Online Appendix

Polarization but Not Populism Strengthens the Association Between Presidential Election Results and Emotions

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A The Moderating Effects of Close and Surprising Results

Unforeseen results may induce greater emotional responses as studies in psychology show that unexpected events, both positive and negative, can induce stronger emotional responses (Mellers et al. 1997; Mellers, Schwartz and Ritov 1999; Mellers 2000). Depending on the competitiveness of elections, voters may have their own predictions about election outcomes. Opinion polls leading up to the election help shape their predictions. However, there can be cases where the prediction failed to match the actual outcome. This discrepancy between voters' expectations and the outcome creates an element of surprise. In this section, we explore how close and surprising election outcomes moderate voters' emotional reactions. We do not find strong evidence that these factors systematically condition post-election emotions as ideological polarization does.

In total, we construct three different measures. First, to measure the closeness of elections, we use the margins of victory. To do so, we relied on official election results. We standardized the vote shares of the top two candidates so that they summed to 1.

Next, to measure the extent to which election outcomes were surprising, we use two additional approaches. One is based on expected margins in opinion polls. To collect data on opinion polls, we went to the Wikipedia pages of the presidential elections in our data. When opinion polls data were available on Wikipedia, we checked the source links of these polls to get the data. We focused on up to ten polls that led to the election. After standardizing the expected vote shares of the two candidates so that they summed to 1, we took the average difference between the winner and the loser across all available polls, which serves as a measure of *Poll Prediction*. Greater values in this variable mean that opinion polls predict that the winners were going to win with greater margins. In six elections, including the 2016 US election, this variable takes negative values, meaning that opinion polls predicted the wrong winners.

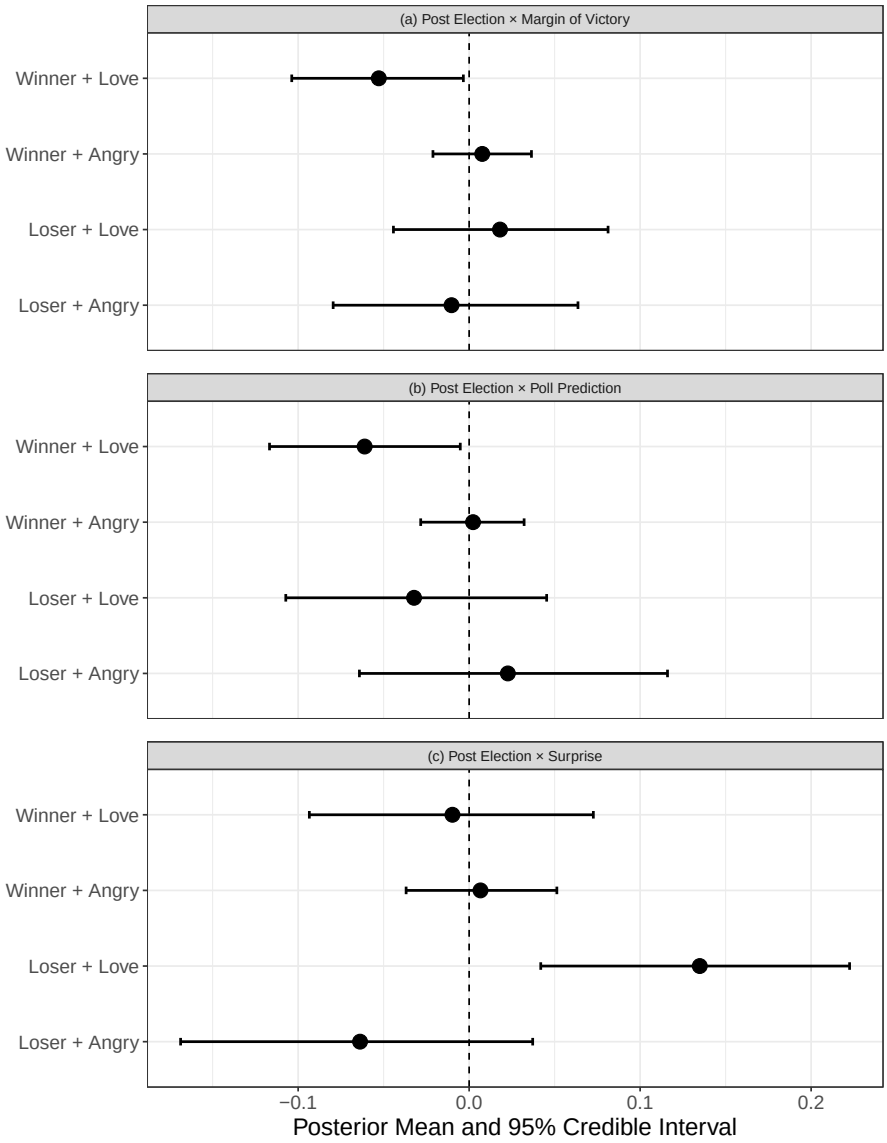
Our other measure of surprising outcomes is based on the difference between expected margins in opinion polls and the actual margins of victory. Hence, the variable *Surprise* is the difference between the second and first measures. Positive values mean that winners obtained higher vote shares than expected whereas negative values indicate that winners' vote shares were lower than expected.

To examine the moderating effects of these three variables, we add interaction terms $Post\ Election \times Margin\ of\ Victory$, $Post\ Election \times Poll\ Prediction$, and $Post\ Election \times Surprise$ to the models summarized in Table M.1 of the main text one by one.

Figure A.1 summarizes these interaction terms retrieved from 12 different models. In each panel, we see that at most one interaction term shows a statistically reliable sign, which already indicates that none of the moderating variables seem to predict post-election emotions in a systematic way.

To give the substantive interpretations of these interaction terms, we show the marginal effects of elections conditional on three measures. First, in Figure A.2, we analyze the marginal effects of elections by the margins of victory. In panels (a) and (c), we see statistically reliable increases (decreases) in the proportion of Love on winners' (losers') pages when presidential races are closer, which is intuitive. By contrast, in panels (b) and (d), we

Figure A.1: The Posterior Estimates of Post Election × Margin of Victory, Post Election × Poll Prediction, and Post Election × Surprise

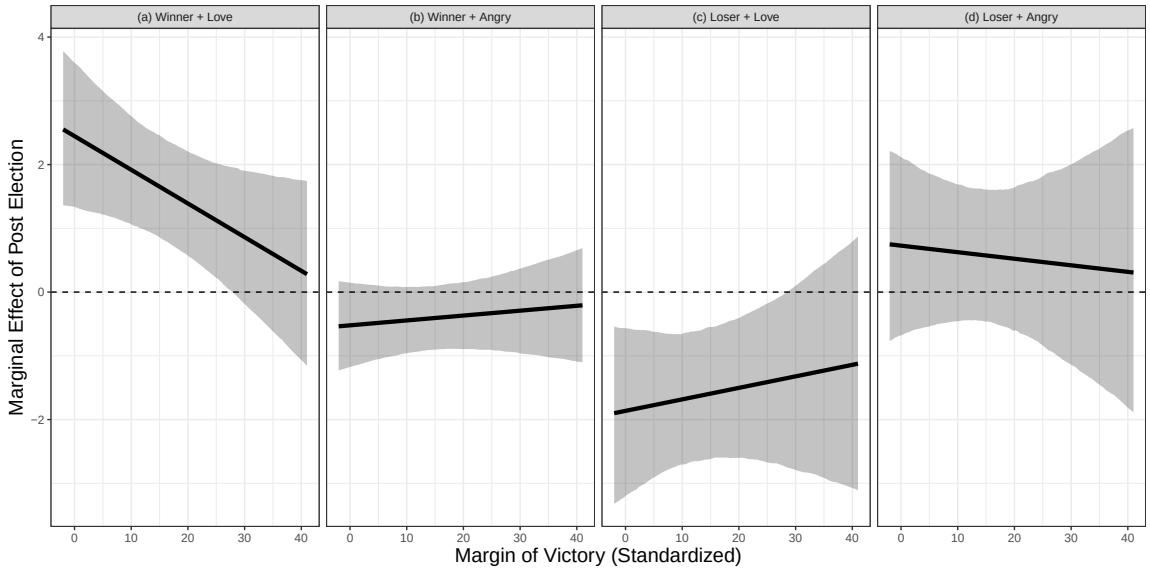


Note: This figure summarizes the interaction terms of *Post Election* × *Margin of Victory* (top panel), *Post Election* × *Poll Prediction* (middle panel), and *Post Election* × *Surprise* (bottom panel). Horizontal bars indicate 95% credible intervals.

fail to find that close elections systematic change how voters respond to election outcomes. Indeed, in these two panels, the marginal effects of elections are not statistically reliable for the entire empirical range of the margins of victory.

Second, in Figure A.3, we examine how poll predictions condition the impact of election. In panel (a), we see that only when opinion polls predict the wrong winner (negative values in the x-axis) or a tight race, the effect of elections on Love proportion is positive and statistically reliable. This may be consistent with what we observed in the 2016 US election. By contrast, panel (b) shows that poll predictions do not seem to moderate the effect of

Figure A.2: The Marginal Effects of Post Election Conditional on the Margins of Victory



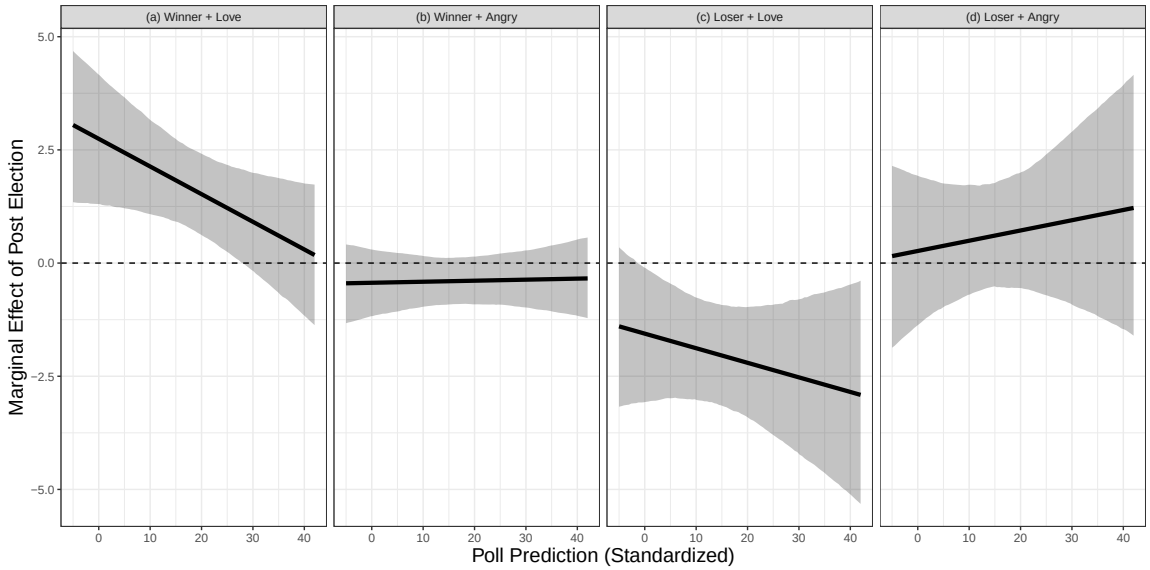
Note: This figure shows the marginal effects of post election on the proportions of Love and Angry on the Facebook pages of winner and losers conditional on the margins of victory. Shaded areas indicate 95% credible intervals.

elections on Angry proportion among winner parties. Further, the moderating effects of poll predictions on losers' emotions are ambiguous. The marginal effects in panels (c) and (d) suggest that the supporters of losing parties tend to respond with greater emotional reactions when opinion polls predict the winning of actual winners with a greater margin, although these estimates are largely unreliable except in a certain range in panel (c). To the extent that one-sided elections should give little surprise, the results of panels (c) and (d) are not consistent with the "surprise" story.

Finally, we analyze the conditional effects of surprising results (i.e., the difference between expected margins in opinion polls and the actual margins of victory) in Figure A.4. In panels (a) and (b), the marginal effects of elections are nearly flat, meaning that there is no strong evidence that surprising outcomes moderate the impact of election results on how the emotional reactions of the supporters of winner parties. By contrast, in panels (c) and (d), we observe that when winners' vote shares are lower than expected, hence their favored candidates perform much better than expected, the supporters of loser parties tend to respond with greater emotional reactions, but only for Love and not for Angry. The directions of these effects may be the opposite of what the "surprise" story predicts. In particular, when their candidates perform better than expected, the supporters of losing parties respond with lower positive emotions.

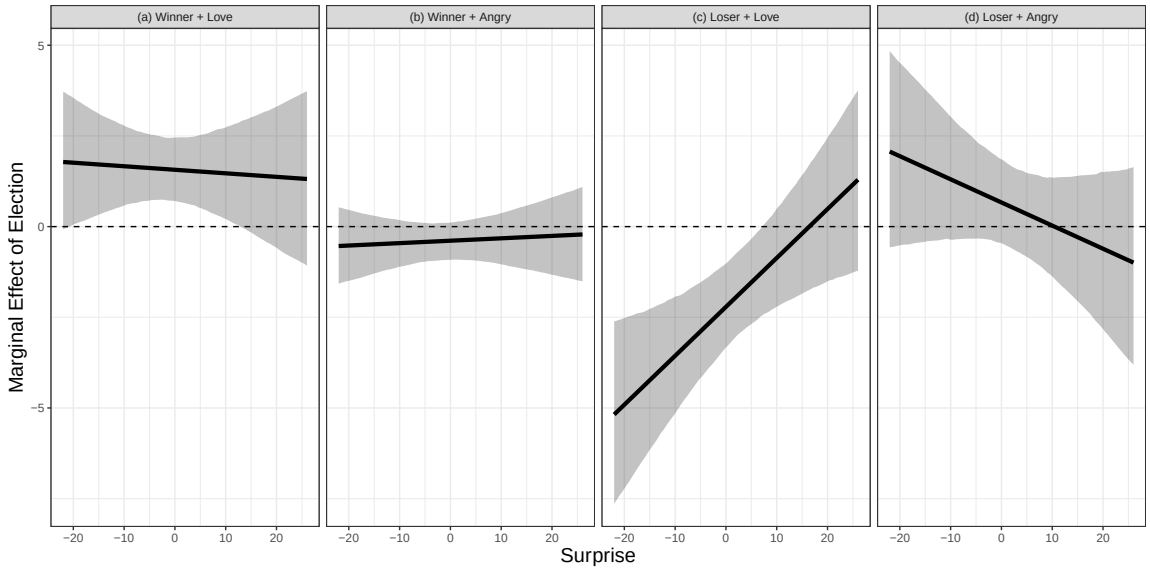
Overall, although close and surprising election results provide some interesting empirical patterns, their effects are not entirely systematic. Unlike ideological polarization, surprising outcomes do not explain clear contrasts in emotional responses among the supporters of winner and loser parties that we observe in Figures 2 and 3 in the main text.

Figure A.3: The Marginal Effects of Post Election Conditional on Opinion Poll Predictions



Note: This figure shows the marginal effects of post election on the proportions of Love and Angry on the Facebook pages of winner and losers conditional on opinion poll predictions. Shaded areas indicate 95% credible intervals.

Figure A.4: The Marginal Effects of Post Election Conditional on Surprising Results



Note: This figure shows the marginal effects of post election on the proportions of Love and Angry on the Facebook pages of winner and losers conditional on surprising outcomes. Shaded areas indicate 95% credible intervals.

B The Vote Shares of the Top Four Presidential Candidates

Figure B.1: The Distribution of Vote Shares in the First Round by Placement (First to Fourth)

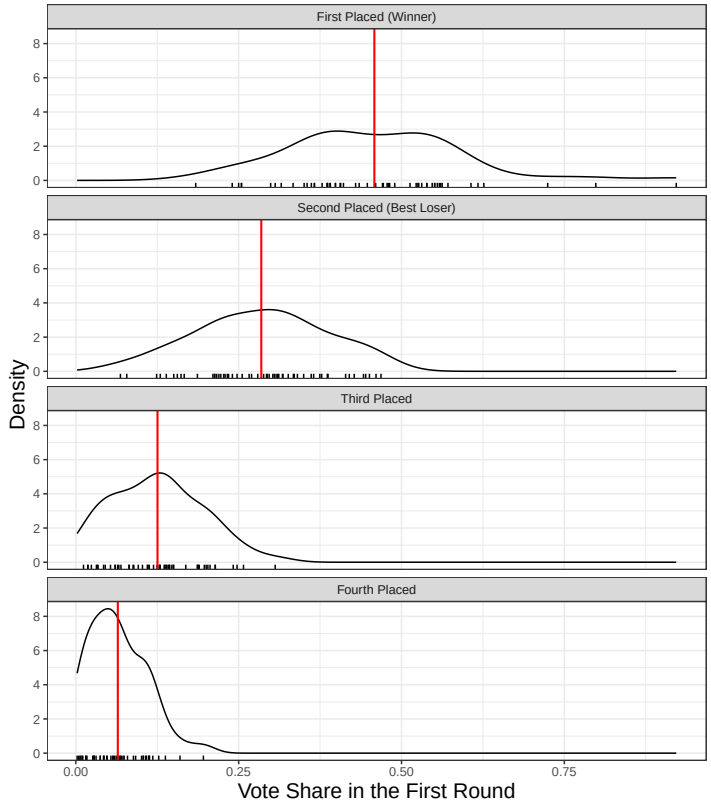


Figure B.1 shows the distribution of vote shares of the first to fourth placed candidates in the first round of presidential races. The average vote shares of the first to fourth placed candidates, indicated by red vertical lines, are 0.46, 0.28, 0.13, 0.06, respectively. The third placed candidates are rarely as competitive as the best losers (second placed candidates).

C Elections and Parties Analyzed in the Data

Tables C.1 and C.2 summarize a full list of presidential elections and parties in this analysis. Winner or loser parties are missing when (1) candidates were independent, (2) parties did not have a Facebook account, or (3) their ideology or populist scores are not available in the GPS (Norris 2019).

Table C.1: Winner Parties and Candidates

Country	Year	Winner Party	Winner Candidate
Argentina	2019	Everyone's Front	Alberto Fernandez
Austria	2016	The Greens	Alexander Van der Bellen
Bosnia Herzegovina (Bosniak)	2018	Party of Democratic Action	Sefik Dzaferovic
Bosnia Herzegovina (Croat)	2018	Democratic Front	Zeljko Komsic
Bosnia Herzegovina (Serb)	2018	Alliance of Independent Social Democrats	Milorad Dodik
Brazil	2018	Social Liberal Party	Jair Bolsonaro
Bulgaria	2016		
Colombia	2018	Democratic Center	Ivan Duque Marquez
Costa Rica	2018	Citizens' Action Party	Carlos Alvarado
Croatia	2019	Social Democratic Party of Croatia	Zoran Milanovic
Cyprus	2018	Democratic Coalition	Nicos Anastasiades
El Salvador	2019	Grand Alliance for National Unity	Nayib Bukele
France	2017	Republic Onwards!	Emmanuel Macron
Georgia	2018	Georgian Dream-Democratic Georgia	Salome Zurabishvili
Indonesia	2019	Indonesian Democratic Party of Struggle	Joko Widodo
Kyrgyzstan	2017	Social Democratic Party	Sooronbay Jeenbekov
Mexico	2018	National Regeneration Movement	Andres Manuel Lopez Obrador
Mongolia	2017	Democratic Party	Khaltmaagiin Battulga
North Macedonia	2019	Social-Democratic League of Macedonia	Stevo Pendarovski
Paraguay	2018	Colorado Party	Mario Abdo Benitez
Peru	2016		
Philippines	2016	Philippine Democratic Party-People's Power	Rodrigo Duterte
Poland	2020	Law and Justice	Andrzej Sebastian Duda
Romania	2019	National Liberal Party	Klaus Iohannis
Slovenia	2017	Social Democrat Party	Borut Pahor
Taiwan	2020	Democratic Progressive Party	Tsai Ing-wen
United States	2016	Republican Party	Donald Trump
United States	2020	Democratic Party	Joe Biden
Uruguay	2019	National Party	Luis Alberto Lacalle Pou

Table C.2: Loser Parties and Candidates

Country	Year	Loser Party	Loser Candidate
Argentina	2019	Together for Change	Mauricio Macri
Austria	2016	Austrian Freedom Party	Norbert Hofer
Bosnia Herzegovina (Bosniak)	2018	Social Democratic Party of Bosnia and Herzegovina	Denis Becirovic
Bosnia Herzegovina (Croat)	2018	Croatian Democratic Union of Bosnia and Herzegovina	Dragan Covic
Bosnia Herzegovina (Serb)	2018	Party of Democratic Progress of the Republika Srpska	Mladen Ivanic
Brazil	2018	Workers' Party	Fernando Haddad
Bulgaria	2016	Citizens for European Development of Bulgaria	Tsetska Tsacheva
Colombia	2018	Progressive Movement	Gustavo Petro
Costa Rica	2018	National Restoration Party	Fabricio Alvarado
Croatia	2019	Croatian Democratic Union	Kolinda Grabar-Kitarovic
Cyprus	2018	Progressive Party of the Working People	Stavros Malas
El Salvador	2019	Nationalist Republican Alliance	Carlos Calleja
France	2017	National Front	Marine Le Pen
Georgia	2018	United National Movement	Grigol Vashadze
Indonesia	2019	Great Indonesia Movement Party	Prabowo Subianto
Kyrgyzstan	2017		
Mexico	2018	National Action Party	Ricardo Anaya
Mongolia	2017	Mongolian People's Party	Miyeegombyn Enkhbold
North Macedonia	2019	VMRO-DPMNE	Gordana Siljanovska-Davkova
Paraguay	2018	Great Renewed National Alliance	Efrain Alegre
Peru	2016	Popular Force	Keiko Fujimori
Philippines	2016	Liberal Party	Mar Roxas
Poland	2020	Civic Platform	Rafal Trzaskowski
Romania	2019	Social Democratic Party	Viorica Dancila
Slovenia	2017		
Taiwan	2020	Chinese Nationalist Party	Han Kuo-yu
United States	2016	Democratic Party	Hillary Clinton
United States	2020	Republican Party	Donald Trump
Uruguay	2019	Broad Front	Daniel MartÃnez

D Descriptive Statistics of Emotional Reactions on Facebook

Table D.1: Descriptive Statistics of Seven Emotional Reactions

	N	Mean	SD	25 Pctl	75 Pctl	Max
Love Proportion	6,322	8.34	7.79	2.31	12.22	66.67
Angry Proportion	6,322	1.36	4.87	0.00	0.55	68.19
Like Proportion	6,322	87.72	10.73	82.99	95.26	100.00
Wow Proportion	6,322	0.37	1.01	0.00	0.36	19.28
Haha Proportion	6,322	1.53	3.76	0.00	1.46	80.00
Sad Proportion	6,322	0.60	3.38	0.00	0.11	70.83
Care Proportion	6,322	0.07	0.37	0.00	0.00	13.33

Note: N refers to the number of posts on the Facebook pages of 52 parties in ±15 days of the election. The potential empirical range of emotional reactions is between 0 and 100. SD = standard deviation; Pctl = percentile.

Table D.1 shows the descriptive statistics of seven emotional reactions on the Facebook pages of the winner and loser parties on 15 days before and after the election.

E Survey Procedure and Descriptives

E.1 Survey Procedure

The survey was administered in the United States by a survey firm called Respondi. The 2,014 American adults were recruited by Respondi and directed to Qualtrics, where they completed the survey. Once they finished the survey, they were redirected to the vendor's platform.

Americans above 18 years old were eligible for the study. The original survey focused on examining the emotional reactions of partisan winners and losers after an election, and for this reason, we restricted our sample to partisan Americans and recruited a balanced sample of Democrats and Republicans. We put quotas on gender, age, and region (federal state) to ensure our sample was representative of the general American public in regard to these demographics.

E.2 Compliance with Ethics of Human Subject Research

The survey followed all established principles of human subject research and was approved by the Institutional Review Board (IRB). Although the IRB exempted this study from a formal consent form, we still included a consent page and information sheet at the beginning of the survey. All participants were informed about the purpose, length, and format of the study. All participants need to click "I consent" on the information sheet page before they could proceed. They were allowed to opt-out of the study at any point of the survey. Incomplete survey responses were not recorded.

All respondents were paid by Respondi, the survey platform, at its usual rate for their participation. Respondi was paid by the researcher of this study. All participants were adults and none of them would be put in a disadvantageous position had they chosen not to participate.

The treatment prompt was a fictional newspaper headline on the 2016 US presidential election. Because the treatment prompt was explicitly described as "a newspaper headline that **could have been written** about the 2016 Presidential Election," no deception was used.

E.3 Survey Instrument

This section presents the questionnaires used in the original survey.

- (Pre-treatment PANAS battery) Generally speaking, how do you feel these days? *Mark one answer in each row.*[1]

	Very slightly or not at all 1	A little 2	Moderately 3	Quite a bit 4	Extremely 5
How upset do you feel?	☐	☐	☐	☐	☐
How scared do you feel?	☐	☐	☐	☐	☐
How interested do you feel?	☐	☐	☐	☐	☐
How ashamed do you feel?	☐	☐	☐	☐	☐
How inspired do you feel?	☐	☐	☐	☐	☐
How nervous do you feel?	☐	☐	☐	☐	☐
How enthusiastic do you feel?	☐	☐	☐	☐	☐
How proud do you feel?	☐	☐	☐	☐	☐
How afraid do you feel?	☐	☐	☐	☐	☐
How excited do you feel?	☐	☐	☐	☐	☐

- Take a close look at a newspaper headline that could have been written about the 2016 Presidential Election. Please read this information carefully and answer the question at the bottom to continue with the survey.[2]

Figure E.1: Prompts on 2016 Election Results

(a) Polarization Prompts

(b) Populism Prompts

- According to the newspaper clipping, which of the following is true?

[1] The row order is randomized.

[2] The subjects were randomly assigned to one of the two prompts.

☐ There was a presidential election in 2016.

☐ (*For polarization prompt:*) Political polarization was at all time high.
(*For populism prompt:*) Anti-establishment sentiments were at all time high.

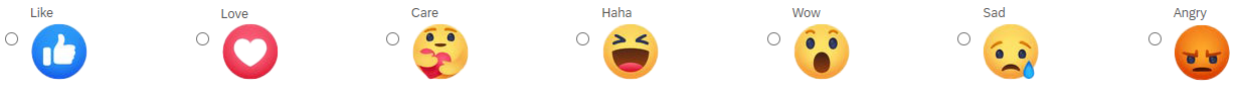
☐ The person in the picture is called Trump.

☐ All of the above

- (PANAS battery) How do you feel after seeing the newspaper clipping? *Mark one answer in each row.*[3]

	Very slightly or not at all 1	A little 2	Moderately 3	Quite a bit 4	Extremely 5
How upset do you feel?	☐	☐	☐	☐	☐
How scared do you feel?	☐	☐	☐	☐	☐
How interested do you feel?	☐	☐	☐	☐	☐
How ashamed do you feel?	☐	☐	☐	☐	☐
How inspired do you feel?	☐	☐	☐	☐	☐
How nervous do you feel?	☐	☐	☐	☐	☐
How enthusiastic do you feel?	☐	☐	☐	☐	☐
How proud do you feel?	☐	☐	☐	☐	☐
How afraid do you feel?	☐	☐	☐	☐	☐
How excited do you feel?	☐	☐	☐	☐	☐

- (Reaction Choice) Which of the following emojis would you use to describe your feeling after seeing the newspaper clipping?



[3]The row order is randomized.

E.4 Survey Results

This section reports the findings from the original survey. Table E.1 reports the results. *Republican* is the baseline category, and the dependent variables are the pre - post difference in PANAS scores, separated by positive and negative emotions. The coefficient for *Democrat Indicator* covariate indicates the difference of effect when partisanship changes from Republican to Democrat. We find that positive emotions decreased for both Republicans and Democrats after being reminded of the 2016 election result, and that the magnitude of the decrease is much larger for Democrats. This result tells us that partisan losers experience significantly less positive emotions compared to partisan winners. This is also true for negative emotions, where partisan losers (Democrats) felt more negative after being reminded of the 2016 loss. In comparison, the magnitude of negative emotions actually decreased for partisan winners (Republicans).

We also examine whether polarization induces greater emotional changes compared to populism. The baseline treatment is the *Polarization* treatment. The coefficient for *Populism* covariate indicates the difference in effect when we change the treatment from *Polarization* to *Populism*. We find that while both polarization and populism treatments cause emotional reactions, there is no statistically significant difference in the treatment effect between these two conditions. We also find no heterogeneous treatment effect between Democrats exposed to different treatments.

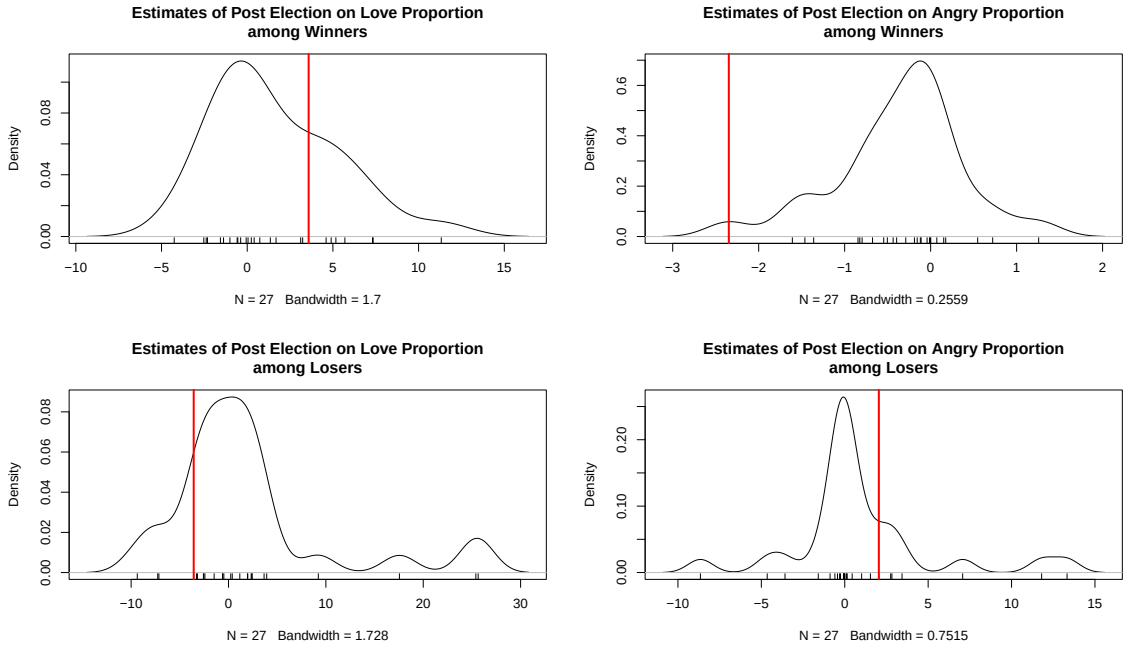
Table E.1: Post-Treatment Emotional Changes by Partisanship and Treatment

	Dependent variable:	
	Δ Positive emotion	Δ Negative emotion
	(1)	(2)
Change for Republicans	-0.859^{***}	-1.693^{***}
	(0.240)	(0.233)
Democrat Indicator	-4.375^{***}	5.072^{***}
	(0.342)	(0.332)
Populism	-0.414	0.161
	(0.337)	(0.327)
Democrat $\times$ Populism	0.190	-0.118
	(0.478)	(0.463)
Observations	2,006	2,006
Adjusted R^2	0.138	0.188

Note: The models are estimated with standard OLS estimator. DVs are changes in positive and negative PANAS scores, respectively. Standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01

F Estimating Interrupted Time-Series Models by Party

Figure F.1: The Distributions of the Party-by-Party Estimates of β



To illustrate that the emotional reactions we observed in the 2016 US presidential election were not necessarily too extreme from a comparative perspective, we fit an interrupted time-series model by party using equation 1 of the main text. The distributions of estimated β (Coefficient on *Post Election*) for Winner + Love, Winner + Angry, Loser + Love, and Loser + Angry are summarized in Figure F.1. Red vertical lines indicate the estimates of the parties in the 2016 US election.

First, we find that the estimate of β on Love proportion on the Republican Party's page is 3.58 and corresponds to only a 73% quantile of the estimates from the other winner parties in our data. Second, the estimate of β on Angry proportion on the Republican Party's page is -2.35 and corresponds to a 10% quantile of the estimates from the other winner parties. Next, turning to the Democratic Party's page, the estimate of β on Love proportion is -3.58 and corresponds to a 12% quantile of the estimates from the other loser parties. Then, the estimate of β on Angry proportion on the Democratic Party's page 2.04 and just a 77% quantile of the estimates from the other loser parties. Overall, these results suggest that the 2016 US election is not necessarily an extreme example in both voters' positive and negative reactions. Moreover, we observe that estimated post-election shifts in Love and Angry reactions are remarkably similar in magnitude between the two parties.

G The Average Number of Posts by Day

Figure G.1: The Averages of Posts by Day

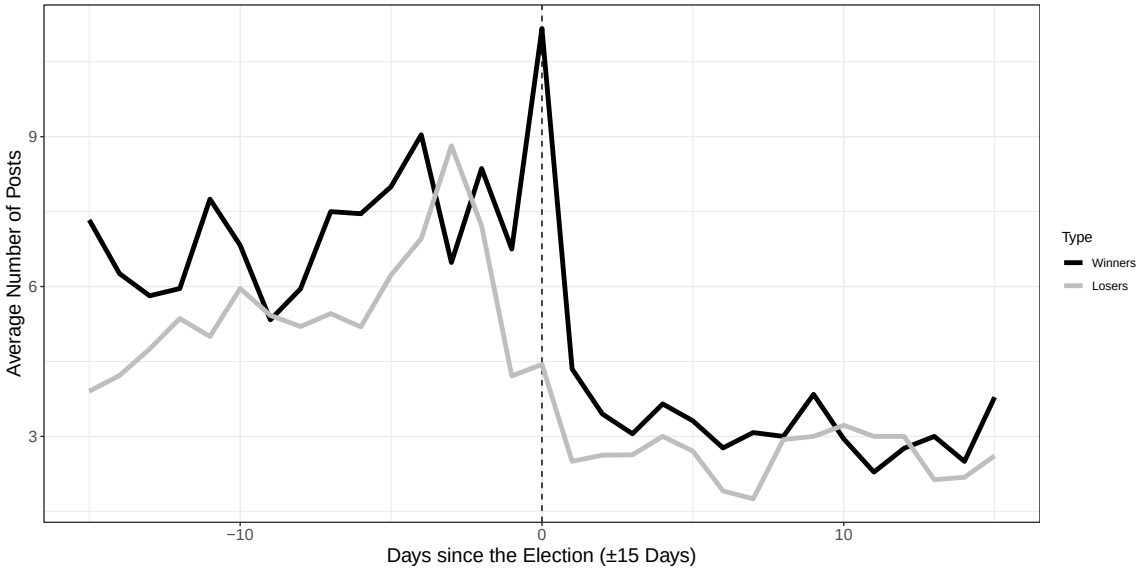


Figure G.1 shows the daily average number of posts 15 days before and after the election. Black lines indicate winners while gray lines are losers.

H Polarization

Figure H.1: Elections Ranked by Ideological Polarization

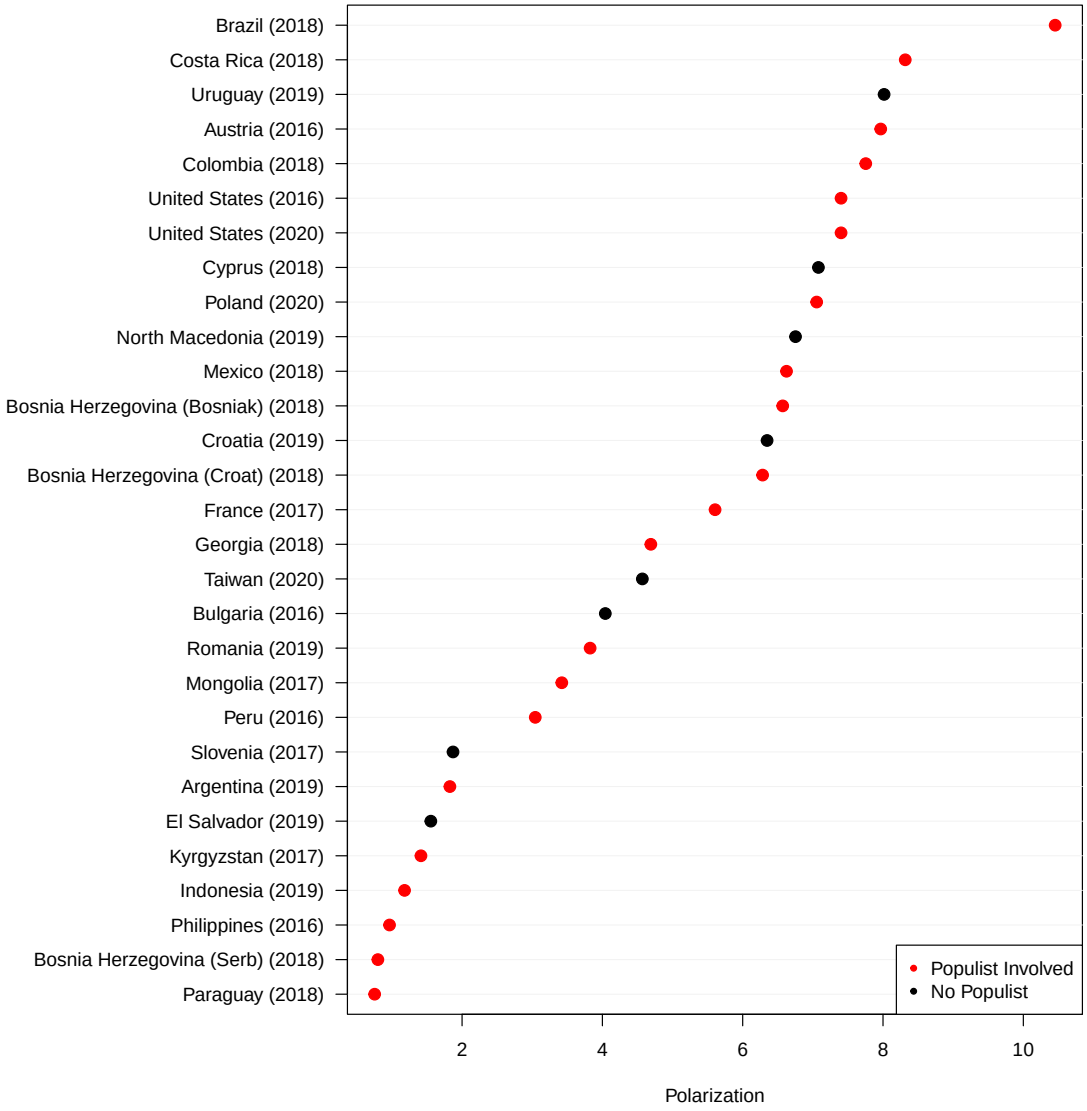


Figure H.1 ranks elections in our data based on the ideological polarization of the top two parties. Red points indicate elections in which at least one of the top two parties was a populist, whereas black points indicate elections with no populist.

I Robustness Checks Using the V-Party

To what extent are our results driven by the fact that we use the GPS (Norris 2019)? Are our results robust to using other datasets? Here, we show that our substantive findings remain the same even when we use the V-Party dataset (Lindberg et al. 2022).

The V-Party provides party-year measures of parties' populism and economic left-right positions. We merge our data with the V-Party on party and year. When we cannot match the two datasets by party-year, we use the closest pre-election year if it is no less than 3 years apart. Because the GPS and the V-Party include different sets of parties, presidential elections included in the analysis change slightly.

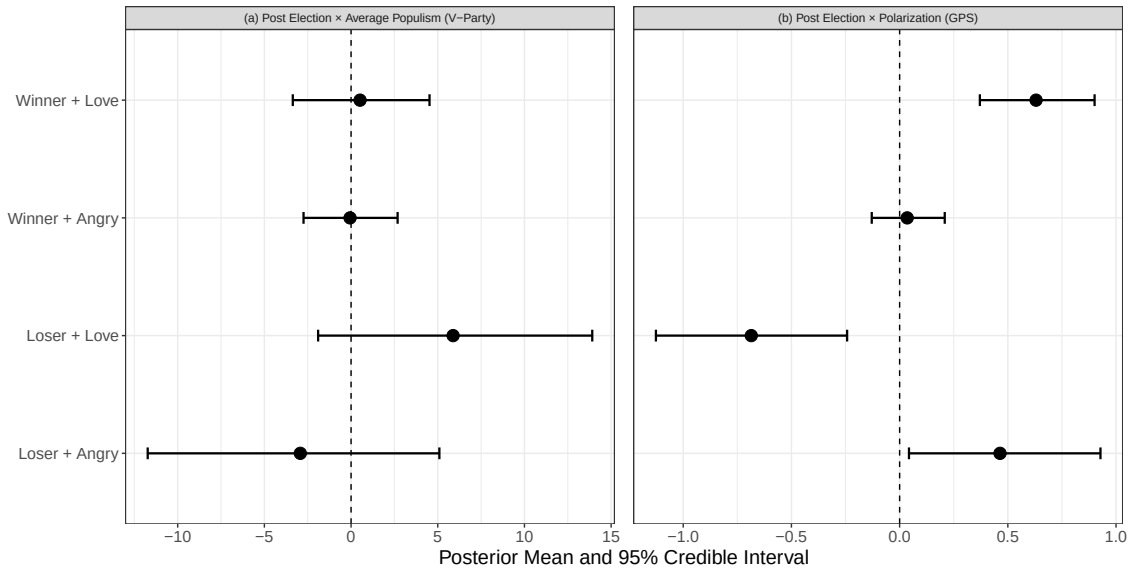
Since the V-Party only provides a continuous measure of populism, we create a variable called *Average Populism*, which is the average score of the continuous measure of populism between the two presidential parties. Although this operationalization is different from the measure of populist involvement in the main text, we test the same measure using the GPS in Appendix N. As for the measure of ideological polarization, the V-Party only includes parties' economic ideologies. Hence, the ideological distance between the two presidential parties is computed solely on the economic dimension, which is also different from what we use in the main text. But, in Appendix O, we compare the roles of economic and social polarization using the GPS data.

First, we replace the dummy indicator of populist involvement based on the GPS with the continuous measure of *Average Populism* based on the V-Party while still using the polarization measure based on the GPS. As we summarize in Figure I.1, none of the interaction terms for *Post Election* × *Average Populism* shows statistically reliable effects. By contrast, three out of the four interaction terms for *Post Election* × *Polarization* remain statistically reliable and show expected signs.

Next, we further replace the measure of polarization based on the GPS with the measure of economic polarization based on the V-Party. As we summarize in Figure I.2, none of the interaction terms for *Post Election* × *Average Populism* shows statistically reliable effects. By contrast, three out of the four interaction terms for *Post Election* × *Polarization* remain statistically reliable and show expected signs, despite the fact that polarization is measured on a different data source.

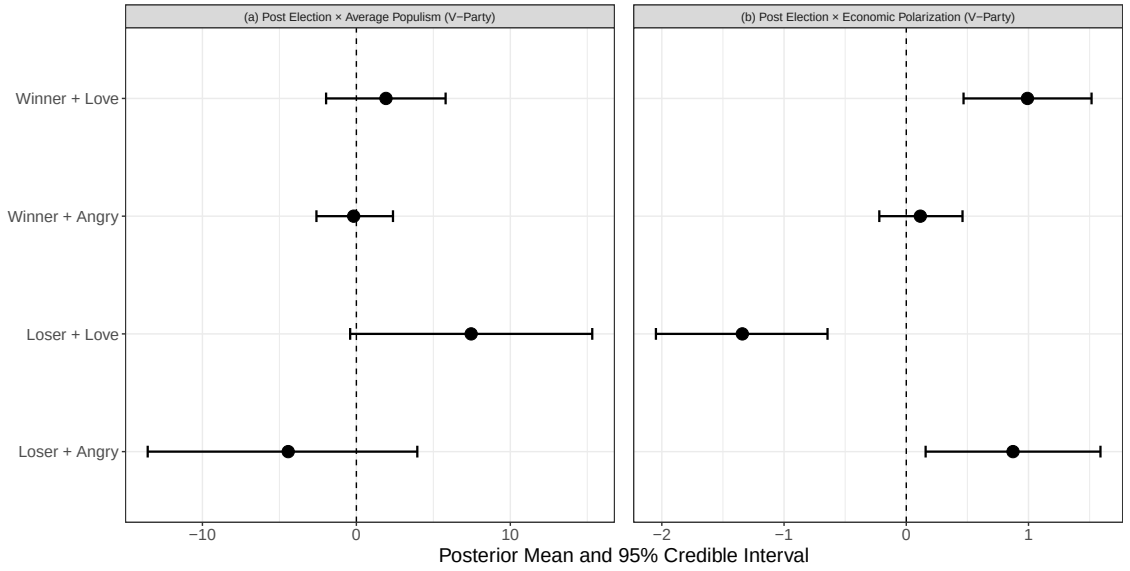
In summary, the results presented in Figures I.1 and I.2 indicate that our empirical findings are robust to the use of alternative datasets. This gives further confidence to our findings that ideological polarization can moderate voters' post-election emotions while populism does not.

Figure I.1: The Posterior Estimates of Post Election × Average Populism (V-Party) and Post Election × Polarization (GPS)



Note: This figure summarizes the interaction terms of *Post Election* × *Average Populism* (left panel) and *Post Election* × *Polarization* (right panel). Horizontal bars indicate 95% credible intervals.

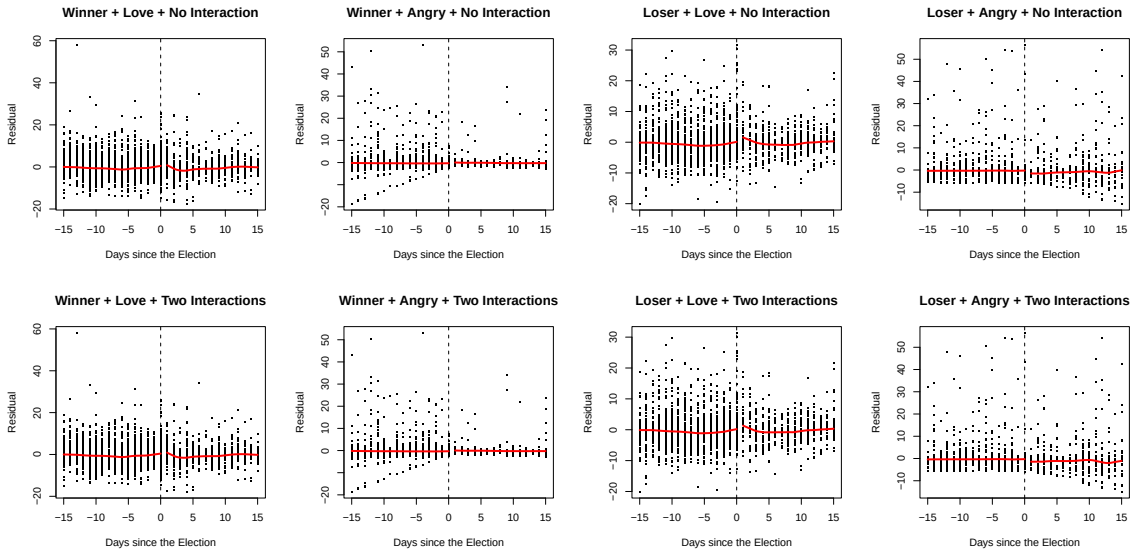
Figure I.2: The Posterior Estimates of Post Election × Average Populism (V-Party) and Post Election × Economic Polarization (V-Party)



Note: This figure summarizes the interaction terms of *Post Election*×*Average Populism* (left panel) and *Post Election* × *Economic Polarization* (right panel). Horizontal bars indicate 95% credible intervals.

J Linear Time Trend Assumption

Figure J.1: Days since the Election vs. Posterior Residuals



Note: This figure plot posterior residuals against days since the election based on models 1 to 4 of Tables M.1 and M.2. Red lines indicate fitted Loess curves.

To show that the linear time trend assumption holds when we focus on ±15 days of the election, Figure J.1 plots posterior residuals from models 1 to 4 of Tables M.1 (top panels) and models 1 to 4 of Table M.2 in Appendix M (bottom panels) against days since the election. Red lines show fitted Loess curves separately estimated for pre- and post-election periods with a span of 0.33. All these lines are nearly flat, meaning that random linear time trends by party effectively capture cross-party variation in how emotional reactions evolved during the time of the election.

K Using Different Time Windows

Figure K.1: The Posterior Estimates of Post Election × Populist Involvement and Post Election × Polarization for Different Time Windows

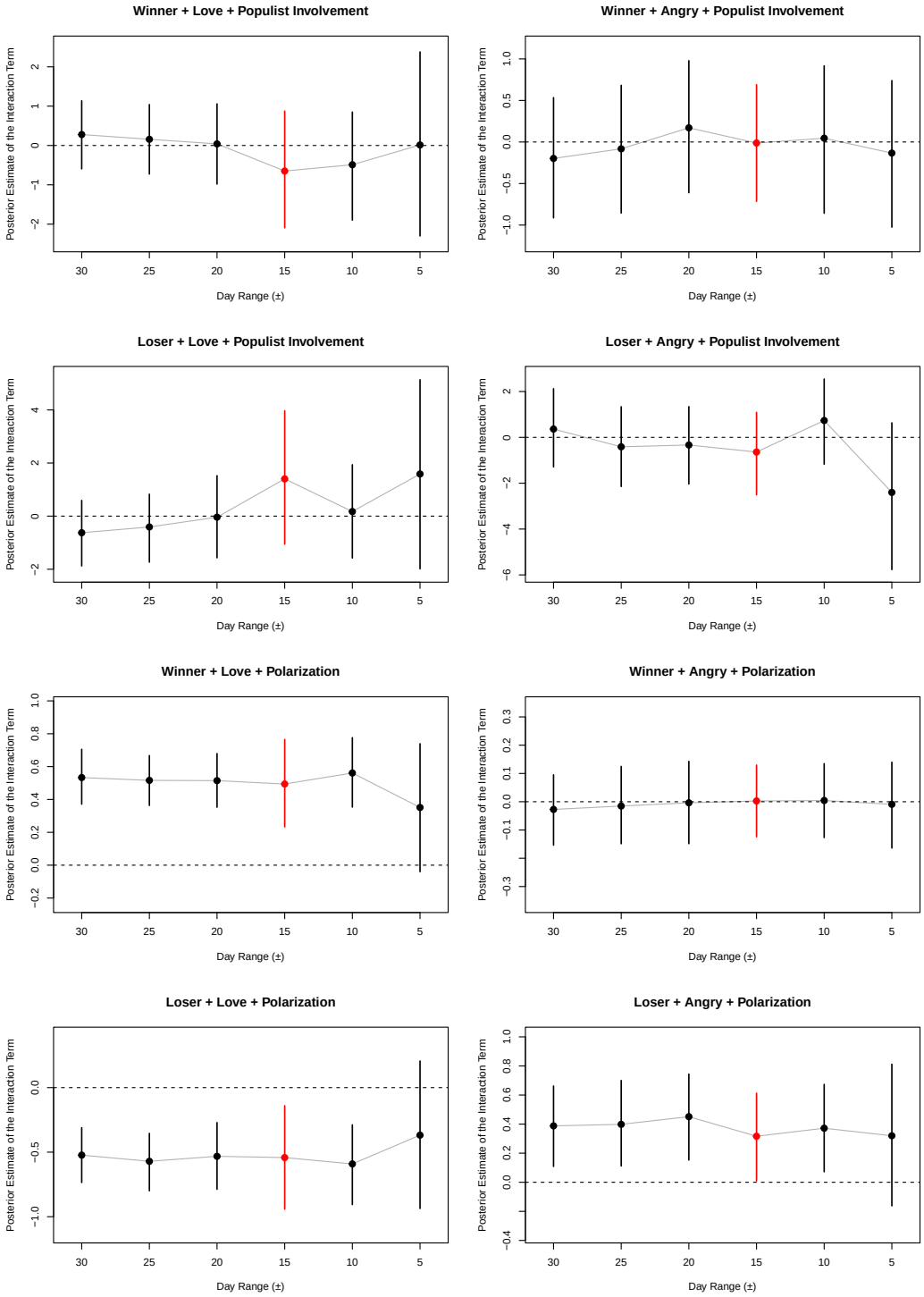


Figure K.1 shows that our results are not affected by the use of different time windows (±30, 25, 20, 10, and 5 days). The posterior estimates of *Post Election* × *Populist Involvement* and *Post Election* × *Polarization* remain relatively stable, and in most of the cases, wider credible intervals are due to smaller sample size for narrower time windows. More importantly, we see that polarization is a statistically reliable moderator of Love for winners and Love and Angry for losers, consistent with our findings in the main text.

L Descriptive Statistics

Table L.1: Winners Data (27 Elections and ±15 Days)

	N	Mean	SD	Min	Max
Love Proportion	3,587	8.59	7.62	0.00	66.67
Angry Proportion	3,587	0.94	3.70	0.00	54.17
Post Election	3,587	0.24	0.42	0	1
Populist Involvement	3,587	0.79	0.41	0	1
Polarization	3,587	5.19	2.84	0.75	10.45
Incumbent Party	3,587	0.47	0.50	0	1
Concurrent Election	3,587	0.63	0.48	0	1
Runoff	3,587	0.50	0.50	0	1
Semi-Presidential	3,587	0.35	0.48	0	1
Effective Number of Candidates	3,587	2.14	0.38	1.81	3.70
Pre-Election Trend	3,587	−5.39	5.04	−15	0
Post-Election Trend	3,587	1.70	3.74	0	15

Table L.2: Losers Data (27 Elections and ±15 Days)

	N	Mean	SD	Min	Max
Love Proportion	2,735	8.00	8.00	0.00	53.41
Angry Proportion	2,735	1.90	6.03	0.00	68.19
Post Election	2,735	0.23	0.42	0	1
Populist Involvement	2,735	0.70	0.46	0	1
Polarization	2,735	6.13	2.67	0.75	10.45
Incumbent Party	2,735	0.43	0.50	0	1
Concurrent Election	2,735	0.53	0.50	0	1
Runoff	2,735	0.65	0.48	0	1
Semi-Presidential	2,735	0.50	0.50	0	1
Effective Number of Candidates	2,735	2.15	0.42	1.81	3.70
Pre-Election Trend	2,735	−5.44	4.83	−15	0
Post-Election Trend	2,735	1.88	3.97	0	15

M Full Model Specifications

Table M.1 summarizes the unconditional models of *Post Election* on emotional reactions. Based on these models, we plot Figure 4 of the main text.

Table M.2 summarizes the interaction models with *Post Electon* × *Populist Involvement* and *Post Electon* × *Polarization*, based on which we create Figures 5 and 6 of the main text.

The uninformative priors for the models of Love among winners (model 1 in Tables M.1 and M.2) are set equal to, by default, flat priors for fixed effects and a half-t distribution with $\nu = 3$ $\mu = 0$, and scale $\sigma = 6.5$ for the standard deviations of random effects. For the models of Angry among winners (model 2 in Tables M.1 and M.2), the priors are flat priors for fixed effects and a half-t distribution with $\nu = 3$ $\mu = 0$, and scale $\sigma = 2.5$ for the standard deviations of random effects. For the models of Love among losers (model 3 in Tables M.1 and M.2), the priors are are flat priors for fixed effects and a half-t distribution with $\nu = 3$ $\mu = 0$, and scale $\sigma = 7.1$ for the standard deviations of random effects. Finally, for the models of Angry among losers (model 4 in Tables M.1 and M.2), the priors are flat priors for fixed effects and a half-t distribution with $\nu = 3$ $\mu = 0$, and scale $\sigma = 2.5$ for the standard deviations of random effects.

Table M.1: Post-Election Emotional Changes on the Facebook Pages of Election Winners and Losers

	Winner		Loser	
	(1) Love	(2) Angry	(3) Love	(4) Angry
Post Election	1.58	−0.39	−1.64	0.59
	[0.80, 2.38]	[−0.90, 0.13]	[−2.67, −0.63]	[−0.47, 1.64]
Populist Involvement	2.46	0.48	4.04	1.72
	[−1.53, 6.57]	[−0.17, 1.13]	[−0.86, 8.85]	[−0.33, 3.76]
Polarization	0.25	0.01	0.01	0.20
	[−0.72, 1.27]	[−0.13, 0.15]	[−0.84, 0.84]	[−0.13, 0.56]
Incumbent Party	−0.25	−0.15	3.13	−0.64
	[−4.25, 3.65]	[−0.78, 0.47]	[−1.23, 7.58]	[−2.34, 1.11]
Concurrent Election	−0.93	−0.55	−2.54	−1.20
	[−6.69, 4.36]	[−1.37, 0.31]	[−8.67, 3.61]	[−3.82, 1.35]
Runoff	−1.21	0.15	−1.24	−0.76
	[−8.05, 5.58]	[−0.89, 1.22]	[−7.67, 5.20]	[−3.30, 1.95]
Semi-Presidential	−2.56	0.54	−4.73	0.99
	[−6.42, 1.40]	[−0.11, 1.19]	[−9.44, −0.26]	[−0.80, 2.79]
Effective Number of Candidates	−2.46	−0.13	−3.04	−1.21
	[−7.29, 2.28]	[−0.91, 0.64]	[−8.09, 2.28]	[−3.16, 0.79]
Pre-Election Trend (Group Mean)	0.14	−0.06	0.14	−0.01
	[0.04, 0.23]	[−0.16, 0.04]	[0.06, 0.22]	[−0.07, 0.05]
Post-Election Trend (Group Mean)	−0.32	0.02	−0.16	0.11
	[−0.46, −0.18]	[−0.04, 0.08]	[−0.32, −0.01]	[−0.09, 0.31]
$\hat{\sigma}_{\text{Intercept}}$	6.98	0.55	6.31	1.88
	[5.23, 9.55]	[0.24, 0.91]	[4.68, 8.62]	[1.24, 2.81]
$\hat{\sigma}_{\text{Pre-Election Trend}}$	0.22	0.25	0.15	0.04
	[0.15, 0.3]	[0.18, 0.34]	[0.08, 0.24]	[0, 0.1]
$\hat{\sigma}_{\text{Post-Election Trend}}$	0.27	0.05	0.3	0.39
	[0.18, 0.37]	[0, 0.1]	[0.2, 0.43]	[0.24, 0.61]
N of Posts	3,587	3,587	2,735	2,735
N of Parties	27	27	27	27

Note: The models are estimated with a multi-level linear model with random intercepts and pre-/post-linear time trends by party. Table entries are the means and 95% credible intervals of the posterior distributions of model parameters. $\hat{\sigma}_{\text{Intercept}}$, $\hat{\sigma}_{\text{Pre-Election Trend}}$, $\hat{\sigma}_{\text{Post-Election Trend}}$ indicate the estimated variance parameters of random effects.

Table M.2: Post-Election Emotional Changes on the Facebook Pages of Election Winners and Losers Conditional on Populist Involvement and Polarization

	Winner		Loser	
	(1) Love	(2) Angry	(3) Love	(4) Angry
Post Election	−0.61	−0.44	2.06	−2.34
	[−2.27, 1.02]	[−1.50, 0.62]	[−0.26, 4.40]	[−4.78, 0.15]
Populist Involvement	2.59	0.45	3.82	1.65
	[−1.47, 6.81]	[−0.31, 1.22]	[−1.64, 8.97]	[−0.34, 3.61]
Polarization	0.14	0.01	0.44	0.14
	[−0.74, 1.00]	[−0.16, 0.17]	[−0.47, 1.38]	[−0.20, 0.48]
Incumbent Party	−0.19	−0.16	3.19	−0.62
	[−4.33, 3.74]	[−0.83, 0.46]	[−1.18, 7.63]	[−2.34, 1.12]
Concurrent Election	−0.77	−0.54	−2.34	−1.21
	[−6.42, 4.86]	[−1.40, 0.33]	[−8.74, 3.96]	[−3.78, 1.34]
Runoff	−0.87	0.16	−1.13	−0.79
	[−7.63, 5.97]	[−0.89, 1.23]	[−7.69, 5.28]	[−3.40, 1.79]
Semi-Presidential	−2.31	0.54	−4.60	1.02
	[−6.24, 1.71]	[−0.11, 1.21]	[−9.29, 0.11]	[−0.75, 2.79]
Effective Number of Candidates	−2.34	−0.13	−3.01	−1.25
	[−7.26, 2.55]	[−0.92, 0.65]	[−8.44, 2.22]	[−3.19, 0.70]
Pre-Election Trend (Group Mean)	0.13	−0.06	0.13	−0.01
	[0.05, 0.22]	[−0.16, 0.04]	[0.04, 0.21]	[−0.07, 0.05]
Post-Election Trend (Group Mean)	−0.36	0.02	−0.21	0.14
	[−0.49, −0.22]	[−0.04, 0.08]	[−0.36, −0.05]	[−0.05, 0.33]
Post Election × Populist Involvement	−0.49	0.05	0.17	0.74
	[−1.90, 0.85]	[−0.86, 0.92]	[−1.58, 1.94]	[−1.17, 2.55]
Post Election × Polarization	0.56	0.004	−0.59	0.37
	[0.35, 0.78]	[−0.13, 0.13]	[−0.91, −0.29]	[0.07, 0.67]
$\hat{\sigma}_{\text{Intercept}}$	6.89	0.54	6.36	1.87
	[5.16, 9.29]	[0.24, 0.92]	[4.7, 8.65]	[1.22, 2.79]
$\hat{\sigma}_{\text{Pre-Election Trend}}$	0.2	0.25	0.17	0.04
	[0.14, 0.28]	[0.18, 0.34]	[0.1, 0.27]	[0, 0.11]
$\hat{\sigma}_{\text{Post-Election Trend}}$	0.25	0.05	0.29	0.35
	[0.17, 0.35]	[0, 0.1]	[0.19, 0.43]	[0.2, 0.56]
N of Posts	3,587	3,587	2,735	2,735
N of Parties	27	27	27	27

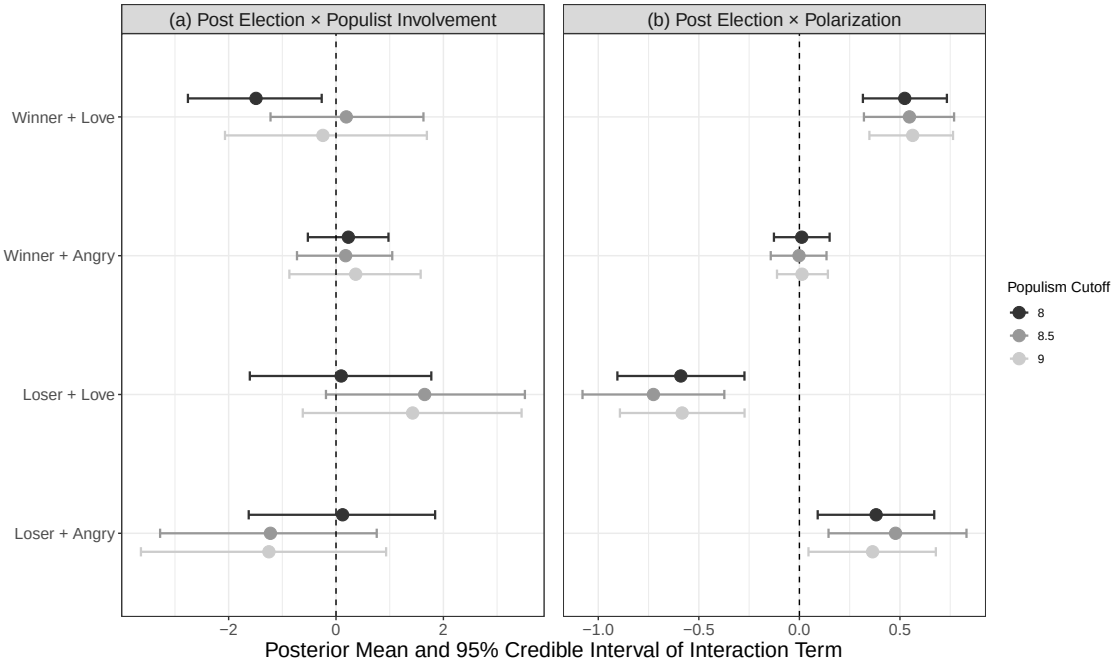
Note: The models are estimated with a multi-level linear model with random intercepts and pre-/post-linear time trends by party. The means and 95% credible intervals of the posterior distributions of model parameters are shown. $\hat{\sigma}_{\text{Intercept}}$, $\hat{\sigma}_{\text{Pre-Election Trend}}$, $\hat{\sigma}_{\text{Post-Election Trend}}$ indicate the estimated variance parameters of random effects.

N Alternative Operationalizations of Populism using the GPS

In the main text, we use a dummy indicator of populist involvement to test the moderating effects of populism. Here, we show that alternative operationalizations of populism do not change the results.

In the main text, we follow Norris (2019) and code a party as a populist if its continuous populist scale is greater than or equal to 7.5. We first test alternative cutoffs to define populist parties: 8, 8.5, and 9. These cutoffs reduce the number of elections with populist involvement to 17, 9, and 5, respectively. As Figure N.1 shows, the alternative ways to define populist parties do not systematically change how we interpret the moderating effects of populist involvement. Further, they do not impact the conditional effects of ideological polarization.

Figure N.1: The Posterior Estimates of Post Election × Populist Involvement based on Alternative Cutoffs and Post Election × Polarization

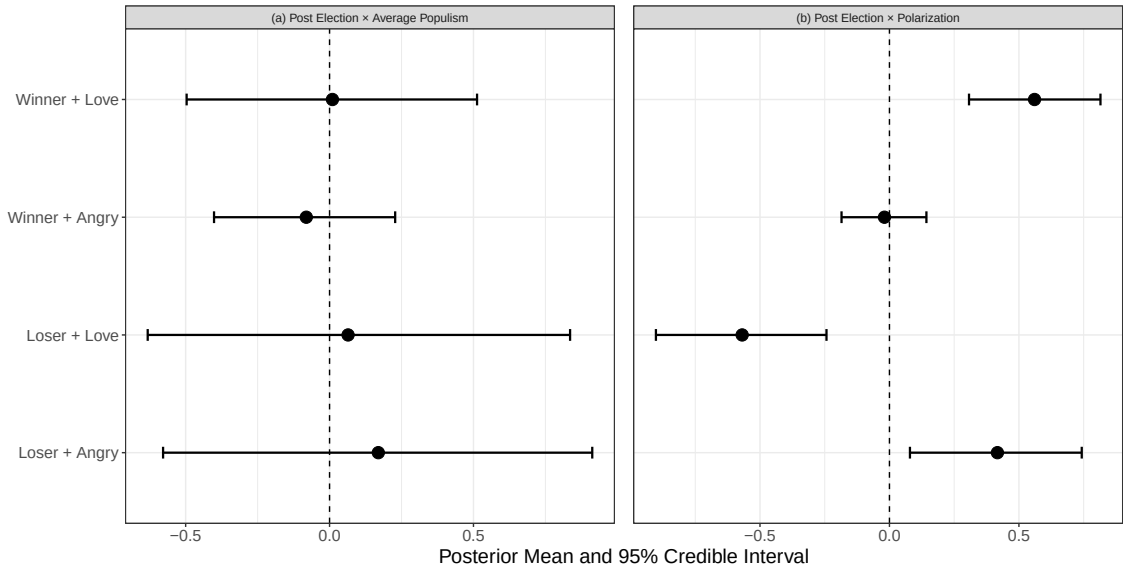


Note: This figure summarizes the interaction terms of *Post Election* × *Populist Involvement* (left panel) and *Post Election* × *Polarization* (right panel). Horizontal bars indicate 95% credible intervals.

Second, instead of a dummy indicator of populist involvement, we use a measure of *Average Populism*, or the average score of the continuous measure of populism between the two competing parties. In Figure N.2, the interaction terms of *Post Election*×*Average Populism* again show statistically unreliable effects in all models. In contrast, the interaction terms of *Post Election* × *Polarization* remain statistically reliable in three out of the four models.

Third, we use a measure of absolute difference in populism scores between the two parties. Panel (a) of Figure N.3 shows that the posterior estimate of *Post Election* × *Populism Difference* is negative and statistically different from 0 for Love reactions among winners.

Figure N.2: The Posterior Estimates of Post Election × Average Populism and Post Election × Polarization



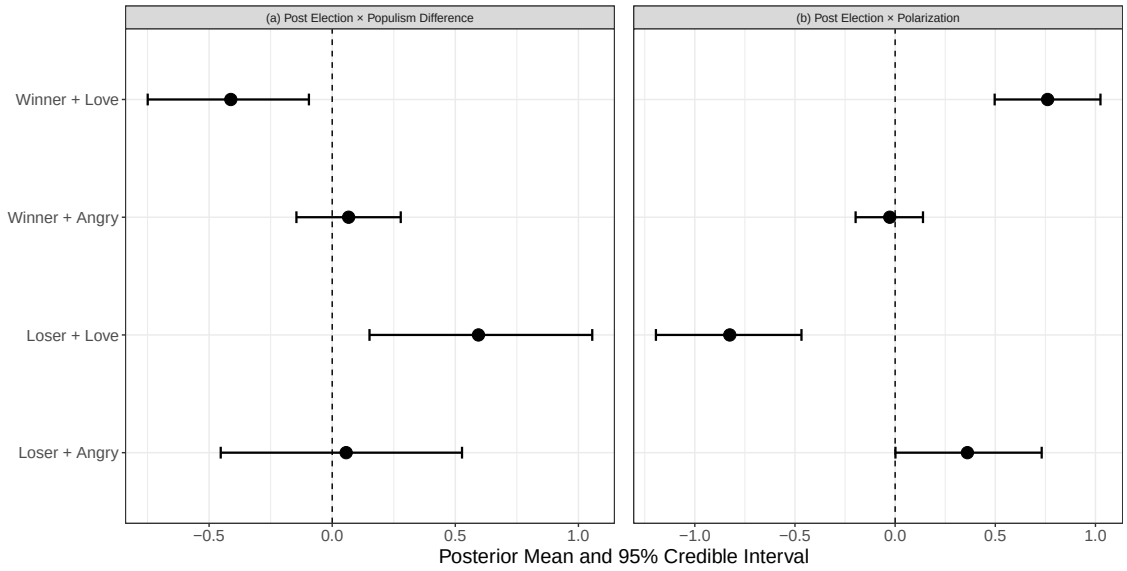
Note: This figure summarizes the interaction terms of *Post Election* × *Average Populism* (left panel) and *Post Election* × *Polarization* (right panel). Horizontal bars indicate 95% credible intervals.

This means that when the two competing parties become more different from each other with regard to their populism, the supporters of the winning party tend to express less intense positive emotions after the election. This is the opposite of what we should expect if populism triggers strong emotional responses. We also observe that the estimate of *Post Election* × *Populism Difference* shows a positive and statistically reliable sign for Love reactions among losers. This is also what we would not expect, as we should expect that as the two competing parties become more different in terms of populism, the supporters of the losing party would react to election outcomes with more intense negative emotions. Overall, even though the interaction terms between *Post Election* × *Populism Difference* show some statistically reliable signs, they do not seem to provide theoretically intuitive results.

Fourth, instead of measuring populism at the level of the election, we test party-level measures of populism. In Figure N.4, we focus on the moderating effects of a dummy indicator of populist parties, in which those with populist scores greater than 7.5 are coded as populists (Norris 2019). We find that the interaction terms of *Post Election*×*Populist Party* are not statistically reliable in any of the models. In contrast, the interaction terms of *Post Election* × *Polarization* remain statistically reliable in three out of the four models and show expected directions. Then, in Figure N.5, we use the original continuous scores of populism. Again, we find that the interaction terms of *Post Election*×*Populist Party Score* are not statistically reliable in any of the models.

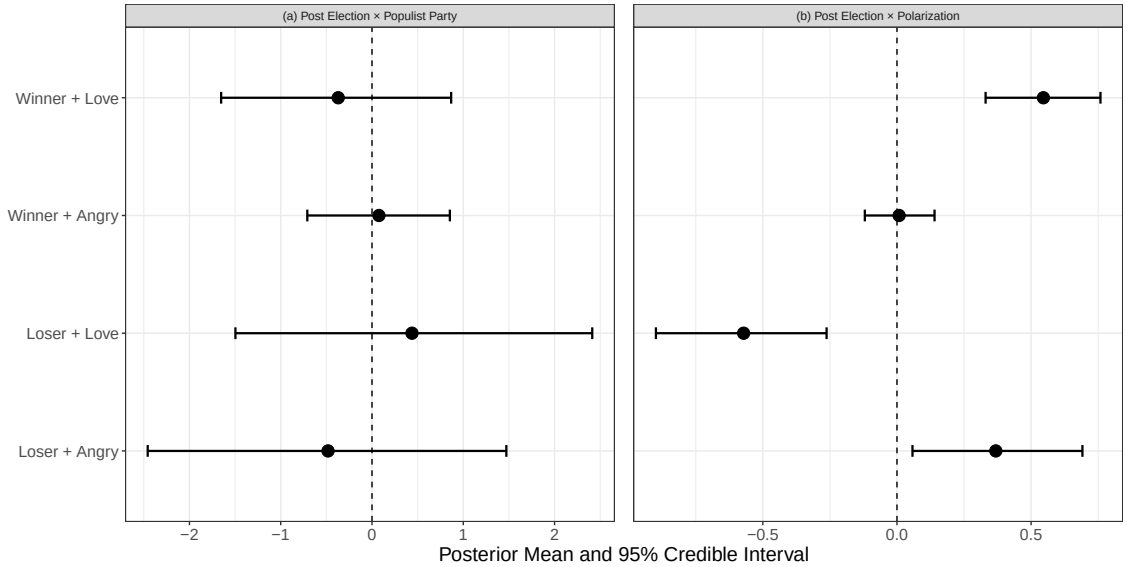
Fifth, we explore the possibility that the conditional effects of populist involvement depends on yet another factor. Here, we follow a reviewer's suggestion and analyze whether the moderating effects of populism vary by the quality of liberal democracy (see Rohrschneider 2002 for relevant discussions). A measure on the quality of liberal democracy is based on the V-Dem (Coppedge et al. 2024), and, for each country, we use the value for the presidential

Figure N.3: The Posterior Estimates of Post Election × Populism Difference and Post Election × Polarization



Note: This figure summarizes the interaction terms of *Post Election* × *Populism Difference* (left panel) and *Post Election* × *Polarization* (right panel). Horizontal bars indicate 95% credible intervals.

Figure N.4: The Posterior Estimates of Post Election × Populist Party (Dummy) and Post Election × Polarization

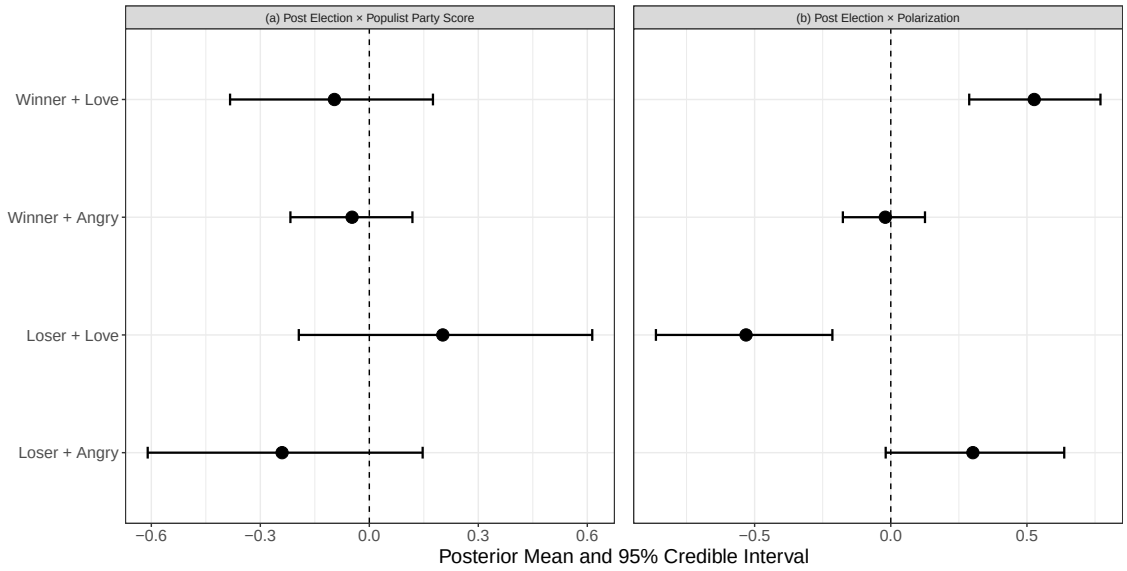


Note: This figure summarizes the interaction terms of *Post Election* × *Populist Party* (left panel) and *Post Election* × *Polarization* (right panel). Horizontal bars indicate 95% credible intervals.

election year. As for the modeling strategy, we include a full set of three-way interactions among *Post Election*, *Populist Involvement*, and *Quality of Liberal Democracy*. For the sake of simplicity, we drop *Polarization* from the model.

In Table N.1, we first report the results of the regression models with the three-way inter-

Figure N.5: The Posterior Estimates of Post Election × Populist Party Score (Continuous) and Post Election × Polarization



Note: This figure summarizes the interaction terms of *Post Election* × *Populist Party Score* (left panel) and *Post Election* × *Polarization* (right panel). Horizontal bars indicate 95% credible intervals.

actions among *Post Election*, *Populist Involvement*, and *Quality of Liberal Democracy*. Then, in Figure N.6, we calculate the marginal effects of *Post Election* conditional both on populist involvement and the quality of liberal democracy.

Across all of the four panels, the two lines, one corresponding to elections with a populist party (orange) and the other corresponding to elections without populist involvement (blue), look the same. Moreover, they are not statistically discernible from each other. Therefore, we do not find convincing evidence that the way in which populism moderates the effects of elections on voter emotions is conditioned by the quality of liberal democracy.

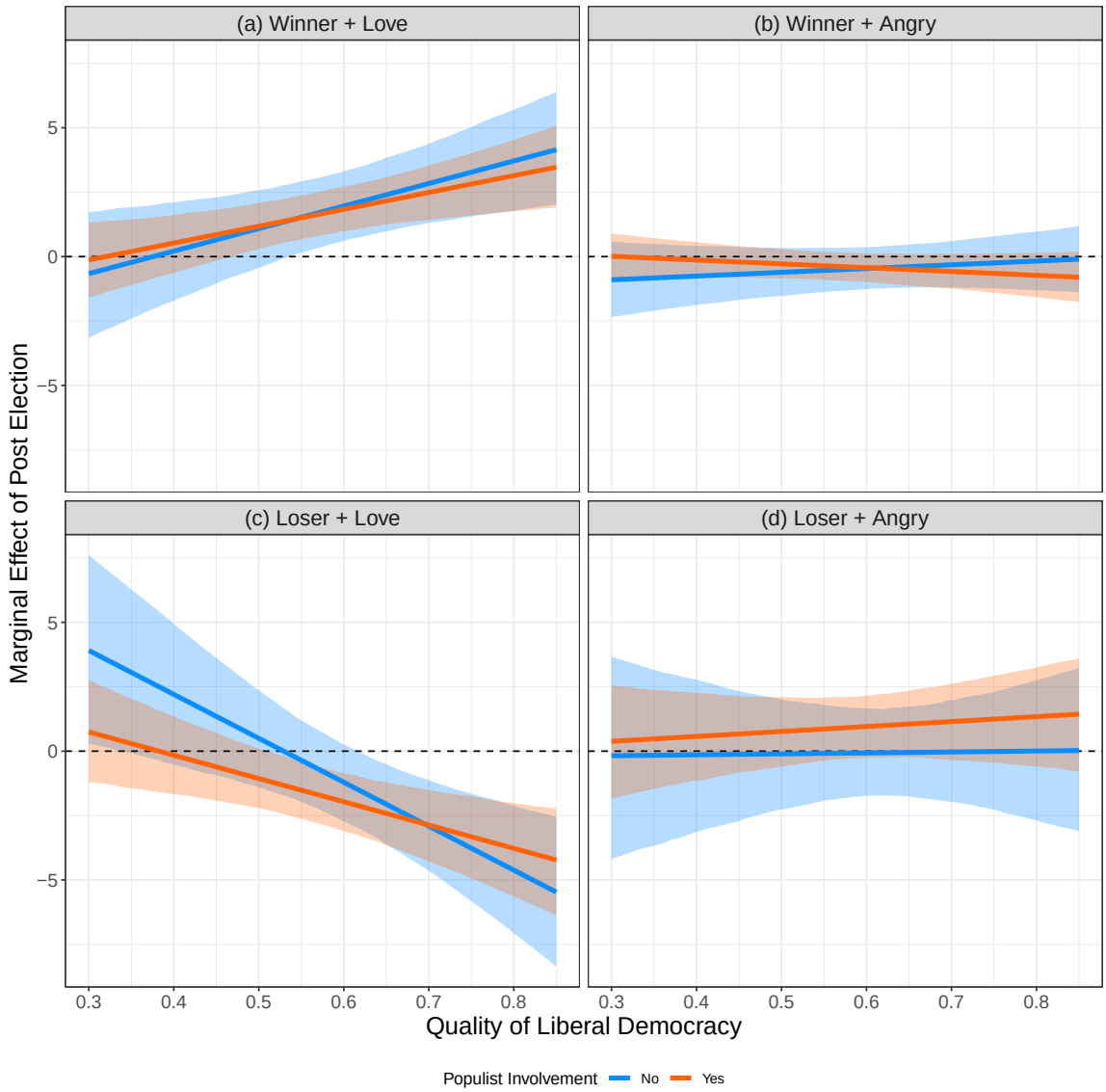
In sum, the analyses in this section examine various alternative measures of populism, but none of them alter our original conclusions. Instead, they increase our confidence in our finding that ideological polarization may be more important than populism in shaping post-election emotional changes.

Table N.1: Post-Election Emotional Changes on the Facebook Pages of Election Winners and Losers Conditional on Populist Involvement and the Quality of Liberal Democracy

	Winner		Loser	
	(1) Love	(2) Angry	(3) Love	(4) Angry
Post Election	−3.28	−1.34	9.02	−0.29
	[−7.52, 0.96]	[−3.89, 1.22]	[2.42, 15.67]	[−7.88, 6.61]
Populist Involvement	−11.03	−0.37	7.78	2.51
	[−29.44, 7.45]	[−3.59, 2.69]	[−14.46, 28.75]	[−4.97, 10.55]
Quality of Liberal Democracy	−17.16	−0.97	23.79	7.52
	[−43.17, 8.83]	[−5.48, 3.50]	[−7.88, 55.73]	[−2.87, 19.01]
Incumbent Party	1.02	−0.20	3.08	−0.75
	[−2.78, 4.92]	[−0.82, 0.44]	[−1.13, 7.36]	[−2.33, 0.78]
Concurrent Election	0.58	−0.53	−3.91	−1.47
	[−4.80, 5.95]	[−1.44, 0.39]	[−10.54, 2.84]	[−4.16, 1.04]
Runoff	0.32	0.18	−2.98	−0.89
	[−5.09, 5.79]	[−0.77, 1.10]	[−9.23, 3.19]	[−3.08, 1.40]
Semi-Presidential	−2.10	0.55	−3.77	1.43
	[−5.65, 1.51]	[−0.15, 1.24]	[−8.55, 0.85]	[−0.28, 3.13]
Effective Number of Candidates	−2.09	−0.19	−1.46	−0.28
	[−6.97, 2.93]	[−1.02, 0.67]	[−7.21, 4.24]	[−2.13, 1.66]
Pre-Election Trend (Group Mean)	0.14	−0.06	0.13	−0.01
	[0.05, 0.23]	[−0.17, 0.03]	[0.05, 0.21]	[−0.07, 0.05]
Post-Election Trend (Group Mean)	−0.35	0.02	−0.17	0.10
	[−0.50, −0.21]	[−0.03, 0.08]	[−0.33, −0.02]	[−0.09, 0.30]
Post Election × Populist Involvement	1.19	1.80	−5.57	0.09
	[−3.88, 6.33]	[−1.26, 4.77]	[−12.92, 2.31]	[−7.84, 8.62]
Post Election × Quality of Liberal Democracy	8.75	1.46	−17.05	0.37
	[2.15, 15.74]	[−2.43, 5.55]	[−27.55, −6.40]	[−10.60, 12.30]
Populist Involvement × Quality of Liberal Democracy	21.47	1.32	−4.47	−1.28
	[−6.58, 49.94]	[−3.35, 6.24]	[−37.59, 30.44]	[−13.62, 10.56]
Post Election × Populist Involvement × Quality of Liberal Democracy	−2.20	−2.94	8.02	1.55
	[−10.61, 6.20]	[−7.84, 1.98]	[−4.65, 20.19]	[−12.31, 14.26]
$\hat{\sigma}_{\text{Intercept}}$	7.15	0.58	6.39	1.64
	[5.43, 9.61]	[0.29, 0.96]	[4.73, 8.88]	[1.02, 2.45]
$\hat{\sigma}_{\text{Pre-Election Trend}}$	0.2	0.24	0.15	0.04
	[0.14, 0.28]	[0.18, 0.33]	[0.08, 0.24]	[0, 0.11]
$\hat{\sigma}_{\text{Post-Election Trend}}$	0.27	0.05	0.3	0.38
	[0.19, 0.39]	[0, 0.1]	[0.19, 0.45]	[0.22, 0.62]
N of Posts	3,587	3,587	2,735	2,735
N of Parties	27	27	27	27

Note: The models are estimated with a multi-level linear model with random intercepts and pre-/post-linear time trends by party. The means and 95% credible intervals of the posterior distributions of model parameters are shown. $\hat{\sigma}_{\text{Intercept}}$, $\hat{\sigma}_{\text{Pre-Election Trend}}$, $\hat{\sigma}_{\text{Post-Election Trend}}$ indicate the estimated variance parameters of random effects.

Figure N.6: The Marginal Effects of Post Election Conditional Jointly on Populist Involvement and the Quality of Liberal Democracy



Note: This figure shows the marginal effects of *Post Election* on the proportions of Love and Angry on the Facebook pages of winners and losers conditional jointly on populist involvement and the quality of liberal democracy. Shaded areas indicate 95% credible intervals.

O Economic and Social Polarization

In order to assess the differential effects of economic and social polarization, we calculate the distance between the two presidential parties in each dimension based on the GPS (Norris 2019). As shown in Table O.1, in our data, social polarization is more strongly correlated with the overall level of polarization than economic polarization. Then, we add interaction terms between *Post Election* × *Economic Polarization* and *Post Election* × *Social Polarization* in our model in turn.

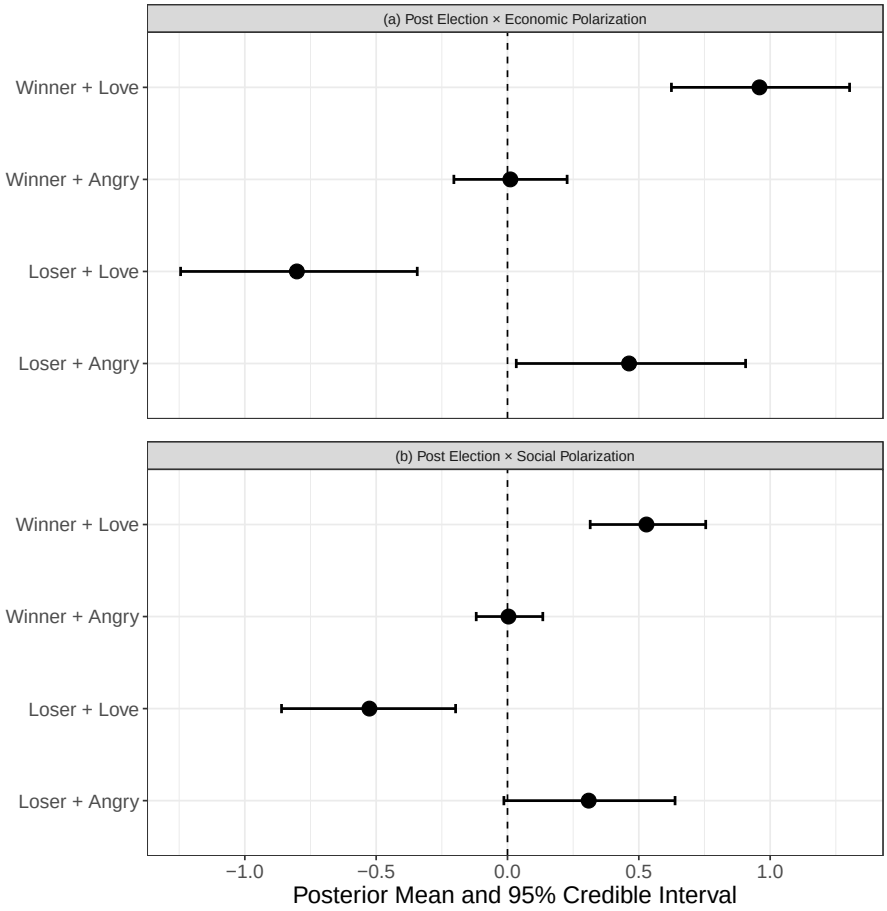
Table O.1: The Correlations of Polarization Measures

	Polarization	Economic Polarization	Social Polarization
Polarization	1		
Economic Polarization	0.68	1	
Social Polarization	0.95	0.45	1

Figure O.1 summarizes these interaction terms. The top panel focuses on the moderating effects of economic polarization, while the bottom panel focuses on the effects of social polarization. We see that both panels look similar to the left panel of Figure 5 in the main text. This means that the two types of polarization are equally important to shape post-election emotions.

Therefore, our results are different from the findings of other studies that establish differential effects of economic and social polarization (e.g., Gidron, Adams and Horne 2020). Although this point requires further theoretical and empirical explorations, we reemphasize two aspects of our design that are distinct from other studies. First, our measure of polarization is the distance between the parties of top two presidential candidates, as opposed to polarization measured at the system level. Second, we analyze the "local" effect of polarization on emotion shifts right after the election.

Figure O.1: The Posterior Estimates of Post Election × Economic Polarization and Post Election × Social Polarization



Note: This figure summarizes the interaction terms of *Post Election* × *Economic Polarization* (top panel) and *Post Election* × *Social Polarization* (bottom panel). Horizontal bars indicate 95% credible intervals.

P Regressions Excluding Parties with Extreme Post-Election Emotions

Figure F.1 of Appendix F reveals that several parties seen to show extreme changes in post-election emotions. In this section, we show that our findings are robust to excluding these cases.

We find that post-election emotional shifts for the following parties are more than 2 standard deviation away from the mean change in post-election emotions (in either direction): (1) Winner + Love: the Democratic Party (United States 2020); (2) Winner + Angry: the Social Democratic Party (Slovenia 2017) and the Republican Party (United States 2016); (3) Loser + Love: the Great Renewed National Alliance (Paraguay 2018) and the Popular Force (Peru 2016); and (4) Loser + Angry: the Untied National Movement (Georgia 2018), the Social Democratic Party (Romania 2019) and the Chinese Nationalist Party (Taiwan 2020).

In Table P.1 and P.2 and Figure P.1, we show that dropping these extreme cases from our models does not change our results, neither statistically nor substantively.

Table P.1: Direct Effects of Elections on Emotional Change after Excluding Outliers

	Winner		Loser	
	(1) Love	(2) Angry	(3) Love	(4) Angry
Post Election	0.96	−0.35	−1.65	0.54
	[0.16, 1.77]	[−0.83, 0.11]	[−2.65, −0.65]	[−0.44, 1.51]
Populist Involvement	1.94	0.33	4.29	2.58
	[−1.77, 5.74]	[−0.32, 0.97]	[−1.00, 9.48]	[0.29, 4.90]
Polarization	0.21	−0.04	−0.27	0.26
	[−0.76, 1.15]	[−0.18, 0.09]	[−1.33, 0.86]	[0.01, 0.52]
Incumbent Party	0.28	−0.09	2.56	0.48
	[−3.54, 4.10]	[−0.65, 0.47]	[−2.30, 7.45]	[−1.05, 2.11]
Concurrent Election	−0.48	−0.47	−1.44	−2.20
	[−5.49, 4.72]	[−1.18, 0.28]	[−9.18, 6.01]	[−4.86, 0.21]
Runoff	0.23	0.52	−0.40	−0.31
	[−6.20, 6.76]	[−0.46, 1.48]	[−8.08, 7.04]	[−2.41, 1.68]
Semi-Presidential	−2.48	0.60	−5.07	−0.46
	[−6.17, 1.22]	[−0.01, 1.18]	[−10.07, −0.13]	[−2.14, 1.22]
Effective Number of Candidates	−1.64	−0.04	−3.89	−0.48
	[−6.25, 2.80]	[−0.77, 0.64]	[−9.34, 1.50]	[−1.93, 1.04]
Pre-Election Trend (Group Mean)	0.15	−0.03	0.13	−0.03
	[0.04, 0.25]	[−0.07, 0.02]	[0.04, 0.21]	[−0.09, 0.03]
Post-Election Trend (Group Mean)	−0.30	0.02	−0.17	0.18
	[−0.42, −0.17]	[−0.03, 0.08]	[−0.33, −0.01]	[−0.08, 0.57]
$\hat{\sigma}_{\text{Intercept}}$	6.99	0.44	6.54	1.37
	[5.23, 9.49]	[0.12, 0.82]	[4.77, 9.08]	[0.81, 2.17]
$\hat{\sigma}_{\text{Pre-Election Trend}}$	0.22	0.09	0.15	0.03
	[0.16, 0.31]	[0.05, 0.14]	[0.08, 0.25]	[0, 0.1]
$\hat{\sigma}_{\text{Post-Election Trend}}$	0.23	0.05	0.3	0.5
	[0.15, 0.33]	[0, 0.1]	[0.2, 0.43]	[0.29, 0.82]
N of Posts	3,367	3,461	2,644	2,528
N of Parties	26	25	25	24

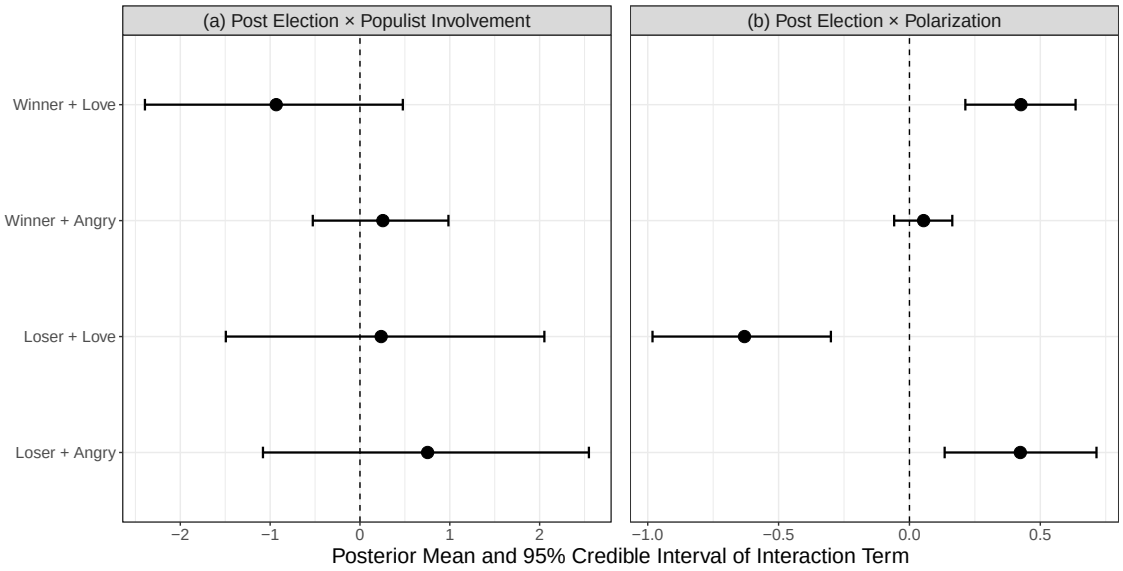
Note: The models are estimated with a multi-level linear model with random intercepts and pre-/post-linear time trends by party. Table entries are the means and 95% credible intervals of the posterior distributions of model parameters. $\hat{\sigma}_{\text{Intercept}}$, $\hat{\sigma}_{\text{Pre-Election Trend}}$, $\hat{\sigma}_{\text{Post-Election Trend}}$ indicate the estimated variance parameters of random effects.

Table P.2: Effects of Elections on Emotional Change Conditional on Populist Involvement and Polarization after Excluding Outliers

	Winner		Loser	
	(1) Love	(2) Angry	(3) Love	(4) Angry
Post Election	−0.22	−0.82	2.34	−2.77
	[−1.87, 1.37]	[−1.78, 0.09]	[−0.12, 4.86]	[−5.20, −0.41]
Populist Involvement	2.48	0.26	4.07	2.38
	[−1.24, 6.56]	[−0.44, 1.00]	[−1.55, 9.50]	[0.04, 4.78]
Polarization	0.02	−0.07	0.21	0.20
	[−0.88, 0.92]	[−0.21, 0.08]	[−1.13, 1.43]	[−0.06, 0.46]
Incumbent Party	0.43	−0.08	2.67	0.51
	[−3.46, 4.17]	[−0.65, 0.48]	[−2.11, 7.38]	[−1.08, 2.10]
Concurrent Election	−0.62	−0.46	−1.81	−2.07
	[−5.82, 4.74]	[−1.17, 0.32]	[−9.52, 5.41]	[−4.65, 0.48]
Runoff	−0.05	0.55	−0.91	−0.41
	[−6.80, 6.61]	[−0.36, 1.55]	[−8.20, 6.81]	[−2.51, 1.63]
Semi-Presidential	−2.38	0.57	−5.09	−0.31
	[−6.01, 1.52]	[−0.03, 1.19]	[−10.04, 0.11]	[−2.08, 1.47]
Effective Number of Candidates	−1.88	−0.02	−3.85	−0.57
	[−6.68, 3.19]	[−0.71, 0.66]	[−9.71, 2.17]	[−2.07, 1.07]
Pre-Election Trend (Group Mean)	0.15	−0.02	0.12	−0.03
	[0.05, 0.25]	[−0.07, 0.02]	[0.02, 0.21]	[−0.08, 0.03]
Post-Election Trend (Group Mean)	−0.33	0.02	−0.22	0.21
	[−0.46, −0.20]	[−0.04, 0.08]	[−0.39, −0.06]	[−0.01, 0.45]
Post Election × Populist Involvement	−0.93	0.25	0.24	0.75
	[−2.39, 0.48]	[−0.53, 0.98]	[−1.49, 2.05]	[−1.08, 2.55]
Post Election × Polarization	0.43	0.05	−0.63	0.42
	[0.21, 0.63]	[−0.06, 0.16]	[−0.98, −0.30]	[0.13, 0.71]
$\hat{\sigma}_{\text{Intercept}}$	7.09	0.44	6.57	1.35
	[5.3, 9.68]	[0.14, 0.82]	[4.75, 9.2]	[0.76, 2.13]
$\hat{\sigma}_{\text{Pre-Election Trend}}$	0.21	0.09	0.18	0.04
	[0.15, 0.29]	[0.05, 0.13]	[0.1, 0.29]	[0, 0.11]
$\hat{\sigma}_{\text{Post-Election Trend}}$	0.22	0.05	0.3	0.44
	[0.15, 0.32]	[0.01, 0.1]	[0.19, 0.46]	[0.25, 0.7]
N of Posts	3,367	3,461	2,644	2,528
N of Parties	26	25	25	24

Note: The models are estimated with a multi-level linear model with random intercepts and pre-/post-linear time trends by party. The means and 95% credible intervals of the posterior distributions of model parameters are shown. $\hat{\sigma}_{\text{Intercept}}$, $\hat{\sigma}_{\text{Pre-Election Trend}}$, $\hat{\sigma}_{\text{Post-Election Trend}}$ indicate the estimated variance parameters of random effects.

Figure P.1: The Posterior Estimates of Post Election × Populist Involvement and Post Election × Polarization after Excluding Outliers



Note: This figure summarizes the interaction terms of $Post\ Election \times Populist\ Involvement$ (left panel) and $Post\ Election \times Polarization$ (right panel) based on Table P.2. Horizontal bars indicate 95% credible intervals.

Q Three-Way Interactions Models

Can populism and ideological polarization interact with each other to jointly reinforce post-election emotions? In this section, we show limited evidence to support this possibility.

In Table Q.1, we show models with three-way interactions between *Post Election*, *Populist Involvement*, and *Polarization*. Based on these models, we compute how populist involvement and ideological polarization jointly change the marginal effects of *Post Election* on emotional reactions in Figure Q.1.

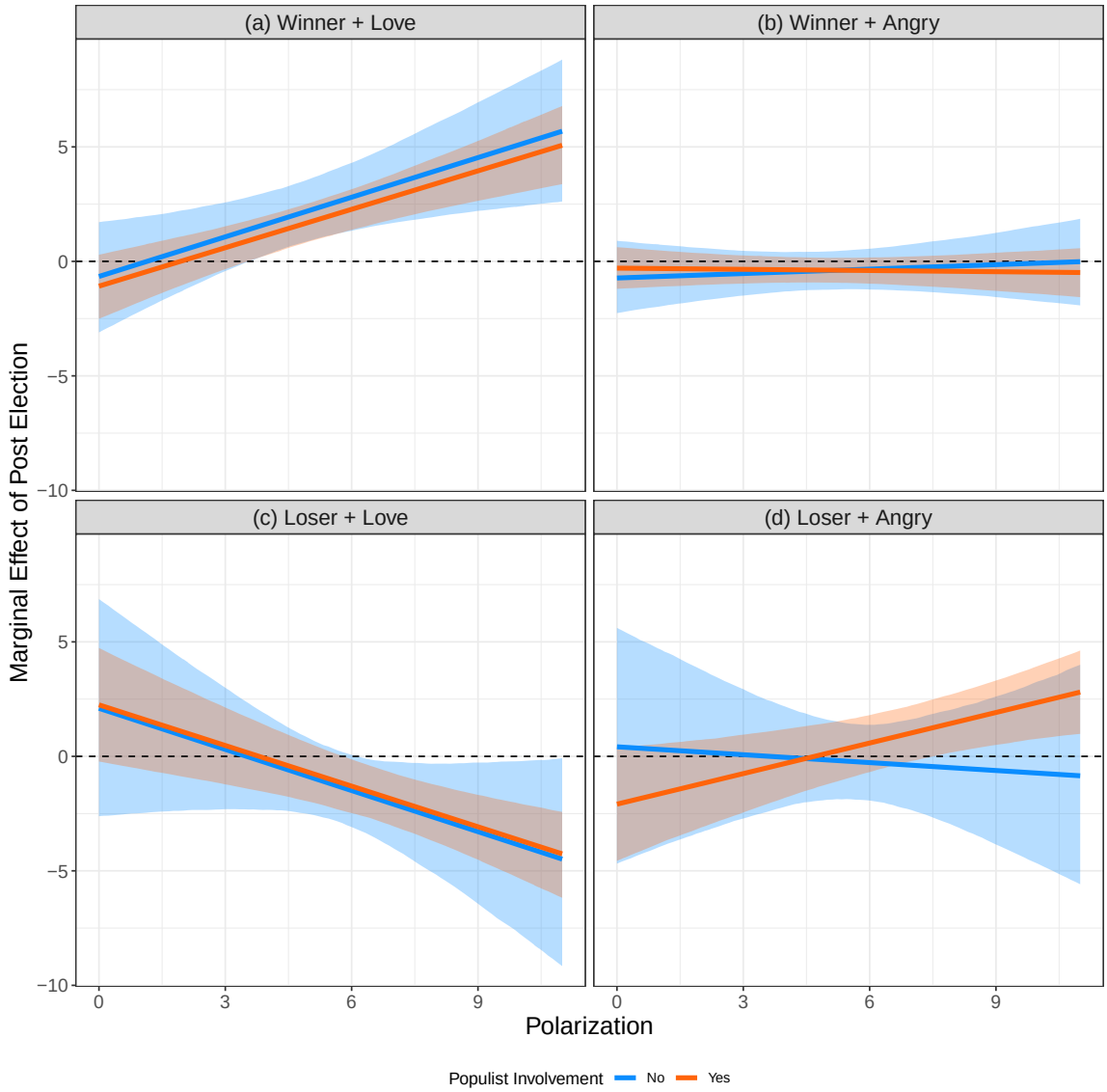
Table Q.1: Post-Election Emotional Changes on the Facebook Pages of Election Winners and Losers Conditional Jointly on Populist Involvement and Polarization

	Winner		Loser	
	(1) Love	(2) Angry	(3) Love	(4) Angry
Post Election	−0.66	−0.73	2.10	0.42
	[−3.10, 1.71]	[−2.26, 0.90]	[−2.61, 6.87]	[−4.69, 5.61]
Populist Involvement	−2.60	0.62	4.45	2.13
	[−12.12, 7.03]	[−1.21, 2.35]	[−9.88, 18.78]	[−3.55, 8.04]
Polarization	−0.76	0.05	0.53	0.21
	[−2.47, 0.91]	[−0.29, 0.37]	[−2.03, 3.09]	[−0.77, 1.22]
Incumbent Party	−0.22	−0.13	3.12	−0.59
	[−4.08, 3.51]	[−0.81, 0.52]	[−1.74, 8.15]	[−2.47, 1.29]
Concurrent Election	−0.11	−0.68	−2.46	−1.23
	[−5.51, 5.32]	[−1.61, 0.30]	[−9.38, 4.63]	[−4.28, 1.57]
Runoff	0.04	0.04	−1.29	−0.81
	[−6.76, 6.84]	[−1.06, 1.19]	[−9.07, 6.47]	[−3.96, 2.31]
Semi-Presidential	−2.27	0.51	−4.66	1.03
	[−6.03, 1.70]	[−0.13, 1.19]	[−9.56, −0.004]	[−0.85, 2.84]
Effective Number of Candidates	−2.39	−0.13	−3.09	−1.25
	[−7.28, 2.37]	[−0.93, 0.66]	[−8.61, 2.29]	[−3.31, 0.81]
Pre-Election Trend (Group Mean)	0.13	−0.06	0.13	−0.01
	[0.04, 0.22]	[−0.16, 0.04]	[0.04, 0.21]	[−0.07, 0.05]
Post-Election Trend (Group Mean)	−0.36	0.02	−0.21	0.15
	[−0.50, −0.23]	[−0.04, 0.08]	[−0.37, −0.05]	[−0.04, 0.34]
Post Election × Populist Involvement	−0.42	0.43	0.15	−2.50
	[−3.25, 2.36]	[−1.32, 2.11]	[−5.02, 5.29]	[−8.05, 2.91]
Post Election × Polarization	0.58	0.06	−0.60	−0.12
	[0.14, 1.02]	[−0.21, 0.33]	[−1.39, 0.19]	[−0.97, 0.72]
Populist Involvement × Polarization	0.98	−0.03	−0.10	−0.08
	[−0.65, 2.61]	[−0.34, 0.28]	[−2.58, 2.39]	[−1.10, 0.92]
Post Election × Populist Involvement × Polarization	−0.02	−0.08	0.01	0.56
	[−0.52, 0.48]	[−0.39, 0.23]	[−0.83, 0.86]	[−0.33, 1.47]
$\hat{\sigma}_{\text{Intercept}}$	7.04	0.57	6.48	1.94
	[5.24, 9.51]	[0.26, 0.96]	[4.75, 8.92]	[1.26, 2.89]
$\hat{\sigma}_{\text{Pre-Election Trend}}$	0.2	0.25	0.17	0.04
	[0.14, 0.28]	[0.18, 0.34]	[0.1, 0.26]	[0, 0.12]
$\hat{\sigma}_{\text{Post-Election Trend}}$	0.25	0.05	0.3	0.35
	[0.17, 0.35]	[0, 0.1]	[0.2, 0.44]	[0.2, 0.56]
N of Posts	3,587	3,587	2,735	2,735
N of Parties	27	27	27	27

Note: The models are estimated with a multi-level linear model with random intercepts and pre-/post-linear time trends by party. The means and 95% credible intervals of the posterior distributions of model parameters are shown. $\hat{\sigma}_{\text{Intercept}}$, $\hat{\sigma}_{\text{Pre-Election Trend}}$, $\hat{\sigma}_{\text{Post-Election Trend}}$ indicate the estimated variance parameters of random effects.

In panels (a) to (c), we observe that the conditional effect of polarization on post-election emotional reactions is similar between elections with and without the involvement of a populist party.

Figure Q.1: The Marginal Effects of Post Election Conditional Jointly on Populist Involvement and Polarization



Note: This figure shows the marginal effects of *Post Election* on the proportions of Love and Angry on the Facebook pages of winners and losers conditional on populist involvement and polarization. Shaded areas indicate 95% credible intervals.

In panel (d), we see that the conditional effect of polarization on Angry reactions among losers could vary depending on the involvement of a populist party. In particular, when a populist party is competing (orange line), the marginal effects of elections on Angry reactions tend to increase as polarization increases. By contrast, when there is no populist party (blue line), the marginal effects of elections become more flat across the entire range of ideological polarization. Therefore, the results of panel (d) seem to suggest that populist involvement might magnify the conditional effects of polarization on negative emotions among the supporters of losing parties. That being said, however, the two lines in panel (d) are still not

statistically discernible from each other. Hence, the above interpretation remains suggestive.

Taking the results of all the four panels in Figure Q.1 together, we are inclined to conclude that there is not much evidence that populism and polarization should jointly reinforce voters' post-election emotions. Yet, we encourage future studies to explore this possibility using different data.

R Changes in Post Sentiments during the 2016 and 2020 US Presidential Elections

Since we do not have appropriate tools to analyze Facebook posts written in more than 30 languages, we cannot systematically assess how changes in elite rhetoric before and after the election mediate voters' post-election emotions. That said, we conduct a preliminary analysis of this question by analyzing the sentiments of the posts on the Facebook pages of the Democratic Party and the Republican Party during the 2016 and 2020 US presidential elections. Our findings suggest that there is rather limited evidence that elite rhetoric change radically right after the election.

After pre-processing/cleaning texts, we count the number of positive and negative words in each post based on sentiment lexicons provided by Hu and Liu (2004). The overall sentiment of the post is calculated as:

$$Post\ Sentiment = \frac{\#Positive\ Words - \#Negative\ Words}{\#Words}$$

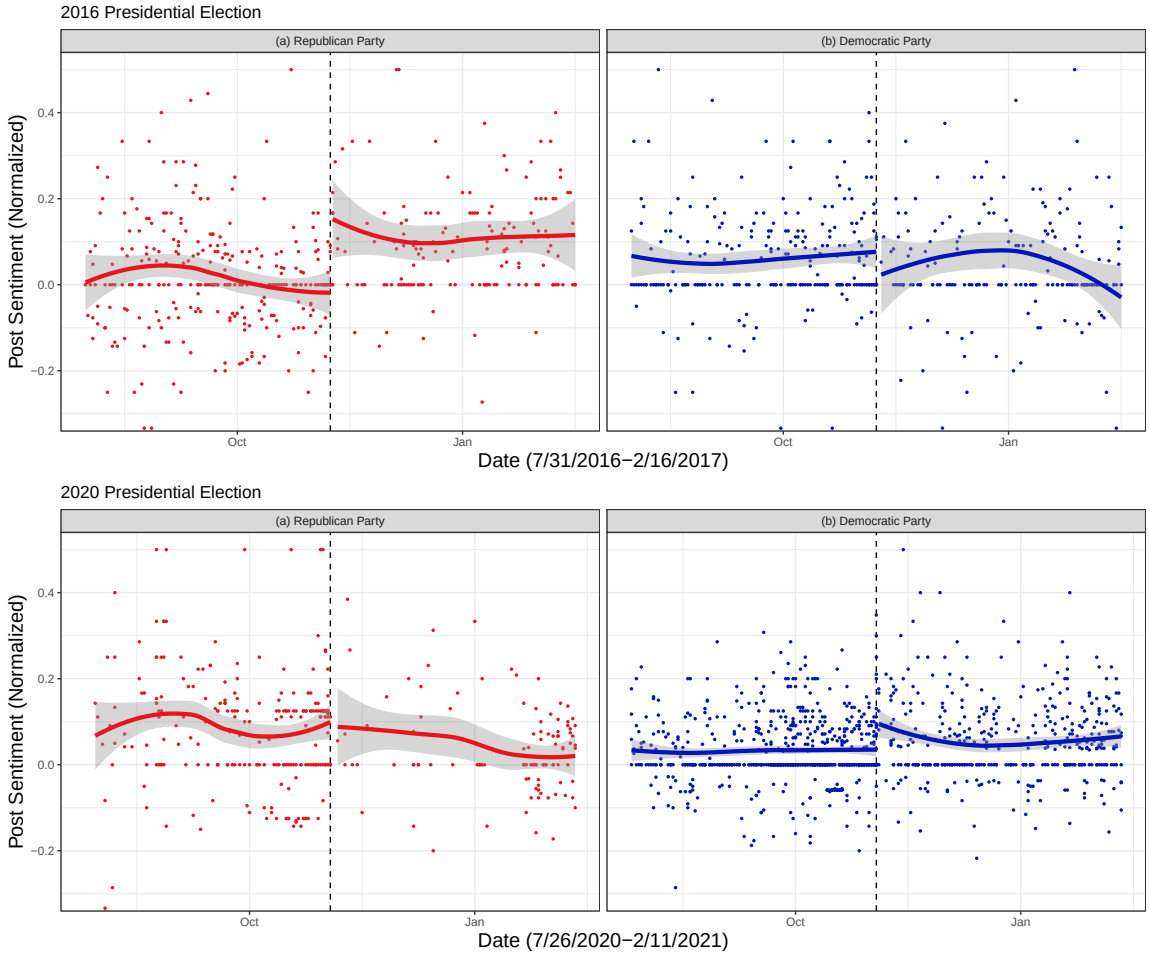
We normalize the difference between the number of positive and negative words by the total number of words to account for the fact that some posts are longer than others.

First, we find that the correlation between post sentiments and Love proportion is 0.2, and the correlation between post sentiments and Angry proportion is -0.2. Rather weak correlations between post sentiments and voters' reactions reinforce our assertion that emotional reactions reflect not just reactions to the text itself but also to the broader electoral dynamics at play (Muraoka et al. 2021).

Next, we trace the post sentiments of the two parties 100 days before and after the presidential elections in Figure R.1, which is compared to Figure 2 in the main text. The top row focuses on the 2016 election, and the second row is the 2020 election. For both elections, we observe some "jumps" or positive shifts in post sentiments among winners (the Republican Party in 2016 and the Democratic Party in 2020) immediately after the election. By contrast, for losers, we do not detect any sudden change in post sentiments. These results mean that changes in voters' emotions could correspond to changes in elite discourses among winners, but not necessarily so among losers.

All in all, although our analysis is limited to the case of the US, there is some suggestive evidence that changes in elite rhetoric before and after the election do not explain everything about how voters respond to election outcomes. At best, what we can say is that the effect of elections that we observe in the main text is the total effect of how elites frame election results and how election results directly change voter emotions.

Figure R.1: Changes in Post Sentiments during the US Presidential Elections



Note: The figure compares the post sentiment on the Facebook pages of the Republican Party and Democratic Party 100 days before and after the 2016 and 2020 presidential election. Solid lines indicate fitted Loess curves estimated with with a span of 1.2, and shaded areas show 95% confidence intervals. The vertical dashed line indicates the election days.

S Comparing Different Types of Elections and Electoral Democracies

As we note in the main text, the conclusions we draw from this study only extend to presidential and semi-presidential democracies, and it is the task of future research to evaluate the external validity of our findings for other types of elections, especially legislative elections in parliamentary democracies. In this section, we provide two sets of descriptive analyses that could guide future research.

First, we analyze how emotional reactions on parties' Facebook pages differ between presidential and legislative elections in a subset of the countries we analyze in this study that had non-concurrent elections. We find that the pre-election periods of presidential elections show greater (lower) proportions of Love (Angry) reactions than the pre-election periods of legislative elections. By contrast, the two types of elections do not show any difference in the intensity of emotional reactions in the post-election periods.

Second, we compare directly elected presidential systems and other systems. We show that the former do not systematically differ from the general population of electoral democracies in terms of the key characteristics that we analyze in this study.

S.1 Presidential vs. Legislative Elections

First, we explore within-country differences in emotional reactions between presidential and legislative elections. To do so, we focus on a subset of the countries that we analyze in this study, which had non-concurrent lower house elections between March 2016 and March 2021. After cleaning the data, we have 18 direct presidential elections and 24 non-concurrent legislative elections in 17 countries.[4]

We perform two types of comparison. First, we focus on the top two parties of a presidential election and analyze how emotional reactions on their Facebook pages differ during presidential and legislative elections, which happened in different times. Second, we focus on the top two parties of a presidential election and the top two parties of a legislative election (in terms of seat shares) and explore how emotional reactions differ between the two sets of the parties.[5] In both exercises, we focus on Facebook posts within ± 15 days of each election. Note that because we lose countries with only concurrent presidential and legislative elections, the analyses we present in this section are not necessarily directly comparable to the ones we report in the main text.

Table S.1 reports the results of differences in means tests for pre- and post-election

[4]Presidential elections analyzed in this exercise are: Argentina (2019), Austria (2016), Bulgaria (2016), Colombia (2018), Croatia (2019), Cyprus (2018), El Salvador (2019), France (2017), Georgia (2018), Mongolia (2017), North Macedonia (2019), Peru (2016), the Philippines (2016), Poland (2020), Romania (2019), Slovenia (2017), the United States (2016), and the United States (2020). Non-concurrent legislative elections analyzed here are: Argentina (2017), Austria (2017), Austria (2019), Bulgaria (2017), Colombia (2018), Croatia (2016), Croatia (2020), Cyprus (2016), El Salvador (2018), El Salvador (2021), France (2017), Georgia (2016), Georgia (2020), Mongolia (2016), Mongolia (2020), North Macedonia (2016), North Macedonia (2020), Peru (2020), the Philippines (2019), Poland (2019), Romania (2016), Romania (2020), Slovenia (2018), and the United States (2018).

[5]In most countries, the two sets of parties are the same, but in some cases, the two sets of the parties are completely different (e.g., Austria).

proportions of Love and Angry reactions. Panel A focuses on the top two presidential parties in two types of races, presidential vs. legislative. By contrast, panel B compares the top two parties of a presidential election and the top two parties of a legislative election. To perform a strictly within-country comparison, all the emotion measures are demeaned by country.

In both panels, we find the same patterns. In the pre-election periods, the proportion of Love tends to be greater in presidential elections than in legislative elections. Reflecting this, the proportion of Angry reactions tends to be lower in the pre-election periods of presidential elections than in the pre-election periods of legislative elections. Then, in the post-election periods, there is no statistically significant difference in the proportions of Love and Angry reactions between the two types of election.

Table S.1: Differences in Emotional Reactions between Non-Concurrent Presidential and Legislative Elections

A. Top Two Parties in Presidential Elections

Variable (Demeaned by Country)	Presidential Elections Mean	Legislative Elections Mean	Difference
Pre-Election Love	0.59	−0.33	0.92 [0.6, 1.23]
Post-Election Love	−0.11	−0.22	0.11 [−0.24, 0.47]
Pre-Election Angry	−0.18	0.95	−1.12 [−1.68, −0.56]
Post-Election Angry	−0.38	−0.13	−0.25 [−0.73, 0.23]
N of Posts	3,400	5,641	
N of Elections	18	24	

B. Top Two Parties in Presidential Elections vs. Top Two Parties in Legislative Elections

Variable (Demeaned by Country)	Presidential Elections Mean	Legislative Elections Mean	Difference
Pre-Election Love	0.66	−0.42	1.08 [0.76, 1.4]
Post-Election Love	−0.14	−0.17	0.03 [−0.32, 0.39]
Pre-Election Angry	−0.19	0.79	−0.98 [−1.45, −0.52]
Post-Election Angry	−0.35	−0.11	−0.23 [−0.71, 0.24]
N of Posts	3,400	6,574	
N of Elections	18	24	

Note: The table summarizes the results of the difference in means tests. All variables are demeaned by country, and 95% confidence intervals in square bracket. The country-level observations include 17 countries that had non-concurrent presidential and legislative elections between March 2016 and March 2021. Since these are a subset of the countries we analyze in the main text, the results of this table are not necessarily directly comparable to what we present in the main text.

Although theorizing about why we observe these patterns goes beyond the scope of this

study, we speculate that the higher stake of the presidential seat than legislative seats, the fact that there are clearly defined winners and losers, and the more personalized nature of presidential elections cultivate more positive moods (e.g., enthusiasm) during presidential elections than during legislative elections.

S.2 Presidential vs. Other Systems

Next, we examine whether there is any difference in key covariate characteristics between directly elected presidential systems and other systems. To do so, We use 79 democracies included in the Comparative Party Social Media Dataset (Muraoka et al. 2021) plus Ukraine, which is included for substantive interest in the country.[6]

We focus on the economic and political development of these countries, their party systems, as well as the Facebook engagements of their populations. First, we rely on the V-Dem (Coppedge et al. 2024) to measure GDP, GDP per capita, and the extent of electoral democracy and liberal democracy. For each country, we take the average values between 2016 and 2021. Next, we use the GPS (Norris 2019) to measure the two party system features that we analyze in the paper: populism and polarization. To measure the former, we take the average populism score of the parties in the GPS by country. To measure the latter, we compute the variance of the ideological positions of the parties in economic and social dimensions. Then, for Facebook engagements, we calculate the average number of emotional reactions per post, average Love proportion, and average Angry proportion using all the posts between 2016 and 2021.

Table S.2 shows the results. The second column shows the mean values of the ten variables for directly elected presidential systems. The third column shows the mean values of the variables for countries with other systems. Then, the fourth column shows the difference between the two with a 95% confidence interval. We find that for all the variables we analyze, these differences are not statistically significant. Hence, there is no strong evidence that countries with a directly elected president are systematically different from other democratic countries.

[6]Directly elected presidential countries are: Argentina, Austria, Bolivia, Bosnia Herzegovina, Brazil, Bulgaria, Chile, Colombia, Costa Rica, Croatia, Cyprus, Czech Republic, Dominican Republic, El Salvador, Finland, France, Georgia, Guatemala, Honduras, Iceland, Indonesia, Ireland, Kyrgyzstan, Lithuania, Mexico, Moldova, Mongolia, Montenegro, Namibia, Nicaragua, North Macedonia, Panama, Paraguay, Peru, the Philippines, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, South Korea, Sri Lanka, Taiwan, Tunisia, Ukraine, the United States, and Uruguay. Countries with other systems are: Albania, Armenia, Australia, Belgium, Botswana, Canada, Denmark, Estonia, Germany, Greece, Hungary, Iraq, Israel, Italy, Jamaica, Japan, Latvia, Lebanon, Lesotho, Luxembourg, Malaysia, Malta, Myanmar, Nepal, the Netherlands, New Zealand, Norway, South Africa, Spain, Sweden, Switzerland, and the United Kingdom.

Table S.2: Differences in Key Covariate Characteristics between Directly Elected Presidential Systems and Other Systems

Variable	Directly Elected Presidential Systems Mean	Other Systems Mean	Difference
GDP (log)	9.84	10.17	−0.33 [−1.1, 0.44]
GDP per capita (log)	2.81	3.17	−0.36 [−0.73, 0.02]
Electoral Democracy	0.69	0.75	−0.06 [−0.14, 0.02]
Liberal Democracy	0.56	0.65	−0.09 [−0.19, 0]
Average Party Populism	5.70	5.23	0.47 [−0.02, 0.97]
Party Polarization (Economic Dimension)	5.13	4.49	0.65 [−0.6, 1.89]
Party Polarization (Social Dimension)	6.06	6.72	−0.65 [−2.1, 0.79]
Average Total # Reactions (log)	5.45	5.86	−0.4 [−0.84, 0.04]
Average Love Proportion	4.70	4.60	0.09 [−1.08, 1.27]
Average Angry Proportion	2.09	3.08	−0.99 [−2.07, 0.09]
N of Countries	48	32	

Note: The table summarizes the results of the difference in means tests. Variables that show a heavy skewness is log-transformed. 95% confidence intervals in square bracket.

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