# Supplementary Materials for In the Eye of the Storm: Hurricanes, Climate Migration, and Climate Attitudes

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## Contents

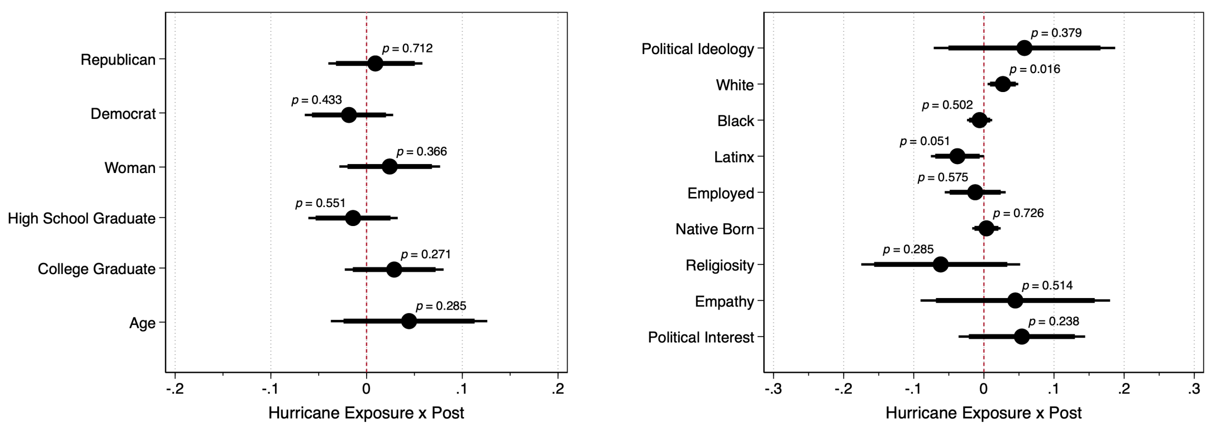
# A Empirical Appendix

## A.1 Covariate Balance

Respondent-level characteristics are balanced before and after Hurricane Ian for the core demographic covariates we study (top panel). In the expanded set of respondent-level covariates (bottom panel), balance is also achieved with one exception: we sample marginally more whites and fewer Latinxs in hurricane-exposed counties after the storm. In results omitted for space but available upon request, we find substantively similar balance if we define exposure according to the binary measure described in Figure A-5.

Figure A-1: Covariate Balance

(a) Balance on Core Demographics (b) Balance on Additional Demographics

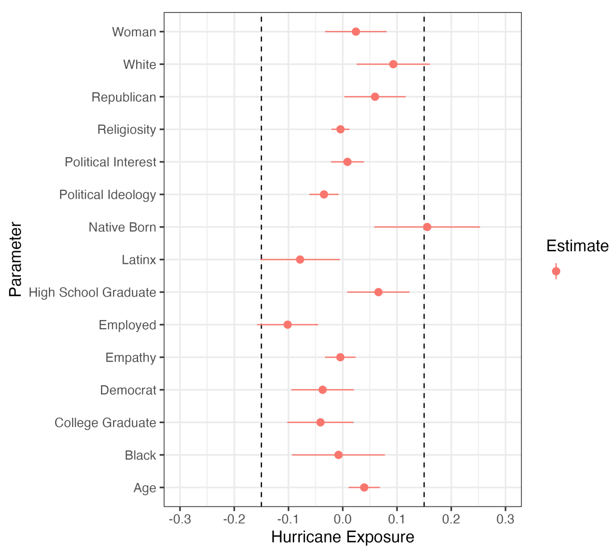



*Note*: Bars are 90 and 95% confidence intervals. Estimates show the effect of hurricane exposure on respondent attributes. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Estimations include county and date of survey fixed effects. Estimates are scaled using sampling weights. Age and political ideology are z-standardized so they fit on the same scale as other covariates. The dashed red line marks 0. Full tabular results are in Table D-1.

Balance across core covariates is important because our empirical strategy relies on an assumption that there is no factor that makes people more or less likely to be surveyed post versus pre-hurricane, and which also correlates with their climate attitudes. One particularly concerning possibility is that the hurricane degraded respondents' livelihoods, incentivizing the most severely hurricane-affected people to increase survey-taking in the post-treatment period as a way to supplement their incomes. To rule out this possibility we consider data on survey duration. If more severely hurricane-affected respondents were incentivized to take more online surveys in order to supplement their wages after the storm, we would expect hurricane exposure to correlate with shorter survey duration. These respondents would seek to finish surveys faster in order to get paid and move on to the next survey available via Lucid. Instead, we find that respondents in more hurricane exposed counties took 26 seconds longer (p = 0.003) to complete the survey on average after Hurricane Ian.

Hartman and Hidalgo (2018) propose an equivalence testing approach that expands on our balance tests. As they explain, standard balance tests, such as those in Figure A-1, begin with an assumption that the data are consistent "with the observable implications of an unconfounded design", and search for evidence to reject the null hypothesis of no covariate imbalance. In an equivalence testing approach, researchers assume a confounded design, and seek to "provide statistically significant evidence to reject [the null hypothesis that] their data are inconsistent with a valid design..." (Hartman and Hidalgo 2018, p. 1002). In Figure A-2 we take an equivalence approach, studying the equivalence of the correlation coefficient between our continuous hurricane exposure measure and the demographic variables we evaluate in our survey. Promisingly, we only reject the null hypothesis of equivalence for four demographic covariates: white, Latinx, employed, and native born. Overall, this test provides strong evidence that our design is valid.

Figure A-2: Equivalence Test



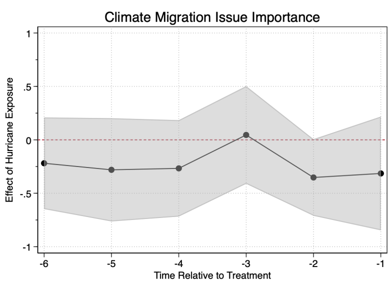

*Note*: Bars are 95% confidence intervals. Estimates show the effect of hurricane exposure on respondent attributes. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Estimations include state and date of survey fixed effects. Estimates are scaled using sampling weights. Age and political ideology are z-standardized so they fit on the same scale as other covariates. The dashed black lines mark the region of practical equivalence. Full tabular results are in Table D-2.

## A.2 Pre-Trends

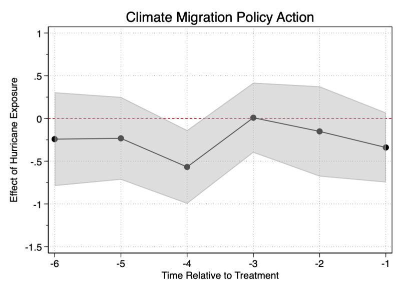
To build evidence for the parallel trends assumption, we take two additional steps. First, we implement a method proposed by Borusyak, Jaravel and Spiess (2022), which aims to correct various issues (e.g., underidentification, power, negative weights) that plague event study estimations based on two-way fixed effects. The method they propose performs a graphical test for parallel trends by regressing the focal outcome on dummies for pre-treatment periods, controls, and all fixed effects using only nontreated observations. Results depicted in Figure A-3 give visual evidence that pre-trends are consistently parallel across outcomes.

Figure A-3: Pre-Trend Testing Following Borusyak, Jaravel and Spiess (2022)

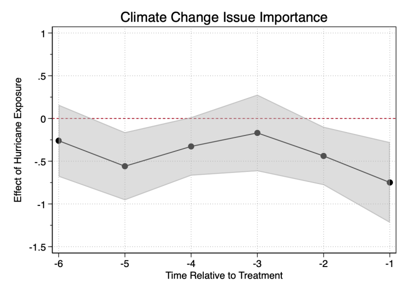
(a) Issue Importance of Climate Migration



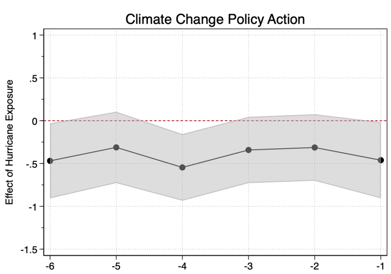

(b) Policy Action on Climate Migration



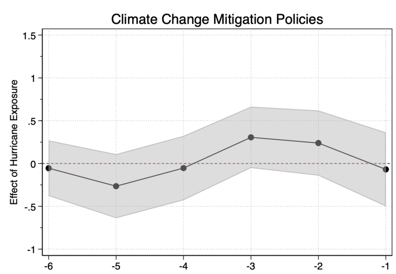

(c) Issue Importance of Climate Change



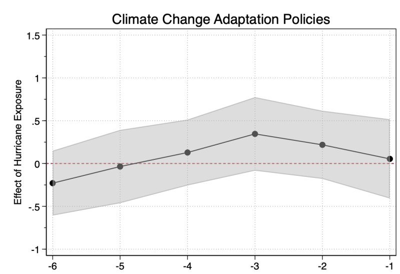

(d) Policy Action on Climate Change



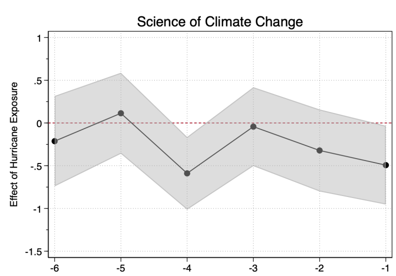

(e) Climate Change Mitigation Policies




(f) Climate Change Adaptation Policies




(g) Science of Climate Change




*Note*: Gray shaded bands are 95% confidence intervals . The dashed red line marks 0.

Second, Table A-1 compares trends in outcomes across all treatment and control counties for all pairs of sequential pre-treatment survey rounds. Investigating whether county-level wave-on-wave trends are statistically distinguishable helps identify potential trend breaks. This approach is also used in Getmansky, Grossman and Wright (2019). We calculate possible trend breaks for each outcome using a difference-in-slopes test. Across all outcomes and pre-treatment rounds, fewer than one-quarter of all periods are distinguishably non-parallel. More importantly, Table A-2 confirms results are robust to dropping potentially non-parallel pre-periods from the estimation sample.

Table A-1: Differences-in-Slopes Across Pre-Treatment Periods

| | Climate Migration | | Climate Change | | Climate Change Policies | | Science of Climate Change |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Wave -7 vs. Wave -6 | 0.055 | 0.269 | 0.184 | 0.437** | 0.087 | 0.277 | 0.083 |
| | (0.203) | (0.218) | (0.206) | (0.207) | (0.193) | (0.196) | (0.199) |
| Wave -6 vs. Wave -5 | 0.052 | 0.044 | 0.354* | -0.097 | 0.262 | -0.153 | -0.222 |
| | (0.197) | (0.193) | (0.195) | (0.192) | (0.181) | (0.197) | (0.194) |
| Wave -5 vs. Wave -4 | 0.014 | 0.317 | -0.376** | 0.031 | -0.176 | -0.036 | 0.498*** |
| | (0.203) | (0.194) | (0.189) | (0.189) | (0.190) | (0.209) | (0.185) |
| Wave -4 vs. Wave -3 | -0.432** | -0.567*** | -0.080 | -0.068 | -0.357** | -0.306* | -0.397** |
| | (0.185) | (0.168) | (0.174) | (0.171) | (0.167) | (0.182) | (0.170) |
| Wave -3 vs. Wave -2 | 0.373** | 0.120 | 0.240 | -0.037 | 0.036 | 0.068 | 0.157 |
| | (0.178) | (0.166) | (0.176) | (0.167) | (0.165) | (0.172) | (0.175) |
| Wave -2 vs. Wave -1 | 0.074 | 0.187 | 0.090 | 0.070 | 0.240 | 0.095 | 0.174 |
| | (0.204) | (0.183) | (0.196) | (0.189) | (0.185) | (0.184) | (0.194) |
| Wave -1 vs. Wave 0 | -0.345* | -0.230 | -0.252 | -0.223 | -0.373 | -0.397** | -0.194 |
| | (0.203) | (0.178) | (0.187) | (0.202) | (0.186) | (0.190) | (0.192) |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Estimates are scaled using sampling weights.

Table A-2: Dropping Potential Trend Breaks

| | Climate Migration | | Climate Change | | Climate Change Policies | | Science of Climate Change |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Hurricane Exposure x Post | 0.112** | 0.079** | 0.107*** | 0.130*** | 0.083** | 0.089* | 0.120*** |
| | (0.052) | (0.033) | (0.037) | (0.042) | (0.037) | (0.046) | (0.037) |
| Republican | -0.142** | -0.218*** | -0.391*** | -0.347*** | -0.121 | 0.047 | -0.199** |
| | (0.068) | (0.064) | (0.076) | (0.074) | (0.086) | (0.082) | (0.077) |
| Democrat | 0.280*** | 0.534*** | 0.421*** | 0.511*** | 0.519*** | 0.464*** | 0.520*** |
| | (0.072) | (0.046) | (0.077) | (0.071) | (0.091) | (0.087) | (0.077) |
| Woman | -0.061 | -0.115** | 0.043 | -0.061 | -0.128*** | -0.112** | 0.009 |
| | (0.050) | (0.047) | (0.054) | (0.044) | (0.040) | (0.049) | (0.049) |
| High School Graduate | 0.143 | 0.082 | 0.188 | 0.362*** | -0.007 | 0.148 | 0.090 |
| | (0.090) | (0.132) | (0.115) | (0.115) | (0.142) | (0.163) | (0.114) |
| College Graduate | 0.172** | 0.271** | 0.278** | 0.520*** | 0.057 | 0.139 | 0.158 |
| | (0.080) | (0.113) | (0.113) | (0.116) | (0.135) | (0.155) | (0.124) |
| Age | -0.004** | -0.013*** | -0.004** | -0.005*** | -0.017*** | -0.014*** | -0.010*** |
| | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| Observations | 1977 | 2374 | 2166 | 2407 | 2374 | 2212 | 2173 |
| Exposure Measure: | Index | Index | Index | Index | Index | Index | Index |
| PARAMETERS | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

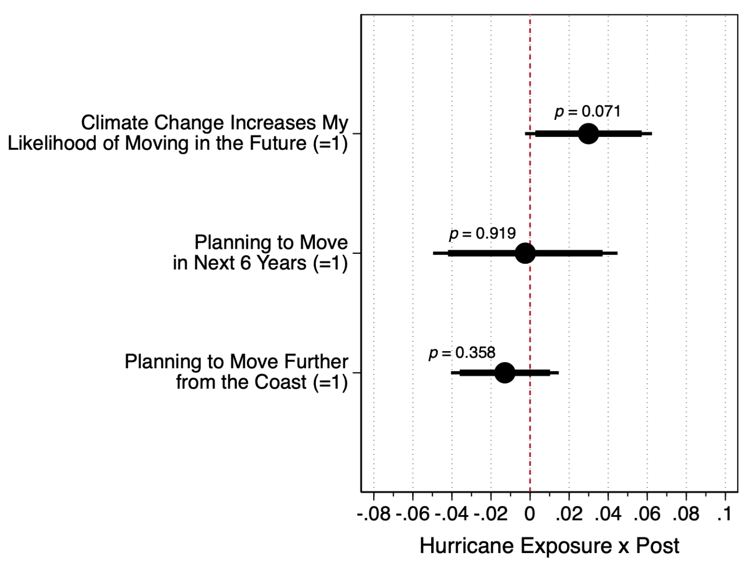
*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Estimates are scaled using sampling weights.

## A.3 Migration Intentions

Did Hurricane Ian spur climate-related displacement? In Table SI-4 we show that Hurricane Ian increased respondent reports that they knew someone who had been displaced by a hurricane. This effect was driven by respondents who had not been displaced themselves, but who had friends move.

We also pre-registered an expectation that hurricane exposure would increase self-reported willingness to move, especially to more climate-resilient areas. We test this hypothesis in Figure A-4, and find mixed support. In particular, we find that hurricane exposure increased *abstract migration intentions* but not *concrete planning to move* (see also Carling and Schewel 2018). A one standard deviation increase in hurricane exposure increased respondent agreement that climate change would raise their future likelihood of moving (3pp). Yet, this general effect did not translate to definite, near-term migration planning. Those affected by Hurricane Ian were not more likely to report that they had specific plans to move in the next six years, or that they were planning to move further from the coast. These findings dovetail with recent evidence from Behrer and Bolotnyy (2023), who find muted effects of Atlantic hurricanes on migration to more climate-resilient areas.

Figure A-4: Hurricane Exposure and Migration Intentions




*Note*: Bars are 90 and 95% confidence intervals. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Estimations include covariates from Table 2, along with three variables meant to capture place-based attachments: an indicator for home ownership, a measure of the length of time spent living in one's current community, and a measure of the number of community groups to which one belongs. The dashed red line marks 0. Full tabular results are in Table D-7.

Evacuation and longer-term hurricane-induced migration could also pose an empirical challenge if certain demographic groups were disproportionately likely to move as a result of Hurricane Ian, or if people evacuated across county lines and were then geolocated to different counties while taking the survey than where they resided normally. We are sanguine that selective attrition is not an issue for our results because balance and equivalence tests (Figures A-1 – A-2) show no evidence of imbalance across covariates, and our analyses in Table SI-4 do not reveal that Hurricane Ian made people more likely to self-report that *they themselves* had personally been forced to move because of a hurricane. Further, our results in Table A-12 show that the main results are robust while controlling for the intensity of county-level evacuation-related traffic. More generally, studies of migration behavior during hurricanes reveal two important and helpful facts: most people return home within 1-3 days of evacuating a hurricane (Smith and McCarty 2009; Lindell, Kang and Prater 2011), and most evacuees remain within the same county that in which they reside (Cambridge Systematics 2021), mitigating concerns about our geolocation procedure.

## A.4 Political Behavior in Florida

Florida voters went to the polls on November 8, 2022, shortly after Hurricane Ian. We assemble cross-sectional data on county-level voteshares in the Florida election to explore the correlation between hurricane exposure and political behavior. As described in the text, voters considered three constitutional amendments, of which one was climate-related. Table A-3 shows Hurricane Ian increased voting for the climate-related amendment but not unrelated amendments.

Table A-3: Hurricane Exposure and Climate Ballot Initiatives in Florida

| | % Approve Flood Mitigation Tax Break | | | | Supermajority for Flood Mitigation Tax Break (=1) | | | | Supermajority for Other Ballot Initiatives (=1) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (1) Voteshare | (2) Voteshare | (3) Voteshare | (4) Voteshare | (5) Supermajority | (6) Supermajority | (7) Supermajority | (8) Supermajority | (9) Commission | (10) Homestead |
| Hurricane Exposure | 0.009*** | 0.008*** | 0.005** | 0.004* | 0.109*** | 0.114*** | 0.085*** | 0.080*** | 0.036 | 0.059 |
| | (0.002) | (0.002) | (0.002) | (0.002) | (0.023) | (0.023) | (0.028) | (0.028) | (0.030) | (0.039) |
| Trump Won in 2020 | | 0.029** | 0.036*** | 0.038*** | | 0.076 | 0.121 | 0.135 | 0.005 | -0.004 |
| | | (0.014) | (0.012) | (0.013) | | (0.104) | (0.086) | (0.089) | (0.053) | (0.135) |
| 2022 Primary Turnout | | -0.009 | 0.001 | -0.003 | | 0.055 | 0.113** | 0.086 | 0.048 | -0.114** |
| | | (0.006) | (0.005) | (0.005) | | (0.055) | (0.054) | (0.055) | (0.052) | (0.053) |
| 2021 Income Per Capita | | | | 0.006*** | | | | 0.038 | 0.038 | -0.003 |
| | | | | (0.002) | | | | (0.029) | (0.025) | (0.035) |
| Observations | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 | 67 |
| Exposure Measure: | Index | Index | Index | Index | Index | Index | Index | Index | Index | Index |
| PARAMETERS | | | | | | | | | | |
| Emergency Command FE | No | No | Yes | Yes | No | No | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Emergency command fixed effects are for multi-county regions within which hurricane emergency response is organized by state officials.

## A.5 Estimates With a Binary Exposure Measure

The main estimations operationalize hurricane exposure using a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge (left panel, Figure A-5). This dosage treatment has key benefits, including the fact that a clear dose-response relationship "bolsters the case for causal interpretation" (Callaway, Goodman-Bacon and Sant'Anna 2021, p. 1). Yet, it is difficult to interpret differences in treated-type parameters across different values of the treatment. Callaway, Goodman-Bacon and Sant'Anna (2021) also show that continuous treatment variables require strong parallel trends assumptions in difference-in-differences specifications because identification comes from comparisons across dosages. Table A-4 presents substantively similar results using a binary version of the main, continuous hurricane exposure index. This binary exposure variable takes a value of 1 for all counties above the median value of the continuous hurricane exposure index, and 0 otherwise (right panel, Figure A-5).

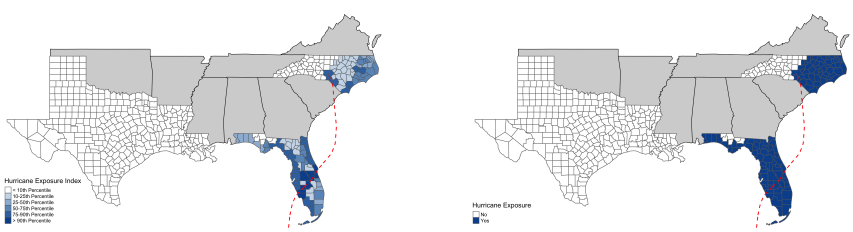
Table A-4: Hurricane Exposure and Climate Attitudes with a Binary Exposure Measure

| | Climate Migration | | Climate Change | | Climate Change Policies | | Science of Climate Change |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Hurricane Exposure x Post | 0.222*** | 0.155* | 0.291*** | 0.258*** | 0.153* | 0.213** | 0.229** |
| | (0.066) | (0.090) | (0.078) | (0.076) | (0.082) | (0.091) | (0.095) |
| Observations | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 |
| AIC | 6729.517 | 6355.773 | 6536.104 | 6478.098 | 6344.016 | 6552.690 | 6564.276 |
| Exposure Measure: | Binary | Binary | Binary | Binary | Binary | Binary | Binary |
| PARAMETERS | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is an indicator for counties above the median on a continuous z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Demographic covariates are partisanship, education, gender, and age. Estimates are scaled using sampling weights. Full tabular results are in Table D-19.

Figure A-5: Mapping Hurricane Exposure

(a) Exposure Index (b) Binary Decomposition




*Note*: Shading corresponds to the legend in the bottom left of each plot. In panel (a), bins represent percentiles of the hurricane exposure index for values greater than the minimum of the index. The dashed red line marks the eyepath of Hurricane Ian.

## A.6 Estimates With Alternative Summary Indices

The main estimations study outcome indices constructed by inverse covariance-weighting. One alternative way to transform constituent items into summary indices is by principal component factor analysis, which entails studying the correlation matrix of constituent items using the principal component factor method with promax rotation. Another alternative for constructing summary indices is the mean effects approach, which entails computing simple, standardized averages of outcome measures. In Tables A-5 and A-6 we present substantively similar results using outcome indices created using principal component factor analysis or mean effects, rather than inverse covariance-weighting.

Table A-5: Hurricane Exposure and Climate Attitudes with Principal Component Indices

| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Hurricane Exposure x Post | 0.093** | 0.080* | 0.130*** | 0.122*** | 0.098** | 0.118** | 0.151*** |
| | (0.037) | (0.045) | (0.036) | (0.042) | (0.042) | (0.051) | (0.033) |
| Observations | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 |
| AIC | 6738.212 | 6384.690 | 6533.301 | 6470.028 | 6338.766 | 6538.388 | 6550.584 |
| Exposure Measure: | Index | Index | Index | Index | Index | Index | Index |
| Parameters | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Demographic covariates are partisanship, education, gender, and age. Estimates are scaled using sampling weights. Full tabular results are in Table D-20.

Table A-6: Hurricane Exposure and Climate Attitudes with Mean Effects Indices

| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Hurricane Exposure x Post | 0.094** | 0.102** | 0.130*** | 0.121*** | 0.098** | 0.117** | 0.150*** |
| | (0.036) | (0.040) | (0.036) | (0.042) | (0.042) | (0.051) | (0.033) |
| Observations | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 |
| AIC | 6736.699 | 6299.549 | 6533.760 | 6472.617 | 6338.341 | 6538.456 | 6551.029 |
| Exposure Measure: | Index | Index | Index | Index | Index | Index | Index |
| Parameters | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Demographic covariates are partisanship, education, gender, and age. Estimates are scaled using sampling weights. Full tabular results are in Table D-21.

## A.7 Estimates Using Coarsened Exact Matching

Following Iacus, King and Porro (2012), we implement coarsened exact matching. In Table A-7 we match all hurricane-exposed and unexposed respondents on the core demographic covariates we include in our estimations. Specifically, we match on: partisanship, education, gender, and age. Because the matching algorithm can only accommodate binary treatment values, in these analyses we use the binary version of the main, continuous hurricane exposure index described in Table A-4 and Figure A-5. As reflected in Table A-7, estimates using the coarsened exact matching approach are substantively similar.

Table A-7: Hurricane Exposure and Climate Attitudes with Coarsened Exact Matching

| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| | Issue Importance | Policy Action | Issue Importance | Policy Action | Mitigation | Adaptation | Science |
| Hurricane Exposure x Post | 0.159** | 0.141* | 0.232*** | 0.186** | 0.164** | 0.169** | 0.153** |
| | (0.072) | (0.074) | (0.086) | (0.071) | (0.074) | (0.082) | (0.072) |
| Observations | 2514 | 2514 | 2514 | 2514 | 2514 | 2514 | 2514 |
| AIC | 6756.964 | 6445.400 | 6512.123 | 6518.840 | 6358.360 | 6606.220 | 6447.926 |
| Exposure Measure: | Binary | Binary | Binary | Binary | Binary | Binary | Binary |
| PARAMETERS | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is an indicator for counties above the median on a continuous z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Demographic covariates are partisanship, education, gender, and age. Estimates are scaled using matching weights. Full tabular results are in Table D-22.

## A.8 Additional, Individual-Level Covariates

The main estimations include controls for respondent partisanship, gender, education, and age. The core results are robust to controlling for a broader array of respondent-level characteristics, including political ideology, race, employment status, migration status, religiosity, empathy, and political interest.

Table A-8: Hurricane Exposure and Climate Attitudes with Respondent-Level Covariates

| | Climate Migration | | Climate Change | | Climate Change Policies | | Science of Climate Change |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Hurricane Exposure x Post | 0.084*** | 0.083*** | 0.110*** | 0.092** | 0.090** | 0.110** | 0.139*** |
| | (0.031) | (0.031) | (0.037) | (0.036) | (0.037) | (0.044) | (0.035) |
| Republican | -0.101* | -0.164*** | -0.237*** | -0.229*** | -0.048 | 0.053 | -0.172** |
| | (0.058) | (0.054) | (0.058) | (0.060) | (0.076) | (0.074) | (0.069) |
| Democrat | 0.250*** | 0.395*** | 0.339*** | 0.405*** | 0.332*** | 0.328*** | 0.384*** |
| | (0.063) | (0.043) | (0.067) | (0.066) | (0.082) | (0.074) | (0.073) |
| Woman | -0.035 | -0.137*** | -0.041 | -0.085* | -0.124*** | -0.073 | -0.082 |
| | (0.045) | (0.051) | (0.054) | (0.050) | (0.043) | (0.047) | (0.053) |
| High School Graduate | 0.099 | 0.038 | 0.109 | 0.245** | 0.014 | 0.177 | 0.136 |
| | (0.088) | (0.120) | (0.109) | (0.118) | (0.110) | (0.133) | (0.115) |
| College Graduate | 0.044 | 0.113 | 0.131 | 0.343*** | -0.008 | 0.114 | 0.138 |
| | (0.100) | (0.110) | (0.110) | (0.123) | (0.107) | (0.132) | (0.120) |
| Age | -0.004** | -0.012*** | -0.003 | -0.005*** | -0.014*** | -0.015*** | -0.009*** |
| | (0.002) | (0.001) | (0.002) | (0.002) | (0.001) | (0.002) | (0.002) |
| Conservative | -0.114* | -0.244*** | -0.395*** | -0.322*** | -0.372*** | -0.250*** | -0.249*** |
| | (0.060) | (0.065) | (0.061) | (0.055) | (0.062) | (0.053) | (0.064) |
| Liberal | 0.123* | 0.200*** | 0.072 | 0.144*** | 0.130** | 0.022 | 0.016 |
| | (0.071) | (0.066) | (0.051) | (0.050) | (0.055) | (0.048) | (0.061) |
| White | 0.439*** | 0.355** | 0.336* | 0.555*** | 0.401* | 0.508* | 0.197 |
| | (0.157) | (0.175) | (0.192) | (0.167) | (0.241) | (0.299) | (0.251) |
| Black | 0.384** | 0.355* | 0.200 | 0.444*** | 0.540** | 0.644** | 0.091 |
| | (0.172) | (0.187) | (0.187) | (0.168) | (0.263) | (0.325) | (0.253) |
| Latinx | 0.557*** | 0.403** | 0.406** | 0.636*** | 0.479* | 0.481 | 0.328 |
| | (0.176) | (0.182) | (0.192) | (0.163) | (0.267) | (0.308) | (0.258) |
| Asian | 0.888*** | 0.905*** | 0.890*** | 0.931*** | 1.112*** | 1.002*** | 0.559* |
| | (0.174) | (0.173) | (0.189) | (0.166) | (0.282) | (0.350) | (0.287) |
| Native/Indigenous | 0.444 | 0.420 | 0.169 | 0.399 | 0.372 | 0.492 | -0.083 |
| | (0.402) | (0.373) | (0.389) | (0.331) | (0.488) | (0.464) | (0.395) |
| Multiracial | 0.291 | 0.155 | 0.263 | 0.428** | 0.430 | 0.496 | -0.032 |
| | (0.212) | (0.209) | (0.199) | (0.187) | (0.264) | (0.320) | (0.279) |
| Employed | 0.040 | 0.051 | -0.006 | 0.041 | -0.008 | -0.070 | 0.057 |
| | (0.044) | (0.049) | (0.045) | (0.045) | (0.057) | (0.052) | (0.052) |
| Native Born | 0.164* | -0.006 | 0.108 | 0.074 | -0.106 | -0.094 | -0.068 |
| | (0.095) | (0.088) | (0.118) | (0.103) | (0.102) | (0.095) | (0.101) |
| Religiosity | 0.009 | 0.024* | -0.044*** | -0.041*** | 0.037** | 0.067*** | 0.012 |
| | (0.014) | (0.013) | (0.016) | (0.015) | (0.014) | (0.018) | (0.019) |
| Empathy | 0.088*** | 0.120*** | 0.148*** | 0.175*** | 0.038* | 0.040 | 0.098*** |
| | (0.023) | (0.022) | (0.024) | (0.022) | (0.021) | (0.024) | (0.024) |
| Political Interest | 0.149*** | 0.111*** | 0.107*** | 0.127*** | 0.108*** | 0.137*** | 0.080*** |
| | (0.024) | (0.027) | (0.022) | (0.027) | (0.024) | (0.021) | (0.024) |
| Observations | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 |
| AIC | 6605.878 | 6128.218 | 6281.580 | 6200.551 | 6081.669 | 6376.551 | 6449.870 |
| Exposure Measure: | Index | Index | Index | Index | Index | Index | Index |
| PARAMETERS | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Estimates are scaled using sampling weights.

## A.9 Alternative Error Clustering Structures

The main estimations cluster standard errors by county. This decision is motivated by an experimental design consideration (Abadie et al. 2023)—our treatment measure of hurricane exposure is assigned at the county-level, so errors are likely correlated within county clusters. Yet, hurricane emergency response is organized at the state-level and implemented within state emergency management commands. In Tables A-9 and A-10 we allow errors to correlate across counties within emergency management command zones and within states. The core results are robust.

Table A-9: Emergency Command-Clustered Standard Errors

| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Hurricane Exposure x Post | 0.097*** | 0.100*** | 0.127*** | 0.115*** | 0.099*** | 0.117*** | 0.144*** |
| | (0.023) | (0.034) | (0.027) | (0.041) | (0.033) | (0.031) | (0.019) |
| Observations | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 |
| AIC | 6730.863 | 6352.160 | 6538.499 | 6479.597 | 6340.321 | 6550.146 | 6557.760 |
| Exposure Measure: | Index | Index | Index | Index | Index | Index | Index |
| PARAMETERS | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, emergency command-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Demographic covariates are partisanship, education, gender, and age. Estimates are scaled using sampling weights. Full tabular results are in Table D-23.

Table A-10: State-Clustered Standard Errors

| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Hurricane Exposure x Post | 0.097*** | 0.100*** | 0.127** | 0.115** | 0.099*** | 0.117*** | 0.144*** |
| | (0.016) | (0.011) | (0.033) | (0.026) | (0.014) | (0.014) | (0.013) |
| Observations | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 |
| AIC | 6722.863 | 6344.160 | 6530.499 | 6471.597 | 6332.321 | 6542.146 | 6549.760 |
| Exposure Measure: | Index | Index | Index | Index | Index | Index | Index |
| PARAMETERS | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

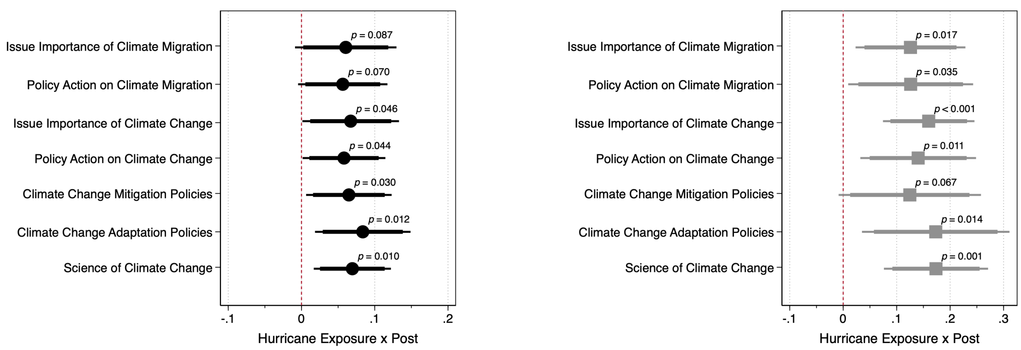
*Note*: * p <.10, ** p <.05, *** p <.01. Robust, state-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Demographic covariates are partisanship, education, gender, and age. Estimates are scaled using sampling weights. Full tabular results are in Table D-24.

## A.10 Alternative Weighting Schemes

The main estimations exploit sampling weights to match national demographic benchmarks for partisanship, gender, education, age, and race. In Figure A-6, we verify that results are robust using unweighted estimation or weights based on demographics of the sampled states.

Figure A-6: Alternative Weighting Schemes

(a) Unweighted (b) State-Based Weights




*Note*: Bars are 90 and 95% confidence intervals. Estimates show the effect of hurricane exposure on attitudes. Black markers denote unweighted estimates, while gray markers denote estimates weighted to match demographics of the four sampled states. Estimations include covariates from Table 2. The dashed red line marks 0. Full tabular results are in Tables D-25 - D-26.

## A.11 Alternative Difference-in-Differences Estimator

Borusyak, Jaravel and Spiess (2022) propose an imputation estimator that fits county and date of survey fixed effects using untreated observations, imputes untreated potential outcomes to obtain an estimated treatment effect for each treated observation, then calculates a weighted sum of these treatment effect estimates. Results are robust using this estimator

Table A-11: Hurricane Exposure and Climate Attitudes with Alternative Estimator

| | Climate Migration | | Climate Change | | Climate Change Policies | | Science of Climate Change |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Hurricane Exposure x Post | 0.229*** (0.067) | 0.170** (0.085) | 0.310*** (0.081) | 0.264*** (0.076) | 0.147* (0.082) | 0.190** (0.091) | 0.232** (0.096) |
| Observations | 2480 | 2480 | 2480 | 2480 | 2480 | 2480 | 2480 |
| Exposure Measure: | Index | Index | Index | Index | Index | Index | Index |
| PARAMETERS | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Demographic covariates are partisanship, education, gender, and age. A small number of observations are dropped where fixed effects cannot be imputed. Full tabular results are in Table D-27.

## A.12 Additional, County-Level Covariates

Our empirical strategy leverages changes in attitudes within counties over survey waves. For omitted, time-varying variables to bias our estimates, they must vary daily across counties. Three potentially relevant confounders stand out to us in this setting: (1) local political dynamics, (2) local migration trends, and (3) local displacement owing to Hurricane Ian. We lack granular, county-day level information on relevant covariates (e.g., county-level displacement), so instead draw on pre-treatment measures. In Table A-12 we incorporate these relevant, pre-hurricane, county-level controls flexibly by interacting them with date of survey fixed effects. This strategy allows us to account for pre-treatment heterogeneity in relevant confounders across counties. To capture local political sentiment we take the county-level Republican voteshare from the 2020 Presidential election (MIT Election Data and Science Lab 2022). To capture migration trends we estimate the county-level domestic and international net migration rates in 2021 (US Census Bureau 2022). To capture hurricane-related displacement, we study data from Waze, a mobile application that provides realtime driving directions and live traffic maps. In the three days before Hurricane Ian, Waze partnered with the Florida Division of Emergency Management to track road hazards induced by Hurricane Ian evacuation efforts (Florida Division of Emergency Management 2022). We use these data to estimate the population-normalized intensity of hurricane-related traffic before landfall. The core results are robust while accounting for these potential confounders. The estimate is marginally imprecise in column 6 ($p = 0.117$).

Table A-12: Hurricane Exposure and Climate Attitudes with County-Level Covariates

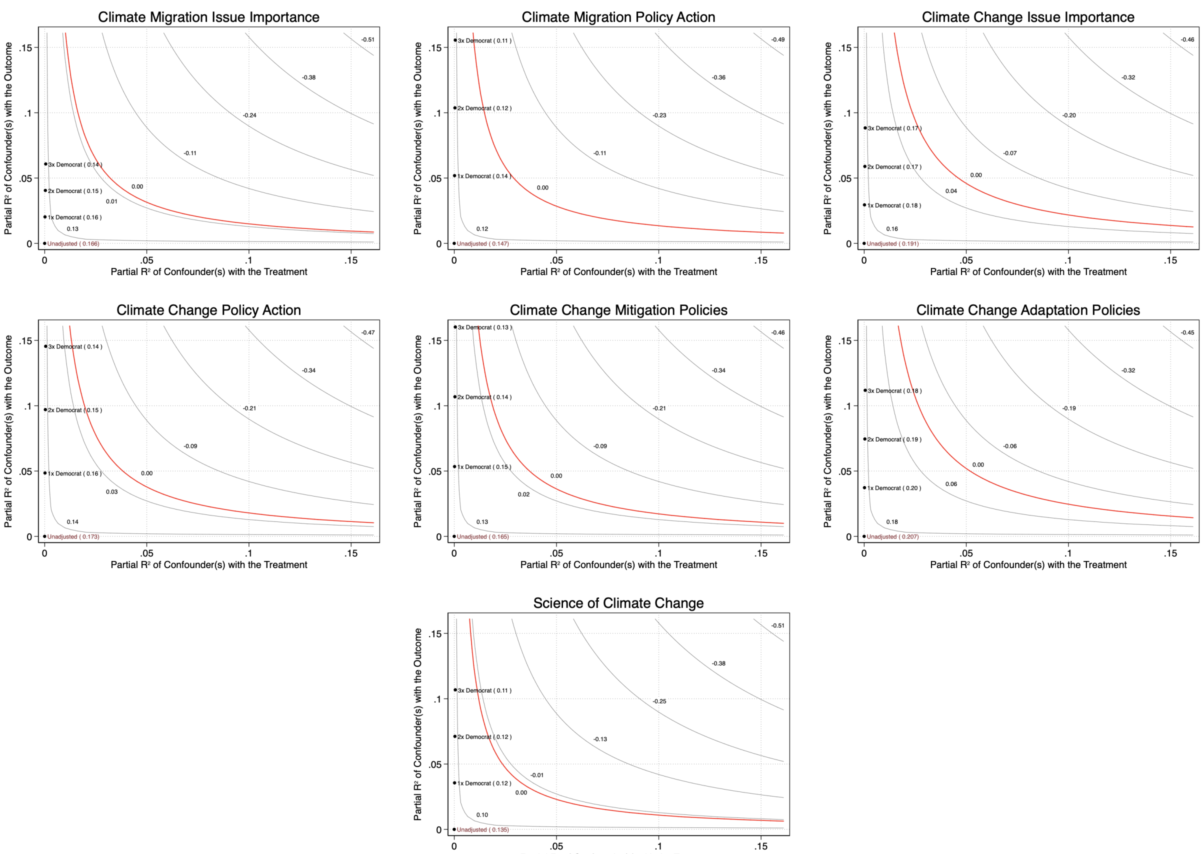
| | Climate Migration | | Climate Change | | Climate Change Policies | | Science of Climate Change |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Hurricane Exposure x Post | 0.087** | 0.094* | 0.126*** | 0.147*** | 0.111** | 0.106 | 0.135*** |
| | (0.039) | (0.050) | (0.036) | (0.042) | (0.052) | (0.067) | (0.039) |
| Observations | 2337 | 2337 | 2337 | 2337 | 2337 | 2337 | 2337 |
| AIC | 6041.552 | 5727.268 | 5897.665 | 5856.198 | 5711.403 | 5918.043 | 5900.961 |
| Exposure Measure: | Index | Index | Index | Index | Index | Index | Index |
| Parameters | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Republican Voteshare x Date of Survey | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Migration x Date of Survey | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Pre-Hurricane Traffic x Date of Survey | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Demographic covariates are partisanship, education, gender, and age. Republican voteshare is the Republican voteshare in the 2020 Presidential election. Migration represents two county-level variables measured in 2021—the internal and international net migration rates. Pre-hurricane traffic is the number of population-normalized, hurricane evacuation-related traffic hazards in the three days before Hurricane Ian made landfall. Estimates are scaled using sampling weights. Full tabular results are in Table D-28.

## A.13 Sensitivity Analyses

Our analyses rely on a selection on observables assumption—that hurricane exposure is "as-if" random conditional on pre-treatment covariates. As we note in the manuscript, this assumption seems reasonable because Hurricane Ian's exact track and severity were a function of climatological factors. Nevertheless, we conduct sensitivity tests to probe this assumption in greater depth. First, in Figure A-7 we use a test proposed by Cinelli and Hazlett (2020), which helps assess the sensitivity of the results by re-estimating the effect of hurricane exposure at varying degrees of postulated confounding and benchmarking confounding against observed covariates.

Figure A-7: Cinelli and Hazlett (2020) Tests for Sensitivity to Unobserved Selection




*Note*: Solid gray contour lines denote estimated effects of hurricane exposure at varying degrees of postulated confounding. On the x-axis, confounding is indexed by the proportion of residual variance in treatment it can explain. On the y-axis, confounding is indexed by the proportion of residual variance in the outcome it can explain. The solid red line shows the combination of these strengths at which confounding explains away the entire effect of hurricane exposure. Point estimates denote benchmark bounds, where bounds represent how confounding as strong as observed covariates would alter the estimate.

Across outcomes, we find that the results are unlikely to be driven by unobserved confounding. Even a confounder three times stronger than Democratic partisanship would not be sufficient to reduce the estimated effect of hurricane exposure to 0. Partisanship is the strongest predictor of climate attitudes in the U.S. context, so these results are telling. Any confounding able to attenuate our findings would need to explain much more variation in hurricane exposure and climate beliefs than is explained by partisanship, the most theoretically-important covariate. Additionally, the plots show that Democratic partisanship has a weak conditional relationship with hurricane exposure. This reinforces our argument that demographic imbalances pre- and post-storm are unlikely to bias the results.

Second, following Oster (2019), we compute additional bounds. Table A-13 reports Oster's $\delta$ for the core estimations from Table 2 based on a maximum $R^2$ of 1.3 $\times$ observed $R^2$. Negative values of $\delta$ are uninformative about the magnitude of bias needed to attrite the results, but they do suggest that the findings are unlikely to be driven by omitted variables, since adding controls strengthens the estimates (Graham, Miller and Strøm 2017, p. 700).

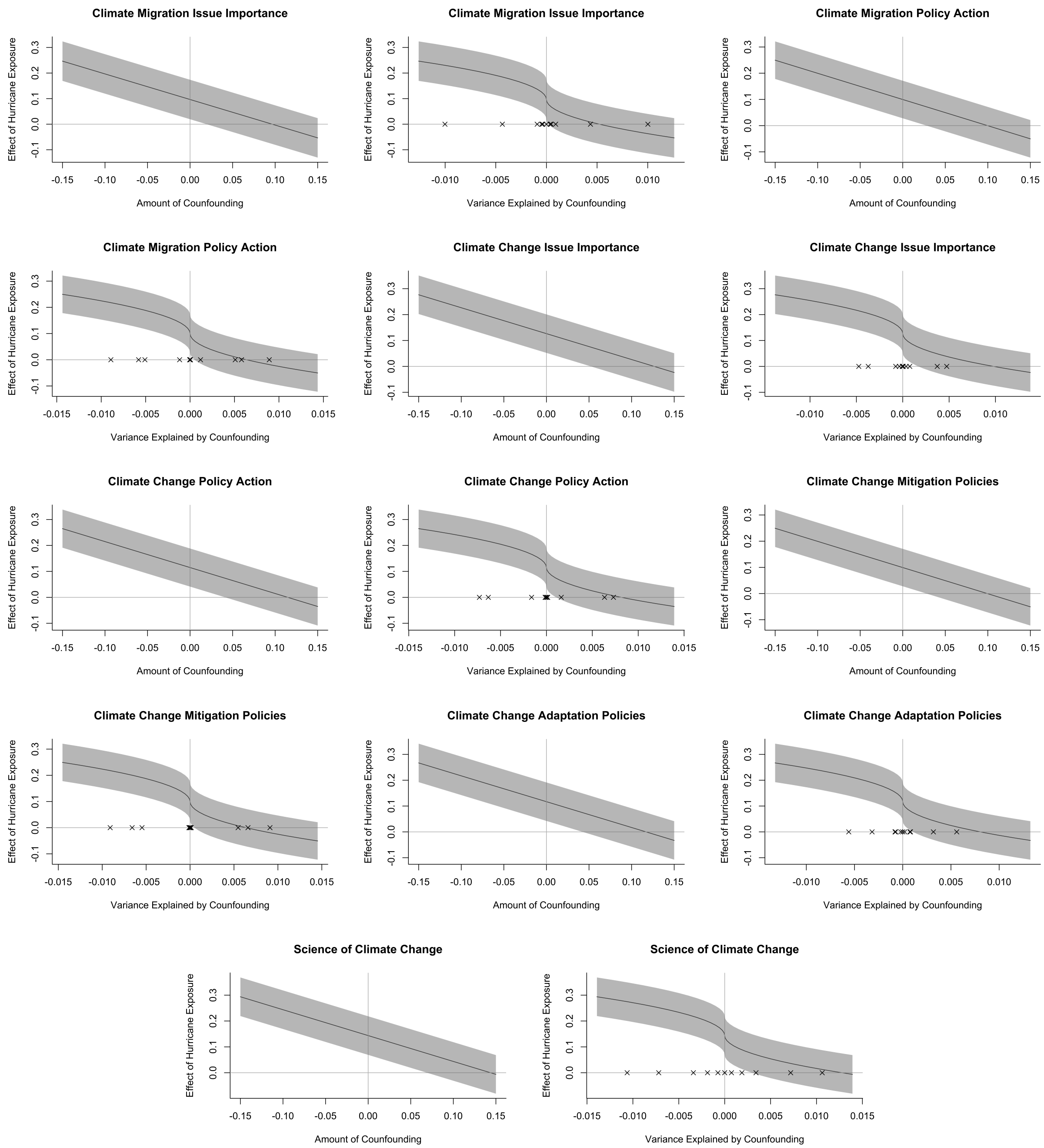
Table A-13: Sensitivity Analysis of Hurricane Exposure and Climate Attitudes

| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Hurricane Exposure x Post | 0.097*** | 0.100*** | 0.127*** | 0.115*** | 0.099** | 0.117** | 0.144*** |
| | (0.034) | (0.038) | (0.036) | (0.041) | (0.042) | (0.050) | (0.033) |
| Republican | -0.071 | -0.208*** | -0.371*** | -0.327*** | -0.124 | 0.078 | -0.218*** |
| | (0.060) | (0.060) | (0.070) | (0.071) | (0.084) | (0.073) | (0.078) |
| Democrat | 0.387*** | 0.564*** | 0.421*** | 0.525*** | 0.534*** | 0.508*** | 0.458*** |
| | (0.056) | (0.045) | (0.061) | (0.068) | (0.087) | (0.081) | (0.079) |
| Woman | -0.050 | -0.128** | 0.008 | -0.051 | -0.127*** | -0.087* | -0.066 |
| | (0.043) | (0.049) | (0.048) | (0.046) | (0.041) | (0.046) | (0.042) |
| High School Graduate | 0.153 | 0.086 | 0.146 | 0.307*** | 0.013 | 0.164 | 0.167 |
| | (0.098) | (0.128) | (0.110) | (0.116) | (0.131) | (0.146) | (0.107) |
| College Graduate | 0.174 | 0.255** | 0.222** | 0.461*** | 0.077 | 0.173 | 0.236* |
| | (0.113) | (0.113) | (0.109) | (0.120) | (0.124) | (0.142) | (0.121) |
| Age | -0.004** | -0.014*** | -0.004** | -0.006*** | -0.017*** | -0.015*** | -0.011*** |
| | (0.002) | (0.002) | (0.002) | (0.002) | (0.001) | (0.001) | (0.002) |
| Oster's $\delta$ | -32.195 | -3.015 | -4.406 | -10.100 | -3.265 | -24.425 | -6.451 |
| Observations | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 |
| AIC | 6730.863 | 6352.160 | 6538.499 | 6479.597 | 6340.321 | 6550.146 | 6557.760 |
| Exposure Measure: | Index | Index | Index | Index | Index | Index | Index |
| Parameters | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall. Exposure is a continuous, z-standardized index combining information on Ian's eyepath, windswath, and storm surge. Estimates are scaled using sampling weights.

Third, in Figure A-8 we use a test proposed by Blackwell (2014) to analyze the size of an effect an unobserved variable would have to exert to explain away the treatment effect. We produce two plots for each outcome—one that depicts the effect as a function of the raw confounding, and another that depicts the effect as a function of the direction of confounding multiplied by the proportion of remaining variance explained by confounding. Across outcomes, the strength of raw confounding must be at least as large as the effect of Hurricane Ian in order to attenuate the results. Similarly, an omitted variable would have to explain more variance in climate attitudes than Democratic partisanship, and three-quarters as much variation in attitudes as all county fixed effects combined to explain away the results.

Figure A-8: Blackwell (2014) Tests for Sensitivity to Unobserved Selection




*Note*: Solid gray bands denote 95% confidence intervals. For each of the core outcomes, we offer two plots: (1) one that depicts the effect as a function of the raw confounding; and (2) another that depicts the effect as a function of the direction of confounding multiplied by the proportion of remaining variance explained by confounding.

## A.14 Hurricane Ida Placebo

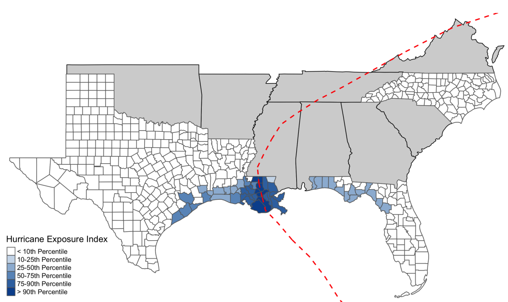
Hurricane Ian was the most powerful storm of the 2022 Atlantic hurricane season. As a placebo test, we use data on the eyepath, windswath, and storm surge of Hurricane Ida, the most powerful storm of the 2021 Atlantic hurricane season. Hurricane Ida made landfall in Louisiana, with storm effects from coastal Texas to the Florida Panhandle (Figure A-9). Counties exposed to Hurricane Ida should be similar to counties exposed to Hurricane Ian. However, we anticipate no distinguishable positive effects of Hurricane Ida on climate attitudes, conditioning on exposure to Hurricane Ian. Table A-14 shows little effect of Hurricane Ida. Wald tests reveal all differences in effects of Ian versus Ida are statistically distinguishable except in column 2, where the difference is marginally imprecise (p = 0.171).

Table A-14: Hurricane Exposure and Climate Attitudes in Hurricane Ida-Exposed Counties

| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Hurricane Ida Exposure x Post | -0.097* | 0.035 | -0.042 | -0.029 | 0.004 | 0.002 | -0.064 |
| | (0.052) | (0.052) | (0.056) | (0.061) | (0.041) | (0.048) | (0.043) |
| Hurricane Ian Exposure x Post | 0.079** | 0.106*** | 0.119*** | 0.110** | 0.100** | 0.117** | 0.132*** |
| | (0.034) | (0.041) | (0.039) | (0.042) | (0.045) | (0.053) | (0.037) |
| Observations | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 | 2563 |
| AIC | 6729.516 | 6353.644 | 6539.808 | 6481.277 | 6342.315 | 6552.143 | 6558.218 |
| Exposure Measure: | Index | Index | Index | Index | Index | Index | Index |
| PARAMETERS | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Hurricane Ian exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Hurricane Ida exposure is a continuous, z-standardized index combining information on Hurricane Ida's eyepath, windswath, and storm surge. Demographic covariates are partisanship, education, gender, and age. Estimates are scaled using sampling weights. Full tabular results are in Table D-29.

Figure A-9: Mapping Hurricane Ida Exposure



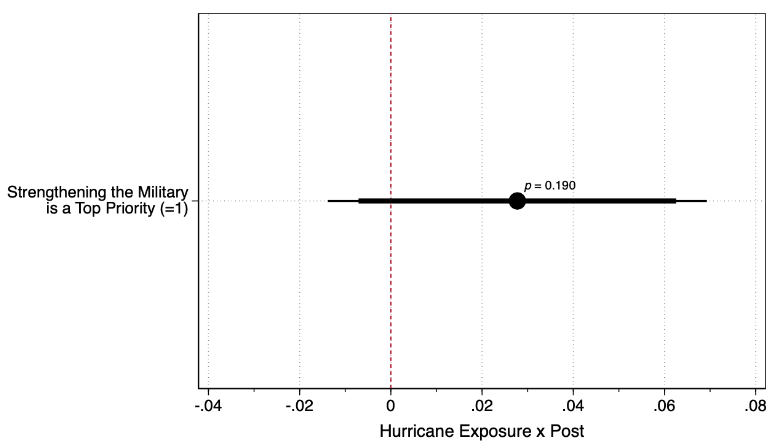

*Note*: Shading corresponds to the legend in the bottom left of the plot. Bins represent percentiles of the hurricane exposure index for values greater than the minimum of the index The dashed red line marks the eyepath of Hurricane Ida.

## A.15 Survey-Based Placebo

We also asked respondents how important they perceived four additional policy issues to be: strengthening the U.S. military, strengthening the U.S. economy, strengthening the U.S. healthcare system, and addressing migration. We believe that one of these outcomes—strengthening the U.S. military—is likely to be unaffected by hurricane exposure. Unlike other possible placebos, strengthening the military is unlikely to be affected by hurricane exposure because the military plays little role in hurricane response, and a stronger military would still be unable to control climatic change. In contrast, hurricanes have substantial impacts on infrastructure and the economy, on fatalities and health, and on displacement. These relationships raise questions about the viability of using other questions we included (e.g., on the economy, healthcare, migration) as placebos.

Taking our focal specification from Table 2, we re-estimate our core models while studying perceived issue importance of strengthening the U.S. military. Again, this placebo outcome is one which we expect to be unaffected by hurricane exposure. Studying this placebo helps us diagnose whether our estimates are capturing true effects or bias. We find no evidence that Hurricane Ian increased support for strengthening the U.S. military ($\beta$ = 0.028; 95% CI: = [-0.014, 0.069]). We also do not find that hurricane exposure increased perceived importance of strengthening the economy ($\beta$ = 0.023; 95% CI: = [-0.015, 0.060]), but it did increase support for addressing migration ($\beta$ = 0.087; 95% CI: = [0.053, 0.121]) and strengthening the healthcare system ($\beta$ = 0.058; 95% CI: = [0.003, 0.113]). These latter effects are unsurprising.

Figure A-10: Issue Importance of Strengthening the U.S. Military



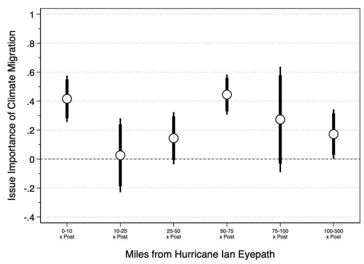

*Note*: Bars are 90 and 95% confidence intervals. The estimate shows the effect of hurricane exposure on attitudes. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Estimations include covariates from Table 2. The dashed red line marks 0. Full tabular results are in Table D-30.

## A.16 Effect Decay by Distance from Hurricane Eyepath

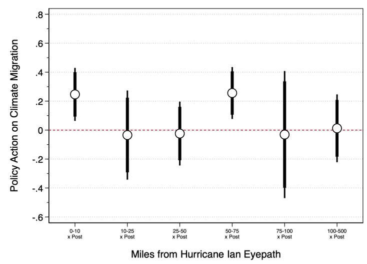
In Figure A-11, we examine how effects vary with distance from Hurricane Ian. Using the focal specification from Table 2, we replace the exposure variable with a series of indicators that measure the minimum distance between each county centroid and Ian's eyepath. Most effects are large and precise along the eyepath, and decay by 100-500 miles.

Figure A-11: Effect Decay at Distance Thresholds

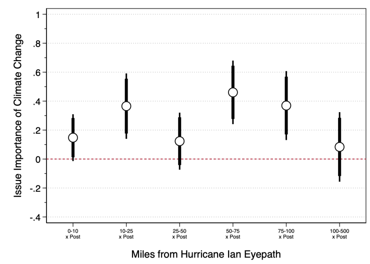
(a) Issue Importance of Climate Migration



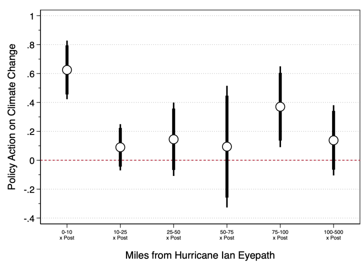

(b) Policy Action on Climate Migration



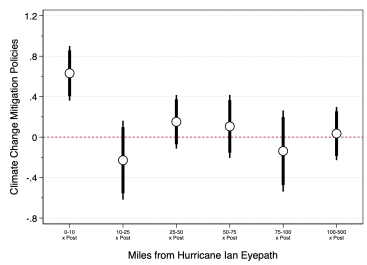

(c) Issue Importance of Climate Change



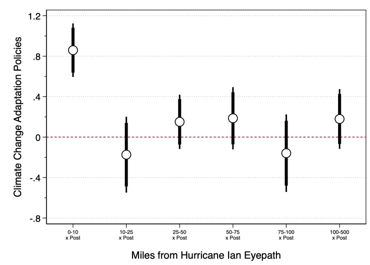

(d) Policy Action on Climate Change



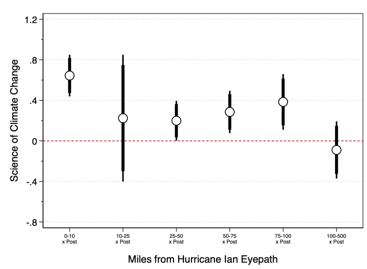

(e) Climate Change Mitigation Policies




(f) Climate Change Adaptation Policies




(g) Science of Climate Change




*Note*: Bars are 90 and 95% confidence intervals. Estimates show the effect of hurricane exposure on attitudes. Exposure is decomposed into bins representing respondents at different distances from the Hurricane Ian eyepath. Distance bins are denoted on the x-axis. All effects are estimated relative to respondents residing 500-1000 miles from the Hurricane Ian eyepath. Estimations include covariates from Table 2. The dashed red line marks 0. Full tabular results are in Table D-31.

## A.17 Treatment Effect Heterogeneity

We pre-registered expectations about how respondent-level attributes would condition the effects of hurricane exposure. Specifically, we pre-registered heterogeneous effects analyses by: partisanship, gender, education, age, personal experience of hurricanes, personal knowledge of climate migrants, race, religiosity, empathy, income, home ownership, migration status, and strength of community ties. In addition to these respondent-level attributes we also pre-registered a heterogeneous effect analysis by county-level migration rate. We also conduct an exploratory test of effect heterogeneity by county-level Republican voteshare in the 2020 presidential election.

In general, we do not observe systematic heterogeneous effects of treatment, though we do observe systematic differences by respondent income and time in community. In panels A, B, and C of Table A-15 we study partisanship, gender, and age and find few distinguishable differences of hurricane exposure on climate attitudes, though exposure had significantly larger positive effects on belief in the science of climate change for Republicans and men. In panels D, E, and F of Table A-16 we study age, personal experience of hurricanes, and personal knowledge of climate migrants. Older respondents become more supportive of climate change policy action. Past hurricane exposure has no heterogeneous impact. Effects of Hurricane Ian on support for climate change policy action, mitigation, and adaptation is larger for those who do not know climate migrants. In panels G, H, and I of Table A-17 we study race, religiosity, and empathy. Hurricane Ian had a larger positive effect on climate migration policy action among non-White and non-religious people. The hurricane also increased the issue importance of climate change among non-White respondents, and the issue importance of climate migration and support for climate change adaptation among non-religious respondents. No distinguishable effects emerge by empathy.

In panels J, K, and L of Table A-18 we study income, home ownership, and migration status. Among low-income respondents, Hurricane Ian had a larger positive effect on climate migration policy action, climate change issue importance and policy action, climate change mitigation and adaptation policies, and belief in the science of climate change. The hurricane increased support for climate change adaptation more among home owners, and increased support for climate change mitigation more among non-native born respondents. Finally, in panels M, N, and O of Table A-19 we study time in community, Republican voteshare, and migration rate. Among respondents with a longer time living in their community, Hurricane Ian had a larger positive effect on climate migration issue importance, climate change policy action, climate change mitigation and adaptation policies, and belief in the science of climate change. The hurricane increased support for climate migration issue importance and policy action and climate change issue importance more in counties that President Trump lost in 2020. The hurricane also increased support for climate change adaptation more in counties experiencing net domestic out-migration.

## Table A-15: Heterogeneous Effects of Hurricane Exposure on Climate Attitudes

**Panel A: Heterogeneity by Partisanship**

| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Democrats | 0.100 | 0.087* | 0.093 | 0.102 | 0.155** | 0.185** | 0.006 |
| | (0.073) | (0.052) | (0.058) | (0.071) | (0.066) | (0.075) | (0.071) |
| Republicans | 0.071 | 0.077 | 0.136** | 0.101 | 0.079 | 0.058 | 0.220*** |
| | (0.063) | (0.057) | (0.053) | (0.063) | (0.053) | (0.068) | (0.043) |
| **Difference** | **0.029** | **0.011** | **-0.042** | **0.001** | **0.076** | **0.128** | **-0.214**** |
| | **(0.097)** | **(0.077)** | **(0.079)** | **(0.095)** | **(0.085)** | **(0.101)** | **(0.083)** |

**Panel B: Heterogeneity by Gender**

| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Women | 0.129** | 0.083 | 0.157*** | 0.102** | 0.107** | 0.157*** | 0.066 |
| | (0.043) | (0.052) | (0.057) | (0.049) | (0.045) | (0.055) | (0.058) |
| Men | 0.069 | 0.123** | 0.112** | 0.107 | 0.094 | 0.078 | 0.241*** |
| | (0.057) | (0.058) | (0.048) | (0.081) | (0.079) | (0.086) | (0.060) |
| **Difference** | **0.060** | **-0.040** | **0.045** | **-0.005** | **0.014** | **0.079** | **-0.175*** |
| | **(0.075)** | **(0.087)** | **(0.090)** | **(0.091)** | **(0.086)** | **(0.100)** | **(0.083)** |

**Panel C: Heterogeneity by Education**

| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| College Educated | 0.025 | -0.035 | 0.084 | 0.096 | 0.050 | 0.049 | 0.098 |
| | (0.113) | (0.110) | (0.092) | (0.061) | (0.071) | (0.055) | (0.077) |
| Not College Educated | 0.102** | 0.143** | 0.141*** | 0.115** | 0.102** | 0.111* | 0.159*** |
| | (0.045) | (0.056) | (0.041) | (0.051) | (0.051) | (0.064) | (0.044) |
| **Difference** | **-0.077** | **-0.178** | **-0.058** | **-0.019** | **-0.052** | **-0.062** | **-0.061** |
| | **(0.103)** | **(0.111)** | **(0.088)** | **(0.083)** | **(0.087)** | **(0.096)** | **(0.082)** |
| PARAMETERS | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Demographic covariates are partisanship, education, gender, and age. Estimates show the effect of Hurricane Exposure x Post in sub-samples defined by the respective trait denoted in the panel title. Estimates are scaled using sampling weights. Full tabular results are in Tables D-32 - D-34.

Table A-16: Heterogeneous Effects of Hurricane Exposure on Climate Attitudes

| | **Panel D: Heterogeneity by Age** | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Young | 0.038 | 0.104** | 0.083 | -0.019 | 0.076 | 0.125 | 0.074 |
| | (0.062) | (0.049) | (0.068) | (0.071) | (0.078) | (0.077) | (0.083) |
| Old | 0.088* | 0.068 | 0.136*** | 0.158*** | 0.080* | 0.093* | 0.154*** |
| | (0.049) | (0.047) | (0.044) | (0.058) | (0.043) | (0.055) | (0.036) |
| **Difference** | **-0.050** | **0.035** | **-0.053** | **-0.176*** | **-0.004** | **0.032** | **-0.080** |
| | **(0.089)** | **(0.068)** | **(0.079)** | **(0.091)** | **(0.086)** | **(0.093)** | **(0.086)** |
| | **Panel E: Heterogeneity by Personal Experience of Hurricanes** | | | | | | |
| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Personal Experience | 0.119* | 0.054 | 0.223** | 0.069 | 0.188*** | 0.179** | 0.122 |
| | (0.068) | (0.059) | (0.091) | (0.076) | (0.066) | (0.071) | (0.083) |
| No Personal Experience | 0.029 | 0.100* | 0.082* | 0.142** | 0.090 | 0.119 | 0.135*** |
| | (0.054) | (0.054) | (0.044) | (0.062) | (0.062) | (0.074) | (0.042) |
| **Difference** | **0.091** | **-0.046** | **0.141** | **-0.074** | **0.098** | **0.061** | **-0.013** |
| | **(0.103)** | **(0.101)** | **(0.093)** | **(0.117)** | **(0.115)** | **(0.135)** | **(0.088)** |
| | **Panel F: Heterogeneity by Personal Knowledge of Climate Migrants** | | | | | | |
| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Personally Know | 0.037 | -0.008 | 0.113 | -0.021 | -0.037 | -0.040 | 0.055 |
| | (0.098) | (0.067) | (0.110) | (0.053) | (0.044) | (0.062) | (0.090) |
| Don't Personally Know | 0.121** | 0.121** | 0.123*** | 0.141** | 0.124** | 0.156** | 0.165*** |
| | (0.059) | (0.061) | (0.041) | (0.058) | (0.054) | (0.064) | (0.038) |
| **Difference** | **-0.084** | **-0.130** | **-0.010** | **-0.162*** | **-0.160*** | **-0.196*** | **-0.110** |
| | **(0.111)** | **(0.104)** | **(0.095)** | **(0.097)** | **(0.088)** | **(0.108)** | **(0.082)** |
| PARAMETERS | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Demographic covariates are partisanship, education, gender, and age. Estimates show the effect of Hurricane Exposure x Post in sub-samples defined by the respective trait denoted in the panel title. Estimates are scaled using sampling weights. Full tabular results are in Tables D-35 - D-37.

Table A-17: Heterogeneous Effects of Hurricane Exposure on Climate Attitudes

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Panel G: Heterogeneity by Race** | | | | | | |
| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| White | 0.059<br>(0.045) | 0.053<br>(0.035) | 0.098**<br>(0.042) | 0.080*<br>(0.040) | 0.085*<br>(0.039) | 0.090**<br>(0.040) | 0.114***<br>(0.031) |
| Non-White | 0.180**<br>(0.087) | 0.290***<br>(0.082) | 0.264***<br>(0.084) | 0.217**<br>(0.103) | 0.110<br>(0.099) | 0.164<br>(0.136) | 0.186<br>(0.126) |
| **Difference** | **-0.121**<br>**(0.097)** | **-0.238*****<br>**(0.080)** | **-0.166***<br>**(0.092)** | **-0.138**<br>**(0.094)** | **-0.025**<br>**(0.090)** | **-0.073**<br>**(0.104)** | **-0.071**<br>**(0.088)** |
| | **Panel H: Heterogeneity by Religiosity** | | | | | | |
| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Religious | -0.020<br>(0.043) | 0.003<br>(0.055) | 0.085<br>(0.080) | 0.041<br>(0.059) | 0.036<br>(0.068) | 0.014<br>(0.059) | 0.075<br>(0.052) |
| Not Religious | 0.161***<br>(0.052) | 0.160***<br>(0.058) | 0.140***<br>(0.037) | 0.140**<br>(0.056) | 0.161***<br>(0.050) | 0.188***<br>(0.070) | 0.175***<br>(0.042) |
| **Difference** | **-0.181****<br>**(0.089)** | **-0.157***<br>**(0.087)** | **-0.055**<br>**(0.078)** | **-0.099**<br>**(0.086)** | **-0.125**<br>**(0.084)** | **-0.174***<br>**(0.103)** | **-0.101**<br>**(0.068)** |
| | **Panel I: Heterogeneity by Empathy** | | | | | | |
| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Empathetic | 0.076<br>(0.062) | 0.089<br>(0.059) | 0.060<br>(0.061) | 0.101**<br>(0.048) | 0.078<br>(0.054) | 0.097*<br>(0.055) | 0.063<br>(0.051) |
| Not Empathetic | 0.099**<br>(0.044) | 0.070*<br>(0.041) | 0.135**<br>(0.054) | 0.079<br>(0.064) | 0.084<br>(0.070) | 0.085<br>(0.093) | 0.182**<br>(0.070) |
| **Difference** | **-0.023**<br>**(0.079)** | **0.019**<br>**(0.075)** | **-0.075**<br>**(0.083)** | **0.023**<br>**(0.079)** | **-0.006**<br>**(0.087)** | **0.013**<br>**(0.104)** | **-0.119**<br>**(0.084)** |
| PARAMETERS | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Demographic covariates are partisanship, education, gender, and age. Estimates show the effect of Hurricane Exposure x Post in sub-samples defined by the respective trait denoted in the panel title. Estimates are scaled using sampling weights. Full tabular results are in Tables D-38 - D-40.

Table A-18: Heterogeneous Effects of Hurricane Exposure on Climate Attitudes

| | **Panel J: Heterogeneity by Income** | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Low Income | 0.120** | 0.143** | 0.234*** | 0.204*** | 0.168*** | 0.216*** | 0.262*** |
| | (0.056) | (0.063) | (0.042) | (0.056) | (0.047) | (0.075) | (0.051) |
| High Income | 0.027 | 0.003 | 0.018 | 0.008 | -0.015 | -0.061 | -0.014 |
| | (0.060) | (0.051) | (0.067) | (0.053) | (0.055) | (0.041) | (0.040) |
| **Difference** | **0.093** | **0.139*** | **0.216***** | **0.196**** | **0.183**** | **0.277***** | **0.276***** |
| | **(0.082)** | **(0.081)** | **(0.078)** | **(0.077)** | **(0.073)** | **(0.087)** | **(0.065)** |
| | **Panel K: Heterogeneity by Home Ownership** | | | | | | |
| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Homeowner | 0.073 | 0.035 | 0.125** | 0.110* | 0.064 | 0.037 | 0.165*** |
| | (0.059) | (0.052) | (0.048) | (0.056) | (0.048) | (0.052) | (0.044) |
| Non-Homeowner | 0.060 | 0.145* | 0.052 | 0.039 | 0.088 | 0.211*** | 0.088 |
| | (0.071) | (0.075) | (0.087) | (0.058) | (0.057) | (0.064) | (0.072) |
| **Difference** | **0.014** | **-0.109** | **0.073** | **0.071** | **-0.024** | **-0.173**** | **0.077** |
| | **(0.094)** | **(0.088)** | **(0.092)** | **(0.084)** | **(0.075)** | **(0.083)** | **(0.079)** |
| | **Panel L: Heterogeneity by Migration Status** | | | | | | |
| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Native Born | 0.064* | 0.092** | 0.106** | 0.087** | 0.113*** | 0.134*** | 0.120*** |
| | (0.038) | (0.038) | (0.041) | (0.042) | (0.035) | (0.044) | (0.038) |
| Non-Native Born | 0.321** | -0.007 | 0.309** | 0.152 | -0.178 | -0.139 | 0.366*** |
| | (0.154) | (0.137) | (0.146) | (0.110) | (0.160) | (0.161) | (0.093) |
| **Difference** | **-0.257** | **0.099** | **-0.203** | **-0.065** | **0.291**** | **0.273** | **-0.246** |
| | **(0.158)** | **(0.156)** | **(0.168)** | **(0.171)** | **(0.148)** | **(0.183)** | **(0.154)** |
| PARAMETERS | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Demographic covariates are partisanship, education, gender, and age. Estimates show the effect of Hurricane Exposure x Post in sub-samples defined by the respective trait denoted in the panel title. Estimates are scaled using sampling weights. Full tabular results are in Tables D-41 - D-43.

Table A-19: Heterogeneous Effects of Hurricane Exposure on Climate Attitudes

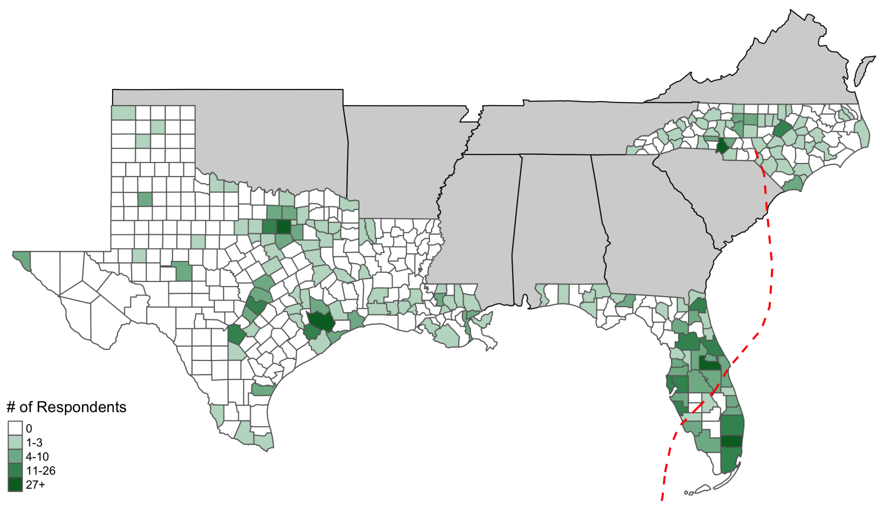
| | Climate Migration | | Climate Change | | Climate Change Policies | | Science of Climate Change |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| **Panel M: Heterogeneity by Time in Community** | | | | | | | |
| Long Time in Community | 0.171*** | 0.111* | 0.144*** | 0.222*** | 0.176*** | 0.196*** | 0.235*** |
| | (0.059) | (0.056) | (0.050) | (0.068) | (0.058) | (0.066) | (0.055) |
| Short Time in Community | 0.050 | 0.069* | 0.101 | 0.014 | 0.007 | 0.012 | 0.058 |
| | (0.043) | (0.036) | (0.065) | (0.047) | (0.043) | (0.048) | (0.061) |
| **Difference** | **0.122*** | **0.042** | **0.043** | **0.207***** | **0.169**** | **0.184**** | **0.177**** |
| | **(0.072)** | **(0.065)** | **(0.086)** | **(0.080)** | **(0.071)** | **(0.080)** | **(0.084)** |
| **Panel N: Heterogeneity by 2020 Trump Vote** | | | | | | | |
| Trump Won | 0.007 | 0.031 | 0.044 | 0.084* | 0.099** | 0.113* | 0.140*** |
| | (0.041) | (0.041) | (0.041) | (0.048) | (0.050) | (0.066) | (0.038) |
| Trump Lost | 0.212*** | 0.197*** | 0.248*** | 0.173** | 0.071 | 0.118 | 0.124 |
| | (0.048) | (0.060) | (0.048) | (0.083) | (0.066) | (0.093) | (0.078) |
| **Difference** | **-0.205***** | **-0.166*** | **-0.204***** | **-0.089** | **0.028** | **-0.005** | **0.015** |
| | **(0.071)** | **(0.085)** | **(0.070)** | **(0.116)** | **(0.095)** | **(0.132)** | **(0.108)** |
| **Panel O: Heterogeneity by 2021 Domestic Migration Rate** | | | | | | | |
| Net Inflows | 0.062 | 0.055 | 0.118*** | 0.103** | 0.076 | 0.067 | 0.104*** |
| | (0.038) | (0.040) | (0.042) | (0.040) | (0.046) | (0.055) | (0.035) |
| Net Outflows | 0.141 | 0.108 | 0.166 | 0.215* | 0.157 | 0.294*** | 0.052 |
| | (0.118) | (0.174) | (0.107) | (0.124) | (0.105) | (0.088) | (0.140) |
| **Difference** | **-0.079** | **-0.053** | **-0.049** | **-0.112** | **-0.081** | **-0.227**** | **0.052** |
| | **(0.116)** | **(0.167)** | **(0.109)** | **(0.122)** | **(0.109)** | **(0.100)** | **(0.135)** |
| PARAMETERS | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Demographic covariates are partisanship, education, gender, and age. Estimates show the effect of Hurricane Exposure x Post in sub-samples defined by the respective trait denoted in the panel title. Estimates are scaled using sampling weights. Full tabular results are in Tables D-44 - D-46.

## A.18 Six Month Follow-Up Survey

In March 2023 we conducted a follow-up study on a new sample of respondents to assess the durability of the core effects. Figure A-12 maps respondents in our follow-up survey. Table A-20 estimates the effects of hurricane exposure in the follow-up sample. All estimates are null. Table A-21 presents the focal difference-in-differences estimates with follow-up respondents included in the overall sample. All estimates remain large and precise.

Figure A-12: Geographic Distribution of Follow-Up Survey Respondents




*Note*: Shading corresponds to the legend in the bottom left of the plot. The dashed red line marks the eyepath of Hurricane Ian.

Table A-20: Hurricane Exposure and Climate Attitudes in Follow-Up Sample

| | Climate Migration | | Climate Change | | Climate Change Policies | | Science of Climate Change |
|---|---|---|---|---|---|---|---|
| | (1) Issue Importance | (2) Policy Action | (3) Issue Importance | (4) Policy Action | (5) Mitigation | (6) Adaptation | (7) Science |
| Hurricane Exposure | 0.083 | -0.045 | -0.004 | 0.043 | -0.001 | 0.005 | 0.020 |
| | (0.052) | (0.055) | (0.059) | (0.066) | (0.064) | (0.070) | (0.060) |
| Observations | 715 | 715 | 715 | 715 | 715 | 715 | 715 |
| AIC | 1956.091 | 1913.121 | 1898.255 | 1849.960 | 1898.349 | 1913.596 | 1902.986 |
| Exposure Measure: | Index | Index | Index | Index | Index | Index | Index |
| Parameters | | | | | | | |
| State FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Estimates are scaled using sampling weights. Full tabular results are in Table D-47.

Table A-21: Hurricane Exposure and Climate Attitudes with Follow-Up Responses

| | **Climate Migration** | | **Climate Change** | | **Climate Change Policies** | | **Science of Climate Change** |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| | Issue Importance | Policy Action | Issue Importance | Policy Action | Mitigation | Adaptation | Science |
| Hurricane Exposure x Post | 0.077*** | 0.066** | 0.093*** | 0.106*** | 0.059* | 0.070* | 0.090** |
| | (0.026) | (0.030) | (0.033) | (0.038) | (0.033) | (0.039) | (0.039) |
| Observations | 3278 | 3278 | 3278 | 3278 | 3278 | 3278 | 3278 |
| AIC | 8616.549 | 8217.697 | 8349.989 | 8267.165 | 8154.080 | 8409.540 | 8418.970 |
| Exposure Measure: | Index | Index | Index | Index | Index | Index | Index |
| PARAMETERS | | | | | | | |
| County FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Date of Survey FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Demographic Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

*Note*: * p <.10, ** p <.05, *** p <.01. Robust, county-clustered standard errors are in parentheses. Post is an indicator for all dates on or after September 28, 2022, when Hurricane Ian made landfall in the United States. Exposure is a continuous, z-standardized index combining information on Hurricane Ian's eyepath, windswath, and storm surge. Estimates are scaled using sampling weights. Full tabular results are in Table D-48.

# References for Supplementary Materials


Abadie, Alberto, Susan Athey, Guido W. Imbens and Jeffrey M. Wooldridge. 2023. "When Should You Adjust Standard Errors for Clustering?" *The Quarterly Journal of Economics* 138(1):1–35.

Behrer, A. Patrick and Valentin Bolotnyy. 2023. "Moving to Adaptation? Understanding the Migratory Response to Hurricanes in the United States." *World Bank Policy Research Working Paper* 10528:1–41.

Blackwell, Matthew. 2014. "A Selection Bias Approach to Sensitivity Analysis for Causal Effects." *Political Analysis* 22(2):169–182.

Borusyak, Kirill, Xavier Jaravel and Jann Spiess. 2022. "Revisiting Event Study Designs: Robust and Efficient Estimation." University College London.

Callaway, Brantly, Andrew Goodman-Bacon and Pedro H.C. Sant'Anna. 2021. "Difference-in-Differences with a Continuous Treatment." University of Georgia.

Cambridge Systematics. 2021. *Florida Statewide Regional Evacuation Study Program: Regional Behavioral Analysis*. Northeast Florida Regional Planning Council.

Carling, Jørgen and Kerilyn Schewel. 2018. "Revisiting aspiration and ability in international migration." *Journal of Ethnic and Migration Studies* 44(6):945–963.

Cinelli, Carlos and Chad Hazlett. 2020. "Making sense of sensitivity: extending omitted variable bias." *Journal of the Royal Statistical Society Series B: Statistical Methodology* 82(1):39–67.

Florida Division of Emergency Management. 2022. "State Emergency Response Team WAZE Alerts – Hurricane Ian." https://floridadisaster.maps.arcgis.com/apps/webappviewer/index.html?id=aefa8c511ff44552b1455a15438cdcf7.

Getmansky, Anna, Guy Grossman and Austin L. Wright. 2019. "Border Walls and Smuggling Spillovers." *Quarterly Journal of Political Science* 14(3):329–347.

Graham, Benjamin A.T., Michael K. Miller and Kaare W. Strøm. 2017. "Safeguarding Democracy: Powersharing and Democratic Survival." *American Political Science Review* 111(4):686–704.

Iacus, Stefano M., Gary King and Giuseppe Porro. 2012. "Causal Inference without Balance Checking: Coarsened Exact Matching." *Political Analysis* 20(1):1–24.

Lindell, Michael K., Jung Eun Kang and Carla S. Prater. 2011. "The logistics of household hurricane evacuation." *Natural Hazards* 58:1093–1109.

MIT Election Data and Science Lab. 2022. "County Presidential Election Returns 2000-2020." https://doi.org/10.7910/DVN/VOQCHQ.

Oster, Emily. 2019. "Unobservable Selection and Coefficient Stability: Theory and Evidence." *Journal of Business Economic Statistics* 37(2):187–204.

Smith, Stanley K. and Chris McCarty. 2009. "Fleeing the Storm(s): An Evaluation of Evacuation Behavior During Florida's 2004 Hurricane Season." *Demography* 46(1):127–145.

US Census Bureau. 2022. "Annual Resident Population Estimates, Estimated Components of Resident Population Change, and Rates of the Components of Resident Population Change for States and Counties: April 1, 2020 to July 1, 2021 (CO-EST2021-ALLDATA)." https://www.census.gov/data/tables/time-series/demo/popest/2020s-counties-total.html.