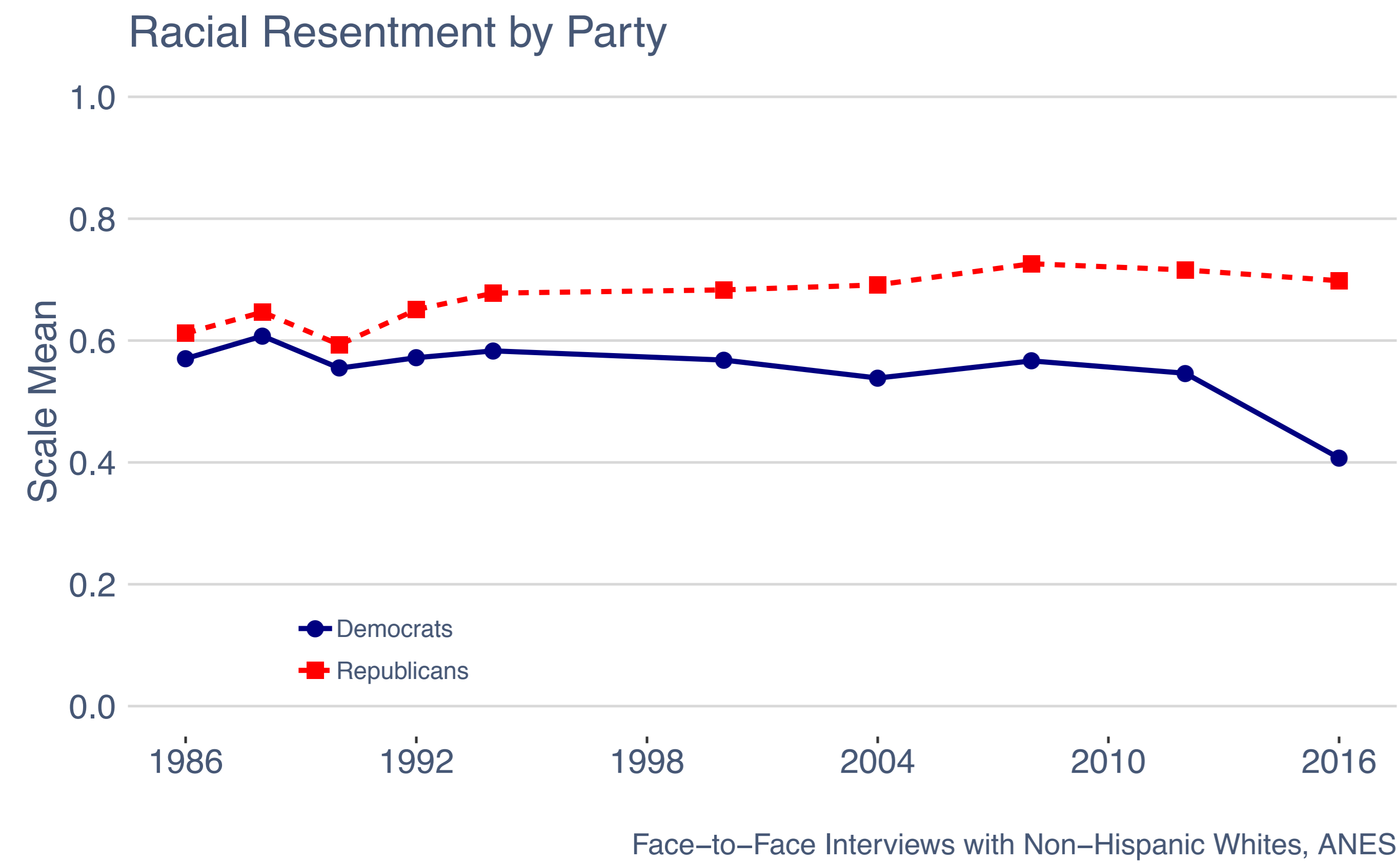


# The (Un)Changing Nature of Whites' Racial Attitudes: Distinguishing Sincere and Artifactual Sources of Attitude Change

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## Is racial attitude change sincere?



### Explanations

- Substantive: Attitude change is sincere (Engelhardt Forthcoming)
- Artifact: Expressive responding, changes in social desirability concerns, or related nuisance constructs explain change (e.g., Bullock et al. 2015)

But these are observationally equivalent in self-reports!

## Measure Invariance and Substantive Claims

Use measurement models to test measure equivalence/invariance (ME/I). While the *substantive* and *artifact* arguments are observationally equivalent for self-reports, they differ in the nature of the relationship between items and the construct they are meant to measure. The *substantive* argument implies racial attitude measures are equivalent/invariant while the *artifact* view suggests they are not.

ME/I holds if:

$$f(Y|\xi, \nu) = f(Y|\xi)$$

where  $\xi$  denotes scores on latent racial attitude,  $Y$  the observed item responses, and  $\nu$  a group of interest (e.g., partisanship, time). Conditional on one's attitude ( $\xi$ ), item responses ( $Y$ ) should be the same across groups ( $\nu$ ).

We can parameterize this as:

$$y_{ijg} = \lambda_{jg}\xi + \epsilon_g$$

Individual  $i$  in group  $g$ 's response to item  $j$  is connected to latent racial attitude ( $\xi$ ) through an item-specific regression weight ( $\lambda$ ) and error term ( $\epsilon$ ).

If ME/I holds, then if  $g = 2$ ,  $\lambda_1 = \lambda_2$  and  $\epsilon_1 = \epsilon_2$ . Otherwise if  $\lambda_1 \neq \lambda_2$  and/or  $\epsilon_1 \neq \epsilon_2$ , ME/I is violated. We can see this by decomposing the error term  $\epsilon$  into  $\gamma_g + \nu$  where  $\gamma_g$  is group-specific unique variation in the item and  $\nu$  is remaining unique item variation unaccounted for by  $\xi$ .

ME/I is equivalent to establishing construct validity across groups. The *substantive* account assumes comparisons on a valid construct. The *artifact* view holds group differences in responding make a construct invalid for comparisons.

## Data

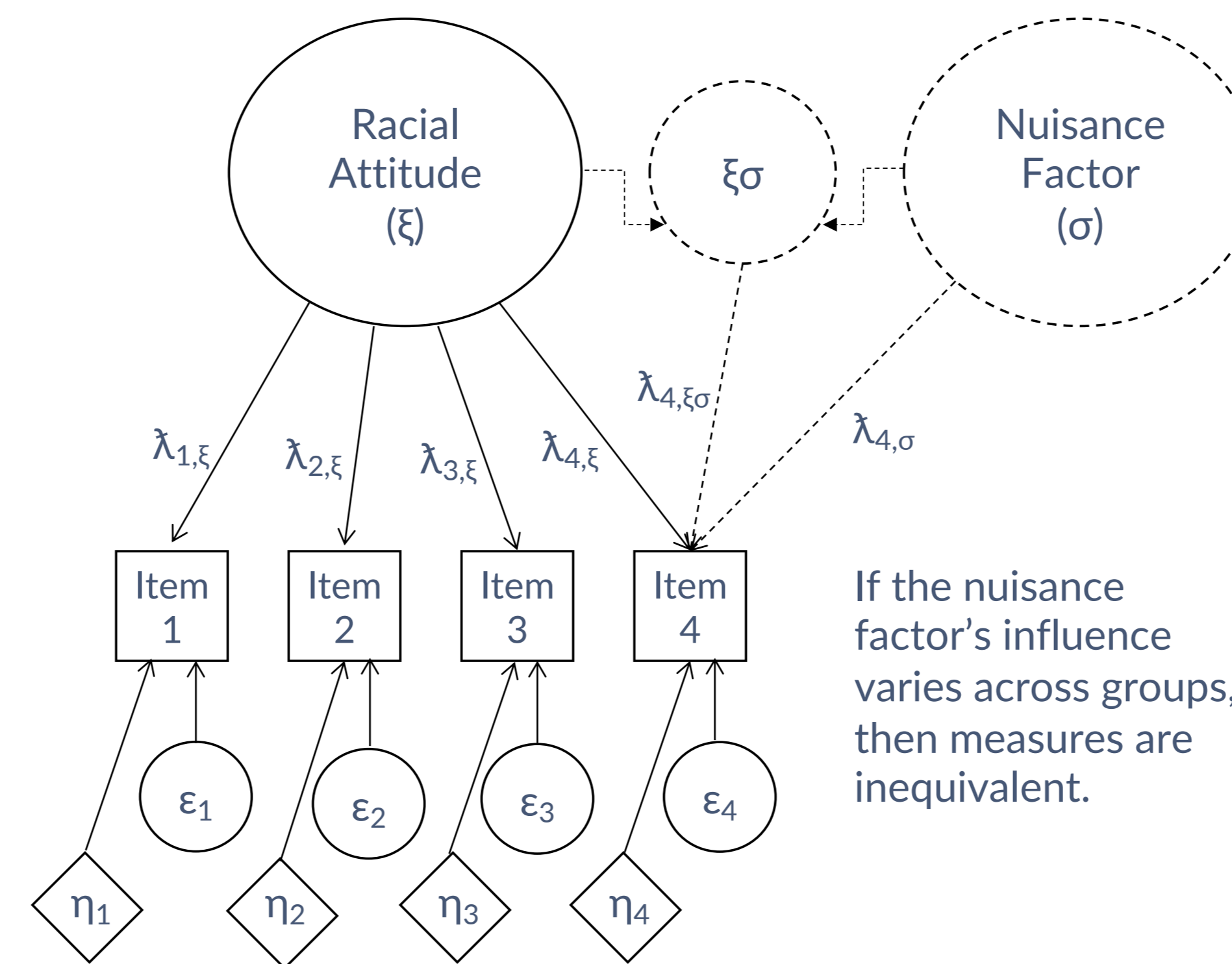
ANES surveys including racial resentment measure.

### Measure Items

- Special Favors:** Irish, Italians, Jews, and many other minorities overcame prejudice and worked their way up. Blacks should do the same without any special favors.
- Try Hard:** It's 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.
- Deserve Less:** Over the past few years, Blacks have gotten less than they deserve.
- Past Discrimination:** Generations of slavery and discrimination have created conditions that make it difficult for Blacks to work their way out of the lower class.

## Method

Figure 1. Measure Inequivalence Visualized



Multi-group confirmatory factor analysis comparing a series of nested models. If model fit worsens relative to the preceding model, then invariance is violated, suggesting measurement artifact. From there, establish if measure is partially invariant (2 or more items invariant across groups).

- Configural Invariance: Freely estimate all parameters across groups
- Metric Invariance: Constrain item factor loadings to equality
- Scalar Invariance: Constrain item intercepts to equality

Fit assessed by changes in  $\chi^2$ , comparative fit index (CFI), standardized root mean square residual (SRMR), and root mean squared error of approximation (RMSEA). Statistically reliable decreases in fit determined by empirical distribution of changes in model fit from permutation tests with 2000 replicates.

### Likely groupings where Artifact-related considerations should affect responses

- Mode
- Education
- Partisanship
- Survey year

## Example Invariance Tests

Table 1. Measurement Invariance of Racial Resentment by Mode

	$\chi^2$	CFI	SRMR	RMSEA	$\Delta\chi^2$	p-value	$\Delta$ CFI	p-value	$\Delta$ SRMR	p-value	$\Delta$ RMSEA	p-value
Configural	1.53	1.000	0.001	0.000								
Metric	15.2	0.998	0.022	0.039	13.7	0.006	-0.002	0.006	0.021	0.010	0.039	0.003
Metric-Partial <sup>1</sup>	8.45	0.999	0.014	0.029	6.92	0.036	-0.001	0.027	0.013	0.077	0.029	0.019
Scalar <sup>1</sup>	24.7	0.997	0.020	0.043	16.25	0.002	-0.003	0.002	0.005	0.052	0.015	0.066
Scalar-Partial <sup>1,2</sup>	13.0	0.999	0.019	0.030	4.58	0.114	-0.001	0.079	0.004	0.080	0.001	0.186

Note: Data from 2016 ANES. One residual correlation estimated between *try hard* and *special favors*.  
1: frees *special favors* loading; 2: frees *past discrimination* intercept

Table 2. Measurement Invariance of Racial Resentment by Partisanship, Face-to-Face Respondents

	$\chi^2$	CFI	SRMR	RMSEA	$\Delta\chi^2$	p-value	$\Delta$ CFI	p-value	$\Delta$ SRMR	p-value	$\Delta$ RMSEA	p-value
Configural	3.32	0.998	0.008	0.045								
Metric	16.3	0.986	0.057	0.084	13	0.004	-0.007	0.007	0.049	0.005	0.038	0.057
Metric-Partial <sup>1</sup>	3.47	1.000	0.011	0.000	0.147	0.918	0.001	0.896	0.002	0.925	-0.045	0.986
Scalar <sup>1</sup>	15	0.990	0.042	0.060	11.5	0.008	-0.006	0.020	0.032	0.000	0.060	0.003
Scalar-Partial <sup>1,2</sup>	8.8	0.997	0.026	0.038	5.33	0.077	-0.002	0.103	0.015	0.011	0.038	0.031
Scalar-Partial <sup>1,2,3</sup>	3.49	1.000	0.011	0.000	0.024	0.893	0.000	0.675	0.0001	0.529	0.000	0.630

Note: Data from 2016 ANES. One residual correlation estimated between *try hard* and *special favors*. Web results consistent. 1: frees *special favors* loading; 2: frees *try hard* intercept; 3: frees *special favors* intercept.

## Results Summary

	Configural	Metric	Scalar
Mode	✓	special favors	past discrimination
Mode within Party (Democrats)	✓	✓	special favors
Mode within Party (Republicans)	✓	✓	past discrimination
Education (face-to-face)	✓	special favors, try hard	special favors, try hard
Education (web)	✓	special favors	special favors, try hard
Partisanship (face-to-face)	✓	special favors	try hard, special favors
Partisanship (web)	✓	special favors	try hard, special favors
Time (2000)	✓	✓	deserve less
Time (2004)	✓	✓	✓
Time (2008)	✓	✓	try hard, special favors
Time (2012)	✓	✓	✓
Time within Party (2000, Republicans)	✓	✓	✓
Time within Party (2004, Republicans)	✓	✓	✓
Time within Party (2008, Republicans)	✓	✓	✓
Time within Party (2012, Republicans)	✓	✓	✓
Time within Party (2000, Democrats)	✓	special favors	deserve less
Time within Party (2004, Democrats)	✓	✓	✓
Time within Party (2008, Democrats)	✓	✓	try hard, special favors
Time within Party (2012, Democrats)	✓	✓	✓

Note: Patterns of equivalence across tests. Checkmarks indicate invariance met. Item names refer to those freed to establish partial invariance. All **time** models compare to 2016 face-to-face responses.

## Conclusion

- Changes in racial resentment appear sincere, not measurement artifact
- No items appear to systematically contribute to invariance violations
  - Try hard* and *special favors* suggestive, but could be content or reverse wording
- Most instances of invariance violations run opposite *artifact* expectations

Engelhardt, Andrew M. Forthcoming. "Racial Attitudes Through a Partisan Lens." *British Journal of Political Science*.

Bullock, John G, Alan S Gerber, Gregory A Huber, and Seth J Hill. 2015. "Partisan Bias in Factual Beliefs About Politics." *Quarterly Journal of Political Science* 10(4): 519-78.