Supplemental Materials for
Racial income inequality promotes perceptions of competition and predicts negative interracial outcomes

# **Study 1**

**Design effect**

Given the hierarchical structure of the data (participants nested in ZIP-codes), we first built a multilevel model having no predictor, using perceived competition as the outcome variable. We calculated the *design effect* (*DEFF*; Kish, 1965). Calculating the *DEFF* aimed to assess the impact of ZIP-code clustering on the estimation of standard error. A *DEFF* > 2 indicates that the impact of ZIP-code clustering is substantial and that multilevel regression should be preferred over traditional regression (Muthen & Satorra, 1995). In our study, the design effect was *DEFF* = 1.05 [1.03, 1.09]. As the design effect was well below threshold, the incidence of ZIP-code clustering was negligible, indicating that single-level and multilevel regression were not expected to produce different results.

# **Study 2**

**Design effects**

As in Study 1, preliminary analyses tested the need to use multilevel modeling. The design effects for each outcome variable were well below the cut-off of two, *DEFF*s ≤ 1.04, 95% CIs [1.01, 1.06] again showing that single-level and multilevel regression analysis were not expected to produce different results.

# **Ancillary Analyses including average ZIP-code income.**

Exploratory post-hoc analyses were conducted to investigate whether the influence of the racial income gap remained when controlling for *mean income level of ZIP-codes*.

***Racial income gap and perceived racial competition***. As for Study 2, hierarchical multiple regression was used to examine associations between the racial income gap and perceived racial competition controlling for the same social-demographic variables in addition to average ZIP-code income. In addition, we explored the interaction of the racial income gap x average ZIP-code income in the last step.

Consistent with Hypothesis 2, racial income gap remained a significant predictor of perceived racial competition when controlling for average ZIP-code income, *β* = .07, [.01, .13], *p* = .020. Neither average ZIP-code income nor the interaction between the racial income gap and ZIP-code income were significant predictors of perceived racial competition, *β* = .04, [-.04, .13], *p* = .345, *β* = -.01, [-.08, .06], *p* = .880 (see Table S1).

***Racial income gap and interracial outcomes.*** See Table S2. Consistent with Hypothesis 3, racial income gap positively predicted perceived discrimination, *β* = .06, [.00, .12], *p* = .041, marginally predicted perceived intergroup anxiety, *β* = .05, [-.01, .11], *p* = .109, but did not predict perceived interracial mistrust, *β* = -.04, [-.10, .02], *p* = .15. For perceived behavioral avoidance, the effect was not significant at step 2, *β* = .05, [-.02,.11], *p* = .145, but marginal at step 3 when including the interaction term, *β* = .06, [-.01, .13], *p* = .082.

Interestingly, mean ZIP-code income only predicted interracial mistrust, but not any other outcomes, at step 2, *β* = .09, [.01, .18], *p* = .036, but was reduced to a marginal effect in step 3, *β* = .10, [-.01, .20], *p* = .062.

The racial income gap x average ZIP-code income interaction was not significant for any of these outcomes, *p*s > .32.

Taken together, supplemental analyses suggested that the influence of the racial income gap on perceived racial competition and interracial outcomes remained regardless of the general affluence of one’s town or city.

***Correlation table including political orientation.*** See Table S3. In response to a reviewer comment, we created a correlation table including political orientation as a variable (1 = very liberal, 7 = very conservative). We did not have any a priori hypotheses regarding this variable, nor did we conduct any further analyses including this variable, as it was not central to our current work.

Table S1

*Study 2: Standardized coefficient estimates of the racial income gap on perceived racial competition at the ZIP-code level controlling for average ZIP-code income*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Step 1 | Step 2 | Step 3 |
| Variable | *β* | *SE* | 95% CI | *β* | *SE* | 95% CI | *β* | *SE* | 95% CI |
| RIGap | .07\*\* | .02 | .02 | .12 | .07\* | .03 | .01 | .13 | .07\* | .03 | .01 | .14 |
| ZIP-code income |  |  |  |  | .04  | .04 | -.04 | .13 | .05  | .05 | -.06 | .15 |
| Race |  |  |  |  | -.18\*\*\* | .03 | -.23 | -.13 | -.18\*\*\* | .03 | -.23 | -.13 |
| Sex |  |  |  |  | .09\*\*\* | .02 | .04 | .14 | .09\*\*\* | .02 | .04 | .14 |
| Age |  |  |  |  | -.06\* | .02 | -.11 | -.01 | -.06\* | .02 | -.11 | -.01 |
| Employment  |  |  |  |  | .00  | .03 | -.05 | .05 | .00  | .03 | -.05 | .05 |
| Income |  |  |  |  | .05† | .03 | -.01 | .10 | .05† | .03 | -.01 | .10 |
| Education  |  |  |  |  | -.01  | .03 | -.06 | .04 | -.01  | .03 | -.06 | .04 |
| Population  |  |  |  |  | .02  | .02 | -.03 | .07 | .02  | .02 | -.03 | .07 |
| Unemployment |  |  |  |  | .06† | .03 | .00 | .13 | .06† | .03 | .00 | .13 |
| Poverty rate |  |  |  |  | .04  | .06 | -.07 | .15 | .04  | .06 | -.08 | .15 |
| Education level |  |  |  |  | .04  | .03 | -.03 | .10 | .04  | .04 | -.03 | .11 |
| Gini Index |  |  |  |  | .00  | .04 | -.08 | .08 | .00  | .04 | -.09 | .08 |
| RGAP x Income |  |  |  |  |  |  |  |  | -.01  | .04 | -.08 | .07 |

*Notes*: \*\*\**p* < .001, \*\**p* < .01, \**p* < .05, †*p* < .10

Table S2

*Standardized coefficient estimates of the racial income gap on interracial psychological variables at the ZIP-code level controlling for average ZIP-code income*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Perceived Discrimination | Perceived Behavioral Avoidance | Perceived Intergroup Anxiety | Perceived Interracial Trust |
|  | Step 1 | Step 2 | Step 3 | Step 1 | Step 2 | Step 3 | Step 1 | Step 2 | Step 3 | Step 1 | Step 2 | Step 3 |
| Variable | *β* | *SE* | *β* | *SE* | *β* | *SE* | *β* | *SE* | *β* | *SE* | *β* | *SE* | *β* | *SE* | *β* | *SE* | *β* | *SE* | *β* | *SE* | *β* | *SE* | *β* | *SE* |
| Racial Income Gap | .05\* | .02 | .06\* | .03 | .06† | .03 | .06\*\* | .02 | .05  | .03 | .06† | .03 | .06\* | .02 | .05  | .03 | .06† | .03 | .01 | .02 | -.04  | .03 | -.04  | .03 |
| ZIP-code income |  |  | .01  | .04 | .02  | .05 |  |  | .01  | .04 | .04  | .05 |  |  | .04  | .04 | .07  | .05 |  |  | .09\* | .04 | .10† | .05 |
| Race |  |  | -.21\*\*\* | .03 | -.21\*\*\* | .03 |  |  | -.09\*\*\* | .03 | -.09\*\*\* | .03 |  |  | -.09\*\*\* | .03 | -.09\*\*\* | .03 |  |  | .20\*\*\* | .03 | .20\*\*\* | .03 |
| Sex  |  |  | -.04  | .02 | -.04  | .02 |  |  | .08\*\* | .03 | .08\*\* | .03 |  |  | .03  | .03 | .03  | .03 |  |  | .06\*\* | .02 | .06\*\* | .02 |
| Age |  |  | -.08\*\*\* | .02 | -.08\*\*\* | .02 |  |  | -.06\* | .03 | -.06\* | .03 |  |  | -.07\*\* | .03 | -.07\*\* | .03 |  |  | .01  | .02 | .01  | .02 |
| Employment Status |  |  | -.02  | .03 | -.02  | .03 |  |  | .01  | .03 | .01  | .03 |  |  | -.01  | .03 | -.01  | .03 |  |  | .02  | .03 | .02  | .03 |
| Income |  |  | .05† | .03 | .05† | .03 |  |  | .03  | .03 | .03  | .03 |  |  | .03  | .03 | .03  | .03 |  |  | -.05\* | .03 | -.05\* | .03 |
| Education  |  |  | .01  | .02 | .01  | .02 |  |  | -.01  | .03 | -.02  | .03 |  |  | -.02  | .03 | -.02  | .03 |  |  | .01  | .03 | .00  | .03 |
| Population  |  |  | .04† | .02 | .04† | .02 |  |  | -.04  | .03 | -.04  | .03 |  |  | .00  | .02 | .00  | .02 |  |  | -.02  | .02 | -.02  | .02 |
| Unemployment |  |  | .06† | .03 | .06† | .03 |  |  | .05  | .04 | .06  | .04 |  |  | .09\*\* | .04 | .09\*\* | .04 |  |  | -.06† | .03 | -.06† | .03 |
| Poverty rate |  |  | .08  | .05 | .08  | .06 |  |  | .03  | .06 | .05  | .06 |  |  | .02  | .06 | .04  | .06 |  |  | .01  | .06 | .01  | .06 |
| Education level |  |  | .05  | .03 | .05  | .04 |  |  | .02  | .04 | .03  | .04 |  |  | .04  | .04 | .05  | .04 |  |  | -.06† | .03 | -.06† | .04 |
| ZIP-based Gini index |  |  | .05  | .04 | .05  | .04 |  |  | .07† | .04 | .06  | .04 |  |  | .06  | .04 | .05  | .04 |  |  | -.06  | .04 | -.06  | .04 |
| RGAP x Income |  |  |  |  | .00  | .04 |  |  |  |  | -.04  | .04 |  |  |  |  | -.04 | .04 |  |  |  |  | -.01  | .04 |

*Notes*: \*\*\**p* < .001, \*\**p* < .01, \**p* < .05, †*p* < .1

Table S3

*Study 2: Descriptive statistics and intercorrelations for the racial income gap, perceived racial income inequality, perceived racial competition, the race-based psychological outcomes, and political orientation*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Descriptive statistics | Pairwise intercorrelations |  |
| α | *M* | *SD* | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1. Racial income gap
 | – |  $10,081.67  |  $12,364.36 | – |  |  |  |  |  |  |
| 1. Perceived racial income inequality
 | .79 | 4.72 | 1.37 | .10\*\* | – |  |  |  |  |  |
| 1. Perceived racial competition
 | .92 | 2.94 | 1.45 | .07\*\* | .28\*\*\* | – |  |  |  |  |
| 1. Perceived discrimination
 | .96 | 3.81 | 1.45 | .05\* | .54\*\*\* | .44\*\*\* | – |  |  |  |
| 1. Perceived behavioral avoidance
 | .96 | 2.74 | 1.41 | .06\* | .40\*\*\* | .45\*\*\* | .59\*\*\* | – |  |  |
| 1. Perceived intergroup anxiety
 | .97 | 3.18 | 1.60 | .06\*\* | .47\*\*\* | .48\*\*\* | .69\*\*\* | .80\*\*\* | – |  |
| 1. Perceived interracial trust
 | .95 | 4.00 | 1.48 | .01 | -.38\*\*\* | -.20\*\*\* | -.54\*\*\* | -.46\*\*\* | -.52\*\*\* | – |
| 1. Political orientation
 | – | 3.44 | 1.80 | -.03 | -.16\*\*\* | .04 | -.16\*\*\* | -.04 | -.09\*\* | .09\*\*\* |

*Notes*: \*\*\**p* < .001, \*\**p* < .01, \**p* < .05.

**References**

Kish, L. (1965). *Survey sampling*. New York, NY: John Wiley.