0,1) lobbying for immigration	0.1	0.0	0.3	0	1
(0,1) lobbying for immigration, at least one year	0.2	0.0	0.4	0	1
(0,1) lobbying for high-skilled immigration	0.1	0.0	0.2	0	1
(0,1) lobbying for high-skilled immigration, at least one year	0.2	0.0	0.4	0	1
(0,1) lobbying for trade	0.4	0.0	0.5	0	1
(0,1) lobbying for trade, at least one year	0.5	1.0	0.5	0	1
Annual lobbying expenditure ($m)	1.2	0.2	2.6	0	24
Patenting efforts					
Annual patent count	306	104	565	0	4,856
Annual US domestic patents by inventors of Chinese and Indian ethnicity	58	14	121	0	1,042
Immigration applications					
Annual Labor Condition Application count	93	29	246	0	4,392
Firm operations					
Annual sales ($m)	17,669	5,580	33,777	4	335,086
Annual R&D expenditure ($m)	955	246	1,615	6	12,183
Annual exports and FDI sales ($m)	6,439	1,382	19,279	0	259,683

Notes: The sample includes 193 firms over 2001-2006 for a total of 1158 observations. A list of these firms is in Appendix Table 2. We collect lobbying efforts from mandated lobbying reports filed with Congress biannually. Patent data are from the United States Patent and Trademark Office. We identify inventors of Chinese and Indian ethnicity through inventor names. Labor Condition Applications (LCA) are an initial step in the H-1B application process. We collect these LCA records from the Department of Labor. Firm operations data are taken from Compustat.

Table 3: Determinants of general lobbying efforts

	(0,1) indicator for lobbying				Log expenditures on lobbying			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log sales	0.142***	0.134***	0.145***	0.153***	0.874***	0.762***	0.749***	0.701***
	(0.015)	(0.021)	(0.022)	(0.036)	(0.076)	(0.100)	(0.105)	(0.147)
Log R&D expenditure		0.014	0.025	-0.010		0.212**	0.219*	0.150
		(0.019)	(0.025)	(0.043)		(0.097)	(0.115)	(0.157)
Log exports and FDI sales			-0.010	-0.008			-0.022	0.020
			(0.011)	(0.012)			(0.053)	(0.053)
Log import penetration for industry			-0.003	0.018			-0.032	0.053
			(0.004)	(0.015)			(0.020)	(0.070)
Log US Chinese & Indian patents			0.003	0.018			0.011	0.083
			(0.017)	(0.018)			(0.068)	(0.063)
Log LCA applications			-0.018	0.014			0.053	0.098
			(0.020)	(0.023)			(0.093)	(0.103)
Controls	Basic	Basic	Basic	Extended	Basic	Basic	Basic	Extended

Notes: Estimations consider determinants of lobbying efforts over 2001-2006. Basic controls include year fixed effects and foreign firm controls. Extended controls further include industry-year fixed effects, controls for types of technologies patented, and controls for geographic regions of patenting activity. Regressions include 1158 observations, are unweighted, and cluster standard errors by firm. Significance levels: * p<0.10, ** p<0.05, **** p<0.01.

Table 4: Determinants of lobbying for immigration issues

	(0,1) indicator for immigration lobbying				(0,1) for high-skilled immigration lobbying			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log sales	0.039***	0.022***	0.009	0.012	0.027***	0.014***	0.000	0.012
	(0.007)	(0.006)	(0.008)	(0.014)	(0.006)	(0.005)	(0.007)	(0.011)
Log R&D expenditure		0.033***	0.010	0.013		0.023**	-0.001	-0.003
		(0.010)	(0.009)	(0.015)		(0.009)	(0.009)	(0.014)
Log exports and FDI sales			0.006*	0.005			0.008**	0.007*
			(0.004)	(0.004)			(0.003)	(0.004)
Log import penetration for industry			-0.002	-0.003			-0.001	-0.001
			(0.002)	(0.007)			(0.002)	(0.006)
Log US Chinese & Indian patents			0.015**	0.014**			0.012**	0.011*
			(0.006)	(0.006)			(0.005)	(0.006)
Log LCA applications			0.029**	0.030***			0.035***	0.031***
			(0.012)	(0.011)			(0.011)	(0.010)
Controls	Basic	Basic	Basic	Extended	Basic	Basic	Basic	Extended

Notes: See Table 3.

Table 5: Comparison to other lobbying issues

	(0,1) indicator for lobbying:		
	Clean air and water	Consumer product safety	Retirement
	(1)	(2)	(3)
Log sales	0.014	0.067***	0.050**
	(0.017)	(0.018)	(0.024)
Log R&D expenditure	0.018	0.009	0.014
	(0.022)	(0.015)	(0.024)
Log exports and FDI sales	-0.006	0.001	0.011
	(0.009)	(0.009)	(0.008)
Log import penetration for industry	0.004	0.009	0.008
	(0.003)	(0.007)	(0.006)
Log US Chinese & Indian patents	0.011*	-0.001	0.004
	(0.006)	(0.010)	(0.009)
Log LCA applications	0.007	0.015	0.003
	(0.017)	(0.018)	(0.020)
Controls	Extended	Extended	Extended

Notes: See Table 3.

Table 6: Determinants of trade lobbying

	(0,1) indicator for trade lobbying			
	(1)	(2)	(3)	(4)
Log sales	0.165***	0.148***	0.138***	0.096***
	(0.011)	(0.015)	(0.018)	(0.024)
Log R&D expenditure		0.033*	0.015	0.051**
		(0.018)	(0.024)	(0.025)
Log exports and FDI sales			0.009	0.011
			(0.009)	(0.009)
Log import penetration for industry			-0.004	0.015
			(0.004)	(0.015)
Log US Chinese & Indian patents			0.033***	0.040***
			(0.012)	(0.013)
Log LCA applications			-0.007	0.014
			(0.021)	(0.025)
Controls	Basic	Basic	Basic	Extended

Notes: See Table 3.

Table 7: Entry into high-skilled immigration lobbying with binding H-1B cap

	(0,1) immigration lobbying		(0,1) high-skilled immigration lobbying		(0,1) any issue lobbying		(0,1) trade lobbying	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Binding H-1B issuances cap x Firm Chinese & Indian patenting in 2001	0.028***		0.022**		-0.015		0.020	
	(0.010)		(0.009)		(0.012)		(0.012)	
Binding H-1B issuances cap x Firm LCA application counts in 2001		0.033**		0.035***		-0.010		0.005
		(0.015)		(0.013)		(0.008)		(0.010)
Firm and year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: See Table 3. Estimations consider entry into lobbying for immigration issues when the H-1B visa issuances cap became binding for the private sector. Firm dependencies are measured in 2001 and interacted with an indicator variable for sample years when the cap was reached (2004-2006). Main effects are absorbed into the firm and year fixed effects, respectively. Firm covariates include covariates reported in Table 3 (e.g., sales, R&D expenditures, types of technologies patented, and geographic regions of patenting activity). Regressions include 1158 observations, are unweighted, and cluster standard errors by firm. Significance levels: * $p<0.10$, ** $p<0.05$, **** $p<0.01$.

Appendix Figure 1: Sample lobbying report for Microsoft

000000343475

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

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

RECEIVED
SECRETARY OF THE SENATE
PUBLIC RECORDS
05 AUG 15 PM 12:53

0000343475

LOBBYING REPORT

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

1. Registrant Name
Microsoft Corporation

2. Registrant Address ☐ Check if different than previously reported
Address **1401 Eye Street, NW** **Suite 500**
City **Washington** State/Zip (or Country) **DC 20005**

3. Principal Place of Business (if different from line 2)
City **Redmond** State/Zip (or Country) **WA 98052**

4. Contact Name	Telephone	E-mail (optional)	5. Senate ID #
Karin Gess	**(202) 263-5900**	**kgess@microsoft.com**	**25204-12**

7. Client Name ☒ Self — 6. House ID # **31174000**

TYPE OF REPORT 8. Year **2005** Midyear (January 1-June 30) ☒ **OR** Year End (July 1-December 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 Activity ☐

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

12. Lobbying Firms

INCOME relating to lobbying activities for this reporting period was:

Less than $10,000 ☐

$10,000 or more ☐ >> $ _____
(income (nearest $20,000))

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

13. Organizations

EXPENSES relating to lobbying activities for this reporting period were:

Less than $10,000 ☐

$10,000 or more ☒ >> $ **$4,540,000.00**
Expenses (nearest $20,000)

14. REPORTING METHOD. 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 _____ Date **8/12/2005**

Printed Name and Title **Jack Krumholtz - Managing Dir. of Federal Gov't Affairs** Page 1 of 19

Appendix Figure 1: Sample lobbying report for Microsoft, continued

000000343484

Registrant Name: Microsoft Corporation

Client Name: Microsoft Corporation

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. Attach additional page(s) as needed.

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

16. Specific Lobbying issues
H-1B visas
L-1 visas
Program Electronic Review Management System (PERM) regulations

17. House(s) of Congress and Federal agencies contacted ☐ Check if None
Department of Commerce
Department of Labor
Executive Office of the President
House of Representatives
Senate

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

Name	Covered Official Position (if applicable)	New
Buckner, Marland		No
Corley, Scott		Yes
Gelman, Matt		No
Houton, James		No
Ingle, Ed	White House	No
Krumholtz, Jack		No
Otte, Lori	Senate Republican Policy Committee	No

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

Signature _____ Date 8/12/2005

Printed Name and Title Jack Krumholtz - Managing Dir. of Federal Gov't Affairs

Appendix Table 1: List of lobbying issues

Accounting	Economics/Economic Development	Pharmacy
Advertising	Education	Postal
Aerospace	Energy/Nuclear	Railroads
Agriculture	Environmental/Superfund	Real Estate/Land Use/Conservation
Alcohol & Drug Abuse	Family Issues/Abortion/ Adoption	Religion
Animals	Firearms/Guns/ Ammunition	Retirement
Apparel/Clothing Industry/Textiles	Financial Institutions/Investments/ Securities	Roads/Highway
Arts/Entertainment	Food Industry (Safety, Labeling, etc.)	Science/Technology
Automotive Industry	Foreign Relations	Small Business
Aviation/Aircraft/ Airlines	Fuel/Gas/Oil	Sports/Athletics
Banking	Gaming/Gambling/ Casino	Taxation/Internal Revenue Code
Bankruptcy	Government Issues	Telecommunications
Beverage Industry	Health Issues	Tobacco
Budget/Appropriations	Housing	Torts
Chemicals/Chemical Industry	Immigration	Trade (Domestic & Foreign)
Civil Rights/Civil Liberties	Indian/Native American Affairs	Transportation
Clean Air & Water (Quality)	Insurance	Travel/Tourism
Commodities (Big Ticket)	Labor Issues/Antitrust/ Workplace	Trucking/Shipping
Communications/ Broadcasting/ Radio/TV	Law Enforcement/Crime/ Criminal Justice	Urban Development/ Municipalities
Computer Industry	Manufacturing	Unemployment
Consumer Issues/Safety/ Protection	Marine/Maritime/ Boating/Fisheries	Utilities
Constitution	Media (Information/ Publishing)	Veterans
Copyright/Patent/ Trademark	Medical/Disease Research/ Clinical Labs	Waste (hazardous/ solid/ interstate/ nuclear)
Defense	Medicare/Medicaid	Welfare
District of Columbia	Minting/Money/ Gold Standard	
Disaster Planning/Emergencies	Natural Resources	

Source: Senate's Office of Public Records (SOPR)

Appendix Table 2: List of firms in sample

Abbott Laboratories
ADC Telecommunications
Adtran Inc
Affymetrix Inc
Agere Systems
Agilent Technologies
Air Products and Chemicals Inc
Alcatel-Lucent
Alcoa Inc
Alcon Inc
Align Technology Inc
Allergan Inc
Altera Corporation
Advanced Micro Devices
American Express
Amgen Inc
Amkor Technology
Analog Devices Inc
Andrew Corporation
Apple Computer Inc
Applied Materials Inc
Arvin Meritor Technology
ASML Holding
Advanced Technology Materials
Autoliv
Avery Dennison Corporation
Baker Hughes Inc
BASF
Baxter International
BEA Systems
Becton, Dickinson and Company
Black and Decker Inc
Boeing Company
Borg Warner Inc
Bristol-Myers Squibb Company
Broadcom Corporation
Brocade Communications Systems
Brunswick Corporation
Cabot Microelectronics
Cadence Design Systems Inc
Caliper Technologies
Callaway Golf Company
Canon Kabushiki Kaisha
Caterpillar Inc
Ciena Corporation
Cirrus Logic Inc
Cisco Systems Inc
CNH America
Colgate-Palmolive Company
Conexant Systems Inc
Corning Inc
Cypress Semiconductor
DaimlerChrysler AG
Dana Corporation
Deere and Company
Dell
Delphi Corporation
Digimarc Corporation
Dow Chemical Company
Du Pont
Eastman Chemical Company
Eastman Kodak Company
Eaton Corporation
Ecolab Inc
Eli Lilly and Company
Emerson Electric Company
Ericsson Inc
Exxon Mobil
Fairchild Semiconductor
Federal Mogul Worldwide
Finisar Corporation
First Data Corporation
FMC Technologies Inc
Ford Motor Company
FormFactor Inc
Fujitsu Limited
Garmin Limited
Gateway Inc
General Electric Company
Genentech Inc
General Motors Corporation
General Signal
Gentex Corporation
Goodyear Tire and Rubber Company
Halliburton Company
Harman International Industries Inc
Harris Corporation
Hill-Rom Services Inc
Hitachi Limited
Honda
Honeywell International
Hewlett Packard-Compaq
Hubbell Inc
Human Genome Sciences Inc
IBM Corporation
IGT
Illinois Tool Works Inc
Imation Corporation
Incyte
Infineon Technologies
Integrated Device Technology Inc
Intel Corporation
Interdigital Technology Corporation
Intersil Americas Inc
International Rectifier Corporation
Invitrogen Corporation
Isis Pharmaceuticals
ITT Manufacturing Enterprises Inc
Johnson & Johnson
JDS Uniphase Corporation
Kimberly Clark Worldwide Inc
KLA-Tencor Technologies Corporation
Lam Research Corporation
Lattice Semiconductor Corporation
Lear Corporation
Lexmark International Inc
Lincoln Global Inc
Lockheed Martin Corporation
LSI Logic Corporation
Magna

Appendix Table 2: List of firms in sample, continued

Masco Corporation
Matsushita Electric Industrial Company
Mattel Inc
Medtronic Inc
Merck and Company
Micron Technology
Microsoft Corporation
Millennium Pharmaceuticals
Molex Inc
Motorola Inc
National Instruments
National Semiconductor
NCR Corporation
Nike Inc
Nokia Corporation
Nordson Corporation
Novellus Systems Inc
Nvidia Corporation
ON Semiconductor
Oracle Corporation
Parker-Hannifin
Pfizer Inc
Altria Group
Philips
Pitney Bowes Inc
Playtex Producs Inc
PPG Industries
Praxair S T Technology Inc
Proctor and Gamble Company
Qualcomm Inc
Qwest Communications International Inc
Rambus Inc
Raytheon Company
Rockwell Automation Technologies
Rohm and Haas Company
Schlumberger Technology
Seagate Technology Inc
Semitool Inc
Sepracor Inc
Sharp
Shuffle Master Inc
Siemens
Silicon Laboratories
Skyworks Solutions Inc
Sonoco
Sony Corporation
Sprint-Nextel
Steris Inc
St Jude Medical
ST Microelectronics Inc
Sun Microsystems Inc
Symyx Technologies
Synopsys Inc
Tektronix Inc
Tessera Inc
Texas Instruments Inc
3Com
3M
Tyco Electronics Corporation
Unilever
Unisys Corporation
United Technologies Corporation
United Parcel Service
Visteon
Weatherford International
Western Digital Corporation
Weyerhaeuser Company
Whirlpool Corporation
Wolverine Worldwide Inc
Wyeth
Xerox Corporation
Xilinx Inc
Zymogenetics Inc