Do Bilinguals Respond More Favorably to Candidate Advertisements in English or in Spanish?*

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Abstract

Candidates for political office can appeal to bilingual Americans in either English or in Spanish. We investigate the consequences of this choice by exploiting a unique opportunity afforded by the 2016 Republican presidential primary. Jeb Bush, who is fluent in Spanish and English, produced otherwise identical versions of an advertisement in both languages. We find that bilinguals who were assigned to view the Spanish-language version increased their support for Bush by 6 percentage points in the primary and by 5 percentage points in a hypothetical matchup against Hillary Clinton in the general. We explain our results in a social identity framework. Bilinguals appear to increase their support for Bush because they infer that by virtue of publicly speaking Spanish well, Bush displays an affinity with the Latino in-group. Because our design holds constant the candidate's policy positions, we can attribute the effects on vote choice directly to the choice of language over and above other candidate attributes.

The 1960 presidential campaign featured the first national Spanish-language appeal to the voting bloc that would in subsequent decades come to be described as "Hispanic" or "Latino." Fluent in Spanish and appearing on behalf of her husband, Jacqueline Kennedy delivered a minute-long televised ad highlighting the presidential hopeful's concern for "*los*

intereses de todos los sectores de nuestra sociedad que necesitan la protección de un gobierno humanitario" [the interests of all sectors of our society who are in need of the protection of a humanitarian government]. Targeted Spanish-language messaging since then has expanded, broadening the scope of how candidates communicate to Latino voters. In March 2014, for example, President Barack Obama participated in a town hall event in Spanish on Univision and Telemundo to generate support and awareness about the importance of access to health insurance under the Affordable Care Act and to address concerns about his stance on immigration. Similarly, President George W. Bush told Latinos that "*Es Un Nuevo Día*" [It's a New Day]; President Obama assured Latino voters that "*Sí Se Puede!*" [Yes We Can]; Governor Mitt Romney touted his "*Liderazo Sólido*" [Strong leadership] and offered "*Un Mejor Camino*" [a better path]; and "*La Hillary*," Secretary Hillary Clinton, said "*Para el señor Trump, solo tengo una palabra: Basta!*" [I have just one word for Donald Trump: Enough!] from her Spanish-language Twitter account "Latinos for Hillary."

What are the political consequences of communication in Spanish versus English? The answers yielded by previous research have depended on the domain. In some domains, the choice of language does not appear to affect outcomes as much as the content of what is communicated. For example, Abrajano and Singh (2009) find that Spanish- and English-language news sources differ in the content they deliver, and the audiences who consume news in English, Spanish, or both differ in their political views. They write "To be clear, where Latinos receive their news is crucial not because of the actual language of communication, but because the source (English or Spanish) is indicative of the goals of the news organization, and their subsequent decisions on how to discuss a particular issue." (2).

In other domains, the language of an appeal can indeed influence outcomes. Within the literature on voter mobilization of Latinos, Soto and Merolla (2006) compared the 2000 election turnout of Latino survey respondents, finding that those who reside in places that received higher doses of Spanish-language advertisements were more likely to vote. Using a similar research design with a different source of survey respondents, Barreto, Merolla and Soto (2011) find similar results and find in addition that survey respondents who reported being contacted by Latino campaign workers were more likely to vote than those contacted by non-Latinos. Comparing voter turnout for Latinos in districts satisfying voting mandates under the revised Voting Right Act with those in regions that did not, Jones-Correa (2005) found that Latinos residing in areas where Spanish-language voting materials were made available were more likely to have voted than those living in jurisdictions without these linguistic accommodations. These findings are consistent with and explained by other studies

that similarly suggest language is most likely to shape political behavior when proficiency in English is limited (Hopkins 2011; Parkin and Zlotnick 2011). Using survey data from the Latino National Survey (LNS), Hopkins found, for example, that Spanish-language ballots have a strong impact on Latinos with limited proficiency in English, increasing turnout by 11 percentage points on average.

A growing literature studies Latino turnout using randomized Get-Out-The-Vote (GOTV) experiments (e.g., Panagopoulos and Green 2010; Bedolla and Michelson 2012; Valenzuela and Michelson Forthcoming). However, only two such experiments (Abrajano and Panagopoulos 2011; Binder, Kogan, Kousser and Panagopoulos 2013) explicity randomize the language of contact. Abrajano and Panagopoulos (2011) find that Spanish-language GOTV appeals were *less* effective than their otherwise identical English-language counterparts, even among subjects whose primary language is Spanish. These authors offer two possible explanations for the negative effect of the Spanish-language treatment relative to the English language treatment, namely, that Spanish may trigger a "language-related inferiority complex" (Koslow, Shamdasani and Touchstone 1994) or that English may be more effective because it is viewed as the language of official communication (Valdés and Seoane 1995). Binder et al. (2013) come to similar conclusions regarding the ineffectiveness of the Spanish-language appeal among both English- and Spanish-dominant Latinos.

Previous work has found that language choice may influence outcomes within the domain of candidate appeals, the focus of the current article. For instance, Barreto and Nuño (2011) find that Latino voters who were contacted by a Latino Republican were more likely to support President Bush and demonstrate support for conservative political issues than those contacted by a non-Latino Republican. A Latino Decisions study, for example, examined whether recent Spanish-language immigration ads run by the American Federation of Labor and Congress of Industrial Organizations (AFLCIO) and critical of Republicans in Congress had any effect on the political views among Latino voters. Comparing responses between Latino voters who regularly watch television in Spanish and recalled seeing the ads to those that were not exposed to the ads, the study found that a large majority of Latinos that were exposed to the Spanish-language ads had a negative evaluation of the Republican Party and that Latino voters who saw the ads were twice as likely to describe the Republican Party as anti-immigrant than those who did not (Barreto 2013). Abrajano (2010) finds a similar pattern: Latino voters exposed to more of Gore or Kerry's Spanish language ads were more likely to vote for these candidates. These results support the contention that use of Spanish can "signal familiarity with and knowledge of a group's culture by communicating to them

in this manner; that familiarity, in turn, can convey an understanding of their political concerns" (26).

A major challenge facing the study of the impact language may have on the effectiveness of candidate appeals is that when language changes, so too does the content. In 2015 and 2016, for example, the Republican Party delivered responses to the State of the Union address in both Spanish and English. Not only were the speakers different (Latino party members spoke in Spanish and non-Latino members spoke in English), but there were marked contrasts between the two speeches, notably on the issue of immigration. Suppose we were to randomize which version of the response bilingual subjects saw: we would be unable to disentangle the differences in content from the differences in language.

Our study takes advantage of a unique opportunity afforded by the 2016 presidential primary campaign to hold content constant while varying language. Republican Jeb Bush released an ad in Spanish that was nearly identical to its English-language version. In both versions, the candidate speaks directly to the camera and in his own voice; the text of the ads, the b-roll, and the background music are all equivalent. Bush speaks excellent Spanish, an ability he attributes to his relationship with his wife Columba (who was born in Mexico). We were able to conduct the study the day before the New Hampshire primary, thus capturing actual candidate appraisals with clear, practical electoral implications. The fact that Jeb Bush was a real (albeit underperforming) candidate also boosts the generalizability of our study relative to a similar design conducted with hypothetical or past candidates.

While many candidates have released ads in both English and Spanish, the vast majority of ads produced in one language have no counterparts in the other language. When ads are parallel, the Spanish-language version is often overdubbed by a voice actor who speaks about the candidate in the third person, whereas the English-language version is in the first person. Further, Spanish language ads often contain less policy content than English language ads (Abrajano 2010, Chapter 4). Because we expect that the pure effect of addressing voters in Spanish versus English is likely to be small relative to the effect of the content of the message, these subtle differences matter a great deal and would possibly lead to incorrect conclusions about the effects of language had Bush not released parallel versions of the same ad.

Our study also touches on a related literature on how the language spoken by bilinguals can influence their political identities. In addition to randomizing whether survey subjects saw an English- or Spanish- language Bush advertisement, we also randomized the language in which the survey was conducted. In a series of studies investigating the relationship be-

tween the language-of-interview and variation in opinion among Latino respondents, Perez finds systematic differences across linguistic modes (Pérez 2009, 2011, Forthcoming). Theory in psycholinguistics suggests that language is encoded in events, and the choice of language affects how information is retrieved from memory. The Encoding Specificity Principle, introduced by Tulving and Thomson (1973) and more recently explored by Marian and Neisser (2000), suggests that memories are context-dependent and retrieval of information is conditioned on reproducing the environmental cues in which an event was encoded into memory. Language itself can be such a context. Schrauf and Rubin (2000) find that among bilinguals events, memories, and concepts are accessible along the linguistic pathways through which they were acquired. Hispanic immigrants, for example, were able to recall autobiographical memories from earlier years in their life better when interviewed in Spanish and were able to reference more recent events in English. Perez, grounding his work in that theory, provides evidence that ethnic and national identity are associated with specific linguistic cues. Bilingual Latinos, for example, were more likely to remember basic political knowledge about the U.S. when responding to survey questions in English than in Spanish (Pérez 2011, Forthcoming). Moreover, Perez finds that among bilingual Latinos, the linguistic condition determines if "American" or Latino identities are more salient (Pérez Forthcoming).

Randomizing the language of interview helps our study with two goals. First, we are concerned that hearing Bush speak in Spanish versus English may influence attitudes via the channels identified by Perez rather than directly by affective response to Bush. If we find that the effects of the Spanish-language ad are similar regardless of the language of interview, we can rule these alternative channels out. Second, our design offers an opportunity to replicate and extend some of the important findings in Perez's work.

To preview our results, we find that the Spanish-language ad increases the probability that bilingual subjects would vote for Bush in the primary by approximately 6 percentage points and by approximately 5 percentage points in a hypothetical general election matchup against Hillary Clinton. Whether or not subjects take the survey in Spanish does not appear to moderate the effect, although consistent with Perez, we find that the Spanish-language survey increases respondents' sense of linked fate (Dawson 1994).

The remainder of this article will proceed as follows. First, we will provide a theoretical framework that predicts why and for whom the language of an appeal should change its effectiveness. Importantly, we will provide scope conditions for the causal quantity in question, namely, that it is only defined for bilingual subjects. Second, we will detail our experimental design. Third, we will present results for our main dependent variables, vote

preference in the general election before exploring the possible mechanisms by which the treatment operates. Our results section will include a brief analysis of language-of-survey effects. We conclude with a discussion of the implications of our results for the study of multilingual voter outreach.

1 Theory and Scope Conditions

Existing theory suggests two main mechanisms through which language may exert its persuasive impact: priming of subjects' predispositions and reinforcement of social identities. Some evidence for a priming hypothesis has been found in consumer research: Carroll and Luna (2011) found that subjects gave higher consumer satisfaction ratings to advertised products that used words in Spanish than to those ads only in English. Luna, Ringberg and Peracchio (2008) suggest that attitudinal differences in response to bilingual messaging emerge because language activates distinct cognitive processes and mental frames that make certain considerations and identities more salient even in response to the same information. Marketing research on the effects of product advertising to linguistic subpopulations suggests that enhanced affect results from message-recipients' positive perceptions about the source (Carroll and Luna 2011; Koslow et al. 1994) and that subjects respond more favorably to such advertisements (Luna and Peracchio 2001).

Social identity theory suggests that individuals seek to categorize themselves and others based on shared characteristics (Tajfel 1981). These in-group and out-group distinctions have a powerful influence on attitude formation; for example, this effect was demonstrated in studies where people expressed positive feelings toward their own group or were more likely to adopt and be persuaded by arguments when made by fellow group members (Mackie and Cooper 1984). Testing group-based thinking and the moderating strengths of cultural differences on attitudes, Hopkins (2014, 2015) finds that brief exposure to Spanish induces anti-immigrant hostility among non-Latino white respondents. Language is not politically neutral: emerging research in linguistics suggests that political biases such as partisanship can even be encoded in word pronunciation (Hall-Lew, Coppock and Starr 2010). Consistent with this literature, we posit that the choice of language highlights the intended audience, concurrently communicating the ideologies and identities associated with that group membership. In essence, we argue that for bilinguals, Spanish-language political appeals are persuasive because they highlight the speaker's affinity with and respect for the Latino in-group, however that may be constructed for the voter.

Table 1: Potential Outcomes of Four Subject Types

Type	Languages Spoken		Potential Outcomes		
	English	Spanish	$Y_i(0)$	$Y(E)$	$Y(S)$
Bilingual	1	1	$Y_i(0)$	$Y_i(0) + \tau_{i,E}$	$Y_i(0) + \tau_{i,S}$
Spanish Only	0	1	$Y_i(0)$	$Y_i(0)+?$	$Y_i(0) + \tau_{i,S}$
English Only	1	0	$Y_i(0)$	$Y_i(0) + \tau_{i,E}$	$Y_i(0)+?$
Non-English, Non-Spanish Speaker	0	0	$Y_i(0)$	$Y_i(0)+?$	$Y_i(0)+?$

This theory is subject to some scope conditions. Our expectations for the difference in the relative effectiveness of Spanish- and English-language campaign advertisements are limited to bilingual Americans, i.e., those who can speak both English and Spanish. We will briefly show this is the case using potential outcomes notation (Rubin 1974). $Y_i(0)$ is the outcome that subject i would express in the absence of any intervention on our part. $Y_i(E)$ and $Y_i(S)$ are the outcomes that subject i would express if exposed to the English- or Spanish-language treatment, respectively. We can decompose $Y_i(E)$ and $Y_i(S)$ into two parts, $Y_i(0)$ and an individual treatment effect.

For subjects who speak English, we write that the individual treatment effect of the English ad is $\tau_{i,E}$. Similarly, for subjects who speak Spanish, the effect of the Spanish language ad is $\tau_{i,S}$. These effects are due to both the direct information about a candidate's quality as well as the indirect information that subjects may glean due to the candidate's choice of language. The subjects who do not speak or understand the language in an ad may also express different outcomes depending on which condition they are in.[1] However, this effect will reflect only the information that subjects obtain via indirect channels because subjects cannot understand the direct information about candidate quality. For this reason, in Table 1, these effects are indicated with question marks.

Our estimand is $E[\tau_{i,S} - \tau_{i,E}]$, the average difference in the effects of the Spanish Ad versus the English Ad. As can be seen in Table 1, this quantity can only be obtained by conducting an experiment exclusively among bilinguals. Our experiment was designed to address this problem in particular, as detailed in the next section.

Our main hypothesis is that $E[\tau_{i,S} - \tau_{i,E}]$ will be positive, that is, we predict that seeing the Spanish advertisement will increase the likelihood that a subject will report support for

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[1]For example, Enos (2014) reports the results of an experiment in which the attitudes of Bostonians were affected by the presence of Spanish-speaking confederates despite presumably not being able to understand Spanish.

Bush in the primary or intention to vote for Bush in a hypothetical matchup with Hillary Clinton in the 2016 general election.

2   Experimental Design

Our population of interest is the subset of Americans for whom the causal estimand (the impact of language on candidate evaluations) is well-defined: bilingual Spanish and English speakers. Bilinguals are a heterogeneous group. Some speak Spanish at home and English at work and school; some are native English-speakers who use Spanish in their daily lives. While we expect the political preferences within this group to vary in interesting and complex ways, our theoretical prediction about the *treatment effects* (the Spanish language ad will be more effective) pertains to all bilingual Latinos. For monolingual Americans (those who speak only English or only Spanish), both the content and the language of the campaign advertisement are different in the two versions. This is because they cannot absorb the candidate's policy positions and biography if they are communicated in a language they cannot understand. Therefore, we focus our attention on the group of Americans who can understand the content in both languages.

Obtaining a sample that is representative of all American bilinguals via random sampling is very costly because they make up a relatively small share of the national population. We turn instead to a convenience sample of bilinguals obtained on an online exchange for survey responses. This exchange is maintained by Lucid, a market research firm.[2] Due to an extraordinarily high volume of survey respondents who pass through the exchange[3], Lucid's exchange is an especially attractive tool for obtaining a large sample of subjects who are relatively rare in the population, bilingual Hispanics/Latinos.

We obtained our online convenience sample by screening for two criteria: self-identification as Hispanic or Latino according to the standard U.S. Census question and an answer of "Sí" to the following question that included elements in both English and Spanish: "Do you consider yourself to be bilingual in English and Spanish? Es decir, es capaz de hablar y entender español e inglés? (Sí / No)[4]" In total, we collected responses from 2,866 self-identified

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[2]Coppock, McClellan and Green (2016) show that the demographic and political profiles of Lucid subjects are very similar to equivalent national figures and successfully replicate a number of survey experiments, showing that experiments conducted on Lucid's platform yield results that are substantively similar to those obtained on national samples.

[3]Approximately 250,000 respondents per day, as measured by unique IP addresses (Coppock et al. 2016).

[4]In English, the second half of the question reads, "That is, are you able to speak and understand Spanish and English?"

Latinos, of which 1,862 passed a language quiz in both Spanish and English, the full text of which is presented in the appendix. We consider these 1,862 who passed the quiz to be "bilinguals."

Table 2 compares the demographics of bilingual Lucid subjects with those of bilingual respondents in the 2006 Latino National Survey and the 2012 Pew National Survey of Latinos.[5] On average, Lucid bilinguals are more female, slightly better educated, and slightly higher income than either the LNS or Pew bilinguals. The age profile on Lucid is similar to the LNS and lower than Pew. With respect to ancestry, Lucid yields strong numbers of those from Mexican, Cuban, and other Hispanic backgrounds. Unfortunately, the demographic data supplied by Lucid did not disaggregate backgrounds with sufficient granularity, so Latinos from Puerto Rico are grouped in the residual categories. We aggregated the more finely grained Pew and LNS data into these same categories for ease of comparison. Relative to Pew and the LNS, the Lucid sample includes fewer bilinguals of Mexican ancestry.

Table 2 confirms that our sample is different from the national population of bilinguals. Whether or not our results generalize to the population does not depend on these differences; what matters is whether the *treatment effects* differ between our sample and the population. Recent research comparing survey experimental findings obtained on convenience and national samples has found a high degree of correspondence across samples (Mullinix, Leeper, Druckman and Freese 2015; Coppock 2016). For this reason, we expect (but cannot confirm) that the results that we measure in the sample will generalize to the national population of bilinguals.

Subjects were randomized to one of four conditions using a factorial design with equal probabilities. The first factor is the advertisement treatment: English- or Spanish-language ad. The first factor will test our main hypothesis: among bilingual subjects, the Spanish language ad is more persuasive than the English language ad. Ideally, we would have assesses the effects of both ads relative to a pure control condition, but budget constraints prevented us from doing so. Our expectation is that either ad would have increased vote intention for Bush relative to baseline. We obtained our treatment videos directly from Jeb Bush's YouTube page. Table 3 shows that content of the two advertisements are nearly identical: in both videos, Jeb Bush speaks directly to the camera about his accomplishments as Florida's governor and his optimism about America's future.

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[5]For the Latino National Survey, bilinguals are defined as subjects who took the survey in Spanish (English) who said they could carry on a conversation in English (Spanish) "pretty well" or "very well." The Pew survey codes subjects as bilingual depending on their answers to a series of language proficiency questions.

Table 2: Comparison of Lucid Bilinguals to National Sample Bilinguals

	Lucid	LNS	Pew
Female	0.70 (0.01)	0.52 (0.01)	0.46 (0.02)
Age	34.80 (0.30)	33.78 (0.29)	40.11 (0.84)
Education (5 levels)	3.01 (0.03)	2.49 (0.02)	2.45 (0.05)
Mexican	0.49 (0.01)	0.67 (0.01)	0.59 (0.02)
Cuban	0.07 (0.01)	0.04 (0.00)	0.05 (0.01)
Other Hispanic	0.44 (0.01)	0.29 (0.01)	0.36 (0.02)
Income (7 levels)	4.11 (0.05)	4.06 (0.04)	
Income (9 levels)	4.49 (0.05)		4.09 (0.11)
N	1,862	4,184	715

Entries for LNS and PEW are weighted means.
Standard errors are in parentheses.

The second factor is the language of the survey: English or Spanish. This factor will help us to answer a series of ancillary questions. First, within each advertisement condition, are the answers to our dependent variables similar whether the questions are in Spanish or in English? Indeed, we are in a position to test the supposition in Pérez (Forthcoming) that, among bilinguals, taking a survey in Spanish increases subjects' reports of linked fate. Second, we are concerned about a possible exclusion restriction violation (Gerber and Green 2012, 39-43): the Spanish-language ad may appear less effective than it actually is, because switching between languages (treatment video to survey question) may be cognitively taxing. For this reason, we randomize the language of the interview. If we find no interaction effect between the language of the interview and the language of the advertisements, we can conclude that no such exclusion restriction violation has taken place.

Table 4 below shows the random assignment of 2,866 subjects (1,862 Bilinguals) to the four possible combinations of our factorial design. The number of subjects in each cell is consistent with random assignment ($\chi^2 = 0.01$, $p = 0.92$), as is the number of bilinguals in each cell ($\chi^2 = 0.13$, $p = 0.72$). This second test is especially reassuring, as the language quiz determining bilingual status was administered post-treatment. If, as seems plausible, performance on the language quiz is unmoved by the treatment, then we induce no bias by conditioning our analysis of the effects of the treatments on attitudes about Jeb Bush on passing the quiz.[6]

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[6]For a discussion of the biases associated with dropping subjects based on a post-treatment manipulation check, see Aronow, Baron and Pinson (2016).

Table 3: Advertisement Treatments

	English Language Ad	Spanish Language Ad
Title	Jeb: Greatest Century	Jeb: Listo Para Ser Su Líder
Aired	July 29, 2015	July 29, 2015
Length	1:04 min	1:12 min
Link	https://www.youtube.com/watch?v=43z_L64GCrs	https://www.youtube.com/watch?v=iwW3Ak_cUEE
Transcript	I'm proud of what we accomplished in Florida; proud we're able to make a difference to change lives. We grew our economy and led the nation in job growth; defended life and protected women from domestic violence; eliminated waste and balanced budgets; reformed schools and gave every child an opportunity. We led, we reformed, we got results. That's what's missing from Washington. The DC crowd talks about what's wrong with America, I see what's right. They talk about problems, I see solutions. I see hard working men and women who are ready to rise; children who are ready to learn; entrepreneurs who are ready to innovate; immigrants who are ready to contribute; America's bravest who are ready to defend. I see a great country on the verge of its greatest century and I'm ready to lead.	Estoy muy orgulloso de lo que logramos en Florida; orgulloso de haber hecho una diferencia en el estado; de haber mejorado vidas; crecimos nuestra economía y fuimos líderes en la creación de empleos; defendimos el derecho a la vida y protegimos a las mujeres contra la violencia doméstica; eliminamos despilfarros y balanceamos presupuestos; reformamos la educación y le dimos oportunidades a cada niño; lideramos, reformamos, logramos resultados; en Washington solo se enfocan en lo que anda mal. Yo veo lo que está bien. Ellos hablan de los problemas. Yo veo las soluciones. Veo mujeres y hombres trabajadores listos para salir adelante. Niños listos para aprender. Emprendedores listos para innovar. Inmigrantes dispuestos a trabajar. Y los más valientes del país, listos para defendernos. Cuando miro hacia el futuro veo una gran nación a punto de comenzar su mejor siglo y yo estoy listo para ser su líder.

Table 4: Number of Subjects (Bilinguals) in Each Condition

	English-Language Survey	Spanish-Language Survey	Total
English-Language Ad	703 (462)	710 (452)	1,413 (914)
Spanish-Language Ad	719 (488)	734 (460)	1,453 (948)
Total	1,422 (950)	1,444 (912)	2,866 (1,862)

Our six outcome measures are shown below. We present the English-language versions here; subjects assigned to the Spanish-language survey saw these questions in Spanish, the full text of which is available in the appendix. Our main outcome measures are the two candidate preference questions. Both outcomes are coded 1 if the respondent selected Bush and 0 otherwise.

> *Prefer Bush in Primary* "Which of the following Republican candidates would you most like to see as the Republican Party's 2016 nominee for president?" (Response options in random order: Ted Cruz, Marco Rubio, Jeb Bush, Chris Christie, Donald Trump, Ben Carson, Carly Fiorina, John Kasich, Jim Gilmore.)

> *Prefer Bush in General* "If the 2016 election for President were being held today, and the candidates were Hillary Clinton the Democrat and Jeb Bush the Republican, for whom would you vote?" (Response options in random order: Jeb Bush, Hillary Clinton.)

We group these next three questions as intermediate outcomes, i.e., the main mechanisms by which the treatment effects the preference outcomes. We will not conduct formal mediation analyses because the very stringent required assumption of "Sequential Ignorability" is unlikely to be satisfied in this experiment (Imai, Keele and Yamamoto 2010). However, we expect that any increase in declared electoral preference for Bush would be mediated at least in part by how much the Spanish-language ad moved the attitudes measured by these questions:

> *Like Bush* "Do you like Jeb Bush, dislike him, or neither like nor dislike him?" If *Like him*: "Do you like him a great deal, a moderate amount, or a little?" If *Dislike him*: "Do you dislike him a great deal, a moderate amount, or a little?" (Branching question mapped into scale from 1 to 7, with 7 indicating a greater liking for Bush.)

> *Bush Cares* Do you think Jeb Bush is someone who cares about people like you or someone who doesn't care about people like you? (Response options: 1: Cares about people like me, 0: Doesn't care about people like me.)

Confidence in Bush How confident are you in Jeb Bush's ability to make the right decisions about illegal immigration—are you very confident, somewhat confident, not too confident, or not at all confident? (Scale from 1 to 4, where 4 indicates greater confidence.)

Finally, we include a measure of linked fate as a secondary outcome. The purpose of the advertisements is presumably to increase support for Bush, but the Spanish-language version could plausibly change how respondents view the extent to which what happens to Latinos and Hispanics generally will affect their own lives.

Linked Fate Do you think that what happens generally to Hispanics and Latinos in this country will have something to do with what happens in your life? Will it affect you a lot, some, a little or not at all? (Scale from 1 to 4, where 4 indicates "a lot.")

We will model outcomes according to Equation 1, where $Z_{i,Ad}$ is an indicator for seeing the Spanish-language ad and $Z_{i,Survey}$ is an indicator for taking the survey in Spanish. Because both $Z_{i,Ad}$ and $Z_{i,Survey}$ are randomly assigned, they are by design independent of subjects' idiosyncratic error terms, ϵ_i. Our main estimand of interest is β_1, the average treatment effect of the Spanish ad versus the English ad (averaged over both possible values of $Z_{i,Survey}$). We are also interested in β_2, the average treatment effect of taking the survey in Spanish versus English. We will estimate β_1 and β_2 via Ordinary Least Squares (OLS), with and without a vector of pretreatment covariates X_i to increase precision.[7]

$$Y_i = \beta_0 + \beta_1 Z_{i,Ad} + \beta_2 Z_{i,Survey} + \epsilon_i \tag{1}$$

We will also test to see if the effects of the advertisement vary with the language of the survey. This is equivalent to estimating γ_3 in Equation 2. We will present these interaction effects graphically for ease of interpretation in the main text, with full regression results presented in the appendix.

$$Y_i = \gamma_0 + \gamma_1 Z_{i,Ad} + \gamma_2 Z_{i,Survey} + \gamma_3 Z_{i,Ad} Z_{i,Survey} + \eta_i \tag{2}$$

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[7]Some analysts prefer to analyze binary outcomes with nonlinear models such as logit or probit. We choose not to do this because our inferential target is the Average Treatment Effect (ATE), which is consistently estimated by OLS and has the virtue of a direct interpretation in terms of a percentage point change in the probability of choosing one option over the other (Gerber and Green 2012). Our substantive results do not depend on this choice.

These exact specifications were preregistered at `egap.org` prior to the allocation of treatments or the collection of any data. All of the analyses that we report in the following section were included in our preanalysis plan.

3   Results

In this section, we present three sets of results: the effects of our treatments on candidate preferences, the effects on intermediate outcomes that may indicate the mechanisms through which the treatments affect preferences, and the effects of the language-of-interview on feelings of linked fate.

3.1   Effects on Bush Preference

Table 5 shows our main results. The dependent variable is *Prefer Bush in Primary* and *Prefer Bush in General* in the first and second four columns, respectively. The coefficient on *Spanish Ad* represents our estimates of β_1, the ATE of seeing the Bush ad in Spanish versus English. As elaborated in Section 1, this estimand is only defined for bilingual subjects, so we focus our attention on columns 3, 4, 7, and 8, which present the estimates for that subset that either do or do not include adjustments for pretreatment covariates. Without adjustment, we estimate that bilingual subjects who saw the Spanish-language ad were 5.8 percentage points more likely to prefer Bush in the primary and 4.9 percentage points more likely to prefer him in the general. Both estimates are statistically significant. Covariate adjustment increases the estimates slightly, but does not alter our substantive conclusions that the Spanish-language ad increases Bush's electoral support.

The full sample includes 1,004 subjects who are not bilingual by our definition, i.e., they did not pass a simple language quiz in both English and in Spanish. The estimates of the effect of the Spanish ad among the full sample are therefore a mishmash of the theoretically relevant quantity (the effect of the Spanish language, over and above the content) and some other quantity that involves partially understood policy information in one language or the other. We present these estimates for completeness but we do not interpret them. The Spanish-language ad had a positive, statistically significant effect on vote choice in the primary among the full sample. It had a positive but not statistically significant average effect on general election vote choice.

The coefficient on *Spanish Survey* shows our estimates of β_2, the average treatment effect of taking the survey in Spanish versus English. Across the board, the language of the survey

did not have substantial effects on Bush's electoral support.

Figure 1 presents our (unadjusted) estimates graphically. The coefficient estimates marked "Among all bilinguals" correspond to the estimates in columns 3 and 7 of Table 5. The other points represent the estimated effects among the subsets of subjects who were randomly assigned to take the survey either in Spanish or English. The difference in the estimates is small, inconsistently signed, and not statistically significant. The *lack* of an interaction shows that we can rule out the possible exclusion restriction violation, that switching between languages for the advertisement and survey may affect outcomes.

Table 5: Effects of Treatments on Main Dependent Variables

| | Prefer Bush in Primary | | | | Prefer Bush in General | | | |
| | Full Sample | | Bilinguals Only | | Full Sample | | Bilinguals Only | |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Spanish Ad	0.038**	0.040**	0.058**	0.065***	0.021	0.021	0.049**	0.049**
	(0.018)	(0.018)	(0.023)	(0.023)	(0.019)	(0.018)	(0.023)	(0.023)
Spanish Survey	−0.033*	−0.034*	−0.001	−0.003	−0.020	−0.024	0.005	0.001
	(0.018)	(0.018)	(0.023)	(0.023)	(0.019)	(0.018)	(0.023)	(0.023)
Constant	0.388	0.494	0.429	0.918	0.422	0.275	0.449	0.467
	(0.016)	(0.128)	(0.020)	(0.173)	(0.016)	(0.130)	(0.020)	(0.172)
Covariates	No	Yes	No	Yes	No	Yes	No	Yes
N	2,821	2,821	1,827	1,827	2,848	2,848	1,849	1,849
R^2	0.003	0.018	0.003	0.036	0.001	0.023	0.002	0.031

*$p < .1$; **$p < .05$; ***$p < .01$
Robust standard errors are in parentheses.
Covariates: age, gender, hispanic origin, ethnicity, education, income, party ID.

3.2   Effects on Mechanisms

Table 6 displays the estimated effects of treatment on our three intermediate outcomes, *Like Bush*, *Bush Cares* and *Confidence in Bush*. These regressions are only estimated among bilingual subjects. The Spanish ad increases how much subjects like Bush by approximately 0.17 scale points, the probability that subjects agree that Bush cares about people like them by approximately 4 percentage points, and confidence in Bush by approximately 0.08 scale points. These effects are correctly signed and are statistically significant at the 10% level or better. We interpret these results to be consistent with the hypothesis that the Spanish

Figure 1: Effects of Spanish-Language Ad on Bush Preference by Survey Language Condition
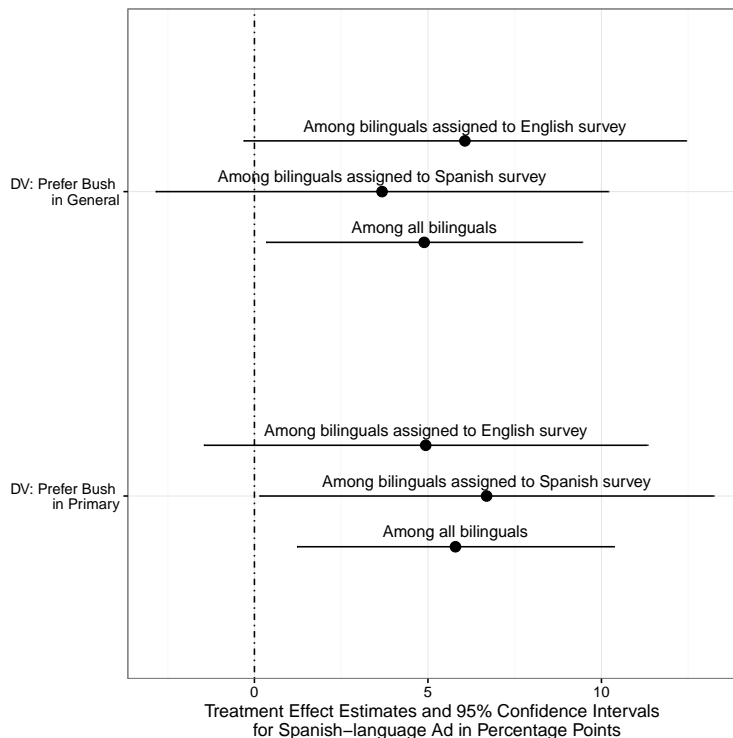
language ad works by increasing the positive affect bilingual subjects have towards Bush.

We also note that the Spanish survey itself increases how much subjects "like" Bush. The Spanish language survey asks subjects "Qué apreciación" [what appreciation] they have for Bush. It could be that the question subtly changes subjects' self-rating of their affect towards Bush, i.e., that for the same level of affect, the Spanish-language measurement scale registers a value that is 0.17 scale points higher than the English-language measurement. Alternatively, it could be that responding in Spanish activates a worldview that is mildly more appreciative of Bush. This is a fundamental challenge of translation. We cannot be sure whether observed differences are due to slight differences in meaning or the causal effect of thinking in one language versus another.

3.3   Effects on Linked Fate

In this section, we turn to the effects of the treatments on subjects' sense of linked fate (Dawson 1994). While these effects are not our main focus, the design of our study allows us to replicate and extend previous results. In an observational study of the effects of language-of-interview, Pérez (2011) finds that subjects who interview in Spanish score 0.451

Table 6: Effects of Treatments on Intermediate Dependent Variables

| | Like Bush | | Bush Cares | | Confidence in Bush | |
| | | | Bilinguals Only | | | |
	(1)	(2)	(3)	(4)	(5)	(6)
Spanish Ad	0.167**	0.172**	0.037*	0.039*	0.076*	0.079*
	(0.075)	(0.076)	(0.020)	(0.020)	(0.042)	(0.041)
Spanish Survey	0.165**	0.152**	−0.035*	−0.038*	−0.018	−0.023
	(0.075)	(0.075)	(0.020)	(0.020)	(0.042)	(0.041)
Constant	4.810	5.296	0.734	0.910	1.768	2.278
	(0.063)	(0.571)	(0.018)	(0.157)	(0.035)	(0.316)
Covariates	No	Yes	No	Yes	No	Yes
N	1,862	1,862	1,858	1,858	1,861	1,861
R^2	0.005	0.022	0.003	0.024	0.002	0.027

*$p < .1$; **$p < .05$; ***$p < .01$
Robust standard errors are in parentheses.
Covariates: age, gender, hispanic origin, ethnicity, education, income, party ID.

points higher on linked fate. In a footnote to an experimental investigation of language-of-interview effects, Pérez (Forthcoming, footnote 27) speculates, "Still, I would expect, but cannot test here, that language impacts peoples sense of group consciousness, linked fate, and/or solidarity insofar as these flow from a specific group identity." Our design allows us to confirm both the observational finding and Perez's supposition in the context of a randomized experiment.

Table 7 presents the effects of the *Spanish Ad* and *Spanish Survey* on the linked fate question among bilinguals, with and without covariate adjustment. Taking the survey in Spanish increases subjects' sense of linked fate by 0.24 scale points ($p < 0.01$). This finding is solidly in line with both the observational finding and with Perez's theoretical expectation. One word of caution, however: this finding depends on the assumption that the linked fate measurement scale is similarly calibrated across both languages. In contrast to the *Like Bush* question, we believe that such an assumption is largely justified in this context because the questions are nearly word-for-word translations from one language to the other.

Table 7: Effects of Treatments on Linked Fate

| | Linked Fate Bilinguals Only | |
	(1)	(2)
Spanish Ad	0.017	0.027
	(0.040)	(0.040)
Spanish Survey	0.243***	0.240***
	(0.040)	(0.040)
Constant	2.071	2.570
	(0.037)	(0.320)
Covariates	No	Yes
N	1,861	1,861
R^2	0.019	0.060

*p < .1; **p < .05; ***p < .01
Robust standard errors are in parentheses.
Covariates: age, gender, hispanic origin, ethnicity, education, income, party ID.

4 Discussion

Using a randomized survey experimental design and exploiting a rare occurrence in which a real candidate for high political office created parallel Spanish- and English-language versions of the same advertisements, we have shown that the language a politician uses to communicate with a bilingual audience has electoral consequences. Bilingual subjects who were randomly assigned to view a Jeb Bush advertisement in Spanish were 5 to 6 percentage points more likely to support him.

This effect occurs not because of the content of the ad, which is held constant across the two versions, but because of the language used to communicate with the viewer. We believe that this effect occurs because viewers infer from the use of Spanish that Bush shares an affinity with the Latino in-group. Respondents were more likely to say that they liked him and that he cares about "people like them." We note that because Jeb Bush is not himself Latino, our treatment decoupled the effects of coethnicity from language (Barreto 2007). We speculate that if the candidate had been Latino him or herself, the effect of the Spanish-language ad would have been muted relative to what we report here because the signal that Bush sends with language – *I'm one of you* – would already be communicated by the candidate's ethnicity.

Our study has wide-ranging implications for politicians who must appeal to multilingual constituencies. First and foremost, it is clear that familiarity with the Spanish language can increase a candidate's appeal within the United States context. In countries worldwide, however, linguistic communities often form distinct voting blocs. While politicians often tailor their messages to suit different constituencies, our study shows that without even changing the message, changing the language of communication can have profound effects.

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A Interaction Regression Specifications

In this section, we will present estimates of the effects of treatment on all six dependent variables using a model that includes an interaction between the language of the advertisement and the language of the survey. As indicated by the small and statistically insignificant coefficients on the interaction term, the effects of the advertisement treatment do not appear to be moderated by the language of the survey. This finding bolsters the interpretation of the effects of the advertisement treatment as operating directly through affect for Bush.

Table 8: Interactive Effects of the Language of Advertisement and Survey

	Primary	General	Like Bush	Bush Cares	Confidence in Bush	Linked Fate
				Bilinguals Only		
	(1)	(2)	(3)	(4)	(5)	(6)
Spanish Ad	0.049	0.061*	0.248**	0.034	0.135**	−0.009
	(0.033)	(0.032)	(0.101)	(0.028)	(0.058)	(0.062)
Spanish Survey	−0.010	0.018	0.249**	−0.038	0.043	0.216***
	(0.033)	(0.033)	(0.107)	(0.030)	(0.058)	(0.058)
Ad X Survey	0.018	−0.024	−0.166	0.007	−0.121	0.052
	(0.047)	(0.046)	(0.151)	(0.041)	(0.083)	(0.081)
Constant	0.433	0.443	4.768	0.736	1.738	2.084
	(0.023)	(0.023)	(0.072)	(0.021)	(0.041)	(0.044)
Covariates	No	No	No	No	No	No
N	1,827	1,849	1,862	1,858	1,861	1,861
R^2	0.003	0.003	0.006	0.003	0.003	0.019

*$p < .1$; **$p < .05$; ***$p < .01$
Robust standard errors are in parentheses.

B   Spanish-Language Survey

Prefer Bush in Primary "¿A quiénes de los siguientes candidatos Republicano le gustaría ver nominado para la presidencia por parte del Partido Republicano en el 2016?" (Response options in random order: Ted Cruz, Marco Rubio, Jeb Bush, Chris Christie, Donald Trump, Ben Carson, Carly Fiorina, John Kasich, Jim Gilmore.)

Prefer Bush in General "¿Si la elección para presidente fuera el día de hoy, y los candidatos fueran Hillary Clinton, por el Partido Demócrata y Jeb Bush, por el Partido Republicano, por quién votaría?" (Response options in random order: Jeb Bush, Hillary Clinton.)

Like Bush "¿Qué apreciación tiene sobre Jeb Bush, le agrada, le desagrada, o le es indiferente?" If *le agrada*: "¿Le agrada mucho, de manera moderada, o muy poco?" If *le desagrada*: "'Le desagrada mucho, de manera moderada, o muy poco?" (Branching question mapped into scale from 1 to 7, with 7 indicating a greater liking for Bush.)

Bush Cares "¿Usted cree que Jeb Bush es alguien a quien le importa gente como usted o es alguien a quien no le importa gente como usted?" (Response options: 1: Cares about people like me, 0: Doesn't care about people like me.)

Confidence in Bush "¿Cuánta confianza tiene usted en la capacidad que tiene Jeb Bush para tomar las decisiones correctas sobre la cuestión de la inmigración ilegal: tiene mucha confianza, cierto grado de confianza, no tiene demasiada confianza, o no tiene nada de confianza?" (Scale from 1 to 4, where 4 indicates greater confidence.)

Linked Fate "¿Cree que lo que le ocurre en general a los hispanos y latinos en este país tendrá algo que ver con lo que le sucede a usted en su vida? ¿Le afectará mucho, algo, poco o nada?" (Scale from 1 to 4, where 4 indicates "a lot.")

C Language Quiz

In order to determine if subjects were minimally competent in both Spanish and English, we asked subjects to answer two quiz questions, one about "Maria" and a second about "Adam." Subjects were randomly assigned to see one question in English and the other in Spanish. The order of the answer choices was also randomized. Subjects were categorized as "bilingual" if they received a perfect score on this two-question quiz.

Spanish Quiz 1 Por favor lea el siguiente texto y conteste la pregunta. María es una estudiante de una universidad. Ella recibe ayuda financiera, pero la cantidad de dinero que recibe depende de la excelencia de sus calificaciones, por lo tanto, si reprueba una clase, ella recibe menos dinero para pagar su colegiatura. Esto le causa estrés, pero ella está disfrutando sus clases. ¿Cuál de las siguientes declaraciones es VERDADERA?

- María es una maestra
- A María no le gustan sus cursos
- María no recibe ayuda financiera y ella se está pagando la universidad
- María tiene que tener buenas calificaciones para conseguir mas dinero para pagar su colegiatura

English Quiz 1 Please read the text below and answer the question. Maria is a student at a university. She receives financial aid, but the amount of money she gets depends on the quality of her grades, so if she fails a class, she receives less money to pay her tuition. This causes her stress, but she is enjoying her classes. Which of the following statements is TRUE?

- Maria is a teacher
- Maria dislikes her courses
- Maria does not receive financial aid and is paying for university by herself
- Maria needs to have good grades to get more money to pay her tuition

Spanish Quiz 2 Por favor, lea el siguiente texto y conteste la pregunta. Adam es cajero en un centro comercial. Él es muy bueno para hacer operaciones matemáticas en su cabeza, por lo que generalmente calcula el total sin utilizar la computadora. Esto suele ser una forma rápida y eficiente de hacer el trabajo, pero a veces comete errores. ¿Cuál de las siguientes declaraciones es VERDADERA?

- Adam es el dueño de un centro comercial
- Adam es malo para cálculos matemáticos
- Adam siempre está cometiendo errores y, por lo tanto, tiene que usar la computadora

– Adam generalmente hace operaciones matemáticas en su cabeza y suele ser bastante bueno en ello

English Quiz 2 Please read the text below and answer the question. Adam is a cashier at a mall. He is very good at doing math in his head, so he often calculates the total without using the computer. This is usually a quick and efficient way of doing the job, but sometimes he makes mistakes. Which of the following statements is TRUE?

– Adam is the owner of a mall

– Adam is bad at mental math

– Adam is always making mistakes and so needs to use the computer

– Adam often does the math in his head and is usually quite good at it