Does Inequality Beget Inequality? Experimental Tests of the Prediction that Inequality Increases System Justification Motivation

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Does inequality beget inequality?
Experimental tests of the prediction that inequality increases
system justification motivation

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Abstract
Past research shows that growing inequality often does not result in citizen demands for redistribution. We examine one mechanism that could explain why people do not protest growing inequality: a particular sub-prediction of System Justification Theory (SJT). SJT argues that humans have a psychological need to justify their social system. The specific sub-prediction of SJT tested here is the idea that inequality itself increases system justification. This could yield a negative feedback loop in which political responses to inequality grows ever less likely as inequality grows more extreme. Previous research on this hypothesis relied on cross-sectional survey data and provided mixed results. We take an experimental approach and ask whether exposure to economic inequality makes people more likely to defend the system. In one main study and two replications with varying 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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Inequality and system justification

Income inequality in the United States and many other countries has been increasing (Mishel and Finio, 2013; Saez, 2013), with little corresponding movement in public demands for redistribution. Despite theoretical expectations that increasing inequality should lead to redistributive pressure (Meltzer and Richard, 1981), the literature provides many empirical examples to the contrary. In response to evidence that popular reactions to growing inequality have been mixed, recent contributions to the literature have explored the conditions under which demand for redistribution is more likely to occur (Franko, 2016; McCall, 2016; McCall et al., 2017), and the psychological (Johnson and Fujita, 2012; Day and Fiske, 2017) and socio-economic (Franko, 2017) variables that may be responsible for the patterns we observe. Scholarly debate continues about the specific mechanisms by which demand for redistribution does (not) emerge in response to increasing inequality.

In this paper, we focus on one specific mechanism that could explain why we observe political inaction in the face of growing inequality. In particular, we test a sub-prediction of system justification theory (SJT) (Jost et al., 2004; Jost and Banaji, 1994). System justification theory posits 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 justification theory has been used to explain the prevalence of numerous attitudes that do not seem to serve the self-interest of the individual or their group (Laurin et al., 2010; Wakslak and Bauer, 2011; Brescoll et al., 2013), including attitudes toward economic inequality (Jost et al., 2004).

The specific sub-prediction of system justification theory that we focus on is the hypothesis that inequality itself can produce or exacerbate the system justification motivation (Jost et al., 2004, 2003; Jost and Banaji, 1994). For conciseness, we call this prediction the “inequality-induced motivation hypothesis” throughout the paper. This hypothesis predicts that just experiencing or being aware of inequality will make people more motivated to justify their social, political, or economic systems.

This prediction builds on cognitive dissonance theory: the more people are disadvantaged by a system, the more starkly their experience of being disadvantaged contrasts with their motivation to believe that the system is just, and the more they therefore engage in system justification. On the individual level, this hypothesis implies that disadvantaged individuals exhibit higher levels of system justification than advantaged individuals (Jost et al., 2004, p.909, Hypothesis 17). Aggregated to the society level, this hypothesis implies that we should observe more system justification in more unequal societies (Jost et al., 2004, p.910, Hypothesis 18). This inequality-induced motivation hypothesis is thus an application of system justification theory to the specific question of what happens when there is more or less social and economic inequality in a society. In this paper, we test the inequality-induced motivation hypothesis in the context.

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1See for example Alesina and Glaeser (2004); Kelly and Enns (2010); Kenworthy and McCall (2008); Luttig (2013); McCall (2013); Schroder (2017); Trump (2017).
of economic inequality. In particular, we ask whether presenting realistic information about inequality to respondents results in increased system justification.

The prediction we test is different from the expectation that system justification influences how people react to inequality (which is a key prediction of SJT, but not one we test in this paper). The inequality-induced motivation hypothesis goes further: it posits that exposure to inequality can increase the system justification motivation, i.e. that as inequality increases, people become even more likely to react with motivated reasoning, and to see their system as fair.

If the inequality-induced motivation hypothesis is true, it could explain why increasing income inequality does not usually result in public dissatisfaction with inequality. As such, finding evidence in favor of this hypothesis would make a contribution to the broader literature on public responses to inequality, and the ongoing exploration of mechanisms that explain these responses. It would also yield further political predictions for the future, as it would suggest that inequality would tend to bring about even more inequality (as citizens became less and less likely to object to inequality due to system justification).

Thus far, the evidence for the inequality-induced motivation hypothesis has been observational, and has reached contradictory conclusions. Jost et al. (2003) find 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). But Brandt (2013) finds no support for this hypothesis using cross-national survey data. To the best of our knowledge, an experimental test of this hypothesis has never been published. In this paper, we experimentally test it by directly manipulating respondents’ perceptions of inequality.

We provide respondents with information about income inequality in the United States, and then measure their levels of system justification motivation. Across several types of informational treatments and multiple measures of system justification, in one nationally representative sample and several convenience samples, we find no evidence for the hypothesis that inequality increases the system justification motivation. Our null results are precisely estimated and not due to a lack of statistical power. Political non-responsiveness to inequality may be explained by many mechanisms (including system justification). But in this paper, we find no evidence that inequality-induced system justification is one of them.

Hypothesis

We empirically evaluate two predictions derived from system justification theory (Jost et al. 2004, pp.909-910). We first evaluate the hypothesis (H1) that higher inequality causes higher system justification.

Second, we look for evidence that would be consistent with the individual-level, cognitive dissonance based mechanism by which H1 is expected to occur. H1 is predicated on cognitive dissonance resulting
from a combination of observing inequality and wanting to believe the world is just. Therefore, this effect is expected to be strongest among disadvantaged individuals, for whom the contrast between their own disadvantage and the supposed fairness of the system is strongest. Our second hypothesis (H2) is therefore that we should observe a larger effect of inequality on system justification among disadvantaged respondents.

**Methods and Results**

**Study Details**

We conducted a nationally representative online survey experiment through the GfK (formerly Knowledge Networks) panel in December 2014-January 2015. 1020 participants were allocated to one of six groups (one of two treatment groups, then one of three outcome variables).

**Design**

The experimental design went through rigorous pre-fielding peer review as part of the funding process. The final research proposal, which includes power analyses and hypotheses, is available online at [details redacted for anonymity] and thus serves as a form of pre-registration.

Our main experimental treatment exposed participants to information about economic inequality. We showed participants one popular measure of income inequality: the Gini coefficient, which has been increasing relatively steadily in the United States since the 1970's. All participants in our study were exposed to accurate information about the Gini coefficient over the period 1968-2010, graphed in a similar way (data from [Solt 2009]). However, they were randomly assigned to one of two different conditions. In the “low-inequality” or “control” treatment condition, the y-axis was set from 0 to 100 such that the trend looked relatively flat, while in the “high-inequality” treatment condition the y-axis was truncated to make the upward trend appear much steeper (see Figure 1). Y-axis truncation is a common and effective means of creating deceptive visualizations ([Pandey et al. 2015]), and has previously been used to generate treatments that successfully increase system justification motivation ([Kay et al. 2009]).

We randomly assigned each respondent to answer one of three system justification measures, all drawn from prior literature on the subject. The first outcome measure was a system justification scale ([Kay and].

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2The experiment was funded by *Time-Sharing Experiments for the Social Sciences (TESS)* grant number [redacted for anonymity].

3Knowledge 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. For more detail on GfK, see [http://www.knowledgenetworks.com/](http://www.knowledgenetworks.com/). GfK calculates survey weights and the representativeness of the sample by using the following variables: age, gender, race, Hispanic identity, education, Census region, household income, home ownership, metropolitan area, and internet access.

4This study was also approved by [redacted] University’s IRB, study number [redacted].
Figure 1: The treatment and control conditions. Accompanying text read “The line in the graph below shows the Gini coefficient, which is a measure of income differences. Higher numbers mean that the very rich have a higher share of total income.” The left panel shows the control condition, where the increase of the Gini coefficient over time looks moderate. The right panel shows the treatment condition, where the same increase looks much larger.

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 items formed a reliable scale (Cronbach’s $\alpha$ =0.88) and we refer to it as the SJM (System Justification Motivation) measure.

Our second measure uses institutional trust questions, as in Brandt (2013). These 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. Averaging across respondents’ trust in the six institutions resulted in a scale with Cronbach’s $\alpha$ =0.74, and we refer to this as the “institutional trust” measure.

Finally, we include a slightly compressed version of a 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). We will refer to it as the economic SJM measure. For ease of interpretation, we rescale all three measures to a 0 – 1 scale.

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5Items 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.”

6The individual items are available in the Supplementary Information. Due to survey length constraints, we used a reduced version of the 17-item Economic System Justification Scale. We omit two of the 17 items on the original scale based on their similarity to other items. Reduced versions of this scale have previously been used successfully, for example in Jost et al. (2003).


Results

We find no evidence that information about increasing economic inequality in the United States increases the respondents’ system justification motivation.

Before presenting the results in more detail, we pause to give a brief overview of the data, focusing in particular on the power we obtain in this study. The study is powered to detect an experimental treatment effect of 0.3 standard deviations. This means that after rescaling all outcome variables to a 0-1 scale, we are powered to detect experimental treatment effects of 0.04 (SJM), 0.04 (institutional trust), and 0.03 (economic SJM) respectively. In our estimate, therefore, this study is sufficiently powered to detect any substantively significant changes in system justification motivation.

To evaluate H1, that inequality increases system justification overall, we present simple differences-of-means in the levels of system justification across treatment and control conditions. Results from these t-tests are shown in Figure 2; the point estimates are presented with 95% confidence intervals.

On two of the three measures of system justification, the treatment produces entirely null results: 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, and the estimated differences are small enough to be substantively meaningless.

The result for the third measure, the SJM scale, is a substantively 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 in the opposite direction to the hypothesis. Exposing people to more inequality makes them slightly less likely to say the system is fair.

Turning to H2, we ask whether individual status moderates reactions to information about inequality, such that disadvantaged individuals respond with more system justification than advantaged individuals. We add an interaction between treatment condition and household income to the analysis. Table 1 presents the regression results. Across the three outcome variables, we see one negative and significant (but substantively small) coefficient on the interaction, one non-significant negative, and one positive significant coefficient (the latter is in the opposite direction to the hypothesized effect). We conclude that the findings across all three outcome variables are not consistent with the hypothesis that inequality is more effectively causing system justification among the poor than among the rich. Additional analysis of H2 can be found in Supplemental Information, where we also present two smaller, additional studies with substantively the same null results.
Figure 2: Estimated effects of the “high income inequality” treatment, compared to “low inequality”/control, on system justification measured in three ways (system justification scale, institutional trust measure, and economic system justification 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 would indicate that system justification was higher in the “high inequality” treatment condition.
Table 1: Study 1 moderation analysis. Results of linear regression with an interaction between income (measured in thousands USD) and the “High inequality” treatment.

<table>
<thead>
<tr>
<th></th>
<th>System Justification</th>
<th>Confidence in Institutions</th>
<th>Economic System Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>High Inequality Treatment</td>
<td>0.009</td>
<td>−0.013</td>
<td>−0.060***</td>
</tr>
<tr>
<td></td>
<td>(0.025)</td>
<td>(0.027)</td>
<td>(0.021)</td>
</tr>
<tr>
<td>Household Income (thousands USD)</td>
<td>0.0001</td>
<td>−0.0001</td>
<td>−0.0004**</td>
</tr>
<tr>
<td></td>
<td>(0.0002)</td>
<td>(0.0002)</td>
<td>(0.0002)</td>
</tr>
<tr>
<td>High Inequality * Income</td>
<td>−0.001**</td>
<td>−0.00002</td>
<td>0.001**</td>
</tr>
<tr>
<td></td>
<td>(0.0003)</td>
<td>(0.0003)</td>
<td>(0.0002)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.648***</td>
<td>0.623***</td>
<td>0.603***</td>
</tr>
<tr>
<td></td>
<td>(0.018)</td>
<td>(0.019)</td>
<td>(0.015)</td>
</tr>
<tr>
<td>Observations</td>
<td>339</td>
<td>339</td>
<td>336</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.031</td>
<td>−0.005</td>
<td>0.017</td>
</tr>
<tr>
<td>Residual Std. Error</td>
<td>0.130 (df = 335)</td>
<td>0.140 (df = 335)</td>
<td>0.107 (df = 332)</td>
</tr>
<tr>
<td>F Statistic</td>
<td>4.641*** (df = 3; 335)</td>
<td>0.407 (df = 3; 335)</td>
<td>2.956** (df = 3; 332)</td>
</tr>
</tbody>
</table>

Note: *p<0.1; **p<0.05; ***p<0.01
Conclusion

We find no evidence that information about high inequality increases system justification. Across three different measures, 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. Including interactions with household income does not reveal consistent moderation effects in the expected direction. In sum, we find no evidence to support the inequality-induced motivation hypothesis, and we find some small effects in the opposite direction of the hypothesis.

We do not think these null results are driven by treatment failure. Responses to our treatment check questions indicate that the treatments had the desired impact: when exposed to the “high inequality” treatment, respondents were significantly more likely (66% compared to 40% in the low-inequality group) to agree that “Income inequality in the United States has increased dramatically over time”, and significantly less likely to agree that “The share of total income of the very rich has not changed much over time in the United States” (18% versus 38%). Given this evidence of treatment effectiveness, in addition to the statistical power of our experiment and the precisely-estimated null point estimates shown in Figure 2 (as well as the extremely similar point estimates found in the two studies reported in the SI), we think it is unlikely that our null findings are simply a result of treatment failure or a lack of statistical power.

Further, we think this treatment captures one key way that inequality would shape system justification in the real world. Most Americans learn about economic inequality through media representations rather than direct personal experience [McCall 2013], so a graphic reporting income inequality is a realistic representation of how members of the public are likely to learn about inequality. The particular measure of income inequality that we used, the Gini coefficient, is an abstract construct, but has previously been used in observational research to explore the relationship between system justification and inequality [Brandt 2013, Napier and Jost 2008], and graphs similar to our treatment appear in media stories about inequality.

It is possible that inequality experienced in more personal ways could produce more system justification; whether it does is an open empirical question that our data do not address. However, given that media is an important source of information about inequality, it is important to know whether the inequality-induced motivation hypothesis holds for information acquired through graphs like our treatment.

In order to be sure that the null findings of one study were not simply a fluke or due to poor experimental design, we also ran two similar studies on convenience samples, the detailed design and results of which are provided in the SI. These studies confirmed the null results in other samples, even when introducing an

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additional measure of system justification and a different inequality treatment. That we find consistently null results across several experiments and different operationalizations bolsters our confidence in the findings presented here.

We do not claim that these results undermine the existence of the system justification motivation in general. A large body of work on system justification has established that people often consider inequality justified, and that system justification can serve important psychological purposes. We specifically focus on the inequality-induced motivation hypothesis: that the system justification motivation becomes stronger when inequality is higher. We find no support for this hypothesis.

Increasing inequality in advanced societies has not led to corresponding increases in popular opposition to or concern about inequality. Given this context, we chose to study the inequality-induced motivation hypothesis, because it posits an important mechanism that could explain this empirical pattern. Our results suggest that inequality-induced system justification is not a strong explanation for the lack of popular opposition to inequality.
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