

Does inequality activate the system justification motivation?

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Abstract

The central finding of system justification theory is that individuals have a psychological need to support, defend and justify their social system. While this motivation is thought to exist (to varying degrees) in all individuals, members of disadvantaged groups may have a stronger system justification motivation than members of advantaged groups. Such a disparity would be consistent with a prediction from system justification theory that we call the inequality-induced motivation hypothesis: the idea that inequality itself has a causal effect on individuals' level of system justification motivation. This hypothesis yields the counterintuitive prediction that people disadvantaged by a system should be equally or even more likely to rate the system as fair, possibly making political responses to inequality less likely as inequality grows more extreme. Research on this hypothesis to date has been based on cross-national survey data and has provided mixed results. In this paper, we take an experimental approach and ask whether economic inequality activates the system justification motivation. In addition, we compare different ways of measuring the system justification motivation, asking whether some of the null results in survey research have been due to the availability of only imperfect measures. Across three studies with a range of different samples, experimental treatments, and outcome measures, we find no evidence that information about economic inequality increases system justification motivation.

Keywords

Inequality; System justification; Income inequality; Cognitive dissonance

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System justification theory (Jost and Banaji 1994, Jost et al. 2004) provides an important framework for understanding attitudes that do not seem to serve the self-interest of the individual or their group, and predicts that individuals are motivated to legitimize existing social arrangements, “even at the expense of personal and group interest” (Jost and Banaji 1994, p.2). System justifying attitudes are common in many domains (Jost et al. 2004), including in attitudes toward economic inequality (Kluegel and Smith 1986, McCall 2013, Alesina and Glaeser 2004). In this paper, we focus on system justification in the domain of economic inequality, and ask whether high levels of economic inequality can explain why members of disadvantaged groups appear to exhibit stronger system justification tendencies than members of advantaged groups.

System justification is particularly powerful for explaining the system legitimizing attitudes of disadvantaged individuals, for whom self-serving biases cannot explain system support. Survey evidence has shown that disadvantaged individuals are no less likely than advantaged individuals to think of their social system as legitimate (Jost et al 1996, Brandt 2013), which suggests that the motivation to system justify is particularly strong among disadvantaged individuals. It is unclear, however, what causal mechanism can best explain the high levels of system justification found among relatively disadvantaged individuals. We examine one possible explanation for this phenomenon: the hypothesis that inequality itself induces the system justification motivation among individuals disadvantaged by this inequality. This particular causal explanation has been suggested in prior system justification literature (Jost and Banaji 1994, Jost et al. 2003, Jost et al. 2004), and

has been debated using survey data (Jost et al 2003, Brandt 2013), but no published experimental evidence has evaluated the hypothesis that inequality itself induces system justification.

The question of whether inequality increases the system justification motivation (especially among individuals who are disadvantaged by inequality) is particularly relevant today, in light of the continued increases in income inequality in the United States (Saez 2014, Mishel and Finio 2013) and the attendant debates about the (lack of) public reactions to this trend. Increased income inequality does not reliably predict popular opposition to income differences (McCall 2013) and increasing inequality in the United States has coincided with a general conservative turn in public opinion (Luttig 2013). In cross-national comparisons, the public in more unequal countries is not more likely to demand redistribution or to think that inequality is too high (Alesina and Glaeser 2004, Kenworthy and McCall 2008, Schroeder 2014, Trump 2014). If exposure to inequality increases the system justification motivation among people who are disadvantaged by the recent increases in income differences, then it would follow that increasing income inequality itself could be *reducing* the probability of popular rejection of such inequality. Given that the system justification motivation applies to the social system as a whole, it is also possible that increased economic inequality increases public acceptance of other features of the system, for example political inequality. Because of these important ramifications, this paper specifically examines the proposition that inequality increases the system justification motivation – as distinct from the related questions of how much stronger the motivation may be

among disadvantaged populations, and what other forces may work to induce system justification.

In the next section, we present an overview of system justification theory and previous research on system justification motivation. We then present our experimental findings from three studies. In these studies we use multiple operationalizations of the system justification motivation, all drawn from prior literature on the subject, including the economic system justification scale. Study 1 asks whether exposure to information about income inequality in the United States affects the system justification motivation. Study 2 asks whether exposure to information regarding the increasing wealth of members of Congress has this effect. Both studies produce null findings across each of three ways to measure the system justification motivation. Study 3, funded through a competitive peer reviewed grant procedure,¹ presents the same informational treatment from Study 1 to a large and nationally-representative sample, and again examines whether this information affects the system justification motivation. On two of three measures, Study 3 produces null results; on the third (the system justification scale), it finds that subjects shown more inequality become *less* motivated to justify the system, the opposite of the prediction. In the discussion section, we discuss the implications of these null (or opposite-signed) results.

¹ The survey was run through Time-Sharing Experiments for the Social Sciences (TESS).

Inequality and the system justification motivation

The original formulation of system justification theory (Jost and Banaji 1994) focused on the motivated use of stereotypes about social groups to legitimize social inequality. The theory has since been extended more widely to beliefs that legitimize existing social arrangements (for example victim-blaming or meritocratic beliefs) (Jost et al. 2004). System justification is defined as “the psychological process by which existing social arrangements are legitimized, even at the expense of personal and group interest” (Jost and Banaji 1994, p.2). This process originates in a psychological need to believe that social arrangements, including one’s social system at large, are fair and justified. System justification theory forms an important addition to existing theories of social legitimacy, because it can account for beliefs that are inconsistent with either the self- or the group-justification perspectives.² System justification theory does not predict that inequality is *inevitably* accepted, but it does provide an explanation of why acquiescence with inequality is commonplace. The predictions of system justification theory include the expectation that a particularly unequal or insidious system could, paradoxically, increase the motivation to justify the system: “it may be that the more painful, humiliating, or unfair a system is, the more it evokes the system-justification response” (Jost and Banaji 1994, p.16).

² In the words of the authors, “[psychologists] have underemphasized the degree to which people persist in explaining and justifying social systems which disadvantage them” (Jost and Banaji 1994, p.16).

The strength of the system justification motivation has been shown to depend on a number of variables, including: system threat, system dependence, system inescapability and low feelings of personal control (Kay and Friesen 2011). Recently, van der Toorn et al (2015) have shown that a sense of powerlessness can increase the system justification motivation, and Laurin et al. (2013) have shown that the same effect is produced by perceptions of stability of the social system. These effects fit into a broader framework that treats support of external systems as the result of a “compensatory control” mechanism, whereby fluctuations in perceived personal control are compensated for by increasing one’s defense of the socio-political system or one’s belief in a controlling God (Kay et al. 2008).

The proposition that inequality or unfairness can increase the system justification motivation (henceforth referred to as the inequality-induced motivation hypothesis) has been the subject of fewer published studies than the other situational determinants mentioned above. This hypothesis is also based on a different psychological mechanism: while the cluster of determinants described as “compensatory control” depends on variation in the locus of control as a mechanism, the inequality-induced motivation hypothesis depends on cognitive dissonance as a key mechanism. The hypothesis that unfairness of the social system may increase the system justification motivation appears first in Jost and Banaji (1994) and is elaborated on in Jost et al. (2003) and Jost et al. (2004). According to the hypothesis, cognitive dissonance arises “from the contradictory cognitions that (a) the system is putting me (and my group) at a disadvantage, and (b) through our acquiescence, my group and I are contributing to the stability of the system” (Jost et

al. 2003, p.16). Because of the motivation to system justify, this dissonance is resolved by increasing one's support for, and belief in the legitimacy of, the social system. This cognitive dissonance is expected to be largest for the most disadvantaged individuals: the theory expects that "members of disadvantaged groups would be even more likely than members of advantaged groups to support the status quo, at least when personal and group interests are low in salience" (Jost et al. 2004, p.909). An extension of this hypothesis holds that if economic and social inequality act to increase the system justification motivation of disadvantaged groups, then "system justification levels will be higher in societies in which social and economic inequality is more extreme rather than less extreme" (Jost and Hunyady 2003, p.123).

Consistent with the inequality-induced motivation hypothesis, Jost et al. (2003) provide evidence that "members of disadvantaged groups sometimes support and justify the social order to an even greater degree than members of advantaged groups do" (p.14). They show, for example, that poorer survey respondents are more likely to believe that large differences in income are important and necessary, and that poor and Black Americans are more likely to think of economic inequality as legitimate. The evidence presented by Jost et al. (2003) is based on survey and correlational data, rather than experiments, and as such it cannot speak directly to the mechanism by which disadvantaged groups come to support the social system more than advantaged groups (as the authors themselves note in the conclusion). Given the mechanisms that are known to activate the system justification motivation, it may be the case that disadvantaged

individuals tend to also feel low in personal control, dependent on their social system, or less capable of escaping the system than do advantaged individuals. Therefore, evidence of high system justification among disadvantaged groups does not conclusively show that disadvantage itself is increasing the system justification motivation, or that this occurs through a cognitive dissonance mechanism.³ In the absence of experimental evidence, the findings in Jost et al. (2003) are not conclusive proof of a disadvantaged position causing increased system justification tendencies.

There is also conflicting evidence on whether Jost et al. (2003) identified robust phenomena. Brandt (2013) utilizes large-scale, cross-national datasets to examine both hypotheses (higher system justification by disadvantaged groups and higher system justification in more unequal societies). Combining data from the General Social Survey and the American National Election Study in the United States, and the World Values Survey cross-nationally, Brandt explores the extent of trust and confidence in societal institutions, between social groups and between countries. In these surveys, members of disadvantaged groups do *not* generally trust societal institutions more than advantaged groups, though they also do not systematically trust societal institutions *less*. The relationship between social status and trust in social systems varies across countries, but this variation is not

³ In addition, Jost and Banaji (1994) hypothesized that the factors that produce system justification may include a lack of class-consciousness, the isolation of disadvantaged group members from one another, or low degrees of group identification.

accounted for by variation in economic inequality. This suggests that system-justifying tendencies are not exacerbated in particularly unequal environments, although it also remains true that disadvantaged groups are not significantly more likely than advantaged groups to oppose the system, either. Of course, Brandt (2013) relies on cross-sectional surveys in this analysis as well, which means that the conclusions are also liable to interference from spurious variables. A second concern with these results is that the measurement of system justification is relatively narrow: the questions available from the large cross-national surveys used are about trust in government, politicians and other social institutions. More traditional measures of system justification, such as belief in meritocratic ideologies, endorsement of stereotypes, and scores on system justification scales, would provide a stronger test of the theory. In summary, there is mixed observational evidence on whether or not inequality in particular increases the system justification motivation, and therefore an experimental approach to this question is apt.

This paper has two aims. First, we experimentally evaluate the proposition that high economic/social inequality increases the system justification motivation among members of the unequal system. Second, we utilize several measures of the system justification motivation in parallel, in order to examine whether the effect is reliably captured with various questions, and in particular whether the use of institutional trust variables is a reliable way to measure levels of system justification.

Method

We present three survey experiments in this paper. Our treatment conditions in each case assign different information about the extent of inequality in the United States, and each experiment uses several different measures of the system justification motivation. Given that our substantive motivation stems from (the lack of) public reactions to sharply increased income inequality, our first experiment manipulates the respondents' perceptions of income inequality. In the second experiment, we make it more explicit to our participants that they are not part of the benefiting group, by presenting information regarding the over-time increases in the wealth of members of Congress. In both experiments, we find no evidence that perceived inequality increases the system justification motivation. In the third experiment, we again present information on income inequality, this time to a nationally representative sample of respondents, and use a manipulation check to verify that our respondents' perceptions of inequality changed as a result of our manipulations. In this case, two of our measures replicate the null effect of perceived inequality on system justification found in the prior experiments, while the third measure (the economic system justification scale) shows a small but statistically significant effect in the opposite direction of the hypothesis. In none of the three measures we examine does information about inequality increase the system justification motivation.

Study 1 – Income inequality and system justification

In the first study, we chose to use an experimental treatment reminiscent of the way in which everyday news may cover stories on income inequality.⁴ We choose as the treatment of interest one popular measure of income inequality: the Gini coefficient, which has been increasing relatively steadily in the United States since the 1970's. The Gini coefficient has also been used in previous studies of system justification as a relevant variable to measure inequality in social systems: Brandt (2013) uses it as a possible moderator of the status-legitimacy hypothesis, and Napier and Jost (2008) use it to explore the relationship between system justification, inequality, and individual happiness.

The participants in our study were exposed to accurate information about the Gini coefficient (data from Solt, 2008/2013). All participants saw factually correct figures of the coefficient over the 1968-2010 time period, but the y-axis was modified such that in the control condition the trend looked relatively flat, with a small increase over time, and in the treatment condition the trend showed a seemingly sharper over time increase (see Figure 1). We hypothesized that being exposed to information that indicated a sharper increase in income inequality over time would lead to an increased motivation to justify the United States' social system.

⁴ Graphs of the over time trends in inequality similar to the graphs used in our experimental treatment feature for example in "The Rich and The Rest", *The Economist*, 13 October 2014; and Edsall, Thomas "Can the Government Actually Do Anything About Inequality?" *The New York Times*, 10 September 2013.

Outcome variables

We chose to operationalize the outcome variable, system justification, in three different ways, all drawn from prior literature on the subject. Using three measures in parallel allows us to directly compare institutional trust as a measure of system justification to alternative measures. We thus explore whether Brandt’s (2013) null findings were due to a measurement choice imposed by the limitations of available large-scale survey data. The first outcome measure is composed of the

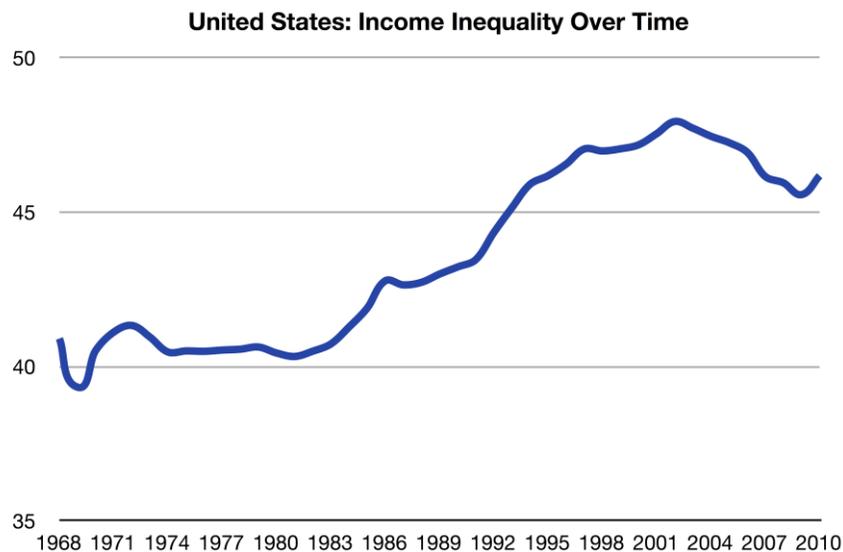
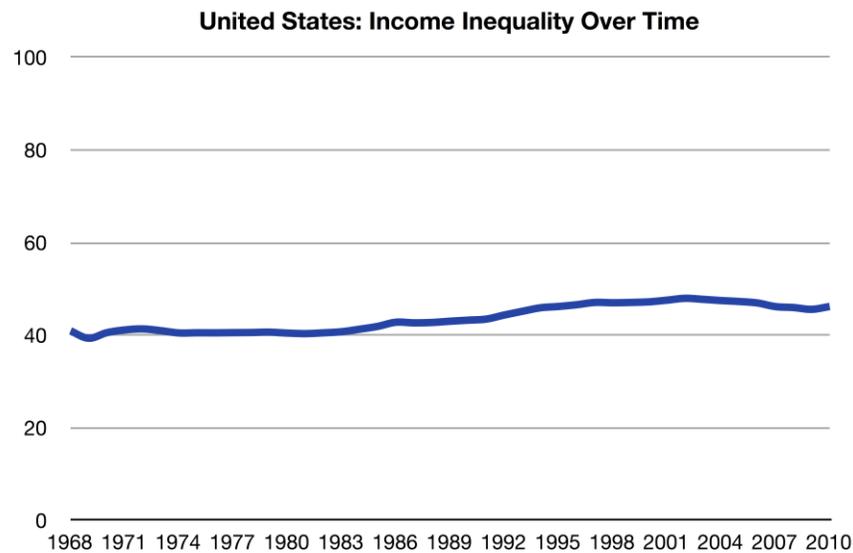


Figure 1. The treatment and control conditions in Studies 1 and 3. The top panel shows the control condition, where the increase of the Gini coefficient over time looks moderate. The bottom panel shows the treatment condition, where the same increase looks significantly larger.

same questions regarding institutional trust that are asked in the General Social Survey and were used for analysis in Brandt (2013). The questions ask the participants to indicate how much confidence (“A great deal,” “Only some,” or “Hardly any”) they have in the people running the following institutions: the military, major companies, banks and financial institutions, the executive branch of the federal government, the United States Supreme Court, and Congress. An overall institutional trust measure was calculated for each participant by averaging across the six institutions, which resulted in a scale with Cronbach’s $\alpha = 0.71$. This measure was filled out by a third of our sample and we will refer to this measure as the “institutional trust” measure of system justification.

Our first comparison measure was a system justification scale (Kay and Jost 2003, Jost and Kay 2005) where participants indicated their agreement or disagreement (on a 9-point scale) with 8 statements regarding the fairness of the overall social system of the United States. The scale is specifically intended to capture situational, rather than dispositional, system justification (Kay and Jost 2003, p.828). Items were as follows: “In general, you find society to be fair,” “In general, the American political system operates as it should,” “American society needs to be radically restructured” (reverse-scored), “The United States is the best

country in the world to live in,” “Most policies serve the greater good,” “Everyone has a fair shot at wealth and happiness,” “Our society is getting worse every year” (reverse-scored), and “Society is set up so that people usually get what they deserve.” Reverse-scored items were coded so that higher numbers indicate higher system justification, and an overall system justification score was calculated for each participant by collapsing across the eight items, which formed a reliable scale (Cronbach’s $\alpha = 0.88$). This measure was filled out by one third of our respondents, and we will refer to it as the SJM (System Justification Motivation) scale measure.

The final comparison measure directly explores the justification of gender inequality in high-level politics, and was received by the final third of participants. This measure was modelled on the gender-in-politics measure of injunctification used by Kay et al. (2009, Study 3). In this scenario, we expect that individuals whose system justification motivation has been temporarily increased will be more likely to justify new information about gender inequality. The benefit of this outcome variable is that we depart from self-report scales of justification, and instead measure the participants’ response when faced with information that they may be motivated to justify. All participants in this condition were exposed to a graph with information regarding the number of female Senators. The graph contrasted the percentage of women in Congress over the last 20 years (10%) to the percentage of women in the United States population (just over 50%). The difference was further highlighted as the scale of the graph stopped at 60% (see Appendix for an image of the treatment). After seeing this information, respondents indicated their agreement or disagreement (on a 1-6 scale) with five statements regarding women

in politics. The statements were: “Women are just as capable as men of being political leaders” (reverse-scored), “There are fewer women in Congress because of natural differences between men and women,” “There are fewer women in Congress because of our political system and discrimination against women politicians” (reverse-scored), “Women should be in politics” (reverse-scored), and “It is desirable to have women as members of Congress” (reverse-scored). The items were coded so that higher numbers indicate higher system justification, and an overall system justification score was calculated for each participant by collapsing across the five items, which formed a reliable scale (Cronbach’s $\alpha = 0.82$). We will refer to this as the gender inequality justification measure, and we hypothesize that exposure to the *high inequality* treatment will increase the extent to which respondents justify gender inequality in politics.

Participants

256 participants were recruited on Amazon’s Mechanical Turk (MTurk) platform in April 2014. Participants were restricted to those located in the United States, with a prior approval rate of 95% on Human Intelligence Tasks (HIT’s). They were paid \$0.85 for finishing the survey, which most participants completed in less than 5 minutes.

We received responses from MTurk users from 43 states and a range of backgrounds. Their median age was 32, median education level was an Associate’s degree, and slightly more than half (154) were men. These respondents were randomly assigned (with equal probability) to receive either the high- or low-

inequality treatment condition, and to respond to one of our three outcome measures.

Results

Being assigned to the treatment condition, where a sharp increase in income inequality in the United States was presented (as opposed to the control condition where the trend in income inequality looked relatively flat) did not affect system justification in any of the three operationalizations. We performed Student's t-tests, comparing the treatment and control conditions separately for each outcome variable (each participant responded to only one outcome variable). Figure 2 presents the resulting estimated effect sizes with 95% confidence intervals. For ease of interpretation, the outcome variables have all been standardized to a 0-1 scale, where higher numbers indicate higher levels of system justification, and positive differences from 0 indicate that system justification was higher in the treatment condition than in the control condition. As the figure shows, the point estimate of an effect is positive (in the expected direction) when system justification motivation is measured with the SJM scale, but the estimate is small and not statistically significant (estimated difference of .04 on a 0-1 scale, $p=.24$). For the gender inequality justification measure, the point estimate of the difference is not significant and in the opposite direction from the theoretical prediction (estimate -.02, $p=.51$). Institutional trust is also not impacted by the treatments (estimate -.00, $p=.92$).

The median respondent spent 24 seconds on the inequality graph presentation (the mean respondent spent 30 seconds), and 247 of 256 participants

spent more than 5 seconds on the page; therefore we think that participant inattention is an unlikely explanation for the null findings.⁵ In Study 3, we address

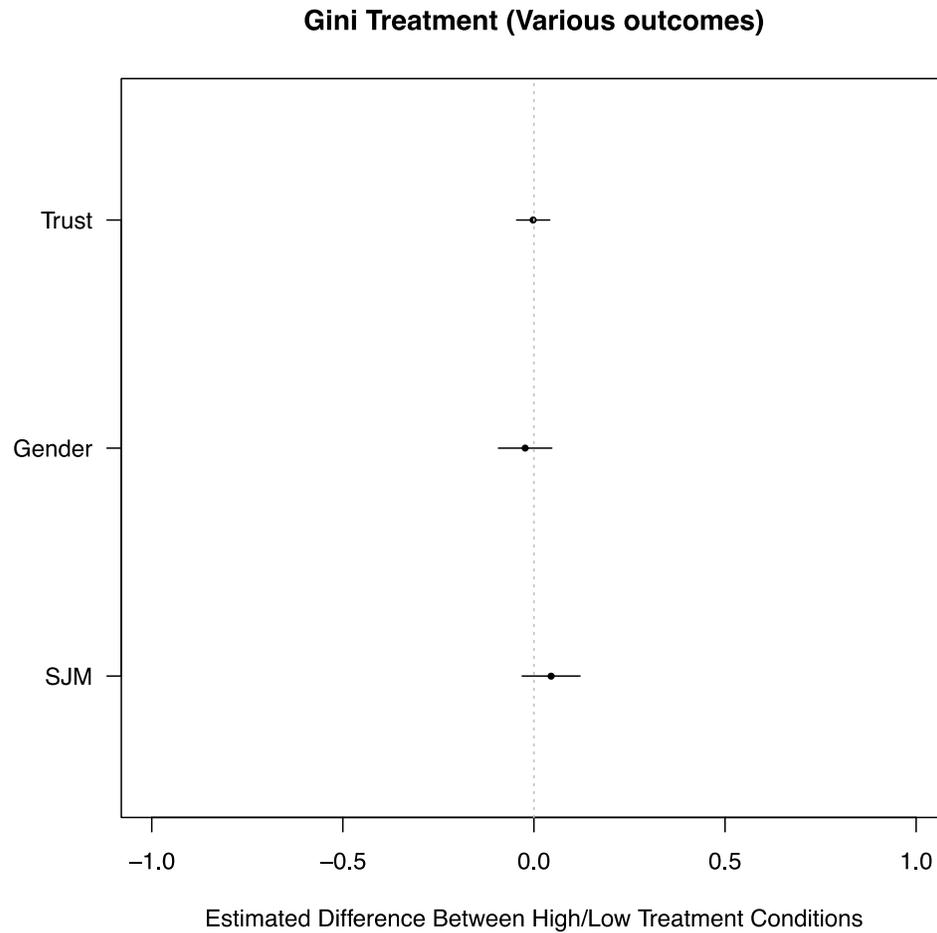


Figure 2: Results of Study 1. Showing the estimated effects of the “high income inequality” treatment, compared to the control treatment, on system justification measured as institutional trust, gender inequality justification, and a system

⁵ We also included comprehension questions in this study, but these questions may have been too broad to accurately capture comprehension, as they asked only whether inequality had increased over time, and the majority of our respondents accurately agreed with this statement in both conditions. In Study 3 we address this shortcoming by improving the comprehension questions and asking about the magnitude of the increase.

justification motivation scale. The effects are estimates based on t-tests, shown with their 95% confidence intervals. All outcome variables have been re-scaled to a 0-1 scale. Positive effect estimates indicate that system justification was higher in the “high inequality” treatment condition.

the question of possible inattention directly by asking appropriate comprehension questions regarding the treatments.

The impact of inequality on the system justification motivation is expected to be particularly significant for individuals who are disadvantaged by inequality. While participants on Mechanical Turk are unlikely to self-identify as “rich” (the group that was identified in the treatments as benefiting from increased inequality of incomes), we ran an additional analysis where we restricted the analysis to the 169 individuals in our sample (66% of the sample) who report an annual individual income of less than \$35,000. The results do not change in this subset of our sample: the SJM scale (estimate 0.002, $p=0.97$) and gender inequality (estimate -0.03, $p=0.48$) measures do not differ significantly between treatments, while the institutional trust measure just crosses the conventional measure of statistical significance in the *opposite* direction to the hypothesis (estimate -0.05, $p=0.05$).

Discussion

The results of Study 1 do not support the hypothesis that information about sharp increases in income inequality in the United States increases the system justification motivation. Across three different measures of the justification motivation, we found no significant evidence that the information treatment increased the motivation. One possible reason for this null effect may be that the Gini coefficient does not conclusively imply that the participants themselves are disadvantaged by the increases in inequality. According to the inequality-induced motivation hypothesis, individuals who feel *disadvantaged* by the status quo should be the ones to increase their system justification tendency most, thereby pushing up

overall levels of justification. It is unclear from Study 1 whether our participants feel they are on the losing end of increasing income inequality. On the one hand, the information about inequality was preceded by the explanation that “higher numbers mean that the very rich have a higher share of total income,” and our participants (Mechanical Turk workers), while somewhat diverse in their income levels, would be unlikely to self-identify as “very rich”. Further, restricting the analysis to relatively poor individuals in the sample does not change the conclusions of the study. On the other hand, we cannot rule out this type of thinking among our participants, even among those with relatively low incomes. In Study 2, therefore, we move away from information about overall income inequality, and focus on increased concentration of economic resources within one already powerful group: members of Congress.

Study 2 – Wealth of members of Congress and system justification

In Study 2, we create a presentation of economic inequality that makes clear that the respondent does not belong to the benefiting group. We chose the treatment to be the increasing wealth of members of Congress over time. Members of Congress are, by definition, among the most politically powerful individuals in the country. Information that speaks to their increasing economic wealth underscores that an already powerful political group is also becoming economically more advantaged. We expect this information to tell our (non-members-of-Congress)

participants that there is economic inequality which does not benefit them individually; the observation of such inequality should in turn, induce a higher motivation to justify the social system that produced this inequality.

Method

Parallel to the procedure in Study 1, our respondents saw factually correct information on the over-time development of the net worth of members of Congress (data from the Center for Responsive Politics). The y-axis was modified such that the overall increase in the net worth of members of Congress appeared dramatic for the treatment group, but muted for the control group (see Appendix for images of the information treatments). We hypothesized that seeing increased wealth concentration in the hands of an already powerful group would increase the system justification motivation among our respondents.

The dependent variables in this study are identical to the dependent variables in Study 1. Each participant responded to only one of the following: SJM scale ($\alpha=0.85$), gender inequality justification ($\alpha=0.80$), or institutional trust questions ($\alpha=0.78$).

Participants

We recruited a total of 266 participants through a mixed online recruitment strategy in April and May 2014. 104 participants were recruited through three websites where individuals volunteer to take part in psychology studies.⁶ The

⁶The volunteer websites were the Psychology Study Pool volunteering website at a university in the northeastern United States (10 participants reported finding the study through this link), SocialPsychology.org (27 participants), and Social

median age of these participants was 25, and their mean age was 29. 57% were female, the median respondent held a Bachelor's degree, and the participants lived in 32 different U.S. states. These respondents were not paid. 162 additional participants were recruited using Mechanical Turk. The participants were restricted to being located in the United States, with a prior approval rate of 95% on HIT's. They were paid \$0.50 for finishing the survey, which most participants completed in less than 5 minutes. The median age of these participants was 30, and their mean age was 34. 57% were male, the median respondent held a Bachelor's degree and the respondents resided in 36 different U.S. states.

Results

We find no evidence that information about increased wealth among members of Congress increases the system justification motivation of the participants. We perform Student's t-tests to test whether levels of system justification differ between the treatment and control conditions; results are visualized in Figure 3, presenting estimated effect sizes with 95% confidence intervals. The dependent variables are again standardized to all be on a 0-1 scale. Across all three outcome variables, there are no significant differences between control and treatment conditions. The point estimates for the SJT scale (estimate

Psychology on the Net (33 participants). Remaining participants did not recall which website they had come to the study from. Additional analysis of the results revealed no heterogeneous treatment effects between sources of participants.

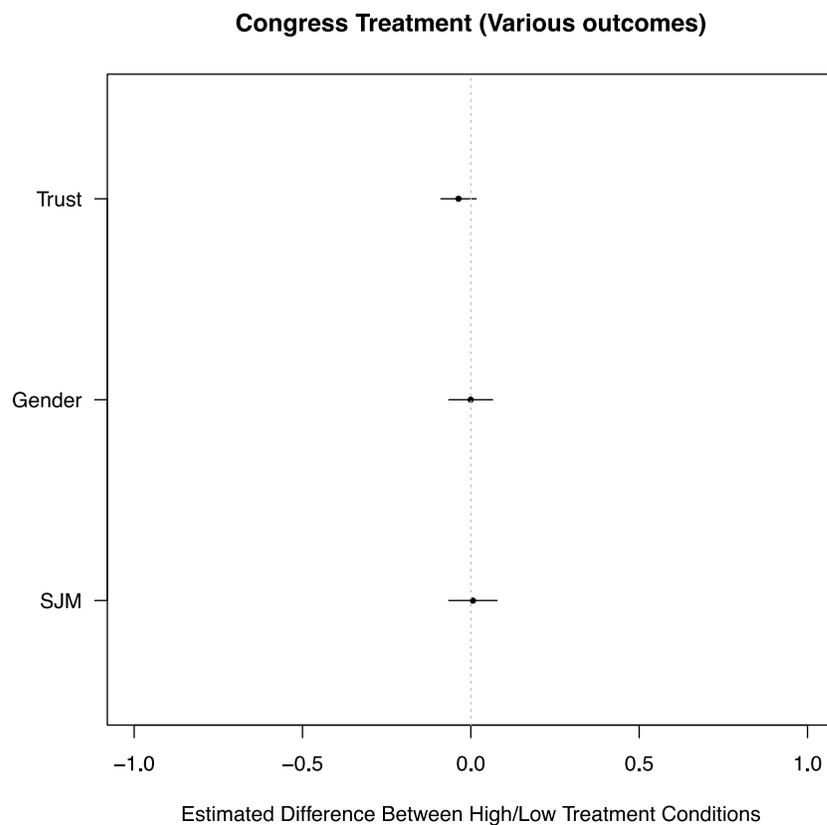


Figure 3: Results of Study 2. Showing the estimated effects of the “increased wealth of members of Congress” treatment, compared to the control treatment, on system justification measured as institutional trust, gender inequality justification, and a system justification motivation scale. The effects are estimates based on t-tests, shown with their 95% confidence intervals. All outcome variables have been re-scaled to a 0-1 scale. Positive effect estimates indicate that system justification was higher in the “increased wealth” treatment condition.

0.006, $p=0.87$), gender inequality justification (estimate 0.00, $p=0.98$) and institutional trust questions (estimate 0.04, $p=0.17$) are all very close to zero and insignificant. As in Study 1, time spent on the treatment screens suggests that inattention is not one of the issues (median time 19 seconds, mean time 39 seconds; 95% of participants spent more than 5 seconds on the treatment screen).

Discussion

The null results fail to support the hypothesis that information about the increasing wealth of members of Congress activates the system justification motivation. The treatment showed a graphic that suggested an increased concentration of wealth in the hands of politically powerful individuals. Unlike Study 1, our participants were clearly informed that they do not belong to the group that is benefiting from the increased wealth concentration, yet system justification did not increase. Together with the results from Study 1, so far we have no evidence to support the hypothesis that inequality activates the system justification motivation among disadvantaged groups.

Study 3 – Impact of Income Inequality Information in a Nationally Representative Sample

The null results of Studies 1 and 2 suggest that information about inequality does not increase individual motivations to justify the social system. One possible concern with the first two studies is their reliance on non-representative samples of respondents. The representativeness of the sample may be a particular problem

because the inequality-induced motivation hypothesis explicitly relies on individual societal status as a key moderating variable. The inequality-induced motivation hypothesis argues that the cognitive dissonance induced by a) an unequal world and b) the need to believe the world is fair and legitimate, is particularly strong for low-status individuals. The overall increase in system justification in unequal social systems should therefore be driven by increased justification among low-status individuals. In order to compare the reactions of high- and low-status individuals to information about inequality, in Study 3 we carry out a modified version of Study 1, this time on a nationally representative sample of respondents.

Method

We return to the independent variables used in Study 1, based on the reasoning that increasing income inequality is frequently conveyed in media with the use of over-time graphs illustrating the share of incomes going to the wealthy. As in Study 1, the participants see factually accurate information about the Gini coefficient over time in the United States; for the treatment group, the y-axis is compressed to make the increase look substantial over time, while for the control group the y-axis is expanded to make the increase look relatively modest (see Figure 1). We add to the treatments two comprehension check questions: all respondents are asked whether they agree or disagree⁷ with the statements that “Income inequality in the United States has increased dramatically over time” and “The share

⁷ The choice was binary between “yes” and “no” (not a Likert scale), and in addition an “I don’t know” radio button was also offered.

of total income of the rich has not changed much over time in the United States” (reverse-scored).

As previously, we use three measures of the system justification motivation, each participant responding only to one measure. Two of the operationalizations are carried over directly from Study 1: the system justification motivation scale (SJM, $\alpha=0.76$) and institutional trust questions ($\alpha= 0.74$). We also include a slightly reduced version of the system justification scale that directly measures legitimation of the system in the economic realm: the economic system justification scale ($\alpha=0.78$) (Jost and Thompson, 2000)⁸. This design went through anonymous peer review as part of the application process for Time-Sharing Experiments (TESS) for the Social Sciences, and the survey was funded by TESS. The TESS website publishes the full text of accepted proposals and in this sense serves as a form of study pre-registration.

⁸ Due to constraints on the number of items we could field in the GfK sample without reducing sample size, we used a reduced version of the 17-item Economic System Justification Scale. We omit two of the 17 items on the original economic system justification scale, chosen based on their similarity to other items in the scale. We removed “Social class differences reflect differences in the natural order of things” (similar to “Laws of nature are responsible for differences in wealth in society”) and “There are no inherent differences between rich and poor; it is purely a matter of the circumstances into which you are born” (similar to “Poor people are not essentially different from rich people”). Reduced versions of this scale have previously been used successfully, for example in Jost, Blunt, Pfeffer and Hunyady (2003).

Participants

1020 participants were recruited in December 2014 – January 2015 from the GfK (formerly Knowledge Networks) online panel.⁹ Knowledge Networks maintains an online panel of participants; in order to ensure representativeness, recruited individuals who do not have an internet connection at home are provided with an internet connection. The participants are compensated for taking part in GfK surveys.¹⁰ The participants in our 2x3 study were allocated to one of six groups (one of two treatment groups, then one of three outcome variables). The sampling procedure was carried out separately for each group of 170 participants, to ensure representativeness in each treatment condition, and the final sample was weighted so as to make each group of 170 participants demographically representative of the United States adult population.¹¹ The weighted demographic breakdown of the total sample of 1020 participants is available in Table A1 in the Appendix.

Treatment check

The responses to the two treatment check questions indicate that the treatments had the desired impact. 80% of respondents in the *high inequality* treatment group agreed that “Income inequality in the United States has increased dramatically over time”, compared with 48% in the *low inequality* treatment group

⁹ The experiment was funded by *Time-Sharing Experiments for the Social Sciences (TESS)* grant number [redacted for anonymity]. We would like to thank TESS and the anonymous reviewers who suggested several useful improvements to our study design.

¹⁰ For more detail on GfK, see <http://www.knowledgenetworks.com/>.

¹¹ Variables used by GfK to calculate weights and representativeness of the sample are: age, gender, race, Hispanic identity, education, Census region, household income, home ownership, metropolitan area, and internet access.

(Student's t-test p-value <0.0001). Conversely, in the *high inequality* treatment group 22% of respondents agreed that "The share of total income of the very rich has not changed much over time in the United States", compared with 46% in the *low inequality* treatment group (Student's t-test p-value <0.0001). We conclude that the treatment had the desired effect of making respondents more likely to believe that inequality in the United States has increased dramatically over time.¹²

¹² Further analysis of the experimental results was conducted on the entire sample of participants. We do not subset the sample based on responses to the treatment check questions because this would result in selection on a post-treatment variable.

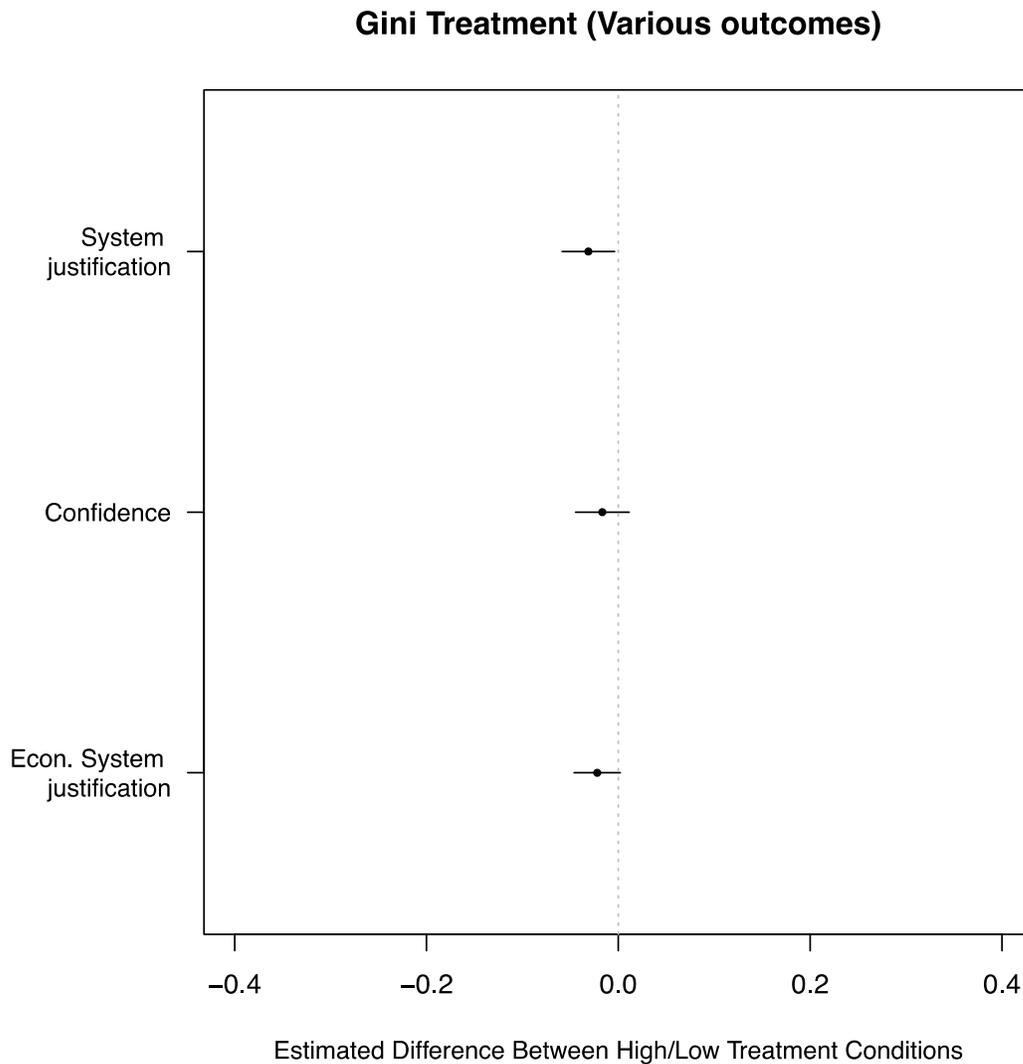


Figure 4: Results of Study 3. Showing the estimated effects of the “high income inequality” treatment, compared to the control treatment, on system justification measured as institutional trust, gender inequality justification, and a system justification motivation scale. The effects are estimates based on t-tests, shown with their 95% confidence intervals. All outcome variables have been re-scaled to a 0-1 scale. Positive effect estimates indicate that system justification was higher in the “high inequality” treatment condition.

Results

We find no evidence that information about increasing economic inequality in the United States increases the respondents' system justification motivation. As above, we perform Student's t-tests to test whether levels of system justification differ between the treatment and control conditions; results are visualized in Figure 4. The dependent variables have been standardized to a 0-1 scale (where 1 indicates higher system justification); the point estimates are presented with 95% confidence intervals. The estimates for institutional trust (estimated effect -0.01, $p=0.24$) and economic system justification (estimated effect -0.02, $p=0.07$) do not reach conventional levels of statistical significance. The result for the SJM scale is a small but statistically significant *reduction* in system justification after exposure to the *high inequality* treatment, (estimated effect -0.03, $p=0.03$). In other words, we find an effect that is opposite to the hypothesis of increased system justification in the face of information about high inequality.

In addition to main effects of the treatments, we are also interested in whether individual status moderates reactions to information about inequality. As mentioned above, the inequality-induced motivation hypothesis posits that the cognitive dissonance created by inequality is the strongest for low-status individuals, who therefore are particularly likely to increase their system justification levels in the face of information about inequality. In the current study, the inequality in question is income inequality, and therefore we expect that individual income would moderate the effect in this context. We therefore add an interaction with household income to the analysis, such that each of the three

outcome variables are modeled as the outcome of the experimental treatment, household income, and the interaction of the treatment and household income. Because household income is a continuous variable, we present the results in the form of a regression table (Table 1) to facilitate interpretation of the interaction effects. As before, the regressions are weighted to be representative of the general U.S. population.

The results as a whole provide an inconsistent and weak picture of moderation. The high inequality treatment has no significant baseline effect on measures of institutional trust, and the interaction with household income is also insignificant. We mention above that the high inequality treatment has a small but significant *negative* effect on system justification as measured with the SJM scale. The interaction analysis reveals that this effect is driven by relatively rich respondents' lower system justification scores in the treatment condition: the baseline effect of the high inequality treatment on SJM scores is insignificant, while there is a substantively small but statistically significant negative interaction effect of income and the high inequality treatment. Finally, when we measure system justification with the economic system justification measure, we find that the high inequality treatment *reduces* system justification among poor respondents, while slightly increasing justification among wealthier respondents. The effects are once again small, and in the opposite direction of the inequality-induced motivation hypothesis.

| | <i>Dependent variable:</i> | | |
|-----------------------------------|-----------------------------|-----------------------------------|--------------------------------------|
| | System Justification (1) | Confidence in Institutions (2) | Economic System Justification (3) |
| High Inequality Treatment (Gini) | 0.009 (0.025) | -0.013 (0.027) | -0.060*** (0.021) |
| Individual Income (thousands USD) | 0.0001 (0.0002) | -0.0001 (0.0002) | -0.0004** (0.0002) |
| High Inequality * Income | -0.001** (0.0003) | -0.00002 (0.0003) | 0.001** (0.0002) |
| Constant | 0.648*** (0.018) | 0.623*** (0.019) | 0.603*** (0.015) |
| Observations | 339 | 339 | 336 |
| Adjusted R ² | 0.031 | -0.005 | 0.017 |
| Residual Std. Error | 0.130 (df = 335) | 0.140 (df = 335) | 0.107 (df = 332) |
| F Statistic | 4.641*** (df = 3; 335) | 0.407 (df = 3; 335) | 2.956** (df = 3; 332) |

Note:

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

Table 1. Results of Study 3: moderation analysis. Showing the results of linear regression analysis with an interaction between income (measured in thousands USD) and the “High Inequality” treatment.¹³

¹³ Table created with Stargazer package v 5.1, by Marek Hlavac, Harvard University.

Discussion

The third experiment addressed some of the possible shortcomings of experiments 1 and 2. We use a nationally representative sample of Americans, and use comprehension questions to verify that our respondents accurately understand the graphs they are shown in the treatment/control conditions. The results from this study align with the results of studies 1 and 2: we find no evidence that information about high inequality increases system justification scores. Across three different operationalizations, in two cases the null hypothesis of no effect could not be rejected, and in one case we found an effect in the opposite direction to the hypothesis (information about high inequality *reduced* scores on the SJM scale). Including interactions with household income does not reveal moderation effects of the expected direction. When system justification is measured with institutional trust questions or the SJM scale, poor individuals in the treatment condition do not system justify more or less than poor individuals in the control condition. When we measure system justification with the economic system justification scale, poor individuals in the treatment condition have *lower* system justification scores than poor individuals in the control condition. In sum, we find no evidence in favor of the inequality-induced motivation hypothesis, and we find some substantively small effects in the opposite direction of the hypothesis.

Conclusion

The evidence from Studies 1 and 2 did not support the expectation that information about (economic) inequality activates the system justification motivation. Null results can make it hard to draw firm conclusions. However, we gain additional confidence in the first two studies' results from the similar patterns found in our third study, run on a much larger and nationally-representative sample. In that study, we found that two measures of system justification motivation did not respond at all to the “high-inequality” informational treatment, while a third measure actually *decreased*. This negative finding suggests that our study was not simply underpowered or otherwise unable to capture existing effects, but that there is genuinely no net positive association between information about inequality and the system justification motivation. Further, our use of multiple measures drawn from the system justification literature helps to ensure that these findings are not driven by our choice of outcome variable.

We think these results have a great deal of external validity. Societal inequality is frequently conveyed through media rather than a direct personal experience. The types of graphs that we showed participants are deliberately quite similar to presentations used by actual media outlets discussing changing inequality.¹⁴ If presentations of this data do not work to increase the system justification motivation, then we question how large this phenomenon could be in

¹⁴ Graphs of the over time trends in inequality similar to the graphs used in our experimental treatment feature for example in “The Rich and The Rest”, *The Economist*, 13 October 2014; and Edsall, Thomas “Can the Government Actually Do Anything About Inequality?” *The New York Times*, 10 September 2013.

practice. The realism of the presented graphs also speaks to a related issue: the question of whether the treatments had enough “shock value” for our participants to react in a system justifying way. It is common for successful system justification manipulations to include an element of surprise and discomfort for the participant: for example news that the economy is not doing well (which ceased to be an effective manipulation post-2008) or that it is becoming harder to emigrate from the United States. We do not have a direct measure of whether our participants found the high inequality information discomfiting, which makes it a theoretical possibility that the treatments were not sufficiently shocking to find the hypothesized results. However, if an element of shock or discomfort is required for inequality to induce system justification, this raises important questions about the effects of permanently living with (and presumably being aware of) inequality. While we acknowledge that theoretically, particularly jarring information about inequality may induce system justification, in practice such an effect would be unlikely to operate in the real world.

To be clear, our results do not undermine the existence of system justification or the possibility of experimentally manipulating it. Other research has found that the motivation can be affected by system inescapability, system threat, or system dependence. Unlike inequality, these alternative treatments are unified by the “compensatory control” framework for understanding system justification (Kay et al. 2008). We suggest that the null results presented in this paper strengthen the “compensatory control” framework as a comprehensive account of the determinants of system justification. While theoretically plausible and intriguing, the possibility

that inequality induces sufficient cognitive dissonance to increase levels of system justification is not empirically borne out.

Further, these results do not exclude the possibility that under certain circumstances, low-ranked groups can exhibit higher levels of system justification than high-ranked groups, as observed for example by Jost et al. (2003). Such differences, however, may be more accurately attributed to differences in variables such as perceived inescapability or system dependence.

This project also has practical predictions for the study of public opinion. While individuals are motivated to justify existing inequality (and therefore do not oppose increasing income inequality as one might expect), increases in inequality do not make such justification even more likely. Therefore, opposition to income inequality may not be inherently less likely to emerge in an unequal, as opposed to a relatively equal, country.

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Appendix: Supplemental Information

Women in the US population and Congress

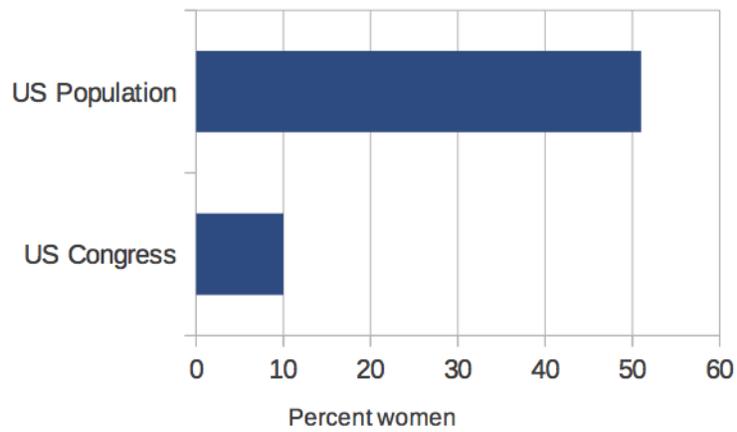


Figure A1. The gender inequality information treatment. This graph was shown to participants as part of the gender inequality justification measure of the system justification motivation.

| Variable | Group | Weighted proportion |
|------------------|---------------------------|---------------------|
| Age | 18-24 | 13% |
| | 25-34 | 17% |
| | 35-44 | 17% |
| | 45-54 | 15% |
| | 55-64 | 19% |
| | 65-74 | 12% |
| | 75+ | 6% |
| Gender | Male | 48% |
| | Female | 52% |
| Income | <\$25,000 | 17% |
| | \$25,000 - \$49,999 | 23% |
| | \$50,000-\$74,999 | 19% |
| | \$75,000-\$99,999 | 15% |
| | >\$100,000 | 26% |
| Race | White, Non-Hispanic | 65% |
| | Black, Non-Hispanic | 12% |
| | Other, Non-Hispanic | 6% |
| | Hispanic | 15% |
| | 2+ Races, Non-Hispanic | 1% |
| Education | Less than High School | 13% |
| | High School | 30% |
| | Some College | 20% |
| | Associate Degree | 9% |
| | Bachelor's Degree | 17% |
| | Master's Degree | 9% |
| | Professional or Doctorate | 3% |

| STANDARDIZE | N | Mean | Standard Deviation | Minimum | Maximum |
|---|------|------|--------------------|---------|---------|
| Ideology (1 most liberal - 7 most conservative) | 1008 | 4.19 | 1.47 | 1 | 7 |
| System Justification Scale (1 low justification -10 high justification) | 339 | 6.38 | 1.32 | 2.75 | 9.25 |
| Trust in Institutions (1 low trust - 3 high trust) | 339 | 1.83 | 0.42 | 1 | 3 |
| Economic System Justification Scale (1 low justification - 10 high justification) | 336 | 5.66 | 1.08 | 2.93 | 9.4 |

Table A1. Weighted demographic characteristics and summary statistics of ideological variables of the whole sample used in Study 3. Each treatment condition was independently weighted to be representative of the United States population.

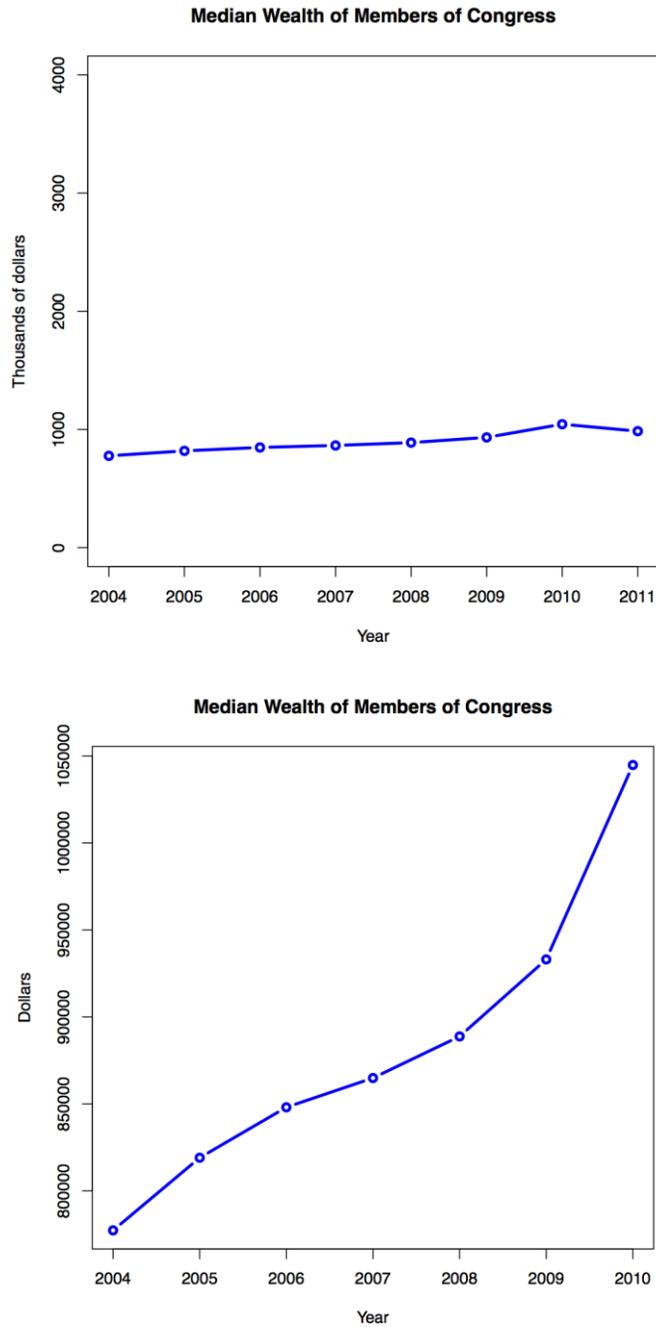


Figure A2. The control and treatment conditions in Study 2. The top panel shows the control condition, where the increase of the wealth of members of Congress over time looks moderate. The bottom panel shows the treatment condition, where the same increase looks significantly larger.