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The Relationship Between Mental Representations of Welfare Recipients and Attitudes Toward Welfare

Jazmin L. Brown-Iannuzzi[1], Ron Dotsch[2], Erin Cooley[3], and B. Keith Payne[4]

[1]Department of Psychology, University of Kentucky; [2]Department of Psychology, Utrecht University; [3]Department of Psychology, Colgate University; and [4]Department of Psychology and Neuroscience, University of North Carolina at Chapel Hill

Abstract

Scholars have argued that opposition to welfare is, in part, driven by stereotypes of African Americans. This argument assumes that when individuals think about welfare, they spontaneously think about Black recipients. We investigated people's mental representations of welfare recipients. In Studies 1 and 2, we used a perceptual task to visually estimate participants' mental representations of welfare recipients. Compared with the average non-welfare-recipient image, the average welfare-recipient image was perceived (by a separate sample) as more African American and more representative of stereotypes associated with welfare recipients and African Americans. In Study 3, participants were asked to determine whether they supported giving welfare benefits to the people pictured in the average welfare-recipient and non-welfare-recipient images generated in Study 2. Participants were less supportive of giving welfare benefits to the person shown in the welfare-recipient image than to the person shown in the non-welfare-recipient image. The results suggest that mental images of welfare recipients may bias attitudes toward welfare policies.

Keywords

stereotyped attitudes, socioeconomic status, social cognition, open data, open materials

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Economic inequality in the United States is at historically high levels (Saez & Zucman, 2014). Income inequality is associated with a variety of problems, including reduced interpersonal trust, increased violent crime, and shortened life expectancy (Wilkinson & Pickett, 2009). The majority of Americans say they would prefer a more equitable distribution of wealth (Norton & Ariely, 2011), yet many vote against public assistance programs aimed at reducing inequality (Bartels, 2005; Gilens, 1999). Identifying the factors that influence the distribution of resources in societies is an important problem across the social sciences. Understanding the psychological mechanisms that link such societal-level factors to individual preferences about redistribution is a critical problem for psychological science.

An influential macroeconomic model suggests that as inequality increases, a greater share of the population has income below the mean income level, and, as a result, demand for redistribution should rise (e.g., Meltzer & Richard, 1981). However, demand for redistribution in the United States has remained relatively stable despite rising inequality (e.g., Ashok, Kuziemko, & Washington, 2015; Kuziemko, Norton, Saez, & Stantcheva, 2015). One often-suggested reason for this finding is that people may oppose redistribution if they believe it will benefit racial minorities (Harell, Soroka, & Iyengar, in press; Lee & Roemer, 2006).

Corresponding Authors:
Jazmin L. Brown-Iannuzzi, University of Kentucky–Psychology, 207 K Kastle Hall, 107 Funkhouser Dr., Lexington, KY 40506
E-mail: jazmin.bi@uky.edu

B. Keith Payne, University of North Carolina at Chapel Hill–Psychology, 312 Davie Hall, 235 E. Cameron Ave., Chapel Hill, NC 27599
E-mail: payne@unc.edu

Citizens may oppose welfare programs for many reasons, but researchers have long suspected that racial biases may inform attitudes toward them (e.g., Edsall & Edsall, 1991; Fox, 2004; Gilens, 1996, 1999; Lee & Roemer, 2006; Peffley, Hurwitz, & Sniderman, 1997). Racial attitudes are consistently associated with attitudes toward welfare (Gilens, 1995; Peffley et al., 1997; Sears & Cirin, 1985; Wetts & Willer, 2015). The notion that racial attitudes guide welfare preferences is based on the assumption that when individuals think about welfare, they spontaneously think about "undeserving" (e.g., lazy, incompetent) African American recipients. This psychological leap has been assumed, but never directly tested.

In one of the few experimental studies to investigate the link between race and welfare attitudes, participants were randomly assigned to learn about a Black or White mother receiving public assistance (Gilens, 1996). The correlation between negative impressions of the welfare recipient and opposition to welfare was almost twice as strong when the recipient was Black as when she was White. This experiment demonstrates that racial attitudes become more relevant for welfare attitudes when the recipient is explicitly identified as Black rather than White. It remains unclear, however, what kind of representations people spontaneously access when they think about welfare recipients.

African Americans make up 32% of recipients of Temporary Assistance to Needy Families (TANF), but only 13% of the general population (U.S. Department of Health and Human Services, 2012). Despite this overrepresentation, more than two thirds of TANF recipients are not African American. White Americans make up another 32% of TANF recipients, and Hispanic Americans another 30%. A statistically accurate representation of the "typical" beneficiary would presumably look like a multiracial composite with approximately equal representation of all three groups. However, stereotypes are influenced not only by statistical base rates, but also by a variety of cognitive processes, emotions, and ideological motivations (Hamilton, 2015; Hilton & von Hippel, 1996). In the research reported here, we asked whether participants' representations of welfare recipients depicted Black recipients, and whether those representations contributed to attitudes opposing redistributive policies.

Using a procedure to visually estimate participants' mental representations, we tested three specific hypotheses. First, we hypothesized that mental representations of the typical welfare recipient would depict a Black recipient. Second, we hypothesized that when the aggregated images of a typical welfare recipient and a typical non–welfare recipient were shown to a second group of participants, they would be less supportive of awarding welfare benefits to the typical welfare recipient. Third, we hypothesized that to the extent that the person depicted in the welfare-recipient image was perceived as Black, that person would also be stereotyped as undeserving of assistance, and that deservingness would in turn predict the level of support for awarding welfare benefits to him or her.

Study 1 and Study 2

We report Studies 1 and 2 together because Study 2 was a close replication of Study 1. These studies were both conducted in two phases: the image-generation phase and the image-rating phase. In the image-generation phase, participants completed a reverse-correlation task, which allowed us to generate visualizations of their mental images of welfare recipients and non–welfare recipients (Dotsch & Todorov, 2012; Dotsch, Wigboldus, Langner, & van Knippenberg, 2008; Imhoff & Dotsch, 2013; Imhoff, Woelki, Hanke, & Dotsch, 2013; Krosch & Amodio, 2014; Mangini & Biederman, 2004). We began with a single face, which was a morphed composite of a White woman, a Black woman, a White man, and a Black man (see Fig. 1). Then, we added random visual noise to this base face to create many variants. Participants were presented with pairs of the faces and selected from each pair the face that looked more like a welfare recipient. We did not mention race in any way, so that any effects of race could emerge spontaneously from participants' mental images.

In Study 1, participants chose the image in each pair that looked more like "a welfare recipient." By superimposing the selected images, we constructed an average representation of welfare recipients. The unselected images were superimposed to create a non-welfare-recipient composite image for comparison. In Study 2, participants in one group selected the image that looked more like a welfare recipient, whereas participants in another group selected the image that looked more like someone who did not receive welfare. The images

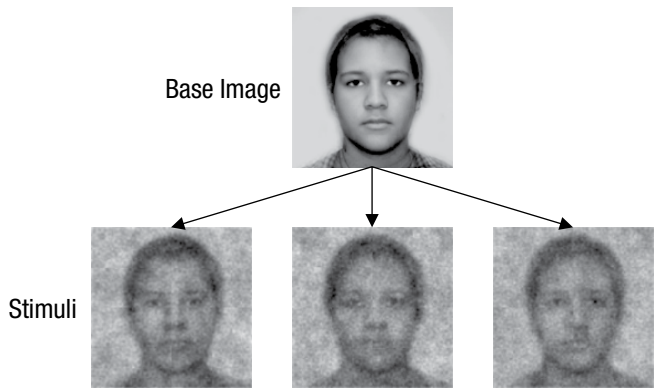

Fig. 1. The base image used in the reverse-correlation task and three examples of the stimuli presented to participants.

selected by the former group were superimposed to create an average representation of welfare recipients, and the images selected by the latter group were superimposed to create an average representation of non–welfare recipients. This procedure allowed us to approximate participants' mental representations because images selected as looking like welfare recipients shared common features with participants' imagined welfare recipient, and images selected as looking like non–welfare recipients shared common features with participants' imagined non–welfare recipient. Aggregating images amplified the features they shared with participants' mental representations and reduced the random variation in unshared features.

Although other implicit measures assess associations between semantic categories (e.g., the Implicit Association Test; Greenwald, McGhee, & Schwartz, 1998) or spontaneous affective and semantic responses to stimuli (e.g., the affect misattribution procedure; Payne, Cheng, Govorun, & Stewart, 2005), those methods do not capture participants' mental imagery. The advantage of using a reverse-correlation procedure was that this data-driven method allowed us to infer perceivers' internal visual representation of welfare recipients. Participants could generate images that varied orthogonally on multiple dimensions, so that, for example, gender could vary independently of race, emotional expression, and other physiognomy. To the extent that features occurred together, this covariation reflected features of the participants' representations rather than constraints of the paradigm.

In the image-rating phase, a new sample of participants rated the images constructed from the responses of the original samples. The new participants did not know how the images were generated, and welfare was not mentioned.

Method

Image-generation phase

Study 1: participants and procedure. We recruited 118 American participants (92 women, 26 men) from the participant pool in an introductory psychology course. They participated in exchange for course credit. The racial-ethnic composition of the sample was as follows: 61.3% White, 17.6% Asian, 16.0% Black, and 4.2% Hispanic. The average age was 19.04 years (SD = 2.68). The median income was between $75,001 and $100,000 annually.

The stimuli used in the reverse-correlation task were all generated from the same base face. This base face was created by morphing together four images: an image of an African American male, an image of an African American female, an image of a White American male, and an image of a White American female. Then, noise was superimposed on the base face. The noise consisted of superimposed truncated 2-cycle sinusoid patches in all combinations of six orientations (0°, 30°, 60°, 90°, 120°, and 150°), five spatial scales (2, 4, 8, 16, and 32 patches per image), and two phases (0, $\pi/2$), with random contrasts.

Participants completed 400 trials of the reverse-correlation task. On each trial, two stimuli were presented side by side, and participants were instructed to select the stimulus that most resembled a welfare recipient. One stimulus in each pair had a particular noise pattern superimposed on the base face, and the other stimulus had the exact opposite (the negative) noise pattern superimposed on the base face. As did Dotsch and Todorov (2012), we used opposite noise patterns to maximize the differences between the two images in each pair and to simplify data analysis. The pairs of stimuli were presented in random order.

After participants completed the reverse-correlation task, they were asked about their attitudes toward welfare (questions taken from Gilens, 1996). Finally, participants reported their age, gender, income, level of education, political-party affiliation, political ideology, and race-ethnicity. Because we created average images—averaged across responses and across participants—these demographic measures are not relevant for our main hypothesis, but were collected in order to characterize the sample.

Study 2: participants and procedure. We recruited 238 participants (125 women, 113 men) from Amazon Mechanical Turk. The racial-ethnic composition of the sample was as follows: 76.5% White, 10.1% Asian, 8.0% Black, and 5.4% other races or ethnicities. The average age was 36.51 years (SD = 11.94). The median income was between $25,001 and $50,000.

Participants were randomly assigned to either the welfare-recipient or the non-welfare-recipient condition. The welfare-recipient condition was an exact replication of Study 1. In the non-welfare-recipient condition, participants were asked to "decide which photo looks most like someone who does NOT receive welfare (that is, someone who supports him/herself without receiving welfare)." Participants in both conditions completed 400 trials of the reverse-correlation task. The stimuli were the same stimuli used in Study 1. Again, participants were then asked about their attitudes toward welfare (Gilens, 1996) and responded to some demographic questions that were collected in order to characterize the sample.

Image processing. Using the R package rcicr 0.3.0 (Dotsch, 2015), we computed an average welfare-recipient image and an average non-welfare-recipient image. For Study 1, the average welfare-recipient image was created by superimposing on the base face the average of the noise patterns of all selected images across all participants. The average non-welfare-recipient image was created by

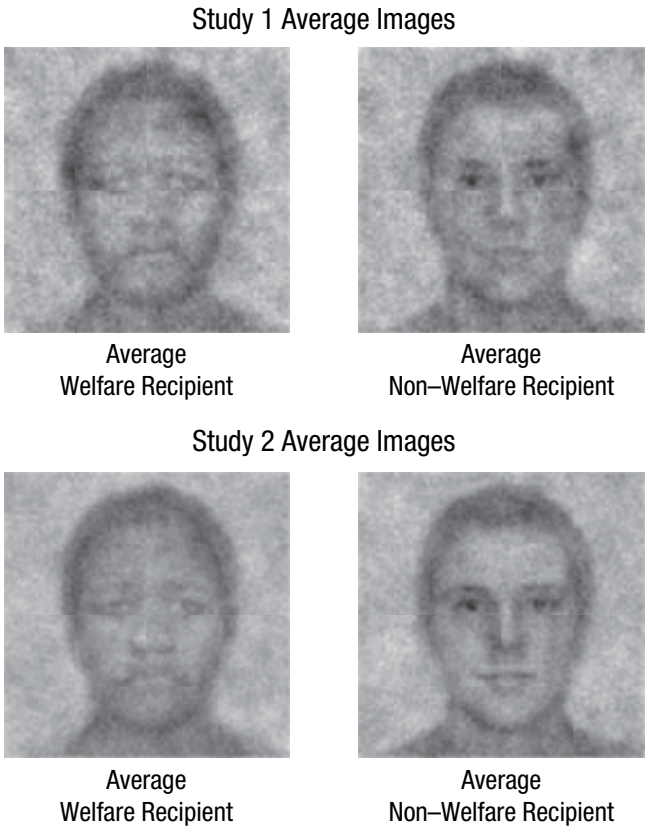

Fig. 2. The average classification images generated in Study 1 (top) and Study 2 (bottom).

superimposing on the base face the average of the noise patterns of all nonselected images across all participants. The resulting average images are displayed in the top row of Figure 2. For Study 2, the average welfare-recipient image was created by superimposing on the base face the average of the noise patterns of all selected images across all participants in the welfare-recipient condition. The average non-welfare-recipient image was created by superimposing on the base face the average of the noise patterns of all selected images across all participants in the non-welfare-recipient condition. The resulting average images of the welfare recipient and nonrecipient are displayed in the bottom row of Figure 2.

Image-rating phase. To quantify the properties of these images, we asked separate samples, blind to the way the images were created, to rate the images. Raters in each study were randomly assigned to rate either features related to the face's appearance (i.e., race, gender, likeability, attractiveness, and happiness) or traits related to deservingness (e.g., laziness, competence, humanness, agency). We chose to measure these sets of features separately so that participants did not perceive a connection between the appearance features (especially race) and deservingness-related traits.

Given this mixed design, we needed at least 90 participants in each condition (180 total for each study) to have adequate power (.80) to detect a small effect (f = .15; G*Power software; Faul, Erdfelder, Buchner, & Lang, 2009). An attention check was included as the first question in both studies because past research suggests that such attention checks can improve data quality (Oppenheimer, Meyvis, & Davidenko, 2009). Participants rated the images generated by the original samples without knowing anything about how those images were generated. Nothing about welfare was mentioned to participants.

Participants were told they would rate a few images on a series of dimensions. Four of the images were filler items (stimuli used in the image-generation phase) so that the comparison between the two images of interest would not be salient to participants. The order in which the critical images were presented was counterbalanced to avoid order effects. In the appearance-rating condition, participants rated each image on race (1 = *definitely African American*, 6 = *definitely White American*), gender (1 = *definitely male*, 6 = *definitely female*; reverse-coded), likeability (1 = *extremely unlikeable*, 6 = *extremely likeable*), attractiveness (1 = *extremely unattractive*, 6 = *extremely attractive*), and happiness (1 = *extremely unhappy*, 6 = *extremely happy*).

In the deservingness-rating condition, participants rated each image on humanness (1 = *extremely inhuman*, 6 = *extremely human*), laziness (1 = *extremely hardworking*, 6 = *extremely lazy*; reverse-coded), and hostility (1 = *extremely gentle*, 6 = *extremely hostile*; reverse-coded). We also asked participants to rate each image on agency, experience, and competence. We used items from Gray, Gray, and Wegner (2007) to assess agency and experience. For agency, we asked participants to rate how the person depicted compared with the average person in ability to plan, exert self-control, act morally, and remember things (1 = *much less capable*, 6 = *much more capable*). Responses to these four items were averaged together to create an index of agency. For experience, we asked participants to rate how the person depicted compared with the average person in ability to feel pain, pleasure, fear, and joy (1 = *much less capable*, 6 = *much more capable*). Responses to these four items were averaged together to create an index of experience. Two more items measured the degree to which the person seemed competent (1 = *extremely incompetent*, 6 = *extremely competent*) and intelligent (1 = *extremely unintelligent*, 6 = *extremely intelligent*). Responses to these two items were averaged together to form an index of competence. Finally, participants answered demographic

questions, including questions about their gender, age, and race-ethnicity.

Study 1 participants. Participants (N = 230) were recruited from Amazon Mechanical Turk. We excluded 24 participants from analyses because they failed the attention check.[1] The final sample included 206 participants (83 women, 122 men, 1 person who did not report gender). The racial-ethnic composition of the sample was as follows: 79.6% White, 6.8% Black, 5.3% Hispanic, and 8.3% "other" or multiracial. The average age was 33.28 years (SD = 11.56), and the median income was between $35,000 and $39,999.

Study 2 participants. Participants (N = 237) were recruited from Amazon Mechanical Turk. We excluded 28 participants from analyses because they failed the attention check. The final sample included 87 men, 112 women, and 10 individuals who did not report their gender. The racial-ethnic composition of the sample was as follows: 78.9% White, 9.1% Hispanic, 5.3% Black, and 6.7% "other." The average age was 38.46 years (SD = 13.91), and the median income was between $35,000 and $39,999.

Results

Study 1: image-rating results. First, we investigated whether ratings of the welfare-recipient image differed from ratings of the non-welfare-recipient image. Figure 3 presents the means and 95% confidence intervals (CIs) for the 11 ratings of these two images (see Table S1 in the Supplemental Material available online for the specific values, as well as effect sizes). As predicted by our primary hypothesis for this study, participants rated the welfare-recipient image as appearing significantly more

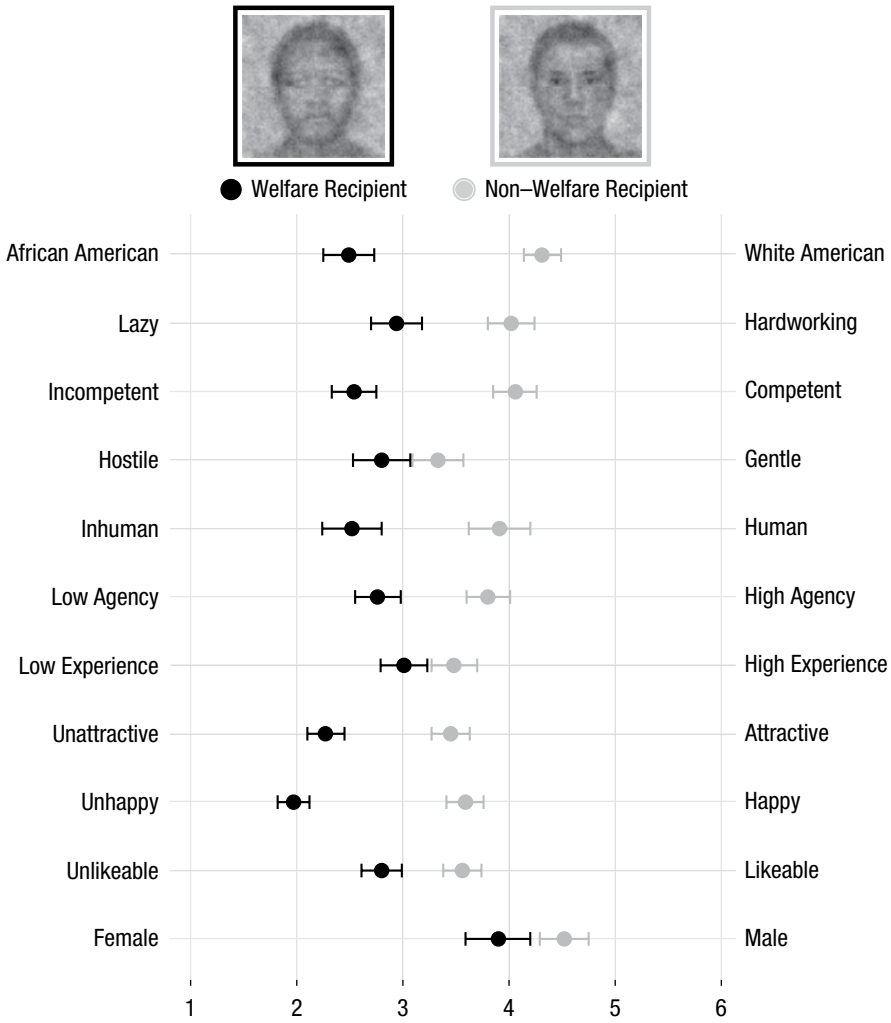

Fig. 3. Mean ratings of the critical images in Study 1. Error bars represent 95% confidence intervals.

African American (less White) than the non-welfare-recipient image.

We also investigated the stereotypes associated with the images. Given stereotypes depicting African Americans as undeserving of public assistance and research suggesting that African Americans are sometimes dehumanized (e.g., Goff, Eberhardt, Williams, & Jackson, 2008), we hypothesized that the person depicted in the welfare-recipient image would be rated as lazier, more incompetent, more hostile, and less human than the person depicted in the non-welfare-recipient image. Results were consistent with these predictions. Further, participants rated the person depicted in the welfare-recipient image as less agentic and as having less experience than the person depicted in the non-welfare-recipient image. We explored whether there was a general valence effect and found that, indeed, participants rated the welfare-recipient image as less attractive, less happy, and less likeable than the non-welfare-recipient image. We also explored whether the welfare-recipient image would be considered more or less feminine than the non-welfare-recipient image, but we found that participants rated the welfare-recipient image as more feminine. However, both images were rated as more male than female overall. These results suggest that, although the participants rating the images knew nothing about how they were created or what they had to do with welfare, attributes stereotypically associated with welfare recipients were apparent in the images.

Study 2: image-rating results. Again, we investigated whether ratings of the welfare-recipient image differed from ratings of the non-welfare-recipient image. Figure 4 presents the means and 95% CIs for the 11 ratings of the two images (see Table S2 in the Supplemental Material for specific values, as well as effect sizes). As hypothesized,

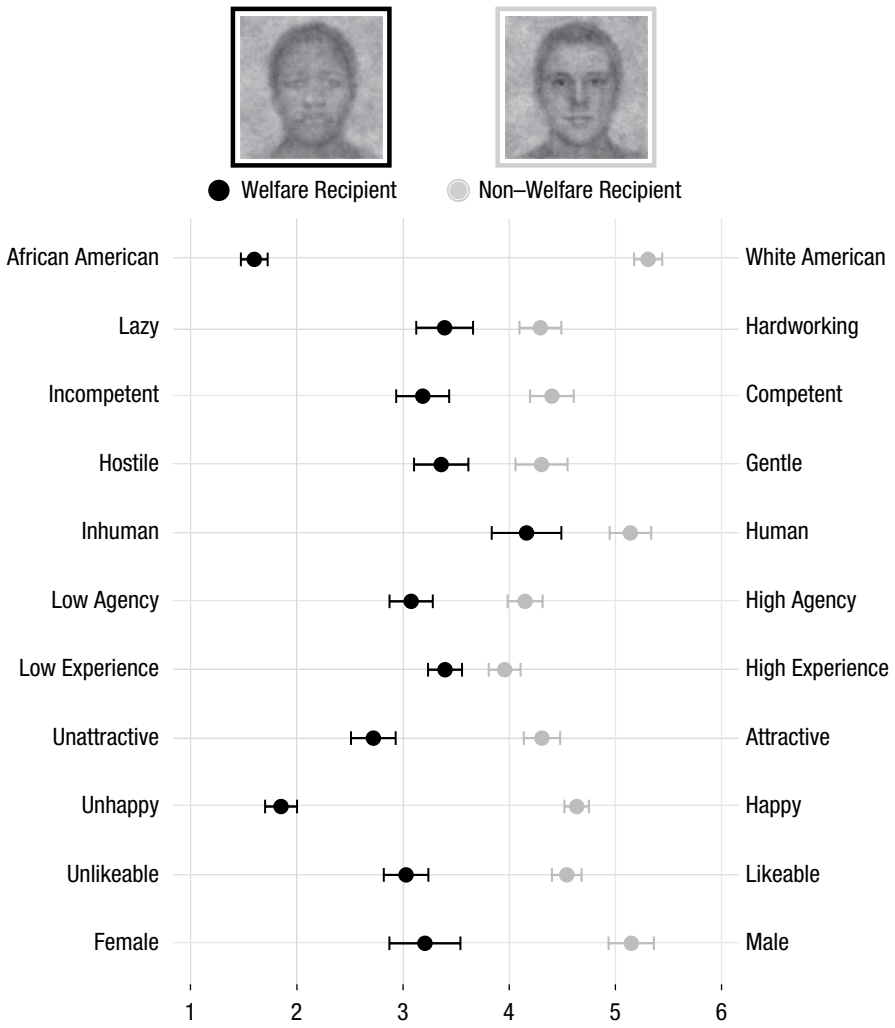

Fig. 4. Mean ratings of the critical images in Study 2. Error bars represent 95% confidence intervals.

the welfare-recipient image was rated as more representative of African Americans than was the non-welfare-recipient image. Also as predicted, the person depicted in the welfare-recipient image was rated as lazier, more incompetent, and more hostile than the person depicted in the non-welfare-recipient image. Additionally, the person depicted in the welfare-recipient image was perceived to be less human, to be less agentic, and to have less mental experience than the person depicted in the non-welfare-recipient image. Finally, we found that the welfare-recipient image was rated as less attractive, happy, likeable, and masculine than the non-welfare-recipient image. Overall, these findings consistently replicated the effects in Study 1: When people imagine welfare recipients, they tend to imagine an African American who appears lazy and incompetent.

Relationship between the images generated in Study 1 and Study 2. Visual inspection of the images generated in the two studies shows that they were very similar. To objectively measure their similarity, we examined the correlations between the lightness values for each pixel across the four images (see Table 1). The images were first masked with an oval shape so that the correlations would primarily reflect the face area of the images. As expected, the welfare-recipient images were positively correlated across Studies 1 and 2. The non-welfare-recipient images were also positively correlated across the studies. The positive correlation between the non-welfare-recipient images suggests that the anti-image created in Study 1 was similar to the average image created in the non-welfare-recipient condition in Study 2, even though the images were created using different decision tasks. Finally, the welfare-recipient image from Study 2 was negatively correlated with the non-welfare-recipient images from Study 2 and Study 1. (Note that the welfare-recipient and non-welfare-recipient images within Study 1 were correlated −1.0 because they were anti-images of each other; this redundancy does not apply in Study 2 because the recipient and nonrecipient images were generated from separate samples). These correlations confirm that the images generated were highly similar across the two studies.

Discussion

Face images were generated by samples of participants who heard no mention of race. Those images were then rated by new samples who heard no mention of welfare. And yet, the images revealed significant relationships between representations of welfare recipients and racial categories. Overall, these findings suggest that when individuals think about welfare recipients, they tend to imagine an African American who appears, to naive observers, to be relatively lazy and incompetent. Compared with the people depicted in the non-welfare-recipient images, those depicted in the welfare-recipient images appeared to be less human, to be less agentic, and to have less mental experience. The welfare-recipient images also appeared relatively unhappy, unattractive, and unlikeable. These data suggest that race and negative stereotypes are integrally linked to mental representations of welfare recipients. However, we did not test whether mental images of a typical welfare recipient affect attitudes toward welfare. We investigated this question in Study 3.

Study 3

In our third study, we used a within-subjects experimental design to investigate whether the average welfare-recipient and non-welfare-recipient images generated in Study 2 would influence participants' support for awarding or withholding welfare benefits. Participants were asked to view the two images and to rate their support for giving the pictured persons welfare benefits.[2] We hypothesized that participants would be more supportive of giving welfare benefits to the person depicted in the average non-welfare-recipient image than to the person depicted in the average welfare-recipient image. Given

Table 1. Correlation Among the Pixels of the Images Generated in Studies 1 and 2

	Study 1		Study 2	
Study and image	Welfare recipient	Non–welfare recipient	Welfare recipient	Non–welfare recipient
Study 1				
Welfare recipient	—			
Non–welfare recipient	−1.00	—		
Study 2				
Welfare recipient	0.55	−0.55	—	
Non–welfare recipient	−0.57	0.57	−0.71	—

Note: None of the 95% confidence intervals for these correlations included zero.

this within-subjects design, we needed at least 90 participants to have adequate power (.80) to detect a small effect (f = .15; G*Power software; Faul et al., 2009).

Method

Participants (N = 229; 91 men, 124 women, 1 participant who reported "other," 13 participants who did not report gender) were recruited from Amazon Mechanical Turk. The racial-ethnic composition of the sample was as follows: 79.9% White, 5.7% Hispanic, 5.7% Asian, 3.1% Black, and 5.6% "other." The average age was 39.66 years (SD = 13.14), and the median income was between $50,000 and $59,999.

Participants were told that they would see a series of "fuzzy" images of real people. The blurry nature of the images was explained by telling participants that the images looked distorted because they were composites of photos of people who had applied for government welfare programs. Participants were told that some of the applicants turned out to be responsible recipients of welfare benefits, whereas others were irresponsible recipients of the benefits. Then, participants were asked to make a series of judgments about each image. They were given no indication whether each image was supposedly a composite of responsible or irresponsible welfare recipients. The images presented were the average welfare-recipient and non-welfare-recipient images generated in Study 2 and four filler images (the same filler images used in Study 1 and 2), which were included so that the comparison between the two images of interest would not be salient.

Participants rated each image on perceived race (1 = *definitely African American*, 6 = *definitely White American*). We measured perceived deservingness by asking participants to rate each image on the degree to which the pictured person seemed competent (1 = *extremely unintelligent*, 6 = *extremely intelligent*) and hardworking (1 = *extremely lazy*, 6 = *extremely hardworking*), the extent to which the pictured person seemed responsible (1 = *extremely irresponsible*, 6 = *extremely responsible*), and the extent to which they believed the pictured person would use food stamps responsibly (1 = *definitely would not use responsibly*, 6 = *definitely would use responsibly*) and would use cash assistance responsibly (1 = *definitely would not use responsibly*, 6 = *definitely would use responsibly*). Finally, participants were asked how much they would support giving the pictured person food stamps (1 = *completely unsupportive*, 6 = *completely supportive*) and cash assistance (1 = *completely unsupportive*, 6 = *completely supportive*). Participants also answered demographic questions, including questions about their gender, age, and race-ethnicity.

For exploratory purposes, participants completed three measures we expected might be associated with the predicted effects. One measure assessed participants' attitudes toward welfare (Gilens, 1996). The second measure assessed participants' perceptions of increasing diversity in America (Craig & Richeson, 2014; Wetts & Willer, 2015). The third measure assessed the degree to which participants thought welfare was for racial minorities. The findings for these measures are presented in the Supplemental Material.

Results

Figure 5 presents the means and 95% CIs for the ratings of the two critical images (see Table S3 in the Supplemental Material for specific values, as well as effect sizes). First, we investigated whether the results for perceived race, competence, and work ethic replicated the findings of the previous studies and found that they did. The welfare-recipient image was rated as significantly more African American than the non-welfare-recipient image. Additionally, the person depicted in the welfare-recipient image was rated as less competent and hardworking than the person depicted in the non-welfare-recipient image.

Next, we tested our two primary hypotheses for Study 3. As predicted, the person depicted in the welfare-recipient image was rated as less responsible (generally), and less responsible with food stamps and cash assistance, than the person depicted in the non-welfare-recipient image. Additionally, as hypothesized, participants were less supportive of giving food stamps and cash assistance to the person depicted in the welfare-recipient image than to the person depicted in the non-welfare-recipient image. Overall, the results from this experiment suggest that people's mental images of welfare recipients can have a causal influence on their attitudes toward welfare.

Finally, we investigated the associations among differences in perceived race of the images, perceived deservingness of the people depicted, and support for giving those people welfare benefits (see Table 2; all differences were calculated by subtracting the rating for the welfare-recipient image from the rating for the non-welfare-recipient image). The difference in the perceived race of the images was significantly associated with the difference in perceived deservingness and support. If race stereotypes tie mental images of welfare recipients to perceptions of deservingness, then we would expect perceived race to mediate the effect of the images on perceived deservingness. Moreover, if deservingness links race to support for providing welfare benefits, then we would expect the association between perceived race and support for providing welfare to be mediated by deservingness.

To test this predicted pattern, we used a two-condition within-participants statistical mediation analysis with 10,000 bootstraps (MEMORE macro; Montoya & Hayes, 2016). The stereotype variables (perceived competence,

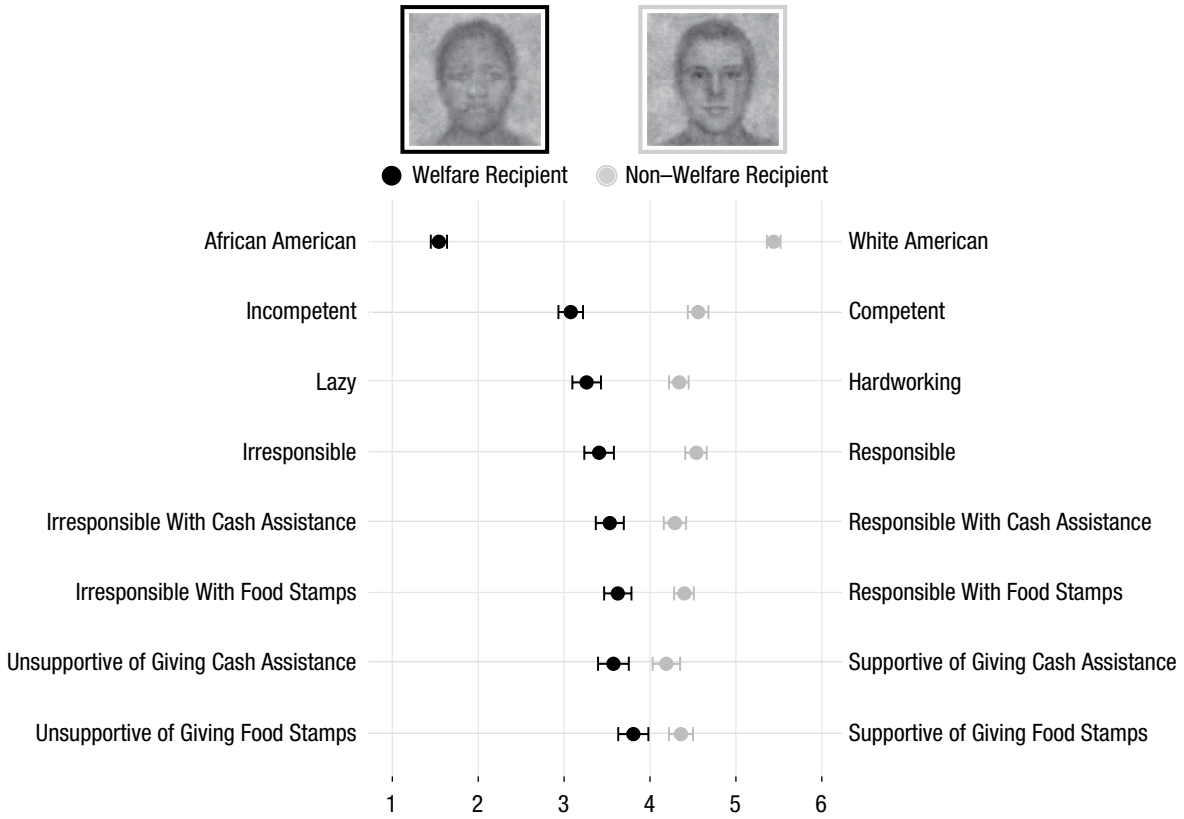

Fig. 5. Mean ratings of the critical images in Study 3. Error bars represent 95% confidence intervals.

responsibility, and work ethic) were averaged together to create one index of deservingness. Then, the variables were entered into the model in their raw-scale form (Montoya & Hayes, 2016). Results of the mediation analysis are displayed in Figure 6. The indirect effect of the two-mediator sequential pattern was significant, as indicated by the fact the 95% CI did not include zero, $b = 0.96$, 95% CI = [0.41, 1.60]. This finding is consistent with the hypothesis that perceived race of the image informed perception of deservingness, which in turn was the more proximal predictor of support for giving welfare benefits.

The mediation model simultaneously tested two alternative single-mediator pathways. First, it tested whether the effect of the image on support for welfare was mediated by perceived race alone. The indirect effect was not significant, $b = -0.04$, 95% CI = [−0.46, 0.36]. Second, the model tested whether the effect of the image on support for welfare was mediated by perceived deservingness alone. Because stereotypes of Black Americans and stereotypes of welfare recipients overlap, it was possible that perceptions of deservingness could explain the observed effects independently of race. However, this indirect effect was also not significant, $b = -0.01$, 95% CI = [−0.57, 0.48].

General Discussion

We have reported evidence that people's mental images of welfare recipients tend to look African American and to be associated with traits suggesting that they are undeserving of government assistance. First, participants chose images that they believed looked like welfare

Table 2. Results From Study 3: Correlational Analysis of Rating Differences Between the Welfare-Recipient and Non-Welfare-Recipient Images

Rating	Perceived race	Perceived deservingness
Perceived deservingness	.25	—
Support for giving welfare benefits	.20	.81

Note: None of the 95% confidence intervals for these correlations included zero.

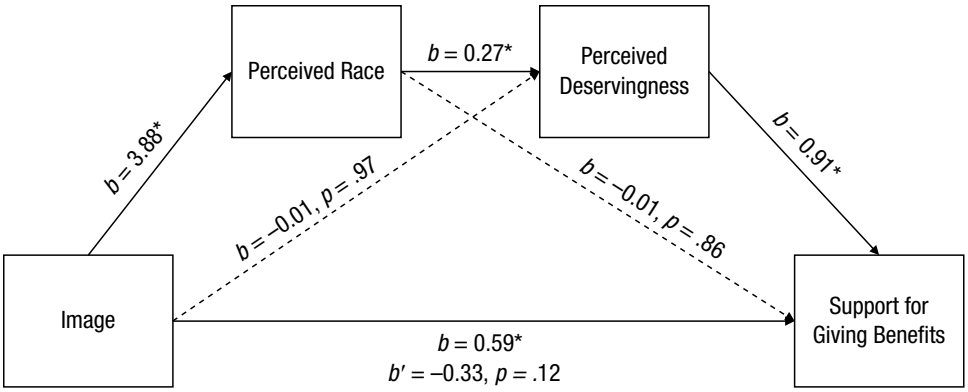

Fig. 6. Two-mediator sequential model depicting the relationship between support for giving welfare benefits and image type (1 = non–welfare recipient, 0 = welfare recipient), as mediated by perceived race (Mediator 1: higher numbers = more White) and deservingness (Mediator 2: higher numbers = more deserving). Asterisks indicate significant coefficients (*$p \leq .001$).

recipients. Then, separate samples of participants perceived images aggregated from the selected images to depict African Americans who were lazy, incompetent, and inhuman (relative to aggregated images of non–welfare recipients). Finally, when new participants considered giving welfare benefits to the people depicted in the images, the qualities of those mental images influenced their support for awarding benefits.

These findings are consistent with previous research suggesting that opposition to welfare is associated with negative attitudes toward African Americans (Gilens, 1995, 1996, 1999) and that these attitudes are more negative in areas with higher proportions of African Americans in the local population (Luttmer, 2001). Our results extend those findings by suggesting that mental representations of welfare recipients may be a subtle psychological mechanism linking racial bias with support for giving welfare benefits to individuals in need.

The samples whose responses were the basis for the constructed images of welfare recipients were blind to our hypothesis that the images of the recipients would look more African American than the images of the nonrecipients, and the samples rating the images were blind to our hypothesis that people would be less supportive of awarding welfare benefits to the images of the typical welfare recipient than to the images of the typical non–welfare recipient. This is important because the images of welfare recipients generated from participants' responses could have appeared to be images of competent and hardworking African Americans. Or they could have appeared to be images of undeserving Whites. Yet the average image of a welfare recipient was rated as depicting an undeserving African American. The merging of race and these stereotypes of deservingness emerged spontaneously from the participants' representations.

Limitations and future directions

This research used convenience samples, which leaves open questions about how broadly the effects generalize to other populations. Although online samples recruited through Mechanical Turk tend to be more diverse than American college samples, they still do not reflect the diversity of the United States (Buhrmester, Kwang, & Gosling, 2011). Future research should investigate mental representations of welfare recipients in representative samples. Future research should also investigate how mental images of specific subtypes of welfare recipients differ. Many people distinguish, for example, between the deserving poor and the undeserving poor. Peffley et al. (1997) found that when African American welfare recipients were described as hardworking (as opposed to lazy), participants had more positive attitudes toward welfare. Do such subtypes reduce the influence of race, or simply serve as a proxy for different race stereotypes? That is, if people are asked to imagine hardworking welfare recipients, will their mental images look more White than African American?

Conclusion

The distribution of resources presents a fundamental question facing citizens in democracies. Even though the level of economic inequality is reaching historically high levels in the United States, citizens tend to oppose redistributive policies (e.g., Gilens, 1995; Harell et al., in press). Citizens' mental representations of the people who benefit from redistribution may help explain why. These representations may contribute to growing economic inequality because they trigger group-based distinctions in the mind of some citizens when they think about the optimal distributions of resources.

Action Editor

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Author Contributions

J. L. Brown-Iannuzzi and B. K. Payne developed the study concept. All the authors contributed to the study design. Testing and data collection were performed by J. L. Brown-Iannuzzi and B. K. Payne. J. L. Brown-Iannuzzi performed the data analysis and interpretation under the supervision of R. Dotsch, E. Cooley, and B. K. Payne. J. L. Brown-Iannuzzi drafted the manuscript, and R. Dotsch, E. Cooley, and B. K. Payne provided critical revisions. All the authors approved the final version of the manuscript for submission.

Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

Supplemental Material

Additional supporting information can be found at http://pss.sagepub.com/content/by/supplemental-data

Open Practices

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Notes

1. Results of Study 1 and Study 2 were not substantively different when all participants, including the ones who failed the attention check, were included in the analyses.
2. This study was replicated with the average images created in Study 1. However, in the replication study, we did not ask participants to rate the perceived race of the average welfare-recipient and non-welfare-recipient images. Overall, the results of this replication study were similar to the results of Study 3. For a detailed description of the method and results of the replication study, see the Supplemental Material.

References

Ashok, V., Kuziemko, I., & Washington, E. (2015). Support for redistribution in an age of rising inequality: New stylized facts and some tentative explanations (Brookings Papers on Economic Activity). Retrieved from https://www.brookings.edu/wp-content/uploads/2016/07/2015a_ashok.pdf

Bartels, L. M. (2005). Homer gets a tax cut: Inequality and public policy in the American mind. *Perspectives on Politics*, *3*, 15–31.

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science*, *6*, 3–5.

Craig, M. A., & Richeson, J. A. (2014). On the precipice of a "majority-minority" America: Perceived status threat from the racial demographic shift affects White Americans' political ideology. *Psychological Science*, *25*, 1189–1197.

Dotsch, R. (2015). rcicr: Reverse-correlation image-classification toolbox [R package Version 0.3.0]. Retrieved from https://CRAN.R-project.org/package=rcicr

Dotsch, R., & Todorov, A. (2012). Reverse correlating social face perception. *Social Psychological & Personality Science*, *3*, 562–571.

Dotsch, R., Wigboldus, D. H. J., Langner, O., & van Knippenberg, A. (2008). Ethnic out-group faces are biased in the prejudiced mind. *Psychological Science*, *19*, 978–980.

Edsall, T. B., & Edsall, M. D. (1991). *Chain reaction: The impact of race, rights, and taxes on American politics*. New York, NY: W. W. Norton.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*, 1149–1160.

Fox, C. (2004). The changing color of welfare? How Whites' attitudes toward Latinos influence support for welfare. *American Journal of Sociology*, *110*, 580–625.

Gilens, M. (1995). Racial attitudes and opposition to welfare. *Journal of Politics*, *57*, 994–1014.

Gilens, M. (1996). "Race coding" and White opposition to welfare. *American Political Science Review*, *90*, 593–604.

Gilens, M. (1999). *Why Americans hate welfare: Race, media, and the politics of antipoverty policy*. Chicago, IL: University of Chicago Press.

Goff, P. A., Eberhardt, J. L., Williams, M., & Jackson, M. C. (2008). Not yet human: Implicit knowledge, historical dehumanization, and contemporary consequences. *Journal of Personality and Social Psychology*, *94*, 292–306.

Gray, H. M., Gray, K., & Wegner, D. M. (2007). Dimensions of mind perception. *Science*, *315*, 619.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology*, *74*, 1464–1480.

Hamilton, D. L. (Ed.). (2015). *Cognitive processes in stereotyping and intergroup behavior*. New York, NY: Psychology Press.

Harell, A., Soroka, S., & Iyengar, S. (in press). Race, prejudice and attitudes toward redistribution: A comparative experimental approach. *European Journal of Political Research*.

Hilton, J. L., & von Hippel, W. (1996). Stereotypes. *Annual Review of Psychology*, *47*, 237–271.

Imhoff, R., & Dotsch, R. (2013). Do we look like me or like us? Visual projection as self- or ingroup-projection. *Social Cognition*, *31*, 806–816.

Imhoff, R., Woelki, J., Hanke, S., & Dotsch, R. (2013). Warmth and competence in your face! Visual encoding of stereotype

content. *Frontiers in Psychology, 4*, Article 386. doi:10.3389/fpsyg.2013.00386

Krosch, A. R., & Amodio, D. M. (2014). Economic scarcity alters the perception of race. *Proceedings of the National Academy of Sciences, USA*, *111*, 9079–9084.

Kuziemko, I., Norton, M. I., Saez, E., & Stantcheva, S. (2015). How elastic are preferences for redistribution? Evidence from randomized survey experiments. *American Economic Review*, *105*, 1478–1508.

Lee, W., & Roemer, J. R. (2006). Racism and redistribution in the United States: A solution to the problem of American exceptionalism. *Journal of Public Economics*, *90*, 1027–1052.

Luttmer, E. P. (2001). Group loyalty and the taste redistribution. *Journal of Political Economy*, *109*, 500–528.

Mangini, M. C., & Biederman, I. (2004). Making the ineffable explicit: Estimating the information employed for face classification. *Cognitive Science*, *28*, 209–226.

Meltzer, A. H., & Richard, S. F. (1981). A rational theory of the size of government. *Journal of Political Economy*, *89*, 914–927.

Montoya, A. K., & Hayes, A. F. (2016). Two-condition within-participant statistical mediation analysis: A path-analytic framework. *Psychological Methods*. Advance online publication. doi:10.1037/met0000086

Norton, M. I., & Ariely, D. (2011). Building a better America—one wealth quintile at a time. *Perspectives on Psychological Science*, *6*, 9–12.

Oppenheimer, D. M., Meyvis, T., & Davidenko, N. (2009). Instructional manipulation checks: Detecting satisficing to increase statistical power. *Journal of Experimental Social Psychology*, *45*, 867–872.

Payne, B. K., Cheng, C. M., Govorun, O., & Stewart, B. (2005). An inkblot for attitudes: Affect misattribution as implicit measurement. *Journal of Personality and Social Psychology*, *89*, 277–293.

Peffley, M., Hurwitz, J., & Sniderman, P. M. (1997). Racial stereotypes and Whites' political views of Blacks in the context of welfare and crime. *American Journal of Political Science*, *41*, 30–60.

Saez, E., & Zucman, G. (2014). *Wealth inequality in the United States since 1913: Evidence from capitalized income tax data* (NBER Working Paper Series). Retrieved from http://gabriel-zucman.eu/files/SaezZucman2014.pdf

Sears, D. O., & Cirin, J. (1985). *Tax revolt: Something for nothing in California*. Cambridge, MA: Harvard University Press.

U.S. Department of Health and Human Services. (2012). *Characteristics and financial circumstances of TANF recipients, fiscal year 2010*. Retrieved from http://www.acf.hhs.gov/ofa/resource/character/fy2010/fy2010-chap10-ys-final

Wetts, R., & Willer, R. (2015). Anxiety and austerity: A group position account of White Americans' opposition to welfare. Manuscript in preparation.

Wilkinson, R., & Pickett, K. (2009). *The spirit level: Why greater equality makes societies stronger*. New York, NY: Bloomsbury.