

Economic Explanations for Opposition to Immigration: Distinguishing between Prevalence and Conditional Impact

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What explains variation in individuals' opposition to immigration? While scholars have consistently shown cultural concerns to be strong predictors of opposition, findings regarding the labor-market competition hypothesis are highly contested. To help understand these divergent results, we distinguish between the prevalence and conditional impact of determinants of immigration attitudes. Leveraging a targeted sampling strategy of high-technology counties, we conduct a study of Americans' attitudes toward H-1B visas. The plurality of these visas are occupied by Indian immigrants, who are skilled but ethnically distinct, enabling us to measure a specific skill set (high technology) that is threatened by a particular type of immigrant (H-1B visa holders). Unlike recent aggregate studies, our targeted approach reveals that the conditional impact of the relationship in the high-technology sector between economic threat and immigration attitudes is sizable. However, labor-market competition is not a prevalent source of threat and therefore is generally not detected in aggregate analyses.

Of the many facets of globalization, immigration is arguably the most controversial and politically charged. International public opinion polls repeatedly show that while the public is more open to international trade and financial integration, there exists great skepticism toward expanding the inflow of immigration.¹ In countries such as France, Austria, and Switzerland, far-right parties have successfully rallied voters by explicitly

embracing anti-immigrant messages. Even large mainstream parties, such as the Liberals in Australia, the Conservatives in Britain, the UMP in France, and Forza Italia in Italy, have taken stances against immigration in appeals to the electorate.²

A key question these trends raise is: What factors underlie voters' opposition to immigration? The extant literature has focused on two main forms of threat as

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We thank John Sides, Alexander Kuo, Keith Krehbiel, Dan Hopkins, Jens Hainmueller, and Rafaela Dancygier for providing valuable feedback on earlier drafts. We are also grateful for excellent feedback from the editor and three anonymous reviewers. We acknowledge Philip Garland and Cissy Segujja for their assistance with data collection and Fred Wolens for excellent research assistance. We thank seminar participants at Columbia University, University of Pittsburgh, UCLA, UC Berkeley, and the Comparative Approaches to Immigration and Ethnic Diversity Conference at Princeton University for valuable feedback. Previous versions of this article were presented at the annual meeting of the American Political Science Association, the annual meeting of the Midwest Political Science Association, and the annual meeting of the International Society of Political Psychology.

¹For example, see the Pew Global Attitudes report summarizing cross-national survey data, “World Publics Welcome Global Trade—But Not Immigration” (10/04/2007).

²The 2001 campaign slogan of the Liberal Party in Australia was “We decide who will come into this country.” In the United Kingdom, the Conservative Party under Michael Howard’s leadership was broadly condemned in 2005 for its campaign message, “Are you thinking what we’re thinking?” which was widely interpreted as an anti-immigrant message. Indeed, the Conservative campaign in 2005 was modeled after the Liberals’ efforts in 2001 as the Tories hired John Howard’s strategist, Lynton Crosby (Laville 2005). As part of his reelection campaign in 2012, Nicolas Sarkozy declared that there were “too many foreigners in France.” Criticisms of xenophobic politics have also been leveled against Italy’s then-ruling party (Babington 2010). See Dancygier (2010) for a broader comparative analysis of the conditions that led to the politicization of the immigration issue in a number of European countries. Lee (2008) and Hopkins (2010) similarly analyze the potential impacts of immigration and racial politics in the United States.

American Journal of Political Science, Vol. 57, No. 2, April 2013, Pp. 391–410

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DOI: 10.1111/ajps.12012

sources of opposition: economic and cultural. With respect to the former, some have argued that the competition that immigrants pose for jobs—either replacing native workers or suppressing their wages—is a principal source of apprehension about the entry of foreigners (e.g., Dustmann and Preston 2001; Gang and Rivera-Batiz 1994; Harwood 1986; Mayda 2006; Scheve and Slaughter 2001).³ Indeed, arguments about the threat of labor-market competition are also prominent in much of the media coverage and the public debate over immigration policy.⁴ The second approach has largely dismissed the role of economic self-interest and instead emphasized the importance of cultural factors in shaping people's views on immigration. Individuals, by this view, reject immigration because foreigners represent different values and traditions and pose a threat to the “national identity” or the traditional “way of life” (e.g., Brader, Valentino, and Suhay 2008; Citrin, Reingold, and Green 1990; Citrin et al. 1997; Fetzer 2000; Hainmueller and Hiscox 2007; Kinder and Kam 2009; McLaren 2001; McDaniel, Nooruddin, and Shortle 2011).⁵

Notably, while all studies that examine the two sources of attitudes on immigration find (without exception) strong evidence of pervasive cultural concerns as an underlying source of opposition to increased immigration, findings regarding the labor-market competition (LMC) hypothesis are highly contested. Against those studies that claim to find empirical support for the LMC hypothesis (e.g., Kessler 2001; Mayda 2006; Scheve and Slaughter 2001), other studies either cast doubt on the interpretation of the evidence used to confirm the LMC hypothesis (Hainmueller and Hiscox 2007, 2010) or present evidence showing only a weak relationship between attitudes on immigration and labor-market threat (or none at all) (e.g., Burns and Gimpel 2000; Citrin et al. 1997; McLaren and Johnson 2007). How can we better understand these conflicting findings? Does a perception of labor-market threat meaningfully affect preferences on immigration, and if so, why do so many of the studies to date find no support for this alleged link?

³An additional economic threat is the fiscal burden that immigrants place on public services (e.g., Borjas 1999; Dancygier 2010; Hanson 2005). We do not explore this source of economic threat here.

⁴To get a rough sense of how prevalent the employment aspect is in the immigration debate, we searched for reports discussing immigration in three major news outlets (*New York Times*, *USA Today*, and *Washington Post*). During 2009, reports mentioning immigration totaled 2,328; of those, more than one-third (815 reports) also mentioned jobs or employment.

⁵The cultural explanation is also in line with research demonstrating that attitudes formed by individuals about government policies rarely reflect calculations of material self-interest (Citrin and Green 1990; Kinder and Sears 1981; Sears and Funk 1990).

This article argues that insufficient attention to an important conceptual distinction—and a number of related measurement problems—help explain the ongoing disagreement between the two sets of accounts. To understand the role of personal employment concerns in shaping attitudes on immigration, we contend that one needs to make a distinction between concepts we label *prevalence* and *conditional impact*. “Prevalence” pertains to the incidence of a certain mechanism across the population; “conditional impact” refers to the influence that a certain mechanism has on bringing about an outcome of interest *when that mechanism is operating*. This distinction has important implications both for how one might study the sources of preferences on immigration policy, as well as for how the existing findings on this question should be interpreted.⁶

Leveraging a targeted sampling strategy not employed in previous studies, we find that when labor-market threat is present, there is a significant association between labor-market competition and views on immigration. In other words, the conditional impact of labor-market threat is meaningful and quite sizable. However, a key reason why such little support has been found to date for the LMC hypothesis in extant research is because this type of threat is generally not prevalent among the general population and therefore undetectable in typical national surveys. A different research design, one that employs a more powerful “magnifying glass” in the form of targeted sampling of specific sectors, is needed in order to properly test a posited mechanism that may be high in conditional impact but low in prevalence. Accordingly, our approach here is to analyze what methodologists have termed “a most likely case,” one where economic threat is expected to be present. If the threat is found to have no impact on attitudes toward immigration, it would serve as damning evidence against the LMC mechanism. In contrast, evidence confirming the LMC argument would provide insight on the upper bound of the effect (e.g., George and Bennett 2005; Gerring 2007).

Conversely, cultural concerns are high in both prevalence and conditional impact, explaining why all studies to date have found that they strongly influence immigration attitudes. Even when using a strong magnifying glass, we find that specifically defined economic concerns still do not exceed the strength of cultural factors. Our findings therefore suggest that the influence of economic threat, while real, is limited in prevalence and scope and most relevant when thinking about low-salience policy debates characterized by what Wilson and Lowi term “interest

⁶Note that this distinction is not the one between statistical and substantive significance often referred to in econometrics textbooks.

group politics,” as opposed to high-salience immigration issues that affect the public at large in the context of “majoritarian politics” (Lowi 1972; Wilson 1973).

To properly assess the role of LMC in accounting for opposition to immigration, a targeted sample may be necessary but insufficient. A second necessary condition is the use of appropriate measures that capture the threat more accurately. We contend that the weak evidence in support of the LMC hypothesis is also partially due to the fact that research to date has, by and large, analyzed general attitudes toward immigration rather than toward specific immigration policies with concrete economic implications. By focusing on individuals’ preferences concerning a specific policy, this study is better designed to capture the particular economic considerations individuals use to evaluate the merits of potential immigrant inflow, rather than eliciting a reaction to immigration in general. This latter difference is particularly important if the conditional impact of LMC is sizable only with respect to specific types of immigrants.

The article is organized as follows. We first provide a conceptual overview, summarizing the extant scholarship on immigration attitudes and detailing our theoretical and empirical contributions. Next, we discuss methodological challenges to studying immigration attitudes and explain how our research design deals with these challenges. We then provide a brief overview of the specific type of immigration visas (H-1B) we study and describe our targeted examination of high-technology communities.⁷ The following sections present our findings and a discussion of their implications for understanding policymaking on immigration and globalization more broadly.

Conceptual Overview

Analysis of the LMC hypothesis has been hampered by a number of challenges that make it difficult to assess the strength of its empirical support. The first challenge is defining which segments of the labor force face competition from migrants. To date, researchers arguing in favor of the LMC hypothesis often start by presenting findings in the labor economics literature which indicate that immigrant inflows can have detrimental employment and wage effects on natives with whom they compete (e.g., Borjas 1999, 2003, 2006; Borjas,

Freeman, and Katz 1996).⁸ When searching for evidence of this alleged effect on voters’ attitudes on immigration, scholars largely rely on the finding that lower-educated individuals—interpreted as a proxy of low skill—are those most opposed to immigration, both in the United States and abroad (e.g., Hanson, Scheve, and Slaughter 2008; Kessler 2001; Mayda 2006; Scheve and Slaughter 2001). This correlation is then interpreted as evidence that low-skilled individuals are opposed to immigration because they feel vulnerable in the face of low-skilled foreigners competing for their jobs. This line of research has faced a number of criticisms.

First, although education is surely correlated with people’s skill level, schooling is a very problematic proxy for skill because highly educated and lower-educated individuals differ along many noneconomic dimensions that also motivate anti-immigrant sentiment. In particular, education is correlated with cultural tolerance and cosmopolitan social attitudes (Chandler and Tsai 2001; Gang, Rivera-Batiz, and Yun 2002; Nie, Junn, and Stehlik-Barry 1996; Schuman, Steeh, and Bobo 1985). Therefore, it could be that the strong negative relationship between education and opposition to immigration stems not from the labor-market concerns of lower-educated individuals—as some of the studies cited above contend—but rather from the fact that lower-educated individuals are on average more nativist and culturally intolerant of foreigners.⁹ Hence, studies using education to measure economic threat will have upwardly biased estimates.

Second, the LMC hypothesis predicts that natives will be most opposed to immigration from foreign workers with skill levels similar to their own. Yet testing this hypothesis requires studying policy issues for which native and immigrant skills are aligned, which has been absent in most research done so far. Education cannot proxy for skills since people within a given education category have extremely heterogeneous skill sets that are

⁸These findings are a source of much disagreement, as other scholars either argue that the labor-market effects are marginal (Card 1990, 2001, 2005; Lewis 2005) or even slightly positive (Ottaviano and Peri 2008). Nonetheless, additional research uses nonsurvey-based evidence to make the case that the economic threat posed by migrant inflow can change natives’ attitudes, as expressed by electoral support for anti-immigrant parties or candidates (e.g., Dancygier 2010; Golder 2003).

⁹Some of the studies do explicitly recognize the possible covariance of education measures with both skill and cultural threat attitudes. However, this concern is typically either ignored in the empirical analysis or partially addressed by including in the analysis a measure of explicit cultural apprehension toward immigrants. As we explain below, this latter approach suffers from measurement issues that preclude it from clarifying the correct interpretation of the conditional correlation.

⁷Given our focus on H-1B visas, this study examines legal immigration. Our finding that some individuals oppose legal immigration suggests that they may also be against illegal immigration, so our results can be interpreted as conservative estimates of general anti-immigrant sentiment.

differentially affected by immigration. A similar problem exists for employment status, another common proxy for labor-market threat. People may be unemployed for a myriad of reasons, many completely unrelated to immigration. Therefore, aggregate studies that do not attempt to clearly match native and immigrant skills will have downwardly biased estimates of economic threat. As we explain below, our research design “threads the needle” between these two extremes to more precisely evaluate the LMC hypothesis.

We conducted a review of studies from the past 15 years that have attempted to estimate the degree to which economic and cultural concerns underlie opposition to immigration (the results of the review are reported in Table A1 in the online materials).¹⁰ While the review shows that *all* studies that test for both mechanisms find strong evidence in support of the cultural threat hypothesis, a substantial share of studies find no evidence for the LMC hypothesis. And among the studies that do purport to find support for the LMC hypothesis, almost all use respondents’ level of education to measure the native group under economic threat (Hanson, Scheve, and Slaughter 2008; Kessler 2001; Mayda 2006; Scheve and Slaughter 2001).¹¹

The other seemingly supportive studies of the LMC hypothesis are based on survey questions that explicitly ask respondents about their views on the economic impact of immigration on the local economy and/or local natives’ job prospects. However, these correlations do not provide compelling support for the LMC hypothesis for two reasons. First, sociotropic attitudes on the state of the local economy may reflect opposition to immigration unrelated to individualistic labor-market concerns. For instance, immigrants may place pressure on public works and budgets, thereby harming the local economy. Second, individuals who are antithetical to immigrants for cultural reasons are likely to describe immigration as harmful on any dimension on which they are asked to

assess its merits, making it difficult to draw reliable inferences from any given statistical relationship.¹² Indeed, Sniderman, Hagendoorn, and Prior (2004) present experimental evidence showing that correlations between such attitudinal measures can produce unreliable inferences.¹³

In a recent article, Hainmueller and Hiscox (2010) make significant headway by addressing some of the limitations of the research that examines the LMC hypothesis. The authors administered a survey experiment to a national sample of American adults, randomly asking one-half to report their support for high-skilled immigration and asking the other half to report their support for low-skilled immigration. The authors find little support for the LMC hypothesis via their experiment. Inconsistent with the predictions of existing political economy models, the authors find that both high-skilled and low-skilled natives strongly prefer high-skilled immigrants over low-skilled immigrants. Accordingly, in predicting support for immigration, the interaction between native skill and immigrant skill is insignificant.

However, like the other studies above, Hainmueller and Hiscox (2010) use respondents’ educational attainment to measure skill level (and by proxy, their labor-market interests). They do this to show that even when using a measure prone to positively biased estimates of economic threat, they still find little support. Nonetheless, the ideal approach would be to move beyond indirect measures, such as education, and assess labor-market competition more directly. Yet measuring the labor-market threat that individuals face due to immigration is challenging because of data availability. In particular, the fact that most surveys use national samples which include only few respondents from each industry (and skill set) limits the ability to accurately estimate the effect of a given labor-market threat on people’s immigration attitudes. Additionally, researchers cannot ask about policies related to all different sectors. To properly estimate this effect, one needs either a *much* larger national sample (along with a much longer questionnaire) or a sample targeting specific employment sectors that are vulnerable to competition from certain groups of immigrants.

¹⁰The appendix details the samples and measures that the various studies used to estimate this relationship and summarizes their reported findings.

¹¹Some studies also include measures of respondents’ skill level, occupation, wage, or income. These measures are highly correlated with education. In other words, the use of these measures cannot meaningfully address the concern of omitted variables bias. Even studies that measure skill level and occupation examine general attitudes toward immigration, as opposed to distinguishing between attitudes toward the specific types of immigrants who share the native’s skills. See Dancygier and Donnelly (2012) for a novel exception, in which they examine how attitudes toward migration vary as a function of the responsiveness of migrant flow into and out of one’s sector of employment coincident with fluctuations in the state of the economy.

¹²Note also that some of the studies in Table A1 report a correlation between opposition to immigration and negative views about the state of the national economy (e.g., Burns and Gimpel 2000; Citrin et al. 1997). This finding is difficult to interpret in a substantive sense and is also insignificant in other studies (e.g., Chandler and Tsai 2001; Hooghe and Marks 2004).

¹³Sniderman, Hagendoorn, and Prior find that “when threat judgments are coupled with a reference to ethnic minorities, people who perceive themselves to be threatened in one way are markedly more likely to perceive themselves to be threatened in other ways—whatever those other ways are” (2004, 38).

Adopting the latter approach, we conduct an in-depth case study of Americans' attitudes toward H-1B visas, the plurality of which are occupied by Indian immigrants employed in the high-technology sector (more on that below). We surveyed respondents via a targeted interviewing approach of 75 U.S. counties in which we oversample areas with a high percentage of workers in the information technology (IT) sector—precisely those people who are likely to feel economically threatened by H-1B immigration. Hence, this study differs from past research by (1) focusing on a specific set of skills (high technology) and (2) examining whether the pattern of opposition to a particular type of immigrant (H-1B visa holders) who poses a direct labor-market threat follows the predictions of the LMC hypothesis. By targeting geographic areas where the IT industry is prominent, we are able to interview a sufficient number of individuals who possess the specific skills needed to precisely test the LMC hypothesis.

This targeted sampling strategy allows us to distinguish prevalence from conditional impact when assessing the factors underlying people's preferences on immigration policy. The importance of analyzing the former is perhaps obvious: it tells us why people oppose immigration at a given point in time. Yet examining the latter is also important because it illuminates the potential effect of a given mechanism. While at a certain moment in time immigrants may or may not be perceived as much of an economic threat, this situation could change (e.g., during a tightening of the local labor market). Understanding the conditional impact of each type of threat on people's attitudes on immigration is thus not merely a hypothetical issue, but rather represents a pertinent question from a political standpoint, a point we return to in the discussion.

While our empirical analysis focuses on a specific type of immigrant in particular regions of the country, the objective of this study is to utilize the features of this case to test the broader arguments in the literature about the underlying sources of popular anti-immigration sentiments. Accordingly, we conclude by explaining how our results speak to policymaking in the immigration domain more broadly. Further, a principal contribution of this study is that the research design—where we oversample areas with high rates of high-technology employees—provides a more careful test of the LMC hypothesis, allowing us to establish less-biased upper limits on the influence of economic threat. This innovation enables us to demonstrate the analytical importance of distinguishing between the *prevalence* and the *conditional impact* of factors underlying people's preferences on immigration policy.

Measurement Challenges to Studying Attitudes toward Immigration

In addition to the targeted sampling of high-technology areas, our survey has two additional, unique design elements that allow us to address two major methodological challenges involved with studying public attitudes toward immigration: (1) the problem of correlated threats and (2) social desirability bias.

Correlated Threats

H-1B immigration into the United States—much of which is occupied by culturally distinct Indian migrants—serves as an instructive test case for disentangling the role of both economic and cultural threat in shaping public attitudes on immigration. This is because Indian H-1B visa holders are culturally distinct in appearance and custom, but unlike other immigrant groups, they also disproportionately occupy *high*-skilled positions in the labor force. Hence, the often-studied instance where the lower-educated have both stronger economic and cultural reasons to oppose the immigrant group in question does not apply in this case, since Indian immigrants on H-1B visas are more directly competing with highly skilled and highly educated Americans, who are presumably less xenophobic. In other words, the problem of correlated threats hampering past research is largely alleviated by examining the specific case of H-1B immigration to the United States.

Social Desirability

Data limitations have not only constrained the analyses of labor-market effects on immigration attitudes but have also posed formidable challenges to testing the proposition that cultural concerns underlie immigration opposition. These cultural arguments are typically substantiated via correlations of self-reported attitudes on social and cultural issues with responses to policy questions on immigration. While the correlations are strong (e.g., Bauer, de Sola Pool, and Dexter 1963; Mayda and Rodrik 2005; O'Rourke and Sinnott 2002), their proper interpretation is unclear. In particular, the fact that highly educated individuals are shown to be both less opposed to immigrants' entry and more culturally tolerant of foreigners lends itself to (at least) two competing explanations. It could be that (1) cultural anxieties underlie immigration opposition, as some scholars contend; or (2) a selection effect is at play, whereby social desirability is causing educated people both to eschew survey responses on immigration

that appear bigoted and to express more tolerant positions on cultural threat items.

To address this empirical challenge, in addition to standard explicit self-reported measures, we incorporated into our study an Implicit Association Test (IAT), a method for gauging veiled or unconscious antipathetic sentiments toward various social groups. Although the IAT is commonly used in psychological, neuroscience, and marketing research (Nosek, Greenwald, and Banaji 2007), its use in political science has been much more limited. However, recent work has shown that the IAT can be very useful in studying politically relevant attitudes that individuals will often want to misrepresent (Fazio and Olson 2003; Greenwald, McGhee, and Schwartz 1998) as well as in predicting political behavior (e.g., vote choice [Arcuri et al. 2008] and immigration policy judgments [Perez 2010]). Using the IAT method, we can assess the contention made in previous studies that cultural threat shapes immigration policy views, a claim so far made largely using measures potentially subject to social desirability bias. Implicit measures such as the IAT have a different set of strengths and limitations as explicit measures. Therefore, using both within the same study provides a robustness check of previous findings regarding cultural threat.

A Targeted Study of High-Technology Areas

We attempt to explain people's attitudes toward a particular type of high-skilled immigrant—holders of H-1B visas, which have two important features germane to our study: they have become dominated by the high-technology sector and are increasingly occupied by Indian immigrants. Examining the recent profiles of those provided with H-1B visas, it is notable that over half (52%) are workers born in India and that one in every two workers is employed in computer-related occupations (USCIS 2008). By focusing on attitudes toward H-1B visas—held by those most likely to compete with native high-technology workers—we consider a case in which (1) the immigration policy predominantly affects the earning prospects of *highly* educated individuals; (2) the immigrant population that is found economically threatening is predominantly high-skilled Indians, a population that is also culturally distinct from much of the native population; and therefore (3) theories of cultural and labor-market threat produce contrasting predictions, allowing us to better disentangle the impact of these two sources of opposition (see Figure A2 in the online materi-

als for basic background information on the use of H-1B visas in the United States).¹⁴

Data

We interviewed 1,134 respondents recruited by Survey Sampling International (SSI) of Shelton, CT, over the Internet between August 20, 2009, and September 9, 2009.¹⁵ SSI recruits individuals via opt-in recruitment methods. We used SSI because they allowed us to implement our targeted sampling strategy by capturing substantial numbers of respondents in high-technology counties. However, opt-in Internet samples also tend to be more politically interested than samples recruited via simple random sampling. In the context of this specific study, we do not consider this issue to be a serious concern for three main reasons. First, our results are robust to the application of poststratification weights designed to enhance the representativeness of the sample. Second, although sample selection may affect the overall levels of variables, we are most interested in the relationships between variables, which are less likely to be affected by the opt-in nature of the sample (Sanders et al. 2007). Third, as explained below, the observed relationships between demographic variables and support for immigration mirrors those found in previous articles, which used random samples, also suggesting that the relationships between the variables we find are not unrepresentative. Demographic characteristics of the sample are described in Table A3 in the online materials.¹⁶ As noted earlier, we oversampled high-technology regions of the country, which were defined to be the 25 counties in the United

¹⁴There are, of course, reasons why high-technology workers may be *more* supportive than other workers of H-1B visas. For instance, importing skilled foreign workers may decrease the need for offshoring. Additionally, H-1B visas may improve company profitability, thereby producing positive spillovers to all employees. If that were the case, we would find a conservative estimate of economic threat by only focusing on the negative aspects of H-1B visas on native workers. It is worth noting, however, that a cursory review of Internet forums of native workers debating H-1B visas reveals deep discontent about what is perceived to be harmful employment and wage effects of the visas. See, for example, www.ctoedge.com/content/h-1b-visa-delivers-hate-not-applications or <http://www.city-data.com/forum/great-debates/788735-h1b-visa-program-has-already-ruined.html> (accessed February 29, 2012).

¹⁵The AAPOR COOP1 cooperation rate was 3.1%.

¹⁶Typical of opt-in Internet surveys, compared to Census figures, the sample has a larger share of respondents who are female, white, high school graduates, and older. As a robustness check, we created poststratification weights to make our sample representative with respect to gender, race, education, age, and marital status (see below).

States with the highest percentage of workers employed in industries classified as code 54 ("Professional, Scientific, and Technical Services") by the North American Industry Classification System (NAICS). This category includes various occupations in the IT sector, including "Engineering Services," "Custom Computer Programming Services," "Computer Systems Design Services," "Computer Facilities Management Services," and "Other Computer Related Services." In these high-technology counties, between 13.5% and 48.3% of workers were employed within NAICS code 54, allowing us to capture a relatively high rate of technology workers. We supplemented this sample by interviewing respondents in 50 additional counties, which had the national median percentage of workers in NAICS code 54, ranging between 2.2% and 2.3%.¹⁷ Survey invitations were sent so that approximately three-fourths of respondents came from high-technology counties. The geographic distribution of our survey respondents is illustrated in Figure A3 in the online materials.¹⁸ In total, 10.4% of employed respondents were working in the high-technology sector, which was exactly equal to the share of the workforce in the counties represented in our sample that worked in the high-technology sector according to U.S. Census figures (see Table A3 in the online materials).

Because we are interested in the relationship between prejudice against Indians and opposition toward H-1B immigrants, for all analyses below we excluded the 10 respondents who self-identified as Indian or Indian American. Additionally, we dropped the 123 respondents who did not complete the survey.

Measures

Summary statistics for all variables used in the analyses are presented in Table A4 in the online materials. Respondents viewed questions in the following order: (1) assessment of the respondent's geographic location; (2) employment questions (e.g., employment status, whether one works in the high-technology industry, etc.); (3) po-

litical views (e.g., attitudes toward H-1B visas, Indian immigration, etc., with the H-1B visa question used as our dependent variable asked at the start of this section); (4) demographic questions (e.g., gender, age, income, ethnicity, etc.); (5) Implicit Association Test; and (6) explicit cultural threat questions.¹⁹ While descriptive statistics for raw measures are reported, for all analyses we recoded all survey measures below to lie between 0 and 1. This allows us to interpret coefficient estimates as representing a 100 percentage-point movement in the dependent variable.

Dependent Variable. Respondents were asked: "Some people have proposed that the U.S. government should increase the number of H-1B visas, which are allowances for U.S. companies to hire workers from foreign countries to work in highly skilled occupations (such as engineering, computer programming, and high-technology). Do you think the U.S. should increase, decrease, or keep about the same number of H-1B visas?" (response options: "increase a great deal," "increase a little," "keep about the same," "decrease a little," "decrease a great deal"). A higher value reflects greater support for increasing H-1B visas.

Economic Threat. We measure economic threat in two ways. First, we code whether a respondent works in the high-technology industry. In order to assess this, we first determined whether respondents were employed or not by asking them: "Which of the following categories best describes your current employment status?" with a set of relevant response options (e.g., full-time employee, part-time employee, homemaker, unemployed, etc.). We then asked employed respondents: "Please tell us what the company you work for does," followed by a list of 22 industries from the NAICS classification system.²⁰ All respondents who selected "Engineering, Computer-Related

¹⁷Per recommendations from SSI, we relied on self-reported zip codes to perform the sampling and geo-locating respondents. This was more reliable than collecting IP addresses since many SSI respondents might take surveys while traveling away from home.

¹⁸We describe below in greater detail how we classified whether a respondent worked in the high-technology industry. Our sampling strategy was necessary to obtain a sufficient number of respondents to be able to detect the observed effects. The main analysis showing a .07-point difference in support for H-1B visas between high-technology workers and other respondents has a power of .5. If we had obtained a similar percentage of high-technology workers as the median counties, the power of the test would have only been .4.

¹⁹We considered randomizing the order of the questions but decided against this to reduce measurement error and increase the efficiency of the analyses. Our thinking was as follows. Asking the dependent variable before the independent variables may induce consistency bias, whereas asking the independent variables first may introduce priming effects. Both of these effects work in the same direction, meaning that little gains would be achieved from randomizing the question order. Moreover, that the difference between high-technology workers and other respondents is driven by order effects requires that the two groups respond in a systematically different manner to the order that questions are asked, which seems quite implausible. In other words, the key findings of this article are unlikely to be an artifact of question order effects.

²⁰It is possible that some unemployed respondents had lost their jobs in the high-technology industry. Although we primarily examine employed individuals, this would only lead us to underestimate differences in attitudes between high-technology workers and unemployed individuals (some of whom perhaps used to work in the high-technology sector and lost their job due to immigration).

Design, and Architecture” were coded as high-technology workers. To ensure that this narrow industry definition did not lead us to misclassify respondents who actually engaged in high-technology work, we asked a follow-up binary question: “Do you work in the high-technology industry?” Respondents who answered “yes” to this question were also coded as high-technology workers.

As a further assessment of economic threat, we asked employed respondents to assess whether they felt that their job was in jeopardy: “Looking forward to the next three years, how confident do you feel about being able to keep your current job?” (response options: “extremely confident,” “very confident,” “somewhat confident,” “slightly confident,” and “not at all confident”). This question allowed us to isolate those individuals in the high-technology sector who thought their job was at risk and may be more threatened by immigrants applying for H-1B visas.²¹

Cultural Threat. As noted, a common claim in the literature holds that opposition to immigration stems from its perceived cultural consequences. Politically, these consequences have been described by some as a threat to the country’s “identity” or a challenge to the natives’ traditions and values (e.g., Citrin et al. 1997; Larsen et al. 2009). While the term “cultural threat” is a useful label for purposes of exposition, it is somewhat crude. Surely for some individuals, opposition to immigration stems from a tangible sense of danger that the inflow of foreigners represents. Yet for others, opposition to immigration is probably a product of a subtler and perhaps unconscious sense of unease or apprehension about interaction with foreigners, be it their appearance or dress, the smell of their food, religious rituals, or the unfamiliar customs that immigrants often bring with them. Opposition to immigration, particularly when stemming from this latter and less-defined form of cultural-based apprehension, may be poorly captured using standard survey methods that gauge explicit attitudes.

The explicit measures of cultural threat are based on two different survey items. The first asked respondents: “How threatened do you think the American way of life is by foreign influence?” (response options: “extremely threatened,” “very threatened,” “moderately threatened,” “slightly threatened,” and “not threatened at all”). A

higher value reflects a greater sense of threat.²² In a second question, we asked respondents to evaluate Indians on a series of traits: capable, polite, hardworking, hygienic, and trustworthy.²³ This battery of trait questions was asked toward the end of the survey due to the potential sensitivity of the questions and to minimize the degree to which respondents could be primed to think about Indian immigrants by this line of questioning. All responses were measured on 5-point scales, with the question asking to what degree Indians possessed the positive trait in question. We averaged responses to these items to create a scale lying between 0 (positive traits of Indians) to 1 (negative traits of Indians). Cronbach’s alpha for the scale was .83, above traditional cutoffs for scale reliability.

We employ the Implicit Association Test, a common measure of unconscious prejudice, bias, and/or apprehension against a particular group, as our implicit measure of cultural threat. The IAT was administered toward the end of the survey, with only the Indian trait questions being asked after the IAT, to minimize the degree to which respondents could be primed to think about Indians by completing the IAT.²⁴ The IAT is an experimental method designed to gauge the strength of associations linking social categories (e.g., blacks versus whites) to evaluative anchors (e.g., good versus bad). Respondents complete two types of tasks in random order. In the first task, respondents classify whether Indian and white faces are “European American” or “Indian American.” In the second task, respondents classify whether certain words are “good” or “bad” words. Then, respondents classify both faces and words, and what is randomly manipulated is whether “European American”/“good” (and accordingly, “Indian American”/“bad”) are associated with the same key or whether “European American”/“bad” (and

²²This question is quite similar to one included in the Pew Global Attitudes Surveys (2007), which asked respondents to rate the degree to which they agree with the following statement: “Our way of life needs to be protected against foreign influence.”

²³We did not ask about any negative traits to minimize the potential sensitivity of this line of questioning and prevent drop-offs in survey completion.

²⁴One potential concern is whether previous items primed responses to the IAT. The IAT is theoretically conceived of as a latent feature of individuals and therefore not manipulable (e.g., Egloff and Schmucke 2002). Studies that have attempted to prime IAT scores have generally used stark and racially charged treatments (e.g., whether someone is assigned to a black supervisor or subordinate) to induce modest changes in the IAT (Bertrand, Chugh, and Mullainathan 2005). Given that the questions we asked prior to the administration of the IAT were relatively innocuous and not starkly about race, we are not overly concerned that IAT scores would be subject to priming effects. We were more concerned about the possibility that asking questions about implicit and explicit cultural threat earlier in the survey would induce priming effects on subsequent questions (Mendelberg 2008).

²¹Although these questions prime economic concerns (as might occur in the real world when politicians and the media raise the specter of labor-market threat when denouncing immigration policies), there is no reason to believe that priming arising from *general* questions about employment would differentially affect high-technology workers and other respondents.

accordingly, “Indian American”/“good”) are associated with the same key. The IAT requires the rapid categorization of the evaluative anchors and social categories such that easier pairings (and faster responses) are interpreted as being more strongly associated in memory than more difficult pairings (slower responses). Individuals who are prejudiced against Indians should be quicker at making classifications of pictures and words when “European American” (“Indian American”) is paired with “good” (“bad”) than when “European American” (“Indian American”) is paired with “bad” (“good”). Figure A4 in the online materials provides screenshots of what the respondent sees when completing the IAT as well as a fuller discussion of the procedure. The logic underlying the use of the IAT, introduced by Greenwald, McGhee, and Schwartz (1998), is that difference in categorization performance is argued to measure differential association of the two concepts with the attribute and to capture “implicit” (system 1) attitudes that are effortless and automatic, as opposed to “explicit” (system 2) attitudes that are effortful and conscious (Kahneman 2003).

The IAT effect (a D score) has a possible range of -2 to $+2$, which we recoded to lie between 0 (low prejudice) and 1 (high prejudice).²⁵ The mean raw score and standard deviation are .53 and .43, respectively. Correlations between the IAT effect and our two explicit attitude measures—foreign threat and the Indian trait index—are significant but low, which comports with extant research on explicit and implicit measures (e.g., Dovidio, Kawakami, and Gaertner 2002; Hofmann et al. 2008). The IAT effect has $r = .08$ ($p = .01$) and $r = .07$ ($p = .03$) correlations with the foreign threat measure and the Indian trait index, respectively. Previous research suggests that the dissociation is most apparent in sensitive domains in which people are highly motivated to answer in a politi-

cally correct way to an explicit measure (Fazio and Olson 2003).

Although the IAT is commonly used as a measure of implicit attitudes (Nosek, Greenwald, and Banaji 2007), and it is generally agreed that implicit attitudes are plausible theoretical constructs, it is also true that the IAT does not capture all aspects of prejudice. The IAT score may reflect shared cultural stereotypes rather than personal animus and the affective negativity attributed to participants may be due to cognitions and emotions that are not necessarily signs of active prejudice (Arkes and Tetlock 2004). Thus, the IAT has a different set of strengths and limitations compared to more traditional, explicit measures of cultural concerns. Therefore, in our analyses, we include explicit *and* implicit measures of cultural threat (1) to assess the effects of prejudice on immigration opposition above and beyond what is captured by explicit measures and (2) to account for the fact that apart from differences in intentionality, effort, and awareness, it is possible that implicit measures do not measure exactly the same constructs assessed by self-reports. The IAT should not be regarded simply as a measure of the constructs stripped of self-presentation concerns; self-presentation is just one of a variety of factors that moderate the relationship between implicit and explicit measures (Nosek 2005; Nosek, Greenwald, and Banaji 2007). Implicit and explicit assessments may have separate predictive utility, and as such, it is common practice and theoretically important to include both explicit and implicit attitude measures (Blanton and Jaccard 2008). In fact, in his study regarding the IAT and immigration policy judgments, Perez (2010) stressed that even after controlling for explicit attitudes, implicit attitudes still exerted a direct influence on one’s immigration policy judgments. In other words, he found that attitudes toward immigrants originate from both conscious *and* subconscious sources, justifying the inclusion of both measures in studies of immigration attitudes.

Control Variables. Past research on mass attitudes toward globalization, particularly on trade openness, finds a consistent empirical relationship between various individual characteristics and prointegration preferences. We therefore control for a number of the standard demographic and political factors that could be associated with support for immigration-friendly policies: (1) gender, (2) age, (3) marital status, (4) education level, (5) whether the respondent identifies himself or herself as white, (6) income, and (7) party identification.²⁶ In our multivariate

²⁵ $D = (1/2) (\text{Mean}_{\text{stage6}} - \text{Mean}_{\text{stage3}}) / \sigma_{6,3} + (1/2) (\text{Mean}_{\text{stage7}} - \text{Mean}_{\text{stage4}}) / \sigma_{7,4}$ (see Greenwald, Nosek, and Banaji 2003 for more information on the scoring algorithm). The IAT measure involves computing two mean differences and dividing each difference score by its associate “inclusive” standard deviation. The D effect is then an equal-weight average of two resulting ratios. Stages 6 and 7 are trials in which pictures of Indians are paired with “good” words, and pictures of white individuals are paired with “bad” words. Stages 3 and 4 are trials in which whites are paired with “good” words, and Indians are paired with “bad” words. Hence, a positive score would indicate that an individual took longer to associate pictures of Indians with “good” words ($\text{Mean}_{\text{stage6}}$) than pictures of whites with “good” words ($\text{Mean}_{\text{stage3}}$), and it took longer to associate pictures of whites with “bad” words ($\text{Mean}_{\text{stage7}}$) than pictures of Indians with “bad” words ($\text{Mean}_{\text{stage4}}$). The part of the IAT D score that accommodates general processing speed—the fact that irrespective of their attitudes, some individuals respond faster than others on a wide range of cognitive tasks—is the “inclusive” standard deviation. Respondents are obliged to correct errors before proceeding, and latencies are measured to the occurrence of the correct response.

²⁶Control variables are coded as follows: (1) gender (1 = female); (2) age; (3) marital status (1 = married); (4) education level (0 =

analyses, we also cluster standard errors at the zip-code level, thereby correcting for correlation between the disturbances of observations within zip codes.

Placebo Dependent Variable. We asked respondents: “Some people have proposed that the U.S. government should increase the number of immigrants from India allowed to enter the United States. Do you think the U.S. should increase, decrease, or keep about the same number of Indian immigrants?” (response options: “increase a great deal,” “increase a little,” “keep about the same,” “decrease a little,” “decrease a great deal”).²⁷ Again, higher values on the 5-point scale reflect greater support for immigration. We use this variable as a sort of placebo test—cultural threat should decrease support for Indians entering the United States through any means, H-1B visas or otherwise. In contrast, economic threat should have a weak (or no) effect on attitudes toward Indian immigration generally, but it should be particularly and strongly associated with opposition to expanding H-1B visa entries, since these are a direct manifestation of LMC. This assumes that respondents do not automatically associate Indian immigrants with high-skilled immigration, which we later show empirically to be a sensible assumption.

Placebo Occupational Category. As an additional falsification test, we compare the attitudes of high-technology workers to an occupational group with similar education and high-skilled “white collar” status but *not* threatened by Indian immigrants on H-1B visas. We constructed a dummy variable indicating workers who were (1) employed; (2) selected NAICS codes representing “Finance, Accounting, and Consulting,” “Insurance,” “Real Estate, Rental, and Leasing,” or “Law and Legal Services” in response to the economic threat question; and (3) not coded as high-technology workers. Hereafter, we refer

not completed high school education, 1 = high school graduate, 2 = some college, 3 = two-year college degree, 4 = bachelor’s degree, 5 = postgraduate degree); (5) whether the respondent identifies himself or herself as white; (6) income (0 = below \$30,000, 1 = \$30,000–40,000, 2 = \$40,000–50,000, 3 = \$50,000–60,000, 4 = \$60,000–75,000, 5 = \$75,000–90,000, 6 = \$90,000–110,000, 7 = \$110,000–130,000, 8 = \$130,000–150,000, 9 = above \$150,000); and (7) party identification (0 = strong Democrat, 1 = not-strong Democrat, 2 = lean Democrat, 3 = lean Republican, 4 = not-strong Republican, 5 = strong Republican). All variables were recoded to lie between 0 and 1. All results are robust to coding education nonlinearly, where education is coded as a set of indicator variables for each level of education rather than one variable that ranges between 0 and 1.

²⁷The question was asked immediately after the H-1B visa question used as the key dependent variable.

to these individuals as “white-collar nonhigh-technology workers” or “other white-collar workers.”²⁸

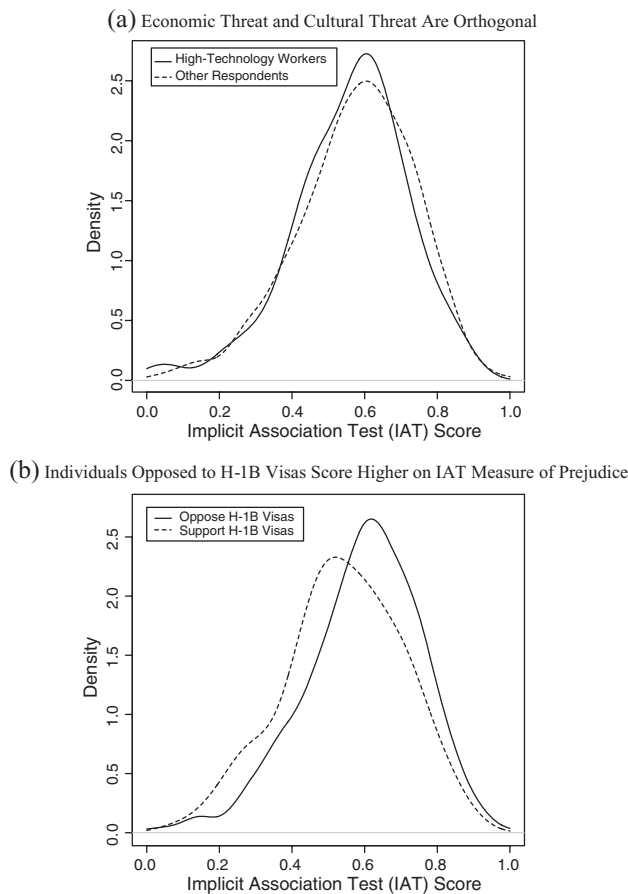
Results

Relationship between Economic Threat and Cultural Threat

Before discussing the main results, we first demonstrate that our measures of economic and cultural threat are tapping distinct phenomena. As shown in Figure 1(a), the distributions of one of our cultural threat measures, the IAT score (represented by kernel densities), are nearly identical for high-technology workers and other respondents (nonhigh-technology workers and respondents out of the labor force). The difference-in-means between the two groups is .02 ($p = .75$, one-tailed), and a Kolmogorov-Smirnov test finds that the two distributions are similar ($p = .70$).²⁹ Because we have clear theoretical expectations, we use one-sided hypothesis tests hereafter. As the figure shows, this relationship stands in stark contrast to the difference in the distribution of IAT scores among those in favor of increasing as opposed to decreasing the allocation of H-1B visas (see Figure 1b), a relationship we discuss in greater detail below. Consequently, any differences we observe between high-technology workers and other responses are not the result of higher latent cultural threat among those in the high-technology sector.

²⁸This coding produced about equal numbers of high-technology and white-collar nonhigh-technology workers, allowing comparability (see Table A4 in the online materials). There are, of course, observable differences between the two groups. For example, high-technology workers are more likely to be male. However, the key similarity between these groups is that they exhibit statistically indistinguishable levels of cultural threat, education level, and socioeconomic status. White-collar nonhigh-technology workers have an average IAT score of .59 compared to that of .56 for high-technology workers ($p = .78$, one-tailed). White-collar nonhigh-technology workers have an average score on the negative traits scale of .36 compared to that of .36 for high-technology workers ($p = .47$, one-tailed). In terms of education, 58% of white-collar nontechnology workers have at least a four-year college degree compared to 53% of high-technology workers ($p = .69$, one-tailed). Income levels are also comparable between both groups, with the average income of white-collar nonhigh-technology workers being only .12 standard deviations lower than the average income of high-technology workers ($p = .73$, one-tailed).

²⁹Difference-of-means estimates are calculated as follows: $DOM = Average_{comparison} - Average_{techworker}$. High-technology workers have similar explicit cultural threat levels as well for both measures—foreign threat and Indian trait index ($DOM = -.03$, $p = .23$; and $DOM = -.01$, $p = .44$, respectively). Kolmogorov-Smirnov tests on the two explicit measures were not conducted, as neither measure is continuous.

FIGURE 1 Implicit Animosity toward Indians

Simple Difference-of-Means Tests

Before delving into multivariate analyses, we first illustrate our results via simple difference-of-means tests. In the top half of Figure 2, we plot support for H-1B visas against our main operationalizations of economic and cultural threat (see Figure A5 in the online materials for weighted estimates). As shown in Figure 2(a), high-technology workers exhibit the lowest support for H-1B visas, consistent with the LMC hypothesis. Whereas technology workers' support for H-1B visas was .28, the support level was substantially higher among other white-collar workers (.40), among nontechnology and nonwhite-collar workers (.35), and among nonemployed individuals (.34). All three of these differences are statistically significant ($p = .04$, $p = .06$, and $p = .07$, respectively). These differences are also substantively meaningful, representing about 6 to 12% of the length of the scale (or about 21 to 39% of the standard deviation in support for visas).

How can one tell whether these differences are due to economic threat *per se* and not due to a conflation of

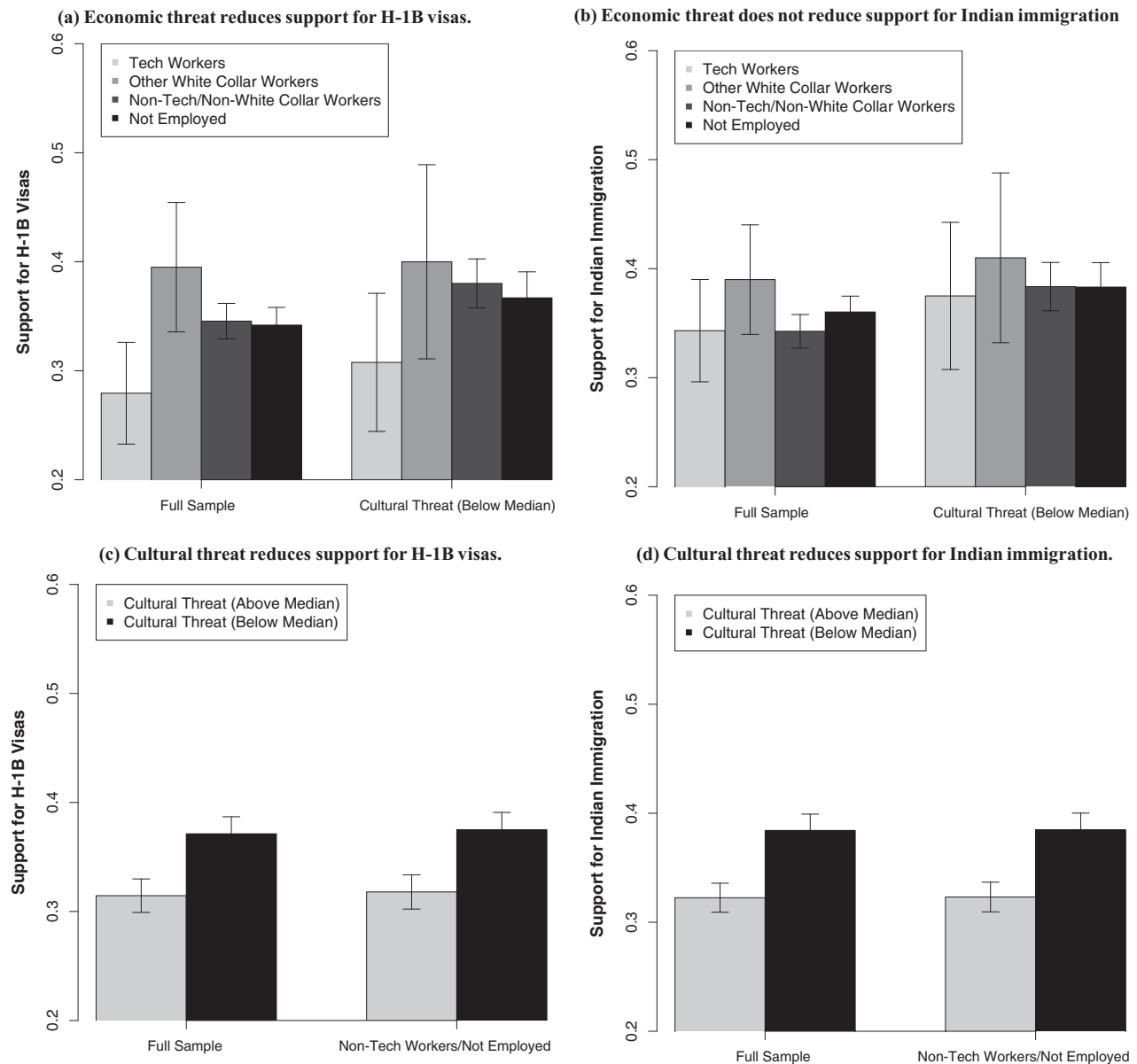
economic threat with cultural threat? As a stronger test of the LMC hypothesis, we *condition* on low cultural threat by only examining respondents with cultural threat scores that fall below the median. In other words, by looking at this subset of respondents, we can examine whether economic threat still explains attitudes on immigration even among those who are not especially culturally threatened. As shown in Figure 2(a), among those low in cultural threat as measured by the IAT, high-technology workers again exhibit the lowest support for visas compared to the other groups.³⁰

Additionally, we find that the individuals most opposed to H-1B visas are high-technology workers who are "not at all confident" or "slightly confident" that they will be able to keep their jobs. Among this subgroup, support for the visas is only .14, significantly lower than among other white-collar workers (.40, $p = .005$), non-technology and nonwhite-collar workers (.35, $p = .01$), and nonemployed workers generally (.34, $p = .01$). Support for visas among this subgroup is also lower than among other white-collar workers (.39, $p = .05$) and non-technology and nonwhite-collar workers (.26, $p = .08$) who are similarly not confident about keeping their jobs. Conversely, all other technology workers more confident in their future employment prospects exhibited a support score of .31, statistically similar to all nontechnology workers generally (.35, $p = .21$) and to employed individuals confident about keeping their jobs (.36, $p = .13$).³¹ Hence, the differences in immigration attitudes between high-technology workers and other respondents cannot solely be due to the selection of certain types of individuals into high-technology work or the selection of high-technology companies into certain geographic areas. Rather, the evidence suggests that negative economic experiences among high-technology workers drive them to be less supportive of H-1B visas than their more financially stable counterparts.

³⁰Due to small sample sizes when subsetting the data, there is limited statistical power to detect differences between these groups. Nonetheless, the differences are substantively meaningful and of similar size to those observed in the full sample. High-technology workers exhibit the lowest support for visas (.31) compared to other white-collar workers (.40, $p = .16$), nontechnology and nonwhite-collar workers (.38, $p = .10$), and nonemployed individuals (.37, $p = .15$).

³¹This result is robust to the battery of control variables included in the multivariate analyses. When controlling for demographic and political variables, unconfident high-technology workers are most opposed to H-1B visas. Unconfident high-technology workers are significantly more opposed to H-1B visas than unemployed workers ($p < .001$), confident high-technology workers ($p = .02$), unconfident nontechnology white-collar workers ($p = .03$), and confident nontechnology white-collar workers ($p = .001$).

FIGURE 2 The Effect of Economic Threat and Cultural Threat on Support for H-1B Visas and Indian Immigration



Note: Each bar graph includes 95% statistical significance bars.

Importantly, as shown in Figure 2(b), high-technology workers are specifically opposed to H-1B visas, not to immigration by Indians more broadly. This suggests that latent cultural concerns are *not* at play. Support for Indian immigration among technology workers is .34, similar to that of other white-collar workers (.39, $p = .21$), nontechnology and nonwhite-collar workers (.34, $p = .51$), and nonemployed individuals (.36, $p = .34$). We obtain similar results when only examining

individuals low in cultural threat. Technology workers exhibit a support score of .38, statistically indistinguishable from other white-collar workers (.41, $p = .34$), nontechnology and nonwhite-collar workers (.38, $p = .44$), and nonemployed respondents (.38, $p = .45$).³² Each of these findings points to the fact that economic threat is not

³²A more stringent test is not simply that the placebo estimate is insignificant but that it is significantly different from the core estimate. To assess this, we stacked the data from the two

simply picking up opposition to the presence of foreigners more broadly. High-technology workers are *not* more likely to oppose foreign immigration more generally, but only the form of immigration that is perceived to directly threaten their economic interests.

Cultural concerns—devoid of social desirability bias—were strong predictors of both attitudes toward H-1B visas and Indian immigration more broadly. We again split respondents at the IAT median score in order to bifurcate the sample into “high” and “low” levels of cultural threat. As shown in Figure 2(c), culturally threatened respondents exhibited a visa support score of .31, significantly lower than the .37 exhibited by respondents with low IAT scores ($p = .001$). We can again perform a similar exercise to the one described above to see that these results are not confounded by economic threat. Only examining workers not in the high-technology sector—individuals who do not directly face economic threat from H-1B visas—the effect of cultural threat is still powerful. Respondents with above-median IAT scores reported less support (.32) than those with below-median IAT scores (.37), a statistically significant difference ($p = .002$).

Unlike economic threat, the effect of cultural threat should be broad and affect all sources of new, culturally distinct immigrants. As shown in Figure 2(d), cultural threat does indeed strongly and negatively predict support for the expansion of Indian immigration in the full sample ($DOM = .06$, $p < .001$) and among people outside of the technology industry ($DOM = .06$, $p < .001$). Hence, we find additional support for previous literature that has stressed the prominence of cultural concerns, and it appears that these results are not artifacts of social desirability bias.³³

Multivariate Regressions

The effects of economic and cultural threat also emerge when controlling for various demographic and political variables. Table 1 presents OLS estimates predicting sup-

port for H-1B visas (measured on a 5-point scale).³⁴ In constructing the specifications, we paid attention to only include variables that could plausibly be considered “pre-treatment” with respect to economic and cultural threat. For instance, since economic threat may produce explicit cultural concerns, we made sure to estimate models

TABLE 1 OLS Regressions Predicting Support for H-1B Visas

High-Technology Workers	-.11** (.04)	-.07* (.04)	-.10** (.04)	-.07* (.04)
Other White-Collar Workers	—	—	.01 (.04)	.02 (.04)
Nonemployed Individuals	.03 (.02)	.02 (.02)	.03 (.02)	.02 (.02)
IAT Score	-.12* (.06)	-.11* (.06)	-.12* (.06)	-.11* (.06)
Negative Indian Traits Index	—	-.12* (.05)	—	-.12* (.05)
Threatened by Foreign Influence	—	-.30*** (.03)	—	-.30*** (.03)
Female	-.05* (.02)	-.04* (.02)	-.05* (.02)	-.05* (.02)
Age	-.77*** (.17)	-.61*** (.18)	-.77*** (.17)	-.61*** (.18)
Age Squared	.72*** (.20)	.63** (.21)	.72*** (.20)	.62** (.21)
Married	.01 (.02)	.02 (.02)	.01 (.02)	.02 (.02)
Education	.20*** (.04)	.11** (.04)	.20*** (.04)	.10** (.04)
White	-.04 (.03)	-.04 (.03)	-.04 (.03)	-.04 (.03)
Income	.14*** (.04)	.10** (.04)	.14*** (.04)	.10** (.04)
Party Identification (Dem. → Rep.)	-.11*** (.03)	-.05* (.03)	-.11*** (.03)	-.05* (.03)
High-Technology County	.00 (.02)	-.01 (.02)	.00 (.02)	-.01 (.02)
Constant	.51*** (.06)	.69*** (.06)	.51*** (.06)	.69*** (.06)
N	980	868	980	868
R ²	.14	.24	.14	.24

Note: Standard errors clustered by zip code in parentheses.

*** $p < .001$; ** $p < .01$; * $p < .05$ (one-tailed).

³³As an additional robustness check that addresses social desirability bias concerns, we designed and conducted a between-subjects experiment in a second study. We found that respondents who were culturally threatened were much more likely to be opposed to H-1B visas for Indian nationals as compared to those who perceived no cultural threat (see Appendix B in the online supplementary material for full details and results).

port for H-1B visas (measured on a 5-point scale).³⁴ In constructing the specifications, we paid attention to only include variables that could plausibly be considered “pre-treatment” with respect to economic and cultural threat. For instance, since economic threat may produce explicit cultural concerns, we made sure to estimate models

³⁴We replicated our results using an ordered logit model, and we obtained similar results, both in terms of substantive meaning and statistical significance. We present OLS estimates due to ease of interpretability as well as recently raised methodological concerns about generalized linear models (Angrist and Pischke 2009).

including the economic threat variable but excluding the explicit cultural threat variables.³⁵

As shown in the first column of Table 1, high-technology workers exhibited 11 percentage points less support on the H-1B visa scale compared to nontechnology workers, the baseline category ($\beta = -.11$, $p = .004$). The control variables allow us to place this effect size in perspective. The effect of economic threat is about half that of education, where moving from having less than a high school diploma to having an advanced degree is associated with an increase in support for curtailing immigration by 20 percentage points. Note that education is generally considered to be the strongest predictor in previous studies of attitude toward forces of globalization.

As another test of the labor-market competition hypothesis, we conduct a placebo test by examining whether white-collar, nonhigh-technology workers are also less supportive of H-1B visas. The logic behind this placebo test is that these white-collar workers have a similarly high labor-market standing as high-technology workers but do not face labor-market threat from immigrants on H-1B visas. As shown in the third column of Table 1, white-collar nonhigh-technology workers are as supportive of H-1B visas as the baseline category of nonwhite-collar workers ($\beta = .01$, $p = .43$). However, high-technology workers are substantially more likely to oppose H-1B visas than white-collar workers employed outside of the high-technology sector ($\Delta\beta = .11$, $p = .02$). Hence, the policy preferences of high-technology workers—presumably due to their specific labor-market situation—differ from other white-collar workers in a predictable manner. Accordingly, the difference we observe between occupational categories is unlikely to be an artifact of “white collar”-type workers selecting into high-technology employment.

We conduct a second placebo test by assessing whether economic threat and cultural threat predict opposition to Indian immigration in general.³⁶ Table 2 presents OLS regressions predicting support for increasing the number of immigrants from India. As shown in

TABLE 2 OLS Regressions Predicting Support for Indian Immigration

High-Technology Workers	-.03 (.04)	-.02 (.04)	-.03 (.04)	-.01 (.04)
Other White-Collar Workers	—	—	.01 (.04)	.02 (.04)
Nonemployed Individuals	.05** (.02)	.05** (.02)	.05** (.02)	.05** (.02)
IAT Score	-.15** (.05)	-.09* (.05)	-.15** (.05)	-.10* (.05)
Negative Indian Traits Index	—	-.37*** (.05)	—	-.37*** (.05)
Threatened by Foreign Influence	—	-.26*** (.03)	—	-.26*** (.03)
Female	-.04* (.02)	-.05** (.02)	-.04* (.02)	-.05** (.02)
Age	-.77*** (.15)	-.61*** (.15)	-.77*** (.15)	-.60*** (.15)
Age Squared	.70*** (.18)	.59*** (.17)	.70*** (.18)	.59*** (.17)
Married	.01 (.02)	.02 (.02)	.01 (.02)	.02 (.02)
Education	.25*** (.03)	.15*** (.03)	.25*** (.03)	.15*** (.03)
White	-.02 (.02)	-.04* (.02)	-.02 (.02)	-.04* (.02)
Income	.08* (.03)	.05 (.03)	.08** (.03)	.05 (.03)
Party Identification (Dem. → Rep.)	-.10*** (.02)	-.02 (.02)	-.10*** (.02)	-.02 (.02)
High-Technology County	.02 (.02)	-.01 (.02)	.02 (.02)	-.01 (.02)
Constant	.49*** (.05)	.73*** (.05)	.49*** (.05)	.73*** (.05)
N	980	868	980	868
R ²	.17	.33	.17	.33

Note: Standard errors clustered by zip code in parentheses.

*** $p < .001$; ** $p < .01$; * $p < .05$ (one-tailed).

³⁵To be sure that “posttreatment” variables were not biasing estimates of economic threat, we also considered alternative specifications, removing characteristics that may be affected by being a high-technology worker—explicit and implicit cultural threat measures, income, party identification, and whether one resides in a high-technology county. Neither the effect size nor the statistical significance of our economic-threat measure is impacted by specifications that remove any possible measures that may be affected by the “treatment” of being a high-technology worker (see Appendix A6 in the online materials).

³⁶As with the test of whether economic threat affects H-1B visa support, we demonstrate the robustness of our results by removing variables that could potentially be considered “posttreatment” (see Appendix A6 of the online materials).

all four columns of the table, economic threat does *not* predict the contraction of support for immigration of Indians. In other words, economic threat is negatively related to support only for the specific form of high-skilled immigration that potentially poses competition for jobs, but *not* toward Indian immigration generally.

In contrast, the effect associated with cultural threat on support for Indian immigration is comparable to that of economic threat in predicting opposition to H-1B visas. As shown in the first and third columns of Table 1, moving from the bottom to the top of the IAT score (increasing

in prejudice against Indians) is associated with a 12 percentage point decrease in the policy scale ($p = .02$). Interestingly, this effect remains even when controlling for explicit measures of cultural threat—negative perceptions of Indians and reported threat from foreign influence (see the second and fourth columns of Table 1). As shown in the second and fourth columns of Table 1, we also find a significant, negative effect of explicitly measured cultural threat (as measured by negative traits and perceived threat of foreign influence) on support for H-1B visas. Thus, it is possible that previous studies may in fact have *understated* the influence of cultural concerns on immigration attitudes, given that they did not measure implicit attitudes that are not picked up by self-reports. As shown in Table 2, cultural threat is also negatively related to support for Indian immigration. Unlike economic concerns, cultural concerns are indiscriminant with respect to whether the immigrant group will affect one's position in the labor market—any “intrusion” of foreign influence is opposed.

Providing additional reassurance in the estimates, it is perhaps useful to note that the direction of the effect for each control variable in our analyses (e.g., gender, age, education, race, income, and party identification), including all controls with statistically significant effects, is consistent with previous findings (e.g., Hainmueller and Hiscox 2007; Mayda and Rodrik 2005). Furthermore, we conducted two additional robustness tests of the main finding that high-technology workers are less supportive of H-1B visas (see Appendix C in the online materials). First, we examine whether the finding could be an artifact of the specific regression specification we estimated. Using Bayesian model averaging (BMA), we analyze specification uncertainty by calculating posterior distributions over a range of coefficients and models. Our results are robust across various ways one could construct the regression model. Second, we also explore whether our results could be accounted for by unobserved individual characteristics that explain *both* individuals' selection into the high-technology sector and opposition to immigration, rather than being a result of concerns about labor-market competition. We follow the method of sensitivity analysis proposed by Imbens (2003) and find that omission of an unobservable from the model is highly unlikely to account for the main finding.

In sum, our analyses show that individuals employed in the high-technology sector are significantly more likely to support a decrease in the number of H-1B visas to foreign workers than are otherwise similar respondents employed in other sectors. Using a number of inferential strategies, we provide evidence that these differences in preferences on this immigration policy are unlikely to be a result of different cultural inclina-

tions distinguishing high-technology workers from other individuals.

Discussion

In studying the factors that shape individual attitudes on immigration, this article makes the case that scholars need to distinguish more carefully between two separate issues: the prevalence and the conditional impact of the various factors under investigation. More specifically, in analyzing the role of economic and cultural threat as factors shaping attitudes, researchers should not conflate the question of which source of threat is the main driver of opposition to immigration at a given place or time with the related, yet different, question of what impact each factor has on citizens' immigration attitudes in circumstances where the threat is present. Indeed, studying the determinants of immigration attitudes should not be analyzed as a “horse race” between economic and cultural threat, as they are not mutually exclusive phenomena. By introducing three innovations with respect to research design—case selection, sampling strategy, and measurement—this study is able to document this important distinction between prevalence and conditional impact and address some of the key outstanding issues in the study of public opinion on immigration.

The results we obtain using both IAT and explicit attitudinal measures confirm past research showing that cultural apprehension substantially increases opposition to immigration, in this case to the granting of H-1B visas. Because the IAT has a different set of strengths and weaknesses as explicit measures, showing that both types of attitudes influence opinions on immigration increases our confidence in past research. However, in contrast to research denying its impact, our targeted sampling approach demonstrates that in a sector in which labor-market competition exists, it is associated with a fairly sizable increase in levels of opposition to granting H-1B visas to additional immigrants. Further, we are able to show that the results are not driven by cultural considerations, as high-technology workers have similar IAT scores as others (Figure 1a) and the differences in policy preferences between employment categories remain even when examining only people who score low on the measure of cultural threat (Figure 2a). Our results thus suggest that past research may have failed to find evidence of economic factors underlying anti-immigration sentiment not because labor-market threat has no effect on people's preferences, but because for a large share of Americans, immigrants do not pose such a threat. As such,

these findings make clearer why previous research that analyzed aggregate, national-level opinion found evidence for cultural threat—which is high both in conditional impact and in prevalence—but found little evidence for economic threat—which can be high in conditional impact but is low in prevalence.

One might contend that the research design we employed “stacked the deck” in favor of the LMC hypothesis. By focusing on a sector in which immigrants represent a sizable share of the workforce, conducting a targeted sample of the affected areas, and focusing on a narrow immigration policy that is directly relevant to that one sector, we are more likely to find evidence in line with the hypothesis. This contention, for sure, has merit. Yet two responses are in order. First, in “stacking the deck” in the way described above, this study offers a critical test of the LMC hypothesis in the sense that if it fails to find confirmatory evidence, it would disprove the claim that employment concerns have a sizable conditional impact on immigration preferences, let alone that they are prevalent. Second, while the findings of a targeted case study of this type do not necessarily apply to all the different manifestations of the immigration debate, they do provide what is arguably a credible *upper-bound* estimate of the conditional impact of the LMC, at least with respect to the attitudes of high-skilled workers. Indeed, by using our “magnifying glass” of the most likely case, our estimates of the conditional impact of economic threat are on par with the conditional impact of cultural threat. Yet for economic threat to be even close to as big a factor as cultural threat in the aggregate, the conditional impact would need to be much greater due to its generally lower prevalence. It is therefore instructive to know that even when we closely and carefully examine the influence of labor-market concerns, the effect is detectable and substantively significant, yet limited nonetheless.

A natural extension of this study would be to replicate the same research design in other segments of the labor market in which different immigrant groups are prominent. For example, the meatpacking industry, in which over a third of workers are foreign born (primarily Mexican) and which is primarily located in rural areas with otherwise low concentrations of immigrants, may help assess the extent to which the size of the conditional impact of the opposition to potential immigrant competitors is similar in a context of different immigrant groups, as well as in sectors employing lower rather than high-skilled natives.³⁷ Furthermore, new research that will

expand the range of industries that are targeted for in-depth study would be able to shed light on whether the findings from this specific case study of the high-technology sector can be generalized to explain variation in attitudes of workers across different sectors of the economy.³⁸ This is an important question that remains open for further study. Finally, our finding that high-technology workers were significantly more opposed to the expansion of H-1B visas (but not immigration in general) calls for more research on whether asking workers about their views on specific rather than on generic immigration policies produces systematically divergent results.

The relevance of our findings for understanding the broader political debate over immigration is nonetheless a pertinent question: to what extent, for example, does this analysis speak to the ongoing debate surrounding low-skilled migration to the United States from Mexico? A useful framework to contextualize our findings is the matrix proposed by Lowi (1972) and Wilson (1973), which offers a typology of the different types of political competition over public policy.³⁹ The typology is based on differentiating policies along two dimensions: (1) whether the policy’s costs are concentrated or diffuse and (2) whether the benefits the policy yields are concentrated or diffuse. The policy of issuing H-1B visas, as our analysis earlier highlighted, is one where both the benefits and the costs are concentrated. The beneficiaries are primarily equity holders and management in a fairly narrow segment of the economy, who gain access to skilled foreign labor at a low cost, often significantly lower than that associated with employing comparable domestic labor.⁴⁰ Similarly, the costs are also concentrated, confined to the narrow group of workers competing in the same occupations as the incoming H-1B migrants.⁴¹ According to Wilson’s framework, policies with concentrated costs and benefits lead to “interest group politics,” whereby protagonists

³⁸ An ongoing project by Hainmueller, Hiscox, and Margalit (2011) seeks to do just that by target sampling a broader range of industries, although the authors examine attitudes toward immigration in general, not to immigration policies specific to the industries under study (as in the case of high-technology workers and H-1B visas).

³⁹ Wilson’s typology is often referred to as the Wilson-Lowi matrix, since Lowi (1964) presented a related schema that classifies policy issues as redistributive, regulatory, or distributive.

⁴⁰ See, for example, Hira’s (2011) testimony to the Senate Judiciary Subcommittee on Immigration, Refugees and Border Security.

⁴¹ One might argue that any policy that increases the competitiveness of U.S. businesses provides benefits for the broader U.S. public. This is perhaps true to some extent, but it is unclear why U.S. *consumers* might not gain even more if components of the production were offshored to cheaper production locations overseas, culminating in even lower prices of goods. Put differently, the case for diffuse benefits from H-1B visas is questionable.

³⁷ The statistics are based on data reported by the 2010 Census and summarized in Artz (2012). The official figures understate the true extent of foreign-born labor in the industry because they ignore illegal migrants.

around the issue have strong incentives to mobilize while the broad public remains largely uninvolved. Indeed, this account accords well with the politics surrounding the legislation over changes to the H-1B program. On the one hand, narrow interest groups are vigorously lobbying either in favor or against the visas program.⁴² On the other hand, the broader public and media are largely absent from the debate, as are most politicians. Put differently, visas for high-skilled workers, an issue with low prevalence but high conditional impact, is fought out intensely among interest groups via lobbying efforts, but done so mostly behind the scenes and off the national political stage.

In contrast, low-skilled migration from south of the border, primarily from Mexico, is a clear example of an issue with both high prevalence and large conditional impact, thus leading to a very different political dynamic. The high prevalence is at least partly due to the sheer scale of low-skilled Hispanic migration to the United States (Hanson 2007), yet it is also an outcome of the cultural threat that Hispanic migration allegedly poses. In particular, concerns about the language proficiency of Hispanic migrants and their prospects of assimilation are issues that are widely discussed in both the political arena and the popular media.⁴³ Since the gains from low-skilled migration—numerous forms of low-cost services performed in a broad geographic dispersion—and the costs are both widely distributed, Wilson's framework predicts a very different type of political battle labeled "majoritarian politics." In this type of conflict, each side seeks to mobilize broad constituencies made up of diverse groups and individuals, including some who are only indirectly affected by the issue. Indeed, this seems to be an apt description of the debate in the United States over Hispanic migration, which has been a prominent issue in both local and national politics and which engages presidents, governors, mayors, the media, and political

parties, as well as a wide array of civil society groups. In sum, the Lowi-Wilson framework helps not only to situate the findings of our study in the broader discussion over the politics of immigration, but also points to the type of sectors that can gainfully be studied in future work.

A notable finding of this study is that the opposition to the entry of high-technology workers was not shared by skilled natives employed in other white-collar occupations. Furthermore, we also find that workers in the high-technology sector were opposed to the narrow policy of visas in skilled occupations, but were not more antagonistic toward the arrival of Indian migrants more broadly. These two patterns suggest that there is not much of a "spillover" effect, whereby concerns about one form of immigration spread across the economy to other sectors and toward other types of migrants. This implies that politicians who seek to cater to the needs of special interest groups (e.g., business associations in a certain industry) can do so by advancing highly targeted immigration policies, without necessarily affecting voter preferences on other forms of immigration.

This analysis highlights the need for scholars in general to take note of the importance of utilizing targeted sampling strategies that can effectively test the mechanisms underlying their arguments. Consider, for example, the ongoing debate in the political economy literature that centers on the question of whether individual preferences on trade policy follow a "factor-based" or an "industry-based" logic (e.g., Mayda and Rodrik 2005; Scheve and Slaughter 2001). Whereas the former logic suggests that people's attitudes on trade liberalization are shaped by the impact of trade on the relative market demand for their skills, the latter logic holds that people's preferences are dictated by trade's impact on their industry of employment. Almost without exception, research using individual-level data has found only weak evidence for an industry-based logic, but much stronger support for the factor-based argument (e.g., Beaulieu 2002; Mansfield and Mutz 2009). As with the case of attitudes on immigration, evidence for the importance of the factor-based logic is obtained using education as a proxy for skill. Our findings suggest that lack of support for the industry-based logic may have more to do with the data (i.e., the samples) used to test the competing hypotheses than with the actual merits of the argument. It could be that by sampling larger sets of respondents in targeted industries (including import-competing ones), scholars would be able to detect "industry effects" on trade attitudes that are difficult to estimate when using national samples with only a handful of respondents from each industry. In contrast, if no evidence of industry effects is

⁴²The main lobbying groups for expansion of H-1B visas are the Information Technology Industry Council (ITI), a trade group for technology vendors; the Semiconductor Industry Association; and Compete America, a lobbying group of some of America's largest high-technology employers, including Sun Microsystems, Motorola, Intel, and Microsoft (see Table A2 in the online materials for a list of top H-1B employers). Against the policy are groups representing interests of organized labor, such as NumbersUSA and the Institute of Electrical and Electronics Engineers (IEEE-USA).

⁴³A few examples from recent years of the prominence of the cultural dimension in the U.S. debate over Hispanic immigration are as follows: (1) proposals by prominent politicians to make English the official language of government (e.g., Hulse 2006; Johnson 2009); (2) calls for the introduction of new language and American history requirements from migrants seeking citizenship (e.g., Gingrich and Chiamarra 2007); and (3) the controversy over schools singing the national anthem in Spanish (e.g., Rosenberg and Shipman 2006).

found in such a targeted approach, such a study would effectively put to rest this frequent contention.

Finally, our results call for applying great caution in drawing conclusions regarding the conditional impact of certain factors, instead of interpreting them as evidence about their prevalence. Without fine-grained data for testing a mechanism at the subunit level in which the mechanism is presumed to operate, one should shy away from making inferences about the mechanism's potential strength and instead focus on the question of its actual prevalence. In fact, several recent studies offer compelling examples of how data collection at the microlevel can allow scholars to test arguments about the local dynamics of the politicization of the immigration issue (e.g., Dancygier 2010; Hopkins 2010). Pursuit of this approach, we contend, offers the most fruitful path forward in explaining variation in the national prominence and form of the immigration issue in contemporary politics.

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web site:

- **Online Appendix A:** Supplementary Tables and Figures
 - **A1:** Review of Literature
 - **A2:** Background on H-1B Visas
 - **A3:** Description of Sample
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