Language, Skin Tone, and Attitudes toward Puerto Rico in the Aftermath of Hurricane Maria
Appendices

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A Descriptive Statistics

Table 1: Mean of each Outcome by Respondent Partisanship and Knowledge about Puerto Rico

| | Know Citizenship | | | Don't Know Citizenship | | |
	All	Non-Republicans	Republicans	All	Non-Republicans	Republicans
Federal Aid	0.879	0.957	0.727	0.763	0.842	0.639
51st State	0.669	0.788	0.439	0.477	0.628	0.236
Vote in FL	0.755	0.879	0.514	0.457	0.579	0.264
Approve of Trump	0.327	0.113	0.743	0.452	0.272	0.736
N	810	535	275	186	114	72

Even though the number of respondents in the sample who are unaware that Puerto Ricans are American citizens is low, it is interesting to descriptively assess how their attitudes toward Puerto Rico differ from those respondents who correctly answered the citizenship question. Table 1 shows the mean of each outcome by both respondent partisanship and previous knowledge of Puerto Rico. The partisan differences are large across the board, within both knowledge categories. Republicans are less supportive of federal aid, statehood, and voting rights for Puerto Ricans than non-Republicans. Republican support for these measures is higher among those who have knowledge of Puerto Ricans' citizenship status, yet it still lags behind non-Republicans'. The one exception is on the fourth outcome: Republicans in both knowledge categories are equally supportive of Trump's handling of the disaster. Finally, non-Republican support for Puerto Rico is lowest on the issue of statehood among those with less knowledge.

Table 2: Mean of each Outcome by Treatment Condition

	White-English	White-Spanish	Black-English	Black-Spanish
Federal Aid	0.857	0.828	0.876	0.863
51st State	0.640	0.616	0.659	0.620
Vote in FL	0.703	0.695	0.727	0.675
Approval Trump	0.374	0.344	0.335	0.345
N	239	256	249	256

Table 2 presents additional descriptive statistics; it shows the mean of each outcome variable in the four treatment conditions. Support for increased federal spending on disaster relief is consistently high across treatment conditions, but always a couple of percentage points higher in the English conditions, regardless of race. At first glance, then, it seems that receiving information from a Spanish-speaking hurricane victim decreases respondents' support for federal aid. The same pattern holds for the next two outcomes: support for Puerto Rican statehood and voting in the state of Florida. Support for these first three outcomes is higher in the Black treatment groups, when compared within the same language groups; that is, when comparing White-English and Black-English on the one hand, and White-Spanish and Black-Spanish on the other. When language is taken into account, however, support decreases. The means for statehood and voting in Florida, for example, are lower in the Black-Spanish group than in the White-English group. These two groups are arguably the most dissimilar or the farthest away from each other. Support

for federal aid, on the other hand, is higher in the Black-Spanish group than in the White-English group. These descriptive statistics suggest that respondents are more likely to support giving additional aid to dark-skinned, Spanish-speaking hurricane victims—whom are maybe perceived to be more needy—but less likely to favor these same individuals incorporating themselves into the American political community. Approval for President Trump's handling of the disaster, by contrast, is consistently low across treatment conditions.

Table 3 presents similar results, but broken down by subgroup. This table compares how the mean outcomes within each treatment condition differ between non-Republican and Republican respondents, White and non-White respondents, and respondents who know that Puerto Ricans are U.S. citizens and those who do not know. Non-Republicans are more supportive than Republicans of federal aid in all treatment conditions, and a great deal more supportive of statehood and voting rights. Very few non-Republicans (roughly 18% at most) approve of the way President Trump handled the disaster in Puerto Rico, while majorities of Republicans signal approval in all treatment conditions (ranging from 67% to 80.5%).

On the issue of federal aid, the differences across treatment conditions within each party are quite small. On the issue of statehood, on the other hand, the differences across the race treatment are substantially large for Republicans. For example, 45.8% and 42.6% of Republicans support statehood for Puerto Rico in the White-English and White-Spanish conditions, respectively. Republican support for statehood decreases to 35.2% and 34.9% in the Black-English and Black-Spanish conditions, respectively. The lowest mean support for Puerto Rican statehood among Republicans is in the Black-Spanish treatment condition (34.9%). Among non-Republicans, by contrast, support for Puerto Rican statehood increases with the Black treatment within the English conditions (i.e., Black-English is higher than White-English) and also within the Spanish conditions (i.e., Black-Spanish is higher than White-Spanish). There is a similar pattern among non-Republicans in the third outcome. Comparing the White treatment conditions, support for voting in Florida decreases with the Spanish treatment (from 82.3% to 77.2%). The estimated effect is the opposite in the Black treatment conditions: the mean in the Black-Spanish group is lower (79.9%) than in the Black-English group (91.2%). Interestingly, for Republicans, support for voting in Florida is higher in both Spanish conditions. The estimated effects of race go in opposite directions for Republicans and non-Republicans. Non-Republican support for Puerto Rican voting rights in Florida increases from the White-English to the Black-English treatments (82.3% to 91.2%), but stays roughly the same when comparing the White-Spanish and Black-Spanish groups (77.2% to 79.9%). Republican support decreases with the Black treatment in both cases (47.8% to 38.6% for English speakers and 56.4% to 41.1% for Spanish speakers). Finally, non-Republicans are, as expected, dramatically less supportive of Trump's handling of the disaster than Republicans. Republican approval of Trump is highest in the Black-Spanish condition (80.5%) and lowest

in the White-Spanish condition (67.0%). In the English-language groups, there is little difference between races.

Turning to the White vs. Non-White comparison group, the means suggest that non-Whites exhibit higher levels of support for federal aid, statehood, and voting rights, and less support for Trump, than Whites. The largest differences between Whites and non-Whites are evident in many of the Black treatment conditions. When non-White respondents receive information from dark-skinned hurricane victims, they are more supportive of policies that will benefit those that they may perceive as coethnics. On the issue of federal aid, White support decreases with the Black treatment in the English category (from 84.7% to 83.3%), but increases in the Spanish category (from 80.3% to 84.1%). It could be that White Americans perceive dark-skinned, Spanish-speaking hurricane victims (the most different from them along both race and language dimensions) to be the most needy and thus deserving of federal aid. Non-Whites' support for aid increases with the Black treatment in both language categories. The language differences follow the same pattern. On the issue of Puerto Rican statehood, the means of race and language on White support look a lot like the first outcome. However, support among non-Whites is different in this case. In the Spanish language condition, the Black treatment decreases support for statehood (from 71.4% to 64.8%). The Spanish language seems to have no effect in the White condition (71.0% for English compared to 71.4% for Spanish), but it also has a negative estimated effect in the Black condition (81.2% in for English compared to 64.8% for Spanish).

Table 3: Mean of each Outcome by Treatment Condition, within Subgroups

	Non-Republicans	Republicans	Whites	Non-Whites	Know Citizenship	Don't Know
Outcome 1: Support for Federal Aid						
White-English	0.942	0.697	0.847	0.847	0.876	0.808
White-Spanish	0.895	0.713	0.803	0.905	0.867	0.644
Black-English	0.969	0.705	0.833	0.986	0.885	0.825
Black-Spanish	0.931	0.720	0.841	0.945	0.888	0.776
Outcome 2: Puerto Rico Should Become 51st State						
White-English	0.737	0.458	0.616	0.710	0.683	0.481
White-Spanish	0.726	0.426	0.584	0.714	0.667	0.378
Black-English	0.825	0.352	0.600	0.812	0.694	0.475
Black-Spanish	0.748	0.349	0.613	0.648	0.637	0.564
Outcome 3: Puerto Rican Evacuees Should Be Able to Vote in Florida Midterm						
White-English	0.823	0.478	0.663	0.818	0.753	0.519
White-Spanish	0.772	0.564	0.674	0.762	0.768	0.356
Black-English	0.912	0.386	0.650	0.928	0.770	0.500
Black-Spanish	0.799	0.411	0.640	0.800	0.730	0.449
Outcome 4: Approve of How Trump Handled the Disaster						
White-English	0.182	0.735	0.414	0.258	0.324	0.558
White-Spanish	0.154	0.670	0.389	0.206	0.313	0.489
Black-English	0.1	0.765	0.407	0.145	0.332	0.350
Black-Spanish	0.128	0.805	0.385	0.200	0.337	0.388
N	652	347	751	249	811	186

There is little variation in support for Puerto Ricans' voting rights in Florida among White

respondents. Among non-Whites, however, there are large differences in support by treatment condition. On the one hand, the Black treatment increases support in both language groups (from 81.8% to 92.8% in the English category and from 76.2% to 80.0% in the Spanish category). On the other hand, the Spanish treatment decreases support in both racial groups (from 81.8% to 76.2% in the White category and from 92.8% to 80.0% in the Black category). While large majorities of non-Whites support voting rights for Puerto Ricans in Florida, these differences are not trivial. Non-whites may exhibit a sense of coethnicity that is solely based on race and does not extend to language. In terms of approval of Trump's handling of the disaster, support is low across the board (for both Whites and non-Whites) and there is little variation across treatment conditions. The largest difference is among non-Whites between the Black-English (14.5%) and Black-Spanish (20.0%) groups.

Finally, while respondents who are aware of Puerto Ricans' status as American citizens are always more supportive of federal aid, statehood, and voting rights, the biggest differences between those in this group and their less knowledgeable counterparts are reflected in the latter two outcomes. Perhaps unsurprisingly, respondents who think of Puerto Ricans as foreigners are a lot less likely to support statehood and the right to vote in the Florida midterm elections. On the issue of federal aid, the Black treatment increases support among respondents in both knowledge categories, and the Spanish treatment decreases support. Opinions regarding Puerto Rican statehood, and the estimated effects of race and language on these opinions, seem to vary more with knowledge about Puerto Ricans' citizenship. For respondents who do know that Puerto Ricans are U.S. citizens, the Black treatment increases support in the English category (from 68.3% to 69.4%) and decreases support in the Spanish category (from 66.7% to 63.7%). By contrast, the estimated effect of the Spanish language treatment is always negative (decreases from 68.3% to 66.7% in the White category and from 69.4% to 63.7% in the Black category). Among respondents who are less knowledgeable about Puerto Rico, the Black treatment has the opposite estimated effect: it decreases support in the English category (from 48.1% to 47.5%) and increases support in the Spanish category (from 37.8% to 56.4%). The estimated effect of the Spanish language treatment is also different among low-knowledge respondents: it decreases support in the White category (from 48.1% to 37.8%) and increases support in the Black category (from 47.5% to 56.4%).

Race and language have very small (if any) estimated effects on support for Puerto Ricans' voting rights in Florida and approval of Trump's handling of the disaster among respondents who know that Puerto Ricans are American citizens. There is more variation in the estimated effect sizes among respondents who do not know. The Spanish language treatment decreases support for voting in Florida (from 51.9% to 35.6% in the White condition and from 50.0% to 44.9% in the Black condition), and the Black treatment increases support only in the Spanish condition (from 35.6% to 44.9%). Conversely, the Black treatment decreases Trump's approval rating in

both language conditions (from 55.8% to 35.0% in the English condition and from 48.9% to 38.8% in the Spanish condition). The estimated language effect, as we have seen previously, operates differently within each racial group. The Spanish language treatment decreases Trump's approval rating in the White condition (from 55.8% to 48.9%), but it increases Trump's approval rating (though not by much) in the Black condition (from 35.0% to 38.8%).

B Full Interaction Model for Heterogeneous Effects

In this section, I present the results of a full interaction model, which includes all treatment by covariate interactions with covariates centered by their means (as proposed by Lin 2013). An anonymous reviewer insightfully noted that this might distinguish which moderators matter most. The general results for both the skin color and language treatments suggest that party (Republican or not) matters most, but perceptions of Puerto Ricans' citizenship and beliefs about the primary language in Puerto Rico still matter for specific outcomes. In essence, the results of the full interaction model support the interpetation of heterogeneous effects given in the main text.

Table 4: Full Interaction Model

Outcome 1: Support for Federal Aid	Est. (SE)	N
Language Treatment × Perceived Language	0.007 (0.05)	1000
Language Treatment × Perceived Citizenship	0.096 (0.064)	1000
Language Treatment × Republicans	0.064 (0.052)	1000
Skin Tone Treatment × Perceived Language	0.012 (0.05)	1000
Skin Tone Treatment × Perceived Citizenship	−0.051 (0.065)	1000
Skin Tone Treatment × Republicans	−0.02 (0.052)	1000
Outcome 2: Puerto Rico Should Become 51st State	Est. (SE)	N
Language Treatment × Perceived Language	0.043 (0.063)	1000
Language Treatment × Perceived Citizenship	−0.046 (0.076)	1000
Language Treatment × Republicans	0.037 (0.062)	1000
Skin Tone Treatment × Perceived Language	−0.105* (0.063)	1000
Skin Tone Treatment × Perceived Citizenship	−0.086 (0.075)	1000
Skin Tone Treatment × Republicans	−0.149** (0.062)	1000
Outcome 3: Puerto Rican Evacuees Should Be Able to Vote in Florida Midterm	Est. (SE)	N
Language Treatment × Perceived Language	0.044 (0.058)	1000
Language Treatment × Perceived Citizenship	0.091 (0.076)	1000
Language Treatment × Republicans	0.152** (0.06)	1000
Skin Tone Treatment × Perceived Language	0.006 (0.057)	1000
Skin Tone Treatment × Perceived Citizenship	−0.044 (0.076)	1000
Skin Tone Treatment × Republicans	−0.183*** (0.06)	1000
Outcome 4: Approve of How Trump Handled the Disaster	Est. (SE)	N
Language Treatment × Perceived Language	−0.133** (0.054)	1000
Language Treatment × Perceived Citizenship	0.052 (0.071)	1000
Language Treatment × Republicans	−0.031 (0.055)	1000
Skin Tone Treatment × Perceived Language	0.09* (0.053)	1000
Skin Tone Treatment × Perceived Citizenship	0.155** (0.07)	1000
Skin Tone Treatment × Republicans	0.144*** (0.055)	1000

*p<0.1; **p<0.05; ***p<0.01

C   Still Images from Intervention Video

Figure 1: Light-Skinned Hurricane Victim

Figure 2: Dark-Skinned Hurricane Victim

D Ethics

This appendix discusses the ethical issues that emerged in the design and implementation of this survey experiment, along with an explanation of how each issue was addressed. First, to safeguard their privacy, participants were able to complete the study in a location and device of their choice. As per YouGov's policies—the market research company that conducts the Cooperative Congressional Election Study—individual responses were identified only by a unique code that can be linked with the respondent's personal information only on the database server behind a firewall in a secure local zone. Secondly, YouGov uses intrusion prevention technologies to protect the personally identifiable information and demographic information in their databases. This technology, along with limited access to confidential respondent information, ensures the confidentiality of the data.

Third, this study required a degree of deception in order to ensure that the two individuals in the videos were as similar as possible across all dimensions (e.g., age, sex, English and Spanish proficiency) except their skin tone. In particular, in accordance with the deception typology described in the American Political Science Association's Principles and Guidance document, the experiment contained "activity deception." This type of deception is "[d]eception about what you are doing (e.g. research for social science) or the situation confronting research participants." In light of this deception, I now describe the great lengths that were taken to minimize (if not fully eliminate) deception, which, in light of possible negative consequences of debriefing respondents, tipped the scales against the decision to debrief.

The steps to minimize deception were as follows. Both actors in the video were Puerto Ricans who (along with their families) were in Puerto Rico during Hurricane Maria and suffered through its consequences. In order to avoid deception, the video's script stated only that each actor and their respective families were affected by the hurricane, but nothing more. For example, neither actor falsely claimed that their home was destroyed by the hurricane. The rest of the script provided only factual information about the hurricane's impact on Puerto Rico. Concerns around deception may arise in terms of the background for the video, which consisted of a dilapidated house, which, importantly, was never referred to as each actor's house. Such dilapidated houses, along with the makeshift roofs made of blue tarps distributed by FEMA, were unfortunately a ubiquitous site throughout Puerto Rico for years following Hurricane Maria. Although this dilapidated house was never referred to as the home of individuals in the video, the image of this house in the background might nevertheless provoke that perception among respondents. Otherwise, the video did not contain any deception and the ex ante consent process informed respondents of the survey's aim of understanding the effects of racial and linguistic stereotypes on political attitudes and support for public policies.

The decision *not* to debrief respondents after completing my portion of the survey reflected a weighing of the degree of deception against the costs of debriefing. The specific costs were as follows, all of which ultimately tipped the scales toward *not* debriefing. As a background, this portion of the survey under my purview consisted of 2.3 minutes of content as part of a broader survey of 20 minutes of questions by a team of researchers. Therefore, the first cost of debriefing is that doing so might induce social desirability bias and Hawthorne effects in respondents' answers to subsequent survey questions under the purview of other researchers. Second, even if describing only the minimal degree of deception in the survey experiment, such a debriefing procedure — especially in light of attention deficits and satisfying on surveys — might have led some subjects to interpret the factual information in the video as false. Beyond the possibility of undermining public trust in science, this debriefing procedure might have harmed respondents by inducing them to interpret factually true information about Puerto Rico as false. Third and finally, given the time constraint on my portion of the survey, a debriefing procedure would have required discarding one of the four outcome measures, yielding less information about a policy of deep topical and substantive importance. Given the especially low degree of deception, these potential costs of debriefing ultimately tipped the scales against debriefing respondents.

Fourth, the consent process informed subjects that the main benefit of participating in this study was to increase awareness of current events, and to develop our understanding of the effects of racial and linguistic stereotypes on political attitudes and support for specific policies. YouGov's policies provide for compensation of survey respondents: they accumulate points through their participation, which can later be redeemed for rewards (e.g., pre-paid gift cards).