**The Public's Anger or the Public's Fear? Revisiting "The Public's Anger:**

**White Racial Attitudes and Opinions Toward Health Care Reform"**

Many social scientists have become concerned about "researcher degrees of freedom" in which latitude in data analysis can produce incorrect inferences (Simmons et al. 2011, Gelman and Loken 2014). Sometimes data permit multiple inferences, and in these cases is it important to identify all of the inferences that can be drawn from the data; otherwise, reporting only a subset of possible inferences can produce false confidence about the reported inferences. Below, I report on a study that investigated the influence of three emotions on opinions about Barack Obama and the Democrats' health care reform. In the initial reported analysis of the data, Banks (2014) presented evidence that "anger uniquely increases the impact of racial attitudes on health care opinions" (p. 508); however, my analysis indicated another possible inference from the data, namely, that, compared to a baseline, fear  but not anger or enthusiasm  caused a statistically significant increase in the influence of racial attitudes on views of Barack Obama and the Democrats' health care reform.

**Review of the Experiment**

Data for the survey experiment were collected by Knowledge Networks in June and July of 2010, with funding from the Time-sharing Experiments for the Social Sciences. The dataset had 986 respondents, all of whom were white non-Hispanic. The two waves of the survey had respective response rates of 70.5% and 77.5%.

In the first wave, respondents were asked: six items measuring symbolic racism; a single item measuring support for limited government; and items about political party membership, political ideology, religious denomination, and frequency of religious services attendance. See the Supplemental Information for the measurement of symbolic racism and support for limited government.

The second wave was conducted a few days to a few weeks later. Respondents were placed into one of four conditions intended to trigger a particular emotion or feeling. Some respondents were placed into a condition intended to trigger anger, fear, or enthusiasm: these respondents were shown a photo of [an angry/a fearful/an enthusiastic] person and given these instructions:

Here is a picture of someone who is [ANGRY/AFRAID/ENTHUSIASTIC]. We would like you to describe in general things that make you feel like the person in the picture. It is okay if you don't remember all the details, just be specific about what exactly it is that makes you [ANGRY/AFRAID/ENTHUSIASTIC] and what it feels like to be [ANGRY/AFRAID/ENTHUSIASTIC]. Please describe the events that make you feel the MOST [ANGRY/AFRAID/ENTHUSIASTIC], these experiences could have occurred in the past or will happen in the future. If you can, write your description so that someone reading it might even feel [ANGRY/AFRAID/ENTHUSIASTIC].

Respondents in the relaxed condition were not given a photo but received this prompt:

Now we would like you to describe in general things that make you feel RELAXED. It is okay if you don't remember all the details, just be specific about what exactly it is that makes you RELAXED and what it feels like to be RELAXED. Please describe the events that make you feel the MOST RELAXED, these experiences could have occurred in the past or will happen in the future. If you can, write your description so that someone reading it might even feel RELAXED.

Following the treatment, respondents were asked to report views regarding Barack Obama and the Democrats' health care reform bill:

Do you approve or disapprove of the way Barack Obama is handling Health Care? Please indicate whether you approve strongly, approve somewhat, neither approve nor disapprove, disapprove somewhat, or disapprove strongly.

As of right now, do you favor or oppose Barack Obama and the Democrats' Health Care reform bill?

Respondents who reported favoring the reform bill in the second item were asked to report whether they favored the bill strongly or not strongly; respondents who reported opposing the reform bill were asked to indicate whether they opposed the bill strongly or not strongly.

**Research Design**

There were three dependent variables in the analysis. First, disapproval of the way Barack Obama is handling health care was coded from 1 (approve strongly) to 5 (disapprove strongly). Second, opposition to Barack Obama and the Democrats' health care reform bill was coded in a single dependent variable from 0 (favor strongly) to 3 (oppose strongly); respondents who indicated that they favored or opposed the bill but did not respond to the follow-up item were respectively coded as favoring or opposing the bill not strongly. Third, the two aforementioned items were used to construct a scale for negative views of Barack Obama and the Democrats' health care reform, which had a Cronbach's alpha of 0.93 (Cronbach 1951); responses to each dependent variable were standardized so that item means and standard deviations were respectively 0 and 1, with higher values indicating stronger disapproval or opposition.

Responses to these three variables were estimated in models that included: separate dichotomous variables for the anger, fear, and enthusiasm conditions; a variable for symbolic racism, support for limited government, or partisanship; and interaction terms between condition variables and symbolic racism, support for limited government, or partisanship. Symbolic racism, support for limited government, and partisanship were coded to range from 0 to 1, with higher values respectively indicating higher levels of symbolic racism, support for limited government, and Republican partisanship. Linear regressions were weighted, with cases dropped only if the case had missing data for at least one model variable.

**Results**

Model 1 in Table 1 estimated responses to the item measuring disapproval of the way that Barack Obama is handling health care; the only statistically significant coefficients were for symbolic racism, the fear condition, the interaction of fear and symbolic racism, and the constant. Model 2 estimated responses to the item measuring opposition to Barack Obama and the Democrats' health care reform bill: the only statistically significant coefficients were for symbolic racism, the fear condition, the interaction of fear and symbolic racism, and the constant. Model 3 estimated the scale of negative views of Barack Obama and the Democrats' health care reform; again, the only statistically significant coefficients were for symbolic racism, the fear condition, the interaction of fear and symbolic racism, and the constant.

[Table 1 about here]

Given variable codings, the 2.06 coefficient on symbolic racism in Model 3 indicates that, for persons in the omitted relaxed condition, a change from the lowest level of symbolic racism to the highest level of symbolic racism was estimated to correlate with a 2.06 standard deviation increase in negative views of Barack Obama and the Democrats' health care reform. The -0.73 coefficient on the fear condition variable indicates that, compared to persons in the relaxed condition with the lowest level of symbolic racism, persons in the fear condition with the lowest level of symbolic racism had more positive views of Barack Obama and the Democrats' health care reform, by 0.73 standard deviations. The 0.97 coefficient on the SR x Fear interaction term indicated that the full effect of symbolic racism in the fear condition was 0.97 standard deviations higher than the full effect of symbolic racism in the relaxed condition.

The top row of Figure 1 plots estimates for Model 3. The black dashed line in each graph indicates the influence of symbolic racism in the relaxed condition: the steep slope of the relaxed line in each graph indicates that symbolic racism is a strong predictor of negative views of Barack Obama and the Democrats' health care reform in the relaxed condition. The slightly less steep green line in the top right box indicates that the observed influence of symbolic racism was slightly less strong in the enthusiasm condition compared to the relaxed condition; the steeper red and blue lines in the top left and top middle boxes respectively indicate that the observed influence of symbolic racism was stronger in the anger and fear conditions compared to the relaxed condition. The difference in the slopes between the fear and anger condition was not statistically significant in Model 1, 2, or 3 (respective p-values of 0.146, 0.378, and 0.241).[[1]](#footnote-1)

[Figure 1 about here]

Symbolic racism taps racial attitudes and conservativism (Sears and Henry 2003: 271), so it is possible that results in Models 1, 2, and 3 reflect the influence of conservatism instead of the influence of racial attitudes. To address this possibility, Models 4, 5, and 6 in Table 2 correspond to Models 1, 2, and 3 in Table 1, but with support for limited government replacing symbolic racism as a predictor (see Banks 2014: 505). None of the emotional primes  anger, fear, or enthusiasm  had a different effect on the influence of symbolic racism than the relaxed prime did, in terms of influencing responses to the dependent variables. Model 6 results are plotted in the middle row of Figure 1, illustrating this lack of a difference in the effect of the three emotional primes on limited government, relative to the relaxed prime.

[Table 2 about here]

Results for the limited government models suggest that the symbolic racism variable in this experiment might reflect racial attitudes and not support for limited government, but results for Models 7, 8, and 9 in Table 3 suggest that the symbolic racism variable in this experiment might nonetheless largely reflect non-racial attitudes. These models replace symbolic racism with a seven-point self-reported partisanship scale coded from strong Democrat (0) to strong Republican (1). Patterns of results for partisanship displayed in the bottom row of Figure 1 generally match results for symbolic racism in Models 1, 2, and 3, but with smaller effect sizes for partisanship than for symbolic racism. These results suggest that much of the effect of symbolic racism in this experiment might be due to partisanship and not racial attitudes per se. The difference in slopes between the fear and anger condition was not statistically significant in Model 7 but was statistically significant in Models 8 and 9 (respective p-values of 0.127, 0.025, and 0.047).

[Table 3 about here]

**Comparison with Banks (2014)**

Inferences from Models 1, 2, and 3 conflict with results from Banks (2014) suggesting that anger  not fear was the stronger emotional influence of symbolic racism's effect on negative views of Barack Obama and the Democrats' health care reform bill. With the help of Dr. Banks, I was able to almost exactly reproduce results reported in the first numeric column of Table 2 in Banks (2014), presented in Model 10 of Table 4 here.

[Table 4 about here]

Model 10 results indicate that anger  but not fear  had a statistically significant influence on the impact of symbolic racism regarding opposition to Barack Obama and the Democrats' health care reform bill; results from Model 10 conflict with inferences from Table 1 of the present study. There are several important differences between key models in the two studies:

1. Banks (2014) did not report results for the presumed dependent variable that asked whether respondents approved or disapproved of the way Barack Obama is handling health care.
2. For the dependent variable asking whether respondents favored or opposed Barack Obama and the Democrats' health care reform bill, Banks (2014) reported results only for the dichotomous favor-or-oppose item; the present study reported results that included responses from the item about whether respondents strongly favored or strongly opposed the health care reform bill.
3. Table 2 in Banks (2014) reported results for anger and fear relative to the relaxed condition, but excluded cases for the enthusiasm condition.
4. The symbolic racism scale in Banks (2014) included only four of the six symbolic racism items from the questionnaire.
5. Banks (2014) excluded ten respondents not in the enthusiasm condition who completed the survey too quickly or too slowly.[[2]](#footnote-2)
6. Banks (2014) excluded nine respondents who were not in the enthusiasm condition, who had not already been excluded for survey-taking time length reasons, and whose responses indicated that the respondent did not take the treatment seriously or follow directions correctly (e.g., a response of "not smiling eyebrows pointed").
7. Banks (2014) included control variables for income, Southern residence, employment status, home ownership, urban residence, and political discussion. Banks described the political discussion control as "a measure of several political topics respondents mention in their open-ended responses to the emotion inductions" (pp. 511-512). This political discussion control coded whether respondents mentioned one of eight political or racial issues, such as education or welfare; this post-treatment political discussion control had four levels.

Banks and Valentino (2012a) conducted a survey experiment with a similar focus, but with treatments of anger, disgust, and fear interacted with symbolic racism in predicting a scale of responses to various racial dependent variables. Main results presented in Table 2 of Banks and Valentino (2012a) contained controls for ideology, education, income, age, and southern residence, as well as the political discussion control. Reproduction code from Banks and Valentino (2012b) contained a restriction for "baddata2," which is a variable that presumably served the same purpose as "baddata" in Banks (2014): to exclude from the analysis respondents who did not take the treatment seriously or follow directions correctly. Similar to Banks (2014), Banks and Valentino (2012b) used four items in the symbolic racism battery (p. 290).

**Conclusions**

This study checked the main analysis of Banks (2014), presented in Table 2 of that article, which suggested that "anger uniquely increases the impact of racial attitudes on health care opinions" (p. 508); however, this study presented evidence that the data analyzed in Banks (2014) admits another inference: that fear might have been at least as strong of an influence as anger on the impact of symbolic racism on opinions about Barack Obama and the Democrats' health care reform; however, this latter inference is clouded by the possibility that much of the effect of symbolic racism in the experiment might reflect partisanship and not racial attitudes per se.

It would not be surprising if fear contributed to opposition to the Democrats' health care reform bill, given the massive scale of the reform to one-sixth of the U.S. economy (Whitesides and Smith 2009), the possibility that the reform bill might cause a loss of current insurance ("So, can you keep your insurance under the health care proposals in Congress? Answer: It depends", Robertson 2009), and the concern that the bill would create "death panels," which is a claim that earned the PolitiFact "Lie of the Year" (Holan 2009). But if fear drove ‒ and drives ‒ opposition to the Democrats' health care reform, then that permits more prescriptions than if the main driver were anger. To the extent that fear reflects uncertainty about the future, fear can be partially addressed by incremental change and additional information.

Regarding the contribution of this study more generally, Franco et al. (2015) provided evidence from the TESS database that researchers underreport experimental conditions and dependent variables. The present study compared results reported in Banks (2014) with results based on the presumed intended research design drawn from the survey questionnaire for the study, illustrating that underreporting of dependent variables can affect inferences: in some situations, two researchers can analyze the same data and produce substantially different inferences.

Such inferential selection bias can be reduced in several ways, such as peer reviewers requesting additional analyses and journals requiring disclosures to ensure that results are reported for all treatments and dependent variables. Researchers themselves can reduce researcher degrees of freedom  and thus legitimately present analyses as confirmatory  by following a preregistered research design (Monogan 2013). Journals requiring public posting of data and code for a published study can also reduce inferential selection bias if there is a realistic risk that other researchers will analyze the data and report the robustness of results to alternate research designs; thus, policies that permit or require journals to publish replications and reproductions of articles published in that journal ­− whether in the regular journal itself or in an online supplement − might encourage researchers to more fully report the range of possible inferences that their data admit (see Srivastava 2012).

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**Supplemental Information**

Measurement of symbolic racism

"For each of the following statements, we would like you to indicate whether you agree strongly, agree somewhat, neither agree nor disagree, disagree somewhat, or disagree strongly.

1. Generations of slavery and discrimination have created conditions that make it difficult for blacks to work their way out of the lower class
2. It is really a matter of some people not trying hard enough; if blacks would only try harder they could be just as well off as whites.
3. Irish, Italian, Jewish and many other minorities overcame prejudice and worked their way up. Blacks should do the same without any special favors.
4. Government officials usually pay less attention to a request or complaint from a black person than from a white person.
5. Over the past few years, blacks have gotten less than they deserve.
6. Most blacks who receive money from welfare programs could get along without it if they tried."

Responses were summed to the above six items, with items 2, 3, and 6 reverse coded. Items 4 and 6 were not used in the Banks (2014) analyses. There were 21 cases with a missing response on at least 1 of the 6 symbolic racism items.

Measurement of limited government

"Some people think the government should provide fewer services in order to reduce spending. Other people feel it is important for the government to provide more services even if it means an increase in taxes. Where would you place yourself on this scale, or haven’t you thought much about this?"

Responses were initially coded from 1 ("The government should provide fewer services in order to reduce spending") to 7 ("The government should provide more services even if it means an increase in taxes"), but were reverse coded for the analysis.

**Table 1. Influence of Emotions on the Effect of Symbolic Racism**

|  |  |  |  |
| --- | --- | --- | --- |
|  | 1 | 2 | 3 |
|  | Disapproval of the way Barack Obama is handling health care | Opposition to Barack Obama and the Democrats' Health Care reform bill | Negative views of Barack Obama and the Democrats' health care reform scale |
| SR x Anger | 0.48(0.41) | 0.48(0.38) | 0.52(0.39) |
| SR x Fear | **1.04\*(0.37)** | **0.82\*(0.36)** | **0.97\*(0.35)** |
| SR x Enthusiasm | -0.22(0.42) | -0.43(0.42) | -0.26(0.41) |
| Anger condition | -0.32(0.27) | -0.31(0.26) | -0.34(0.26) |
| Fear condition | **-0.78\*(0.25)** | **-0.64\*(0.26)** | **-0.73\*(0.25)** |
| Enthusiasm condition | 0.03(0.29) | 0.18(0.31) | 0.06(0.28) |
| Symbolic racism (SR) | **1.94\*(0.27)** | **2.05\*(0.25)** | **2.06\*(0.26)** |
| Constant | **-1.22\*(0.18)** | **-1.31\*(0.17)** | **-1.31\*(0.17)** |
| Observations | 959 | 956 | 953 |

Note: Numeric cell entries are coefficients, with standard errors in parentheses. Boldface and asterisk indicate statistical significance at the p<0.05 level (two-tailed test).



**Figure 1. Influence of Emotions on the Effect of Symbolic Racism**

Note: The black dashed line in each graph indicates the relaxed condition. Lines in the figure are based on Model 3 in Table 1 (top row), Model 6 in Table 2 (middle row), and Model 9 in Table 3 (bottom row).

**Table 2. Influence of Emotions on the Effect of Support for Limited Government**

|  |  |  |  |
| --- | --- | --- | --- |
|  | 4 | 5 | 6 |
|  | Disapproval of the way Barack Obama is handling health care | Opposition to Barack Obama and the Democrats' Health Care reform bill | Negative views of the health care reform bill opinions scale |
| LG x Anger | -0.17(0.30) | -0.15(0.26) | -0.16(0.27) |
| LG x Fear | 0.25(0.26) | 0.25(0.25) | 0.28(0.24) |
| LG x Enthusiasm | -0.34(0.32) | -0.38(0.32) | -0.38(0.31) |
| Anger condition | 0.09(0.22) | 0.09(0.21) | 0.09(0.21) |
| Fear condition | -0.28(0.20) | -0.29(0.20) | -0.30(0.19) |
| Enthusiasm condition | 0.15(0.24) | 0.21(0.24) | 0.19(0.24) |
| Support for limited government (LG) | **2.11\*(0.18)** | **2.10\*(0.17)** | **2.17\*(0.17)** |
| Constant | **-1.26\*(0.14)** | **-1.26\*(0.14)** | **-1.30\*(0.13)** |
| Observations | 902 | 900 | 897 |

Note: Numeric cell entries are coefficients, with standard errors in parentheses. Boldface and asterisk indicate statistical significance at the p<0.05 level (two-tailed test).

**Table 3. Influence of Emotions on the Effect of Partisanship**

|  |  |  |  |
| --- | --- | --- | --- |
|  | 7 | 8 | 9 |
|  | Disapproval of the way Barack Obama is handling health care | Opposition to Barack Obama and the Democrats' Health Care reform bill | Negative views of the health care reform bill opinions scale |
| Partisanship x Anger | 0.44(0.26) | 0.43(0.25) | 0.45(0.25) |
| Partisanship x Fear | **0.77\*(0.25)** | **0.87\*(0.23)** | **0.85\*(0.24)** |
| Partisanship x Enthusiasm | 0.12(0.27) | 0.33(0.27) | 0.23(0.26) |
| Anger condition | -0.28(0.16) | -0.27(0.16) | -0.29(0.16) |
| Fear condition | **-0.54\*(0.16)** | **-0.59\*(0.15)** | **-0.59\*(0.15)** |
| Enthusiasm condition | -0.24(0.18) | -0.33(0.18) | -0.29(0.18) |
| Partisanship | **1.38\*(0.20)** | **1.37\*(0.19)** | **1.42\*(0.20)** |
| Constant | **-0.63\*(0.13)** | **-0.63\*(0.12)** | **-0.65\*(0.12)** |
| Observations | 979 | 976 | 973 |

Note: Numeric cell entries are coefficients, with standard errors in parentheses. Boldface and asterisk indicate statistical significance at the p<0.05 level (two-tailed test).

**Table 4. Influence of Emotions on the Effect of Symbolic Racism**

|  |  |
| --- | --- |
|  | 10 |
|  | Banks (2014) model |
| SR x Anger | **1.58\*****(0.71)** |
| SR x Fear | 0.59(0.65) |
| Anger condition | **-1.03\*****(0.46)** |
| Fear condition | -0.50(0.45) |
| Symbolic racism | **2.48\*****(0.45)** |
| Income | -0.38(0.29) |
| South | 0.17(0.13) |
| Employed | **0.35\*****(0.17)** |
| Political discussion | -0.69(0.46) |
| Own home | 0.12(0.16) |
| Urban | **-0.50\*****(0.16)** |
| Constant | **-1.07\*****(0.36)** |
| Observations | 706 |

Note: Dependent variable is a dichotomous variable measuring whether a respondent favors or opposes Barack Obama and the Democrats' Health Care reform bill. Numeric cell entries are coefficients, with standard errors in parentheses. Boldface and asterisk indicate statistical significance at the p<0.05 level (two-tailed test). Excluded from the analysis: respondents placed into the enthusiasm condition, respondents who provided text responses that indicated that the respondent did not take the treatment seriously or follow directions correctly, and respondents who completed the survey too quickly or too slowly.

1. However, respective p-values for the difference in the slopes between the fear and anger conditions were 0.047, 0.158, and 0.084 when the symbolic racism scale was constructed using the Stata alpha command with items standardized before scaling and cases retained if the case had substantive responses to at least three of the six symbolic racism items; this scale had only 2 cases coded as missing due to non-substantive responses. [↑](#footnote-ref-1)
2. Data retrieved from the Time-Sharing Experiments for the Social Sciences website did not contain data on the length of time that respondents took to answer the survey items, so this part of the Banks study could not be verified from the available data. [↑](#footnote-ref-2)