See No Spanish:
Language, Local Context, and Attitudes toward Immigration

March 30th, 2011

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ABSTRACT: Certain explanations of Americans’ immigration attitudes emphasize threats to national identity and culture. But we do not know the specific sources of cultural threat, and we do not know whether it operates locally. In case studies of new immigrant destinations, native-born residents commonly voice concerns about the prevalence of Spanish, suggesting that foreign languages might be one such source of threat. This paper uses survey experiments to provide the first causal test of the impact of written Spanish on Americans’ immigration attitudes. One experiment was conducted online with a nationally representative sample while a second was embedded in an exit poll. The experiments show that Spanish has differential impacts depending on Americans’ prior contact with it. Among those who hear Spanish frequently in day-to-day life, seeing written Spanish induces anti-immigration attitudes. These findings suggest that language can foster cultural threat, and they highlight a mechanism through which local encounters can be threatening.

* This paper was formerly subtitled “Implicit Cues, Personal Experience, and Attitudes toward Immigration.”

Previous versions of this research were presented at the Georgetown American Politics seminar, the Eastern Sociological Society, the Harvard University Migration and Immigrant Incorporation Workshop, the Midwest Political Science Association, the Yale University American Politics Seminar, the Harvard Political Psychology and Behavior Workshop, and the University of Virginia American Politics Seminar. The authors received institutional support from Harvard University’s Center for American Political Studies, Hauser Center for Non-Profit Organizations, and Saguaro Seminar for Civic Engagement; the MIT Department of Political Science; the Yale University Center for the Study of American Politics; the Rappaport Institute for Greater Boston; and the Zeit Foundation. Data were collected partially through Time-sharing Experiments in the Social Sciences. The project was reviewed by Institutional Review Boards at Yale (711003296) and Harvard (F15546-101 and F16792-101). The authors gratefully acknowledge assistance or advice from Matt Barreto, Adam Berinsky, Irene Bloemraad, Colin Brown, Nicole Deterding, James N. Druckman, Shang Ha, Gregory Huber, Gabriel Lenz, Arthur Lupia, Diana Mutz, Gloria Park, Robert D. Putnam, Deborah Schildkraut, Mary Waters, Ismail White, Cara Wong, and participants at the seminars named above.
1. Introduction

In 1992, U.S. Senator Robert Byrd had a complaint about the use of Spanish in his community. “I pick up the telephone and call the local garage,” he explained. “I can’t understand the person on the other side of the line... They’re all over the place, and they don’t speak English. Do we want more of this?” (Fram, 1992). Almost two decades later, his unease about Spanish remains widely shared. In a recent Pew Hispanic Center survey, 38% of national respondents who had contact with non-English speakers reported being bothered by that contact (2006). Similarly, community case studies have also identified the use of Spanish as a source of immigrant-native-tension. Policymakers are responding, with English-only laws being debated in jurisdictions from Hazleton, Pennsylvania (2006) to Arizona (2005).

Within political science, one prominent set of explanations for anti-immigration views contends that they are grounded in concerns about national identity and culture (e.g. Sides and Citrin, 2007; Schildkraut, 2005; Sniderman, Hagendoorn and Prior, 2004; Citrin et al., 1997). But this theoretical perspective raises another question that has yet to be answered: what specific aspects of immigrants’ cultures or identities produce threatened responses? This paper explores the impact of the Spanish language on Americans’ attitudes toward immigration using two survey experiments at both the national and local levels.

At a time when the U.S. is growing more diverse, and when immigrants are settling far
beyond the traditional gateway cities (Frey, 2006), it is important to understand whether casual, day-to-day exposures to Spanish influence native-born Americans’ attitudes toward immigration. Theories of inter-group contact (e.g. Allport, 1954; Pettigrew, 1998; Welch et al., 2001; Lee, Farrell and Link, 2004; Tropp and Pettigrew, 2005) suggest that encounters between different ethnic or racial groups can induce positive inter-group attitudes when properly structured. By contrast, theories of inter-group threat suggest that residential proximity can induce prejudice and competition over resources (e.g. Rudolph and Popp, 2010; Dancygier, 2007; Gay, 2006; Cain, Citrin and Wong, 2000; Oliver and Mendelberg, 2000; Taylor, 1998; Quillian, 1996; Glaser, 1994; Giles and Buckner, 1993; Blalock, 1967; Key, 1949). To be sure, the two approaches are not mutually exclusive (Berg, 2009; Ha, 2008; Oliver and Wong, 2003; Stein, Post and Rinden, 2000). Whether inter-group encounters reinforce or reduce inter-group tension can hinge on the groups in question and on the political context (Kopstein and Wittenberg, 2009; Glaser, 2002).

Theoretically, our paper contributes to past research by highlighting the attitudinal mechanisms underpinning local inter-group threat, as well as the role of personal experience in opinion formation.\(^1\) It explores why not all contact reduces stereotypes. Empirically, we investigate whether language barriers influence the attitudes that emerge from local encounters.

\(^1\) This paper defines mechanisms as mediating variables or processes through which the causal variable influences the outcome. For in-depth statistical discussions, see Glynn (2008), Bullock, Green and Ha (2009), and Imai, Keele and Yamamoto (2008).
between groups, perhaps by heightening threatened responses. To the extent that seeing or
hearing Spanish influences political attitudes, it is likely because Spanish operates as a cue or
prime, increasing the accessibility of certain considerations in people’s minds (e.g. Zaller, 1992;
Miller and Krosnick, 2000; Chong and Druckman, 2007a, 2007b; Druckman et al., 2010). Yet it
is not clear whether exposure to Spanish will have a stronger impact on those who have prior
exposure to the language or those who do not. Does Spanish generate concern because of its
unfamiliarity or because it is all too familiar?

In Section 2, this paper develops its hypotheses by drawing on case studies of new
immigrant destinations as well as past research on immigration attitudes, public opinion, inter-
group contact, and inter-group threat. Section 3 then provides an experimental test of the
influence of seeing Spanish on immigration attitudes using a nationally representative sample of
351 American adults. It included novel questions about respondents’ contact with Spanish,
allowing us to avoid the common assumption of uniform exposure within a neighborhood. The
analyses demonstrate that as compared to those who rarely encounter Spanish, seeing Spanish-
language text has a more negative impact on those who regularly hear Spanish in their daily
lives.\textsuperscript{2} This significant interaction between one's prior exposure to Spanish and seeing Spanish

\textsuperscript{2} We also show that self-reported exposure to Spanish is not correlated with immigration-related attitudes \textit{ex ante}, a
fact which reduces concerns that an alternate moderator is really at work.
appears to be driven both by a positive response among those who rarely encounter Spanish and a negative response by those who frequently do so, although given the modest sub-group sample sizes, the sub-group effects are not typically statistically significant. To confirm these findings, we thus embedded an additional Spanish-language experiment in an exit poll conducted in two heavily immigrant communities in Massachusetts, as discussed in Section 4. In both places, contact with foreign languages was consistently high. This exit poll experiment finds that seeing written Spanish reduces support for immigration markedly among Democratic voters. We suspect that ceiling effects prevent a similar treatment effect among Republican voters, who overwhelmingly support decreased immigration even without the Spanish cue (for similar ceiling effects, see Sniderman and Carmines 1997 and Branton et al. 2007).

Unlike cues in everyday life, the Spanish language manipulations in our experiments were quite subtle, and the use of Spanish was by researchers rather than politicians. These factors suggest that the effects of Spanish detailed here are potentially a lower bound, making the political implications of these findings all the more noteworthy. The 2008 Democratic presidential primary included the first-ever Spanish language debate. Both the primary and the general election campaigns featured considerable Spanish-language advertising as well (Barreto et al., 2008). This paper’s results suggest that politicians’ use of Spanish may heighten anti-immigration sentiment among certain constituencies, including those who encounter the
language in day-to-day life. These implications are explored in the concluding Section 5.

2. Theory: Spanish as a Cultural Threat and Inter-group Exposure

Recent scholarship on attitudes toward immigration has sought to uncover the extent to which immigration attitudes are rooted in economic versus cultural threats (e.g. Hanson, Scheve and Slaughter, 2007; Sides and Citrin, 2007; Mayda, 2006; Schildkraut, 2005; Sniderman, Hagendoorn and Prior, 2004; Barkan, 2003; Scheve and Slaughter, 2001; Citrin et al., 1997; Citrin, Reingold and Green, 1990; Higham, 1992). Yet in framing the problem as “economics versus culture,” we have devoted less attention to the specific aspects of immigrants’ cultures or identities that are fostering threat (but see Schildkraut 2001, Schildkraut 2005, and Newman et al. 2010). This section first details research showing how immigration attitudes are susceptible to cultural cues, cues which might prime religious differences, ethnic differences, language differences, or by a host of other inter-group distinctions. It then proceeds inductively, drawing clues about immigration attitudes and language threat from case studies as well as past research.³

To develop hypotheses, this section synthesizes research on inter-group contact, inter-group threat, and public opinion. The first hypothesis contends that the Spanish language operates as a

³ In drawing on case study evidence, we follow the injunction that “theory building should be grounded in credible intuitions” (Kalyvas, 2006). The field research referenced in this paper consists of 320 in-depth interviews with community leaders and residents in five mid-sized U.S. cities with rapidly growing foreign-born populations: Elgin, Illinois; Lewiston, Maine; New Bedford, Massachusetts; Wausau, Wisconsin; and Yakima, Washington. (Author citation) describes the interview sample and methodology for all sites (except New Bedford) in detail.
potent cue on immigration-related issues. The second contends that cues about immigration interact with respondents’ prior personal experiences to trigger pro- or anti-immigration sentiment.

Cues on Immigration

For the purposes of this paper, cues are defined as any information shortcut that makes certain considerations more accessible in the minds of those exposed. A cue is a “piece of information that allows individuals to make inferences without drawing on more detailed knowledge” (Druckman et al., 2010, pg. 137). Cues are typically intentional appeals by political elites designed to influence public opinion, and they are often conveyed through the media. But not always: they can also be unintentional signals, such as the skin tone of a speaker or the use of Spanish. Previous research has considered how specific cultural cues influence attitudes toward immigration or toward political figures (e.g. Newman et al. 2010; Schildkraut, 2009b; Barreto et al., 2008; Brader, Valentino and Suhay, 2008; Junn and Masuoka, 2007; Sniderman, Hagendoorn and Prior, 2004).

And yet, this emerging literature has not reached a consensus on the impact of immigration-related cues. One experimental study concludes that explicitly identifying immigrants as members of an ethnic out-group induces anxiety and leads to more negative responses to immigration (Brader, Valentino and Suhay, 2008); a second shows that the impact of
immigration-related rhetoric on information-seeking hinges on one’s ethnic or racial sub-group (Albertson and Gadarian, 2009). In both of these studies, the operative intergroup difference is racial or ethnic. Three other studies focus on language, showing that bilingual advertising can have a negative impact on the sponsoring candidate (Barreto, Merolla and Ramírez, 2007), especially among blacks (Barreto et al., 2008). Newman et al. (2010) show that even brief, unexpected online encounters with Spanish can induce cultural threat. However, another experimental study finds mostly positive impacts when respondents see photos of Asian-American or Latino families (Junn and Masuoka, 2007). Although still nascent, this body of research suggests that cues about immigrants’ race or language can influence Americans’ political attitudes. It further suggests that the impact of these cues may vary with their context, making additional experimentation valuable.

*Spanish as a Cultural Threat*

Among the potential sources of cultural threat, there is good reason to suspect that language differences are especially important and that exposure to written Spanish might cue negative immigration-related attitudes. Observations of recent immigration politics illustrate the particular power of concerns about language in energizing anti-immigration sentiment (Zolberg and Woon, 1999). Language barriers serve as an obstacle to communication, exacerbating suspicion and misunderstanding. Spanish might also produce an emotional response, perhaps generating
anxiety and information-seeking (Brader, Valentino and Suhay, 2008; Valentino et al., 2008).

More generally, the presence of foreign languages raises concerns among some Americans that immigrants are failing to assimilate, instead imposing their culture on the host country (Huntington, 2004).

In our field research in small U.S. cities with rapidly growing immigrant populations, language emerged as a major flash point among local residents. In Elgin, Illinois, a non-Hispanic white man explained how the growing prevalence of Spanish signs heightened his concerns about immigration: “There’s Armando’s Grocery Store up there. Signs used to be in English, ‘Potatoes–79 cents a pound,’ and down below it would be in Spanish. Now the big sign is in Spanish and the little sign is in English... It’s frightening to see that it’s just kind of been dominated.” In Yakima, a central Washington city that is also home to a growing Latino population, a non-Hispanic white man similarly explained how issues surrounding language affect local views on immigration: “Two years ago there was just a hell of a hullabaloo in this town. A fellow that I know wrote a beautiful version of the *Star Spangled Banner* that slips from English into Spanish, back into English and to Spanish... All hell broke loose. Instead of celebrating, [people said], ‘What are they doing? I mean now they’re even changing our sacred national anthem, and profaning it by putting it in another language’. “

A similar process would later play out on the national stage, with the 2006 release of “Nuestro Himno,” a Spanish-
Huntington (2004) expresses similar concerns, arguing that Latino immigrants’ retention of Spanish threatens American national unity. Past research reinforces the close relationship between language issues and Americans’ conceptions of immigration and national identity (Paxton, 2006; Schildkraut, 2005; Citrin et al., 2001), as well as the contentious politics surrounding state-level language policy (Schildkraut, 2001). In the words of a 1993 report on local native-immigrant interactions, “if a single source of conflict stands out, it involves the use of different languages” (Bach, 1993, pg. 7). Among the set of cues related to immigration, the Spanish language is potentially powerful. The resulting hypothesis is straightforward: exposure to the Spanish language should prime concerns about assimilation and American cultural identity, inducing anti-immigrant attitudes.

Contact, Conflict, and Prior Experience

It is plausible that these complaints about Spanish reflects the initial uncertainty and unease following the arrival of newcomers (e.g. Gould, 2000; Green, Strolovitch and Wong, 1998; Horton, 1995; Rieder, 1985). Theories of inter-group contact suggest that under certain conditions, prolonged interactions with members of other groups can reduce stereotypes and inter-group animosity (Allport, 1954; Pettigrew, 1998; Stein, Post and Rinden, 2000; Welch et

language version of the national anthem.
al., 2001; Lee, Farrell and Link, 2004; Tropp and Pettigrew, 2005). However, contact is more likely to have positive effects under specific conditions: when the groups are equal in status, when they share common goals, when they have the support of local authorities or institutions, and when the situation requires intergroup cooperation (Allport, 1954). And it seems likely that for monolingual Spanish speakers, particularly in new immigrant destinations, language barriers make these conditions all but impossible. The contact between Spanish speakers and English speakers is necessarily superficial, and is potentially frustrating and even stereotype-enhancing. In studying contact across language barriers, this paper takes up the challenge of Pettigrew and Tropp (2006) and directs attention to the conditions that inhibit the positive influence of contact. Theories of local inter-group conflict seem to provide a better fit, as they expect a negative attitudinal shift resulting from living alongside members of other ethnic or racial groups (e.g. Dancygier, 2007; Gay, 2006; Cain, Citrin and Wong, 2000; Oliver and Mendelberg, 2000; Taylor, 1998; Tlnay and Beck, 1995; Glaser, 1994; Blalock, 1967; Key, 1949). Theories in this vein hold that proximity can trigger negative attitudes toward neighboring groups, either through heightening prejudice (Taylor, 1998), decreasing trust (Rudolph and Popp, 2010; Putnam, 2007), increasing competition for economic resources (e.g. Tlnay and Beck, 1995), or increasing

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5 Interested readers should see especially Tropp and Pettigrew (2005), a meta-analysis of 515 studies that finds very consistent evidence in support of the contact hypothesis.
political competition (e.g. Dancygier, 2007; Glaser, 1994; Key, 1949). Yet with few exceptions (e.g. Fossett and Kiecolt, 1989; Wong, 2007), this body of scholarship has not considered the specific attitudinal mechanisms through which context might influence attitudes. Typically, these theories are tested by looking at conditional correlations between the objective ethnoracial composition of a respondent’s neighborhood and his or her political attitudes. Yet they are at a loss to explain whether these attitudes are shaped by local interactions, local observations, differing conversations within peer-groups, or some other mechanism. In fact, such studies rarely measure respondents’ actual exposure to different groups or to specific inter-group experiences. Such exposure is simply assumed as a consequence of residential proximity.

Thus we turn to research on public opinion to identify one potential mechanism underpinning theories of inter-group threat. Cues are thought to influence reported attitudes by making certain considerations more available in people’s minds (Zaller, 1992; Miller and Krosnick, 2000; Chong and Druckman, 2007a). If that is true, people’s initial exposures to Spanish might not have much of an impact, as there are not yet many negative considerations to access. At first, people might not recognize the language, let alone its political or social implications. Yet as people encounter immigrants in their day-to-day lives, they begin to store memories of those encounters which can be made accessible. Those memories could come from many sources, including everything from discussions about the influx of Spanish-speakers at the
neighborhood school to seeing billboards in an unfamiliar language. Spanish might operate through multiple channels, cueing ethnocentrism for some and concerns about resource threat for others. Yet irrespective of the specific channel, the second hypothesis is that the Spanish cue will grow in its influence over time, as it taps into pre-existing concerns related to immigration and communication. Thus the influence of a given exposure to Spanish will depend crucially on the quality of someone’s prior exposure to the language.

The hypothesis advanced here also cuts against the common assumption that personal experiences have little systematic influence on political attitudes. Political scientists have sometimes argued that political attitudes are largely “sociotropic” in origin, meaning that they are influenced by perceptions about the collective experiences of the country as a whole rather than individuals’ personal experiences (e.g. Kinder and Kiewiet, 1981). On economic issues, Mutz (1992) finds personal economic experiences are less influential on judgments about the economy for people who have been exposed to information through the mass media. If similar patterns held here, we would expect attitudes to reflect media discourse on immigration – and thus that Spanish-language cues would operate evenly across the country, irrespective of people’s

6 To be sure, in other examples, cues from the media or political elites prove more influential in shaping the attitudes of those with personal experience for at least some issues (e.g. Iyengar and Kinder, 1987; Gamson, 1992; Strauss, 2009).
personal exposure to the language. We now turn to testing these possibilities.

3. The Knowledge Networks Language Experiment

Survey researchers have long used experiments to make causal inferences (e.g. Iyengar and Kinder, 1987), drawing on experiments’ unique capacity to eliminate alternative explanations and identify causal effects. This section details the implementation and results of one experiment exposing respondents to written Spanish. While people can be exposed to Spanish in many ways, some more overtly political, this stimulus provides an initial gauge of how language influences attitudes. In these analyses, we investigate both main effects and effects conditional on one theoretically motivated moderating variable. This moderating covariate – prior experience with Spanish – is causally prior to the treatment itself.\footnote{We thus avoid the steep methodological hurdles or increased assumptions needed to estimate mediation effects when the mediator has not been randomized (Glynn, 2008; Bullock, Green and Ha, 2009; Imai, Keele and Yamamoto, 2008).}

Rather than relying on ethnoracial context as a proxy for contact with immigrants, we ask respondents prior to the experimental treatment about their contact with Latino immigrants. Specifically, respondents were asked: “in your day-to-day life, how frequently do you hear Spanish spoken?” There were five response options, from “never or almost never” to “every day.” A separate question asked respondents, “how frequently do you see Hispanic/Latino

\footnote{We thus avoid the steep methodological hurdles or increased assumptions needed to estimate mediation effects when the mediator has not been randomized (Glynn, 2008; Bullock, Green and Ha, 2009; Imai, Keele and Yamamoto, 2008).}
immigrants in your community?" Clearly, these are just two of the many possible forms of exposure; future work might consider other forms as both treatments and moderators, from seeing official government documents to hearing Spanish-language radio stations. Still, by using self-reported contact, we can move beyond the assumption that spatial proximity necessarily induces inter-group exposure.

Since similar self-reported measures of contact have not been used previously in an experimental setting – or indeed in the vast majority of studies of inter-group conflict – it is worth considering what these questions are measuring. The threat to validity is that they are potentially infused with respondents’ attitudes on immigration, as people differentially report their exposure to Spanish. Yet in multiple data sets, we see no evidence of any relationships between self-reported contact and immigration-related attitudes. In our internet survey, for the control group that saw no Spanish, the Pearson’s correlation between the anti-immigration index and the frequency of hearing Spanish is -0.02. Those who report hearing Spanish frequently do

8 These two measures have a Pearson’s correlation of 0.66. We employ the second in robustness checks, but focus on the moderating impact of hearing Spanish since it directly measures exposure to the Spanish language.
9 Given the increasing dispersion of the foreign-born population (Frey, 2006), future work might also consider whether respondents’ exposure to Spanish has differed over time.
10 For a separate question measuring respondents’ conversations with Latino immigrants, it is -0.03. Also, in the data set as a whole, hearing Spanish frequently is not strongly related to Democratic partisanship (correlation =−0.05) or conservative ideology (−0.05). It is slightly related to income (0.10) and education (0.11), but not strongly so and not in a direction that would lead those with more exposure to Spanish to be more threatened by immigrants.
live in more Hispanic ZIP codes (0.26), see Latinos frequently (0.66), and talk to Latino immigrants frequently (0.59). The measures of contact behave as we would expect them to, and are not related to ideology or attitudes.\(^\text{11}\) Thus we can reasonably assume that self-reported contact measures what it purports to measure.\(^\text{12}\)

We hypothesize that those who hear Spanish more frequently are more likely to have pre-existing mental associations that can be made accessible by experimental cues. The first experiment to test this hypothesis was administered online through Knowledge Networks’ panel on a random sample of 351 adult respondents, and was part of a larger survey conducted between February 23rd and February 28th, 2008. In this case, the median respondent was 47 years old with 13 years of education. Ten percent of respondents were black, 7% were Hispanic, and 6% 

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\(^\text{11}\) The claim that self-reported exposure is distinctive from immigration-related attitudes is strongly corroborated by a separate analysis of a 2006 national survey conducted by the Pew Hispanic Center. Specifically, the spring 2006 Pew survey asked, “how often do you personally come in contact with immigrants who speak little or no English?” For the 1,687 respondents who were black or non-Hispanic white, we examined the Pearson’s correlations between responses to this question and attitudes toward immigration and toward minority groups. Those who encounter immigrants who speak little English are no more likely to support immigration (correlation= −0.008), to disagree that immigrants take jobs from natives (= −0.03), to think that immigrants strengthen American society (= −0.01), or to report positive affect toward Latinos (= 0.004). Nor is self-reported contact correlated with conservative ideology (= −0.001) or with party identification (= −0.02). This pattern of consistently null correlations suggests that such measures of self-reported contact are not tapping political predispositions, immigration-related attitudes, authoritarianism, or other such attitudinal dimensions.

\(^\text{12}\) To be sure, the purpose of presenting these facts is to assess an alternative interpretation of one moderating variable. These are unconditional correlations, and should not necessarily be interpreted as indicating the absence of a causal impact of contact with immigrants.
were born outside the U.S. Though researchers often conduct experiments on non-random subsamples of the population, we are able to use a nationally representative sample which reduces concerns about the generality of the results.13 Among panelists, the response rate (AAPOR RR3) was 62 percent. A group of 144 respondents was randomly selected to view a welcoming note in English while 137 saw the same note in English and Spanish. Another 70 respondents saw no welcoming note at all, and are grouped among the control units. In English, the introductory note14 read: “We are eager to learn what you think about various issues facing America today.”15

Figure A1 in the Appendix presents an image of the bilingual treatment as well as the full questionnaire. It illustrates that the questions assessing respondents’ contact with Spanish and with Latino immigrants came three to five questions prior to the experimental manipulation. This

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13 The survey is conducted online, but the panel of respondents is initially recruited using random samples from phone numbers. The panel recruitment rate (AAPOR RR3) was 23% and the panel profile rate was 57%, yielding a cumulative response rate of 8%. Respondents without internet access are provided with free WebTV access, substantially improving the survey’s ability to represent Americans from various demographic groups. The term “nationally representative” does not indicate or require any particular sample size, as the uncertainty with any survey-based estimate declines monotonically as the sample size increases. In addition, see Chang and Krosnick (2009) for evidence of the accuracy of Knowledge Networks’ panel in recovering national benchmarks.

14 The word “introductory” has a specific meaning, because this was a module in an omnibus survey. Our respondents fielded several baseline “pre-treatment” questions, and then were exposed to the treatment note if assigned. Still, the omnibus nature of the survey–and the omnipresence of Spanish-language translations in daily life–might together make this treatment seem normal and unremarkable.

15 The bilingual version also included the same note in Spanish: “Estamos conduciendo una encuesta pública acerca de la opinion de personas como usted acerca de asuntos importantes.” This phrasing comes from the introduction to the Spanish version of the Latino National Survey (Fraga et al., 2006).
ordering poses no threat to the experiment’s internal validity, as all respondents had the same experience prior to the randomization. Thus, even if the full sample is primed to think about Latinos from the contact questions, because only a randomized subset views the bilingual welcome message, we can still estimate the independent effect of seeing the Spanish-language message on immigration attitudes. In fact, making personal contact with Spanish speakers salient to all respondents prior to the randomization potentially diminishes the impact of the treatment (see also Mendelberg, 2008), rendering these estimates conservative.\textsuperscript{16}

The treatment is quite subtle, and the written Spanish is not being deployed by a political leader or group. We therefore think of these results as a lower bound which potentially understates the impact of Spanish when used politically. These analyses and those below all use two-sided tests of significance unless we have a clear directional prediction or unless our own prior results indicate an expected effect.\textsuperscript{17}

We measured the outcome of interest – attitudes toward immigration – in a variety of

\textsuperscript{16}In addition, actually seeing a foreign language might have a very different impact than responding to English-language questions about contact with that language. Randomization checks on twelve key covariates indicate only one significant pre-treatment difference across the groups: those exposed to Spanish are more likely to be Democrats (p=0.04, two-sided test). To the extent that Democrats are more pro-immigration, this factor might make it harder to detect the hypothesized effects. The results reported below are all confirmed using parametric models which adjust for this covariate imbalance.

\textsuperscript{17}Following the advice of Gelman and Stern (2006) and Gerber and Malhotra (2008), this paper treats p-values and hypothesis tests as continuous rather than binary indicators of uncertainty: the lower the p-value, the more certain we are that a given result is not the product of chance alone.
ways. After treatment, respondents were asked whether they agreed with a generic statement about threat (Sniderman, Hagendoorn and Prior, 2004): “These days, I am afraid that the American way of life is threatened.” There is nothing specific to immigration in this statement, and respondents could reply with reference to economic, social, or cultural threats. They were subsequently asked a common question about preferred levels of immigration: “[d]o you think the number of immigrants from foreign countries who are permitted to come to the United States to live should be decreased a lot, decreased a little, left the same, increased a little, or increased a lot?” Responses to this variable are quite skewed, with just under 10 percent of respondents endorsing increased immigration (see also Schildkraut, 2009). We thus focus on a binary indicator of whether the respondent supports decreased immigration, grouping those who wish to leave it as is with those who wish to increase it. An additional question assessed whether respondents agreed that “current and future immigration will threaten the American way of life.” Questions also probed whether the arrival of immigrants in the respondent’s community or country would raise taxes or levels of violence and crime. In part to reduce concerns about multiple comparisons (e.g. Rice, 1989; Benjamin and Hochberg, 1995), we also create a composite index by adding each of the measures above into an anti-immigration index that

18 Unless otherwise noted, all other questions have four response categories.
19 As detailed in the Appendix, respondents were randomly assigned to questions with either “your community” or “this country” as the frame of reference.
weights each equally ($\alpha=.79$). Finally, respondents were invited to provide additional open-ended comments. We noted whether those comments mentioned language concerns specifically.

Together, these measures capture a wide variety of outcomes that are linked to immigration, including threats to safety, public finances, and culture.

**Treatment Effects**

What is the impact of seeing a single Spanish sentence early in the survey? On most of the dependent variables, there is no evidence of systematic differences across the full treated and control populations, as Table 1 makes clear. In fact, for the full surveyed population, there is not a single main effect significant at the 0.05 level.\(^{20}\) For instance, 48.5% of those who saw Spanish and 47.9% of those who did not wanted to decrease immigration, a difference that is far from significant\(^{21}\) (p=.90). There is just one hint that seeing Spanish might shape attitudes in the general population. Whereas 2.8 percent of control group respondents mentioned language issues explicitly in an open-ended response, 5.8 percent of respondents who saw Spanish did (p=0.19).

The result is very similar when we use logistic regression conditional on party identification to estimate the treatment effect, a precautionary step given the imbalance on that covariate.\(^{22}\) The

\(^{20}\)This conclusion was confirmed through ANOVA, which gives the probability of no group differences as 0.65.

\(^{21}\)All t-tests in this section are two-sided.

\(^{22}\)While Freedman (2008) raises concerns about the applicability of generalized linear models to experimental data, Green (2009) convincingly dismisses such objections for all but the smallest sample sizes.
estimated treatment effect under the model is 2.9 percentage points, with a simulated p-value of 0.18.

We then examined the hypothesis that seeing Spanish is especially influential among those who encounter it in their day-to-day lives. Consider the 210 respondents who report hearing Spanish at least once a week. The resulting t-tests are presented on the right side of Table 1. When exposed to the Spanish cue, this subset is more likely to say that immigrants bring violence and crime (p=0.12) and that immigrants induce tax increases (p=.20). As the table’s penultimate column indicates, these treatment effects represent 0.22 and 0.18 of the respective variable’s standard deviation. Perhaps not surprisingly, seeing Spanish does not shape their response to the generic threat question. When asked about threats induced by immigration, however, those who saw written Spanish are more likely to report that the American way of life is threatened (p=.20), with an effect that is 0.18 of a standard deviation. They are also more supportive of reducing immigration, although the difference – 53.6 percentage points versus 47.2 percentage points – is not statistically significant (p=.37). Those who see Spanish are 0.17 of a standard deviation higher on the overall anti-immigration index as well (p=.22). No one result here is overwhelmingly strong, and none reaches statistical significance at the conventional 0.05 level in a two-sided test. But given the modest sample size and the subtlety of the cue, the fact
that similar results appear across a variety of measures is suggestive of an underlying relationship. Those who frequently encounter Spanish tend to respond negatively to a sentence written in that language. And that negative response persists for the duration of the survey.

As one might expect, the anti-immigration impact is stronger still among those with the most day-to-day exposure to Spanish. In other words, we do not observe any notable non-linear impacts. Among the 31% of the sample that reports hearing Spanish every day, the brief exposure to written Spanish in the experiment made respondents markedly more likely to report that immigrants will raise crime (p=.04). That group is especially likely to respond to Spanish by indicating that immigrants threaten the American way of life (p=.08). When interpreting these results, it is important to remember the earlier observation that at baseline, self-reported exposure to Spanish is entirely unrelated to ideology or immigration attitudes.

As additional tests of the interaction between prior exposure and Spanish-language cues,

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23 We also see the same pattern when removing the 70 respondents who saw no introductory note from the control group, further demonstrating the robustness of the results.

24 One might wonder if this estimate is inflated by those who hear Spanish on television. Yet 47% of the respondents report seeing Latino immigrants in their community every day, indicating that these exposures to Spanish are from interpersonal encounters to a substantial extent. Future research could productively explore the relative impact of exposures to Spanish or to immigrants in person as compared to through the mass media.

25 In its final rows, Table 1 also shows the impact of seeing Spanish among the 141 respondents who do not frequently encounter the language. Here, the results run counter to expectations: those not exposed to Spanish leaned higher on the anti-immigrant index (p=.13, two-sided), and they were more likely to say immigrants raise taxes (p=.03, two-sided) or crime (p=.08, two-sided). The Spanish cue appears to have a different meaning for those who rarely encounter the language, a point developed below.

22
we estimated linear models for each of our dependent variables for the full sample. The key term in each model is the interaction between the treatment (seeing Spanish) and exposure to Spanish in day-to-day life. We also included lower-order terms for both of those variables, as well as an indicator variable for those who saw no introductory note and a seven-category measure of partisan identification. From each model, we predicted the average response for four hypothetical respondents, defined by whether or not the respondent encounters Spanish in her daily life and whether or not she saw written Spanish in the survey. The fitted models are provided in Table 2.

[Insert Table 2 Here]

Figure 1 presents the results of these linear models graphically, illustrating that there is a consistent and typically significant interaction between respondents’ exposure to Spanish and their response to the experimental cue. To facilitate its interpretation, Table A1 in the Appendix presents the full fitted model of the first dependent variable, the anti-immigration index.

26 For the binary variable, we used logistic regression; for the others, we used Ordinary Least Squares. There is very little missing data, with only 1.8% of observations removed through listwise deletion.
27 Seeing Spanish is measured via a binary, 0-1 indicator variable. Prior exposure to Spanish is measured as an ordinal variable ranging from 1 (never exposed to Spanish) to 5 (exposed to Spanish daily).
28 In its fourth columns, Table A1 also provides a second regression which serves as a robustness check. It shows that the experimental treatment interacts with whether the respondent sees Latinos in day-to-day life as well. Thus the core result holds when the moderator is measured as seeing an ethnic group as well as hearing a language. If we instead use objective indicators such as the percent foreign born in the ZIP code, we detect interaction effects that are similar in sign but no longer significant (p=0.17).
Interaction effects can be difficult to interpret from such tables (B Brambor et al. 2006, Gelman and Hill 2007), so Table A2 in the Appendix provides the associated predicted effects and 95% confidence intervals. The p-values reported in Figure 1 correspond to the interaction term in the linear model, and provide formal two-sided tests of whether seeing Spanish has differential impacts based on respondents' prior exposure to Spanish. It frequently does. When exposed to Spanish, those who encounter the language rank higher on the anti-immigration index. The coefficient on the interaction term is 0.35, with a standard error of 0.15. As the final row in Table A2 in the Appendix shows, the model predicts that those who hear Spanish every day will score 0.54 higher on the anti-immigration index, with a 95% confidence interval from -0.06 to 1.12. The effect is positive in 96.2% of simulations, for a two-sided p-value of 0.08. Given that the anti-immigration index has a mean of 5.00 and a standard deviation of 1.84, this is a sizeable impact. These respondents become more threatened by immigration and more likely to think that immigrants cause higher crime and taxes. By contrast, those who rarely hear Spanish shift their attitudes in the opposite direction. We reach identical conclusions when we look only at the 281 respondents who saw some type of welcome message (not shown but available upon request). Nor do the results change when we introduce other control variables, such as political ideology, race, ethnicity, foreign birthplace, or gender.

We thus have initial evidence that written Spanish leads to increased concern about immigration.

Nor do the results change when we introduce other control variables, such as political ideology, race, ethnicity, foreign birthplace, or gender.
among Americans who hear the language frequently as compared to those who do not.\textsuperscript{30} The sight of Spanish-language text clearly brings to mind different considerations based on personal experience. In fact, prior experience might influence whether respondents even recognize the cue as Spanish, offering one potential explanation for the very different patterns in Figure 1. A second plausible explanation holds that Spanish resonates differently in places where it is rarely spoken or overheard, perhaps cueing positive associations with America’s immigrant history.\textsuperscript{31}

[Insert Figure 1 Here]

4. The Everett/Somerville Exit Poll Experiment

The analyses above suggest that people who encounter Spanish frequently in day-to-day life respond to a Spanish-language cue more negatively than those who do not. But the first experiment does not establish whether the impact on those who frequently hear Spanish is actually negative, only that it is more negative than for those who rarely encounter the language. To further probe the impact of Spanish on those who encounter it regularly, and to confirm our initial findings, we conducted a second experiment in two cities with substantial Latino

\textsuperscript{30} Using t-tests on the sample that does not frequently hear Spanish, we see that those exposed to Spanish are less likely to link immigrants to rising crime (p=0.09, two-sided test) and less likely to link immigrants to higher taxes (p=0.03, two-sided test).

\textsuperscript{31} In interpreting Figure 1, readers should note that prior exposure to Spanish was not randomly assigned, so comparisons within a treatment group have no clear causal interpretation.
populations. This experiment was embedded in an exit poll conducted during the November 2008 presidential election in Everett and Somerville, Massachusetts. These two cities are diverse in socioeconomic, political, and racial terms, and were accessible to the research team. In light of the results above, we targeted heavily immigrant areas, where respondents would be likely to encounter foreign languages frequently. As expected, the vast majority of the exit poll respondents reported hearing Spanish or Portuguese frequently, with 88 percent reporting that they hear those languages at least once a week. In the national survey described above, just 59 percent of people said they heard Spanish frequently. Thus, we should think of the 902 exit poll respondents as frequently exposed to foreign languages such as Spanish and Portuguese. Table 3 presents these and other descriptive statistics.

As before, the Spanish cue in the exit poll was quite subtle. All respondents received a one-page, English language survey fastened to a clipboard. For half of respondents, the top of the survey included a 16-point font sentence under the poll’s title that said in Spanish: “Por favor,

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32 Everett has a median household income of $51,333, which almost exactly matches the national figure of $50,007. It is 33 percent foreign born. According to the same 2005-2007 American Community Survey data, Somerville’s median household income was $59,146, and it was 27 percent foreign born.

33 Since Somerville and Everett are home to large Portuguese and Brazilian immigrant populations, we included mention of each of these languages in our question.
fíjense que uds. pueden contestar en español al otro lado.” The other half of respondents saw no such sentence. To maintain realism for those respondents who spoke Spanish, the treatment survey included a full Spanish translation on the back side, while the control survey was blank on the back side. An image of the poll with the Spanish cue is available in Figure A2 in the Appendix. The survey instrument intentionally emphasized a variety of issues, including vote choice, taxes, the economy, and presidential approval. To measure immigration-related attitudes, the instrument contained the same generic threat question and the standard question about increasing or decreasing levels of immigration.

The researchers and ten research assistants administered the exit poll to every \( n \)th individual leaving one of four major polling sites in the two cities. The interval \( n \) was determined by the researcher at each site based on voter traffic and then fixed. Every other respondent received the Spanish treatment. At the site with the lowest response rate, 49 percent of people

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\[ ^{[2]} \text{In English, the sentence means “Please be aware that you can answer in Spanish on the other side.”} \]

\[ ^{[35]} \text{Because the treatment was visible at the beginning of the survey, all of its 19 questions should be considered “post-treatment,” although our strong suspicion is that seeing Spanish will not influence self-reported income, vote choice or other covariates.} \]

\[ ^{[36]} \text{Such a randomization is commonly employed in exit polls, and relies on the assumption that there is no systematic ordering in how voters leave the polling place. The treatment would be confounded, for example, if everyone voted with her spouse and if the more conservative partner always exited first. Our experience administering the survey as well as the randomization checks confirm that there were no such problems. Treated respondents were no more or} \]
who were approached declined to take the survey (AAPOR RR1). In the overall sample, there were a few covariate imbalances detected by randomization checks. Of the eight available covariates, those who received a survey with Spanish were more likely to be Black (16.0 percent versus 11.3 percent; p=0.039 from a two-sided t-test). They were also slightly less educated, reporting 14.6 years of education as compared to the control group’s 15.0 years (p=0.024, two-sided t-test).

Treatment Effects

We addressed these imbalances as well as the potential cross-site heterogeneity by estimating parametric models with the following covariates: an indicator for treated respondents, an indicator for African Americans, indicators for three of the four polling sites, and years of education. For the generic measure of threat, an OLS model detects no impacts at all. Those who saw Spanish are no more likely to report in general terms that they are afraid the American way of life is threatened. In all likelihood, the single Spanish sentence is far too subtle to cue immigration concerns, and respondents instead answered with the economy, terrorism, or other issues in mind. However, we do find that Spanish can influence attitudes when people are asked less likely to vote for McCain, for example.

37 There, our exit poll found 72% support for Barack Obama, when in actuality 62% of voters voted for Obama. At the other three sites, we over-estimated Obama’s support by 4 percentage points, 5 percentage points, and 9 percentage points. National exit polls have seen comparable overstatements of Democratic support in recent years (Edison Media Research and Mitofsky International, 2005).
about immigration specifically. The results for the full sample are given in the first two columns in Table 4. Under the model, the impact of seeing Spanish is 4.8 percentage points on average, raising the probability a respondent indicates wanting to decrease immigration to 61.8 percent. The p-value on the hypothesis that the impact is greater than zero is 0.103. The result is suggestive, especially in light of the first experiment, but it is not quite significant.

However, the impact of such cues could be influenced by pre-existing views. Cues can be “galvanizing,” meaning that they trigger attitude changes among those who are already anti-immigrant. But they could also be “mobilizing,” meaning that they trigger attitude changes among those who are more favorable toward immigration to start (Sniderman, Hagendoorn and Prior, 2004). There are two reasons why our treatment might serve as a mobilizing cue. If one is already staunchly pro- or anti-immigration, ceiling effects might come into play, and the cue might have no impact. In fact, scholars have previously identified ceiling effects as a pervasive influence on attitudes toward race, ethnicity, and immigration (e.g. Sniderman and Carmines, 1997; Branton et al., 2007). Scholarship has also shown that in 2008, immigration was especially salient among conservative voters (Knoll, Redlawsk and Sanborn, forthcoming), suggesting that their views might be less susceptible to movement. Both possibilities make it valuable to explore the treatment effects separately by respondents’ prior immigration-related attitudes.
One available proxy for pre-existing views is the vote choice of our respondents. Sixty-seven percent of the 202 McCain voters wanted to see immigration decreased, as opposed to just 26 percent of Obama voters. We then estimated the impact of seeing Spanish only among Obama voters. Of Obama voters who saw Spanish, 29.8 percent wanted to decrease immigration, while just 22.7 percent of those who did not see Spanish voiced the same opinion (p =0.02, one-sided t-test). This result remains significant (p =0.04) when using the Sequential Bonferroni test to adjust for multiple comparisons. In fact, at all four sites, the Obama voters who saw Spanish are more likely to want reduced immigration. And at two of the sites, one-sided t-tests detect statistically significant differences at the p< .05 level.

Still, owing to covariate imbalances, it is valuable to estimate treatment effects conditional on race and education. The last two columns of Table 4 do exactly that—and show the strong impact of seeing Spanish on Obama voters’ attitudes toward immigration. Among the majority of our sample who voted for Obama, seeing a single sentence of written Spanish induced a marked anti-immigrant shift. For example, consider Obama voters at the fourth site, the Everett Senior Center. The model estimates that 42.2 percent of those who did not see Spanish would voice anti-immigration attitudes. For those who did see Spanish, the comparable

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38 It is important to add that ceiling effects can operate at levels of support or opposition as low as 67% so long as binary immigration attitudes have considerable fundamental variability.

39 Using ANOVA, we confirmed an inter-group difference among Obama voters at p =0.04.
number is 54.1 percent, producing an estimated treatment effect of over 10 percentage points. Here, the p-value from a t-test that the coefficient is positive is 0.007, a strong indication that the treatment mattered for this group.\textsuperscript{40}

We confirmed these results by estimating similar models with other covariates, including the respondent’s gender, ethnicity, income, age, time in the community, frequency of hearing Spanish or Portuguese, and frequency of talking with immigrants. Figure 2 presents the predicted probabilities from a model that includes the original covariates as well as the interaction between Presidential vote choice and seeing the Spanish exit poll. It demonstrates that Obama voters are nine percentage points more likely to support decreasing immigration when exposed to Spanish. It also suggests that McCain voters may move in the opposite direction, although this effect is not statistically significant and could result from the relatively small sample size.

[Insert Figure 2 Here]

In all cases, the effect of seeing Spanish for Obama voters is stable and strong. Reinforcing the earlier results, we see that even subtle uses of Spanish by researchers can shape immigration-related attitudes markedly. Influential cues are not just signals sent by politicians;

\textsuperscript{40} Similarly strong results hold when we condition on self-reported Hispanics or remove the 69 Hispanic Obama voters from the analysis. They hold as well if we estimate a similar model on the full data set with an interaction between the treatment and the respondent’s vote choice. In models of the full data set, 5.6% of respondents are deleted due to missing data.
they can come from the languages that people see or hear in their day-to-day lives.

5. Conclusion

Researchers have long advanced the notion that anti-immigration views stem at least in part from a sense of cultural threat (e.g. Higham, 1992; Citrin et al., 1997; Sides and Citrin, 2007). Past case studies and focus groups have shown that language issues can be potent and divisive (Paxton, 2006; Schildkraut, 2005, 2001; Horton, 1995), making language a likely source of cultural threat. That view is reinforced here. For the 238 respondents to the initial survey who provided an open-ended comment, language concerns were the second most common issue raised after questions of immigrant legality.

Since at least the work of Key (1949), a separate strain of research has considered how people’s local contexts influence attitudes toward other groups. This paper has sought to synthesize these two bodies of research, and to deepen our understanding of cultural threat. Its experiments show that seeing written Spanish has a more negative impact on respondents who regularly encounter Spanish in their day-to-day lives. The manipulation was quite subtle, with respondents seeing just a single line of Spanish-language text. Yet perhaps because of its unfamiliarity or its emotional impact (e.g. Brader, Valentino and Suhay, 2008), that single line of Spanish influenced attitudes reported in the subsequent few minutes. Considered jointly, the
experimental results reinforced what many people told us in in-depth interviews: that the use of Spanish in their day-to-day lives draws attention, whether at Wal-Mart or at a local hospital.

Theoretically, this finding provides a mechanism for theories of inter-group conflict, which have long been silent on the question of exactly how contexts influence inter-group attitudes. More generally, scholars have sometimes conceived of cues as influencing people who lack personal experience or knowledge on an issue (see also Chong and Druckman, 2007a; Kinder, 1998; Mutz, 1992; Gamson, 1992; Iyengar and Kinder, 1987). But this study provides evidence for the reverse: cues can be powerful when they resonate with day-to-day experiences. In this case at least, cues operate differently when pre-existing attitudes are strong.

These experiments have clear limitations, including the subtlety of their cues, the small sample size of the first, the geographically limited sample of the second, and empirical results that do not always cross conventional thresholds of statistical significance. We thus see these findings as suggestive of several productive paths for future research. At the level of political psychology, additional research might probe the precise considerations that Spanish makes accessible among those who encounter it daily. Is it priming political experiences, such as concern about the quality of local schools, or more day-to-day experiences such as the sight of Spanish on a billboard? Future work might also consider the source of the Spanish cue: do official uses of Spanish by government officials have more of an impact than casual uses by
celebrities or neighbors? The sample sizes of Latinos here are prohibitively small, but future research could consider their responses to Spanish. In a related vein, it might study whether respondents’ comprehension of Spanish influences their response: does high school exposure to Spanish reduce its threatening capacity? Additional research might also consider the influence of languages besides Spanish. Given its relationship to concerns about terrorism and security, it would be especially informative to test the influence of Arabic. In certain areas of the country, one might also consider languages that are locally common, from French near the Quebec border to East Asian languages on the West Coast. Furthermore, some languages and accents have positive associations (e.g. Gluszek and Dovidio, 2010), another subject for future study. Certainly, the suggestion that those with low levels of exposure might be positively influenced merits additional research as well.

At the same time, these findings also have implications for advocates on the immigration issue. As Barreto et al. (2008) document, the use of Spanish-language appeals in U.S. politics increased markedly in the 2008 Presidential election. This paper finds that even subtle uses of Spanish can serve as primes of anti-immigration sentiment among certain subgroups. When Obama voters in the Massachusetts exit poll were exposed to a single line of Spanish, they became 7 percentage points more likely to want to decrease immigration. Effects may be even larger when Spanish is invoked by political figures themselves. To the extent that immigrant
organizers or others use Spanish, they might undermine support among potential political allies.

This finding has challenging implications for immigrant political incorporation, since efforts to bring Spanish speakers into the political mainstream may have the unintended consequence of dampening support for immigration.
References


Citrin, Jack, David O. Sears, Christopher Muste and Cara Wong. 2001. “Multiculturalism in


Green, Donald P. 2009. “Regression Adjustments to Experimental Data: Do David Freedman’s Concerns Apply to Political Science?” Presented at the Annual Meeting of the Society for Political Methodology, New Haven, CT.


Figure 1: Interaction Effects of Spanish Treatment and Exposure to Spanish on Attitudes towards Immigration

Source: Knowledge Networks Language Experiment (2008)
Figure 2: Interaction Effect of Treatment and Presidential Vote Choice on Support for Immigration

Source: The 2008 Everett/Somerville Exit Poll
Table 1: Main Treatment Effects on Attitudes towards Immigration

<table>
<thead>
<tr>
<th></th>
<th>Mean Treated</th>
<th>Mean Control</th>
<th>ATE/SD</th>
<th>P-value (two-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full sample</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-Immigration Index</td>
<td>5.004</td>
<td>5.003</td>
<td>0.001</td>
<td>0.995</td>
</tr>
<tr>
<td>Generic Threat</td>
<td>2.853</td>
<td>2.817</td>
<td>0.036</td>
<td>0.748</td>
</tr>
<tr>
<td>Decrease Immigration</td>
<td>0.485</td>
<td>0.479</td>
<td>0.013</td>
<td>0.907</td>
</tr>
<tr>
<td>Threat from Immigration</td>
<td>2.444</td>
<td>2.425</td>
<td>0.019</td>
<td>0.863</td>
</tr>
<tr>
<td>Immigration Raises Taxes</td>
<td>2.785</td>
<td>2.825</td>
<td>-0.042</td>
<td>0.700</td>
</tr>
<tr>
<td>Immigration Raises Crime</td>
<td>2.770</td>
<td>2.741</td>
<td>0.032</td>
<td>0.769</td>
</tr>
<tr>
<td>Mention English (Open-Ended)</td>
<td>0.058</td>
<td>0.028</td>
<td>0.155</td>
<td>0.190</td>
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<tr>
<td><strong>Hear Spanish Frequently</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-Immigration Index</td>
<td>5.245</td>
<td>4.923</td>
<td>0.174</td>
<td>0.215</td>
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<tr>
<td>Generic Threat</td>
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<td>2.817</td>
<td>0.007</td>
<td>0.612</td>
</tr>
<tr>
<td>Decrease Immigration</td>
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<td>0.472</td>
<td>0.127</td>
<td>0.369</td>
</tr>
<tr>
<td>Threat from Immigration</td>
<td>2.536</td>
<td>2.347</td>
<td>0.181</td>
<td>0.201</td>
</tr>
<tr>
<td>Immigration Raises Taxes</td>
<td>2.952</td>
<td>2.790</td>
<td>0.178</td>
<td>0.204</td>
</tr>
<tr>
<td>Immigration Raises Crime</td>
<td>2.917</td>
<td>2.704</td>
<td>0.222</td>
<td>0.112</td>
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<tr>
<td>Mention English</td>
<td>0.060</td>
<td>0.032</td>
<td>0.137</td>
<td>0.361</td>
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<tr>
<td><strong>Hear Spanish Infrequently</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-Immigration Index</td>
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<td>5.118</td>
<td>-0.276</td>
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<td>Decrease Immigration</td>
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<td>Mention English</td>
<td>0.057</td>
<td>0.023</td>
<td>0.183</td>
<td>0.347</td>
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Source: Knowledge Networks Language Experiment (2008)
Table 2: OLS Models with Interaction Effects of Spanish Treatment and Exposure to Spanish on Attitudes towards Immigration

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Anti-Immigration Index</th>
<th>Generic Threat</th>
<th>Decrease Immigration</th>
</tr>
</thead>
<tbody>
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<td>Intercept</td>
<td>6.424***</td>
<td>3.650***</td>
<td>0.582</td>
</tr>
<tr>
<td></td>
<td>(0.454)</td>
<td>(0.257)</td>
<td>(0.528)</td>
</tr>
<tr>
<td>Saw Spanish</td>
<td>-1.213*</td>
<td>-0.236</td>
<td>-0.697</td>
</tr>
<tr>
<td></td>
<td>(0.563)</td>
<td>(0.314)</td>
<td>(0.665)</td>
</tr>
<tr>
<td>Hear Spanish frequently</td>
<td>-0.111</td>
<td>-0.057</td>
<td>0.026</td>
</tr>
<tr>
<td></td>
<td>(0.103)</td>
<td>(0.058)</td>
<td>(0.120)</td>
</tr>
<tr>
<td>Party ID</td>
<td>-0.246***</td>
<td>-0.157***</td>
<td>-0.168**</td>
</tr>
<tr>
<td></td>
<td>(0.051)</td>
<td>(0.029)</td>
<td>(0.060)</td>
</tr>
<tr>
<td>Saw Spanish x Frequent Exposure</td>
<td>0.350*</td>
<td>0.092</td>
<td>0.197</td>
</tr>
<tr>
<td></td>
<td>(0.148)</td>
<td>(0.083)</td>
<td>(0.175)</td>
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<table>
<thead>
<tr>
<th>Dependent Variables</th>
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<th>Immigrants Raise Taxes</th>
<th>Immigrants Raise Crime</th>
</tr>
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<td>Intercept</td>
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<td>3.378***</td>
<td>3.393***</td>
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<td></td>
<td>(0.272)</td>
<td>(0.229)</td>
<td>(0.234)</td>
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<tr>
<td>Saw Spanish</td>
<td>-0.625</td>
<td>-0.587*</td>
<td>-0.625*</td>
</tr>
<tr>
<td></td>
<td>(0.340)</td>
<td>(0.286)</td>
<td>(0.293)</td>
</tr>
<tr>
<td>Hear Spanish frequently</td>
<td>-0.095</td>
<td>-0.017</td>
<td>-0.059</td>
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<td></td>
<td>(0.062)</td>
<td>(0.052)</td>
<td>(0.053)</td>
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<td>Party ID</td>
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<td>-0.109***</td>
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<tr>
<td></td>
<td>(0.031)</td>
<td>(0.026)</td>
<td>(0.027)</td>
</tr>
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<td>Saw Spanish x Frequent Exposure</td>
<td>0.199*</td>
<td>0.163*</td>
<td>0.194*</td>
</tr>
<tr>
<td></td>
<td>(0.090)</td>
<td>(0.075)</td>
<td>(0.077)</td>
</tr>
</tbody>
</table>

N 281 281 281

Source: Knowledge Networks Language Experiment (2008)

Notes: Standard errors are in parantheses; ***p <.001; **p<.01; *p<.05 (two-tailed test).
Table 3: Descriptive Statistics, 2008 Massachusetts Exit Poll.

<table>
<thead>
<tr>
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<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>N</th>
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</thead>
<tbody>
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<td>McCain Voter</td>
<td>0.17</td>
<td>0</td>
<td>1</td>
<td>149</td>
<td></td>
</tr>
<tr>
<td>Obama Voter</td>
<td>0.08</td>
<td>0</td>
<td>1</td>
<td>700</td>
<td></td>
</tr>
<tr>
<td>Didn't Vote/Other</td>
<td>0.04</td>
<td>0</td>
<td>1</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0.58</td>
<td>0</td>
<td>1</td>
<td>860</td>
<td></td>
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<td>Non-Hispanic White</td>
<td>0.65</td>
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</tr>
<tr>
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<td>0</td>
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<td>76</td>
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<tr>
<td>Other Race/Ethnicity</td>
<td>0.15</td>
<td>0</td>
<td>1</td>
<td>131</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>41.00</td>
<td>14.00</td>
<td>18</td>
<td>88</td>
<td>818</td>
</tr>
<tr>
<td>Education</td>
<td>14.81</td>
<td>2.80</td>
<td>5</td>
<td>19</td>
<td>873</td>
</tr>
<tr>
<td>Income</td>
<td>2.80</td>
<td>0.95</td>
<td>1</td>
<td>4</td>
<td>835</td>
</tr>
<tr>
<td>Talk with immigrants</td>
<td>4.11</td>
<td>1.23</td>
<td>1</td>
<td>5</td>
<td>866</td>
</tr>
<tr>
<td>Hear Spanish</td>
<td>4.47</td>
<td>0.97</td>
<td>1</td>
<td>5</td>
<td>871</td>
</tr>
<tr>
<td>American life threatened</td>
<td>2.95</td>
<td>0.97</td>
<td>1</td>
<td>4</td>
<td>861</td>
</tr>
<tr>
<td>Decrease immigration</td>
<td>0.35</td>
<td>0</td>
<td>1</td>
<td>854</td>
<td></td>
</tr>
<tr>
<td>Somerville Firehouse</td>
<td>0.43</td>
<td>0</td>
<td>1</td>
<td>386</td>
<td></td>
</tr>
<tr>
<td>Somerville Library</td>
<td>0.07</td>
<td>0</td>
<td>1</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>Everett Recreation Center</td>
<td>0.28</td>
<td>0</td>
<td>1</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>Everett Senior Center</td>
<td>0.22</td>
<td>0</td>
<td>1</td>
<td>200</td>
<td></td>
</tr>
</tbody>
</table>

Source: The 2008 Everett/Somerville Exit Poll
Table 4: Logistic Regression Models of Support for Decreased Immigration.

<table>
<thead>
<tr>
<th></th>
<th>All respondents</th>
<th>Obama Voters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1.51</td>
<td>1.19</td>
</tr>
<tr>
<td></td>
<td>(0.47)</td>
<td>(0.56)</td>
</tr>
<tr>
<td>Site 2</td>
<td>-1.57</td>
<td>-1.56</td>
</tr>
<tr>
<td></td>
<td>(0.20)</td>
<td>(0.25)</td>
</tr>
<tr>
<td>Site 3</td>
<td>-1.55</td>
<td>-1.18</td>
</tr>
<tr>
<td></td>
<td>(0.34)</td>
<td>(0.39)</td>
</tr>
<tr>
<td>Site 4</td>
<td>-0.42*</td>
<td>-0.34</td>
</tr>
<tr>
<td></td>
<td>(0.21)</td>
<td>(0.25)</td>
</tr>
<tr>
<td>Black</td>
<td>-1.34</td>
<td>-1.12</td>
</tr>
<tr>
<td></td>
<td>(0.27)</td>
<td>(0.30)</td>
</tr>
<tr>
<td>Education</td>
<td>-0.08*</td>
<td>-0.10*</td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td>(0.04)</td>
</tr>
<tr>
<td>Saw Spanish</td>
<td>0.20</td>
<td>0.48*</td>
</tr>
<tr>
<td></td>
<td>(0.16)</td>
<td>(0.19)</td>
</tr>
<tr>
<td>Degree of freedom</td>
<td>844</td>
<td>659</td>
</tr>
</tbody>
</table>

Source: The 2008 Everett/Somerville Exit Poll

Notes: Standard errors are in parentheses; *p<.05 (two-tailed test).
## Table A1: OLS Models of Anti-Immigration Index, Interactions with Exposure to Spanish

<table>
<thead>
<tr>
<th>Hear Spanish</th>
<th>Anti-Immigration (Saw Latinos)</th>
<th>Anti-Immigration (See Latinos)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>6.424*** (0.454)</td>
<td>Intercept</td>
</tr>
<tr>
<td>Treated (Saw Spanish)</td>
<td>-1.213* (0.563)</td>
<td>Treated (Saw Spanish)</td>
</tr>
<tr>
<td>Hear Spanish</td>
<td>-0.111 (0.103)</td>
<td>See Latinos</td>
</tr>
<tr>
<td>Party ID</td>
<td>-0.246*** (0.051)</td>
<td>Party ID</td>
</tr>
<tr>
<td>Treated x Hear Spanish</td>
<td>0.350* (0.148)</td>
<td>Treated x See Latinos</td>
</tr>
</tbody>
</table>

Source: Knowledge Networks Language Experiment (2008)

Notes: Standard errors are in parentheses; ***p < .001; **p < .01; *p < .05 (two-tailed test).
Table A2: Predicted values of Change in Anti-Immigration Index by Exposure to Spanish

<table>
<thead>
<tr>
<th>Exposure to Spanish</th>
<th>Mean Change</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
<th>Pr(Effect &lt; 0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never Hear Spanish (1)</td>
<td>-0.864</td>
<td>-1.707</td>
<td>-0.019</td>
<td>0.977</td>
</tr>
<tr>
<td>Less than Once a Month (2)</td>
<td>-0.514</td>
<td>-1.12</td>
<td>0.094</td>
<td>0.951</td>
</tr>
<tr>
<td>1-3 Times per Month (3)</td>
<td>-0.164</td>
<td>-0.599</td>
<td>0.272</td>
<td>0.769</td>
</tr>
<tr>
<td>Once a Week (4)</td>
<td>0.186</td>
<td>-0.245</td>
<td>0.619</td>
<td>0.200</td>
</tr>
<tr>
<td>Every Day (5)</td>
<td>0.535</td>
<td>-0.055</td>
<td>1.123</td>
<td>0.038</td>
</tr>
</tbody>
</table>

Source: Knowledge Networks Language Experiment (2008)
We are eager to learn what you think about various issues facing America today.

Estamos conduciendo una encuesta publica acerca de la opinion de personas como usted acerca de asuntos importantes.

Source: Knowledge Networks Language Experiment (2008)
Figure A2: Image of the Treatment Version of the 2008 Everett/Somerville Exit Poll.

Por favor, fíjense que uds. pueden contestar en español al otro lado

This is a voluntary and anonymous exit poll about current events and the election conducted by researchers at a local university. Please do not write your name on this survey. This poll is not official, and is not affiliated with the Cities of Everett or Somerville or the Board of Elections. Your effort in answering these questions will make sure that the views of residents from [insert town name] are represented in this research. You may decline to answer any or all questions at any point in the survey.

1. For President, who did you vote for? (check one)
   - John McCain (Rep.)
   - Barack Obama (Dem.)
   - Someone else
   - Did not vote

2. On Ballot Question 1, which proposed to end the Massachusetts state personal income tax, how did you vote? (Please answer even if you did not vote)
   - Did not vote
   - Voted "No" (not to end the tax)
   - Voted "Yes" (to end the tax)

3. Which is the worst tax—that is, the one that is the least fair? (check one)
   - State sales tax
   - Local property tax
   - State income tax
   - Social Security tax

Regardless of how you voted on Ballot Question 1, please tell us if you agree or disagree with the following statements:

4. “The Commonwealth of Massachusetts can reduce its annual spending by 40% without a major impact on services.”
   - Strongly agree
   - Somewhat agree
   - Somewhat disagree
   - Strongly disagree

5. “Eliminating the Massachusetts state income tax would lead to large increases in other taxes.”
   - Strongly agree
   - Somewhat agree
   - Somewhat disagree
   - Strongly disagree

6. Now thinking about the economy in the country as a whole, would you say that over the past year the nation’s economy has been (check one)
   - Much better than normal
   - Better than normal
   - Worse than normal
   - Much worse than normal

7. Do you approve or disapprove of the way George W. Bush is handling the economy over the last year? (check one)
   - Approve
   - Disapprove

8. Do you approve or disapprove of the way George W. Bush is handling his job as president? (check one)
   - Approve
   - Disapprove

9. Please tell us if you agree or disagree with the following statement: “These days, I am afraid that the American way of life is threatened.” (check one)
   - Disagree strongly
   - Disagree somewhat
   - Agree somewhat
   - Agree strongly

10. Do you think the number of immigrants from foreign countries who are permitted to come to the United States to live should be (check one)
    - Increased a lot
    - Increased a little
    - Decreased a little
    - Decreased a lot

11. In your day-to-day life, how frequently do you have conversations with immigrants?
    - Never or almost never
    - Less than once a month
    - At least once a week
    - Every day

12. In your day-to-day life, how frequently do you hear Spanish or Portuguese spoken?
    - Never or almost never
    - Less than once a month
    - At least once a week
    - Every day

13. How long have you lived in this community?
    - Less than one year
    - 1 to 5 years
    - 6 to 10 years

14. Are you Hispanic or Latino? (check one)
    - Yes
    - No

15. Your race: (check all that apply)
    - Asian
    - Black/African American
    - White
    - Other

16. Your gender: (circle one)
    - M
    - F

17. Year you were born: 19

18. Highest educational level completed: (check one)
    - Some grade school
    - 8th grade
    - High school diploma/GED
    - 2-year college
    - 4-year college
    - Post-graduate

19. Your total yearly household income is: (check one)
    - Less than $20,000
    - $20,000 - $40,000
    - $40,000 - $60,000
    - Above $60,000

Source: The 2008 Everett/Somerville Exit Poll
Survey Questionnaire for the Knowledge Networks Language Experiment (2008)

1. Were you born in the United States? 1) Yes 2) No
2. [IF NO] When did you first arrive to live in the US?
3. Are you a veteran of the U.S. armed forces? 1) Yes; 2) No.
4. In your day-to-day life, how frequently do you see Hispanic/Latino immigrants in your community? 1) Never or almost never; 2) Less than once a month; 3) 1-3 times each month; 4) At least once a week; 5) Every day.
5. In your day-to-day life, how frequently do you have conversations with Hispanic/Latino immigrants? 1) Never or almost never; 2) Less than once a month; 3) 1-3 times each month; 4) At least once a week; 5) Every day.
6. In your day-to-day life, how frequently do you hear Spanish spoken? 1) Never or almost never; 2) Less than once a month; 3) 1-3 times each month; 4) At least once a week; 5) Every day.
7. About how many close friends do you have these days? These are people you feel at ease with, can talk to about private matters, or call on for help. Would you say that you have 1) No close friends; 2) 1-2 close friends; 3) 3-5 close friends; 4) 6-10 close friends; 5) More than 10 close friends.
8. Of these close friends, how many are Hispanic or Latino immigrants? 1) None of my close friends; 2) 1-2 of my close friends; 3) 3-5 of my close friends; 4) 6-10 of my close friends; 5) More than 10 of my close friends.

[Language-based experimental manipulation here]

9. Please tell us if you agree or disagree with the following statement: “These days, I am afraid that the American way of life threatened.” Do you agree strongly, agree somewhat, disagree somewhat, or disagree strongly?

[Information-based experimental manipulation here]

10. Do you think the number of immigrants from foreign countries who are permitted to come to the United States to live should be 1) Decreased a lot; Decreased a little; 3) Left the same; 4) Increased a little; 5) Increased a lot?
11. How likely is it that the immigrants currently coming into the U.S. will take jobs away from people already here? 1) Not at all likely; 2) Somewhat likely; 3) Very likely; 4) Extremely likely.
12. How likely is it that current and future immigration will threaten the American way of life? 1) Not at all likely; 2) Somewhat likely; 3) Very likely; 4) Extremely likely.

[Experimental manipulation of geographic frame here]
13. Please tell us if you agree or disagree with the following statement: “As a result of more immigrants coming to [your community/this country], taxes will rise.” Would you say you agree strongly, agree somewhat, disagree somewhat, or disagree strongly?

14. Please tell us if you agree or disagree with the following statement: “As a result of more immigrants coming to [your community/this country], violence and crime will increase.” Would you say you agree strongly, agree somewhat, disagree somewhat, or disagree strongly?