

# Appendix for “Financial Crisis and Group Identity: Exploring Linked Fate among U.S. Black and Latino Populations during the Great Recession”

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## CMPS Replication Data and Measures

Data for the replication analyses comes from the 2008 and 2012 and 2016 Collaborative Multiracial Post-Election Survey (CMPS) (Barreto et al. 2008, Frasure et al. 2012, Frasure et al. 2016).

The first wave, conducted in 2008, sampled registered voters. The sample was drawn from 18 statewide databases of registered voters and was nationally representative. Participants were contacted via telephone and asked a slate of interview questions. The interviews took place between November 2008 and January 2009. In total, 4563 respondents completed the survey in this first wave.

The second wave, conducted in 2012, also sampled registered voters. Participants were recruited via mail and phone using national random samples. As in 2008, the 2012 sample was nationally representative. The 2012 survey was conducted by the GfK Group (Frasure et al. 2012). The interviews took place between November 16, 2012, and November 26, 2012, and were focused on the 2012 election. In the 2012 wave, 2,616 registered voters responded to the survey.

Since the CMPS includes a large multiracial sample of the US, we can investigate linked fate across marginalized groups. Our analysis includes 2 years of survey data taken four years apart from 2008 to 2012. The 2008 CMPS post-election survey measure is well suited for this analysis since the survey was taken in November, when the impact of the economic recession spread throughout the US population. Early hints of the crisis began in April 2007 with bankruptcies. By the end of 2007, the nation was in recession, which lingered until spring of 2009. The main year of interest is 2012, but the 2008 CMPS measures are key to the analysis in checking for significant changes in the years after economic recovery. There are almost 5,000 respondents when all survey years are combined (N = 4,933).

## CMPS Survey Questions

### **Ethnic linked fate**

“How much does your “doing well” depend on other [INSERT GROUP / S3] also doing well?”

There are 4 categories ranging from not at all to a lot ( A lot, some, a little, or not at all).

There are several control variables in the model. Age ranges from 18 to 99, binned into 7 categories. This variable was rescaled from 0-1. Partisanship is in 3 categories: Democrat, Independent, and Republican. We measure socioeconomic status beyond annual income by including several variables: whether a respondent rents their home (0-1). Individuals who lived with someone else were included in the rental category since they do not own property. Whether they are an immigrant (0-1), and education level. Education is in 4 categories ranging from no high school to at least a 4-year degree and is rescaled. Income is in 7 categories ranging from less than \$20,000 to \$150,000 or more and is rescaled. Survey weights are included in the models.

## ANES Survey Questions

### **Ethnic linked fate**

“How much do you think what happens to [fill in] here in the US will have something to do with what happens in your life?” There are 4 categories ranging from not at all to a lot.

### **Financial Hardship**

(2008) “We are interested in how people are getting along financially these days. Would you say that you and your family are better off, worse off, or just about the same financially as you were a year ago?”

(2012) “We are interested in how people are getting along financially these days. Would you say that you and your family are better off, worse off, or just about the same financially as you were four years ago?”

Scale from 1-5, with 5 being severe hardship.

## **Church attendance**

(2004, 2008, 2012, 2016) 2004: V043223 “Lots of things come up that keep people from attending religious services even if they want to. Thinking about your life these days, do you ever attend religious services, apart from occasional weddings, baptisms or funerals?”

Yes/No

(2008) V083186 1. Yes 5. No

(2012) relig\_church. 1. Yes 2. No

(2016) V161244 1. Yes, 2. No

## **Race/Ethnicity**

(2004) “What racial or ethnic group or groups best describes you?” (6 categories: Black, Asian, Native American, Hispanic or Latino, White, Other)

(2008) “What racial or ethnic group or groups best describes you?” (8 categories: White, Black, White and Black, Other race, White and another race, Black and another race, White, Black and another race).

This variable was combined with the dummy variable for ethnicity (2 categories: Is Latino, Is not Latino). This separate measure of Hispanic/Latino ethnicity was used to define the Latino survey population in 2008.

(2012) The race/ethnicity measure was derived from separate questions on race and ethnicity, (6 categories: White, Black, Asian, Native Hawaiian or other Pacific Islander, Native American or Alaska Native, Hispanic, Other multiple races)

(2016) “I am going to read you a list of five race categories. Please choose one or more races that you consider yourself to be...” (6 categories: White, Black, Asian, Native Hawaiian Pacific Islander, Native American or Alaska, Hispanic, Other multiple races)

## Data Tables

Table A1. Linked Fate was high among Blacks relative to other groups in 2004

| Linked Fate Response (%) by Race-Ethnicity |      |          |       |      |          |        |      |          |       |      |          |
|--------------------------------------------|------|----------|-------|------|----------|--------|------|----------|-------|------|----------|
| White                                      |      |          | Black |      |          | Latino |      |          | Asian |      |          |
| A lot                                      | Some | Not Much | A lot | Some | Not Much | A lot  | Some | Not Much | A lot | Some | Not Much |
| 15                                         | 32   | 8        | 32    | 27   | 6        | 18     | 22   | 5        | 17    | 37   | 9        |

*Source: National Politics Study (NPS), 2004*

Table A2. Most respondents selected the economy as the top issue regardless of race-ethnicity in 2008

| White % (n) | Black % (n) | Latino % (n) | Asian % (n) | Total % (n) |
|-------------|-------------|--------------|-------------|-------------|
| 72 (814)    | 72 (680)    | 68 (1,068)   | 73 (670)    | 71 (3,232)  |

*Source: Collaborative Multi-racial Post-election Survey (CMPS), 2008*

Table A3. Sample Sizes of Black and Latino Respondents by Year, ANES 2004–2016

| Year         | 2004       | 2008         | 2012         | 2016       | Total       |
|--------------|------------|--------------|--------------|------------|-------------|
| Black        | 180        | 570          | 1021         | 397        | 2168        |
| Latino       | 81         | 509          | 1009         | 450        | 2049        |
| <b>Total</b> | <b>261</b> | <b>1,079</b> | <b>2,030</b> | <b>847</b> | <b>4217</b> |

Table A4. Sample Sizes of Black and Latino Respondents by Income (1-12), ANES 2004-2016

|     | Black | Latino | Sum  |
|-----|-------|--------|------|
| 1   | 405   | 271    | 676  |
| 2   | 313   | 224    | 537  |
| 3   | 283   | 252    | 535  |
| 4   | 220   | 239    | 459  |
| 5   | 154   | 194    | 348  |
| 6   | 118   | 132    | 250  |
| 7   | 119   | 152    | 271  |
| 8   | 89    | 86     | 175  |
| 9   | 47    | 69     | 116  |
| 10  | 45    | 51     | 96   |
| 11  | 37    | 49     | 86   |
| 12  | 107   | 137    | 244  |
| Sum | 1937  | 1856   | 3793 |

In 2004 ANES, only 118 out of 1212 (10%) of respondents fell into the *"don't know"/"refused to answer"* categories. In 2008 ANES, only 183 out of 2322 (8%), in 2012 it was 520 out of 5914 (9%) and in 2016, 202 out of 4217 (5%). We include an improved explanation in the Appendix. We thank R3 for suggesting that we further explain this in the manuscript.

## Model Variations: CMPS

Table A3. Ordered Logit Results on the Effect of Economic Factors on Linked Fate

| <i>Dependent variable: P(Ethnic Linked Fate)</i> |                           |                          |
|--------------------------------------------------|---------------------------|--------------------------|
|                                                  | Latino                    | Black                    |
| Education                                        | −0.129**<br>(0.054)       | −0.227**<br>(0.102)      |
| Born in US                                       | −0.061*<br>(0.034)        | −0.006<br>(0.120)        |
| Financial Hardship                               | 0.015<br>(0.015)          | −0.040<br>(0.029)        |
| Age                                              | −0.141**<br>(0.062)       | −0.063<br>(0.110)        |
| Income                                           | 0.008<br>(0.066)          | −0.163<br>(0.113)        |
| Gender: Female                                   | 0.092***<br>(0.033)       | 0.072<br>(0.059)         |
| 2012                                             | 0.240***<br>(0.044)       | −0.328***<br>(0.063)     |
| 2016                                             | 0.445***<br>(0.041)       | 0.506*<br>(0.298)        |
| Democrat                                         | 0.250***<br>(0.044)       | 0.282<br>(0.193)         |
| Independent                                      | 0.022<br>(0.051)          | 0.094<br>(0.205)         |
| Constant                                         | 2.536***<br>(0.086)       | 2.811***<br>(0.272)      |
| Observations                                     | 4,103                     | 1,330                    |
| R <sup>2</sup>                                   | 0.049                     | 0.042                    |
| Adjusted R <sup>2</sup>                          | 0.047                     | 0.034                    |
| Residual Std. Error                              | 0.876 (df = 4092)         | 1.015 (df = 1319)        |
| F Statistic                                      | 21.297*** (df = 10; 4092) | 5.712*** (df = 10; 1319) |
| <i>Note: CMPS 2008, 2012, 2016</i>               |                           |                          |
| *p<0.1; **p<0.05; ***p<0.01                      |                           |                          |

Table A4. Ordered Logit Interaction Results on the Effect of Financial Hardship on Linked Fate by year

| <i>Dependent variable: P(Ethnic linked fate)</i> |                      |
|--------------------------------------------------|----------------------|
|                                                  | Model                |
| Education                                        | −0.306***<br>(0.071) |
| Republican                                       | −0.525***<br>(0.070) |
| Independent                                      | −0.405***<br>(0.057) |
| 2012                                             | −0.337<br>(0.214)    |
| 2016                                             | 0.715***<br>(0.186)  |
| Financial Hardship                               | 0.003<br>(0.044)     |
| Age                                              | −0.359***<br>(0.091) |
| Gender: Female                                   | −0.023<br>(0.048)    |
| Latino                                           | 0.381***<br>(0.062)  |
| 2012 × Financial Hardship                        | 0.059<br>(0.065)     |
| 2016 × Financial Hardship                        | −0.059<br>(0.053)    |
| Observations                                     | 6,249                |
| <i>Note: CMPS 2008, 2012, 2016</i>               |                      |
| *p<0.1; **p<0.05; ***p<0.01                      |                      |

## Model Variations: ANES

Table B1: Main model with Church attendance instead of Obama Feeling Thermometer including Cutpoints (Hispanics)

| Term                                          | Estimate (se)   | z statistic | p-value |
|-----------------------------------------------|-----------------|-------------|---------|
| Education                                     | -0.008 (0.052)  |             |         |
| Parents born in US                            | -0.183 (0.110)  |             |         |
| Financial Hardship                            | -0.137 (0.127)  |             |         |
| Income                                        | -0.0173 (0.018) |             |         |
| Age                                           | -0.615 (0.250)  |             |         |
| Gender: Female                                | -0.101 (0.111)  |             |         |
| Year: 2004                                    | 1.346 (0.912)   |             |         |
| Year: 2012                                    | -0.808 (0.793)  |             |         |
| Year: 2016                                    | 0.314 (0.796)   |             |         |
| Republican                                    | -0.547 (0.142)  |             |         |
| Independent                                   | -0.521 (0.161)  |             |         |
| Church Attendance: None                       | -0.255 (0.117)  |             |         |
| <b>Cutpoint 1:</b> Not at all   Not very much | -1.860 (0.808)  | -2.30       | 0.021** |
| <b>Cutpoint 2:</b> Not very much   Some       | -1.337 (0.807)  | -1.66       | 0.098*  |
| <b>Cutpoint 3:</b> Some   A lot               | 0.343 (0.806)   | 0.43        | 0.67    |

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

Table B2: Main Model with Church Attendance Instead of Obama Feeling Thermometer including Cutpoints (Blacks)

| Term                                          | Estimate (se) | z statistic | p-value   |
|-----------------------------------------------|---------------|-------------|-----------|
| Education                                     | 0.194 ()      |             |           |
| Parents born in US                            | 0.375 ()      |             |           |
| Financial Hardship                            | -0.184 ()     |             |           |
| Income                                        | 0.043 ()      |             |           |
| Age                                           | -0.485 ()     |             |           |
| Gender: Female                                | -0.430 ()     |             |           |
| Year: 2004                                    | 0.504 ()      |             |           |
| Year: 2012                                    | -0.698 ()     |             |           |
| Year: 2016                                    | 0.311 ()      |             |           |
| Republican                                    | -0.775 ()     |             |           |
| Independent                                   | -0.409 ()     |             |           |
| Church Attendance: None                       | 0.006 ()      |             |           |
| <b>Cutpoint 1:</b> Not at all   Not very much | -1.08 (0.30)  | -3.6365     | 0.0003*** |
| <b>Cutpoint 2:</b> Not very much   Some       | -0.689 (0.30) | -2.3318     | 0.0197**  |
| <b>Cutpoint 3:</b> Some   A lot               | 0.932 (0.30)  | 3.1510      | 0.0016*** |

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

Table B3. ANES Ordered Logit Predictors of Linked Fate by Race/Ethnicity with Church and No Obama Feeling Thermometer

*Dependent variable: P(Ethnic Linked Fate)*

|                         | Latino            | Black             |
|-------------------------|-------------------|-------------------|
| Education               | −0.008 (0.053)    | 0.194*** (0.047)  |
| Parents Born in US      | −0.184* (0.111)   | 0.375 (0.207)     |
| Financial Hardship      | −0.137 (0.127)    | −0.184 (0.120)    |
| Age                     | −0.615** (0.250)  | −0.485** (0.243)  |
| Income                  | −0.017 (0.018)    | 0.043** (0.017)   |
| Gender: Female          | −0.101 (0.111)    | −0.430*** (0.107) |
| 2004 (vs. 2008)         | 1.346 (0.912)     | 0.504 (0.316)     |
| 2012 (vs. 2008)         | −0.808 (0.793)    | −0.698*** (0.158) |
| 2016 (vs. 2008)         | 0.314 (0.796)     | 0.311* (0.176)    |
| Republican              | −0.547*** (0.142) | −0.775*** (0.249) |
| Independent             | −0.521*** (0.161) | −0.409** (0.189)  |
| Church Attendance: None | −0.255** (0.117)  | 0.006 (0.125)     |
| Observations            | 1,140             | 1,350             |

*Note: ANES 2004, 2008, 2012, 2016*

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

Table B4. Ordered Logit with Obama Feeling Thermometer

| <i>Dependent variable: P(Ethnic linked fate)</i> |                     |                      |
|--------------------------------------------------|---------------------|----------------------|
|                                                  | Latino              | Black                |
| Obama Feeling Thermometer                        | 0.008***<br>(0.002) | 0.012***<br>(0.003)  |
| Education                                        | -0.016<br>(0.054)   | 0.186***<br>(0.049)  |
| Parents Born in US                               | -0.134<br>(0.112)   | 0.327<br>(0.212)     |
| Financial Hardship                               | -0.187<br>(0.129)   | -0.241*<br>(0.124)   |
| Age                                              | -0.599**<br>(0.250) | -0.578**<br>(0.246)  |
| Income                                           | -0.013<br>(0.018)   | 0.051***<br>(0.018)  |
| Gender: Female                                   | -0.148<br>(0.112)   | -0.470***<br>(0.108) |
| 2012 (vs. 2008)                                  | -0.846<br>(0.792)   | -0.751***<br>(0.159) |
| 2016 (vs. 2008)                                  | 0.243<br>(0.794)    | 0.276<br>(0.177)     |
| Independent                                      | -0.324*<br>(0.168)  | -0.264<br>(0.195)    |
| Republican                                       | -0.169<br>(0.172)   | -0.566**<br>(0.267)  |
| Observations                                     | 1,125               | 1,304                |

Note: ANES 2008-2016

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

Table B5. Ordered Logit Interaction Results on the Effect of Financial Hardship on Linked Fate by year

| <i>Dependent variable: P(Ethnic linked fate)</i> |                      |
|--------------------------------------------------|----------------------|
|                                                  | Model                |
| Education                                        | 0.091***<br>(0.031)  |
| Republican                                       | -0.577***<br>(0.116) |
| Independent                                      | -0.492***<br>(0.115) |
| Latino                                           | -0.578***<br>(0.078) |
| 2004                                             | 0.845**<br>(0.371)   |
| 2012                                             | -0.685***<br>(0.184) |
| 2016                                             | 0.098<br>(0.214)     |
| Financial Hardship                               | -0.099<br>(0.282)    |
| Age                                              | -0.422***<br>(0.163) |
| Gender: Female                                   | -0.283***<br>(0.072) |
| 2004 × Financial Hardship                        | -0.161<br>(0.576)    |
| 2012 × Financial Hardship                        | -0.075<br>(0.299)    |
| 2016 × Financial Hardship                        | 0.320<br>(0.338)     |
| Observations                                     | 2,731                |
| <i>Note: ANES 2004, 2008, 2012, 2016</i>         |                      |
| *p<0.1; **p<0.05; ***p<0.01                      |                      |

Table B6. Goodness-of-fit measures for Church Attendance in Model

| Model Type | Church Not included (Latino) | Church Included (Latino) | Church Not Included (Black) | Church Included (Black) |
|------------|------------------------------|--------------------------|-----------------------------|-------------------------|
| <b>BIC</b> | 2939.2                       | <b>2923.8</b>            | 3376.9                      | 3376.9                  |
| <b>AIC</b> | 2868.6                       | <b>2848.2</b>            | 3303.9                      | <b>3298.8</b>           |

|                                                       |       |              |       |       |
|-------------------------------------------------------|-------|--------------|-------|-------|
| <b>Pseudo R-squared<br/>(Nagelkerke's R-squared):</b> | 0.114 | <b>0.121</b> | 0.115 | 0.115 |
|-------------------------------------------------------|-------|--------------|-------|-------|

Note: Church attendance variable in model produces a better fit relative to the model with no church attendance measure as shown with a higher pseudo R-squared and lower AIC and BIC values.

| <b>Model Type</b>                                     | <b>Obama Feeling Thermometer Instead of Church Attendance (Latino)</b> | <b>Church instead of OFT (Latino)</b> | <b>Obama Feeling Thermometer Instead of Church Attendance (Black)</b> | <b>Church Instead of OFT (Black)</b> |
|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------|-----------------------------------------------------------------------|--------------------------------------|
| <b>BIC</b>                                            | 2885.9                                                                 | 2923.8                                | 3259.1                                                                | 3376.9                               |
| <b>AIC</b>                                            | 2815.5                                                                 | 2848.2                                | 3186.7                                                                | 3298.8                               |
| <b>Pseudo R-squared<br/>(Nagelkerke's R-squared):</b> | 0.110                                                                  | 0.121                                 | 0.121                                                                 | 0.115                                |

Note: While we do not want to compare Latino models directly to Black models since they are fit on different samples, the Obama Feeling Thermometer model is the better overall fit based on this table. Both AIC and BIC are clearly lower, and the  $R^2$  difference is small. For both Blacks and Latinos, The Obama Feeling Thermometer model is clearly the best fit on all criteria. Replacing church attendance with the Obama Feeling Thermometer improves model fit for both Latinos and Blacks, especially strongly for Blacks. However, we choose to include church attendance since there was no 2004 feeling thermometer measure for Obama and to avoid overfitting in the main model.

## Figures

Figure 1. Obama Feeling Thermometer ANES 2008-2016

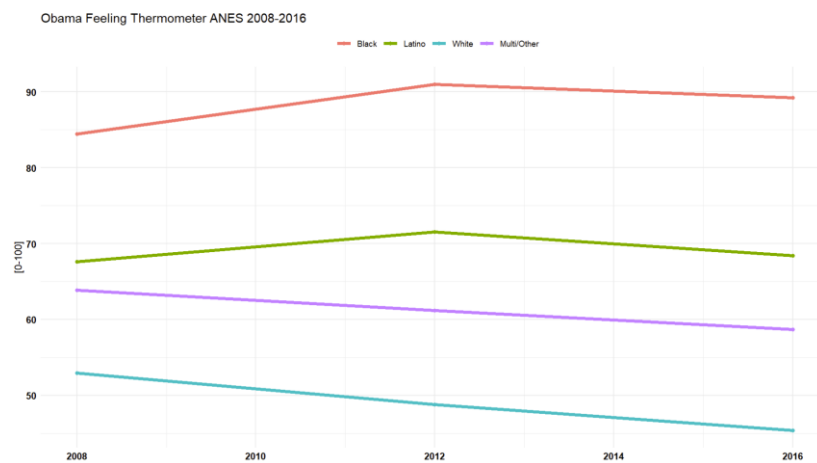


Figure 2. Correlation Plot with education, income and financial hardship

