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Framing Economic Inequality and Policy as Group Disadvantages (vs. Group Advantages) Spurs
Support for Action

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Abstract

Given the near-historic levels of economic inequality in the United States, it is vital to understand when and why people are motivated to reduce it. We examine whether the manner in which economic inequality and policy are framed—either in terms of upper-socioeconomic class advantages or lower-socioeconomic class disadvantages—influences individuals’ reactions to inequality. Across five studies, framing redistributive policy (Study 1) as disadvantage-reducing (vs. advantage-reducing) and economic inequality (Studies 2-5) as lower-class disadvantages (vs. upper-class advantages or a control frame) enhances support for action to reduce inequality. Moreover, increased support is, in part, driven by perceptions that inequality is more unjust if framed as lower-class disadvantages. Using diverse methodologies (e.g., social media engagement on Facebook) and nationally-representative samples of self-reported upper-class and lower-class individuals, this work suggests that the ways in which economic inequality is communicated (e.g., by media) may reliably influence people’s reactions to and concern for the issue.

Framing Economic Inequality and Policy as Disadvantages Faced by Lower-Class Americans Spurs Support for Action

In recent years, wealth and income disparities within and across countries have been the topic of bestselling books^{1,2}, political campaigns³, and shocking headlines. Despite this attention, economic inequality is persistently rising or remaining extremely high in most countries⁴. In 2019, 26 individuals possessed as much wealth as 50% of the world's population⁵ and the United States, in particular, reached the highest level of income inequality on record⁶. The social and health consequences of such extreme economic inequality affect individuals across income levels. Higher income inequality within a country predicts lower financial satisfaction⁷, worse mental health⁸, as well as lower levels of happiness and trust⁹.

Despite the deleterious consequences of economic inequality, Americans generally report little support for redistributive policies that are intended to reduce such inequality^{10–12}. Some research suggests that simply providing people with straightforward information about economic disparities reduces beliefs in fair opportunity and, in turn, elicits more support for inequality-reducing policies¹³. However, there are many ways in which inequality information could be communicated and the effects of how economic inequality is framed are less well-understood. Because inequality is an inherently comparative phenomenon (some have more or less than others), the same information about economic inequality can be accurately framed either in terms of one group's advantages (having more) or another's disadvantages (having less). For example, the statistics on global wealth inequality presented at the outset of this article utilized an advantage frame (focusing on what rich people have, relative to others)—a common way

of describing economic inequality¹⁴. How might an alternative frame that highlights the plight of people living in poverty (i.e., a disadvantage frame) fare in marshalling support for reparative action? The present research investigates how and why the manner in which economic inequality is framed—either in terms of wealthy advantages or poor disadvantages—influences individuals’ support for taking action to reduce it.

How information is framed powerfully impacts how people perceive and react to it^{15–17}. Examining racial inequality (i.e., disparities) and racial inequity (i.e., explicitly undeserved disparities), research has shown that societally-advantaged group members (i.e., whites) react to framing in a variety of ways^{18–22}. Robust work suggests that white advantage frames can reduce whites’ group-based esteem²¹, elevate feelings of guilt^{18–20}, and enhance claims of personal life hardships/denial of privilege²². However, the effects of these frames for support for actions and policies to reduce racial inequities are less straightforward. For example, some research has found that racial disparities framed as white advantages (compared to Black disadvantages) can lead whites to support policies meant to alleviate inequities²¹ whereas other research suggests that a white advantage frame (compared to no frame) can lead whites to voice less support for reparative action²². Interestingly, some studies suggest that congruency between the inequity frame and the policy frame might be important to increase support for reparative action^{21,23}. For example, a white advantage frame may increase support for a policy aimed at reducing white advantages but not for a policy aimed at reducing Black disadvantages²¹. In general, differences between studies, particularly in the content of framing manipulations (e.g., whether control conditions are present and, if so, if inequality is salient in them, or whether inequality is explicitly stated as unjust in the framing conditions) and dependent

measures (e.g., different policies, emotional reactions), suggests more work is needed to clarify these nuanced reactions. Altogether, framing has been shown to have a significant psychological impact on how individuals perceive and react to information about racial inequality.

More central to the present research, a substantially smaller literature has examined reactions to the framing of economic inequality and inequity^{24–26}. This work typically focuses on upper-class individuals' responses (rather than the responses of members of the lower-class group). We refer to “lower class” to indicate people who report belonging to social classes with fewer resources than those in the middle class (e.g., people who identify as working class) and “upper class” signifies people who report belonging to social classes with more resources than the middle class (e.g., people who identify as upper-middle class). Most of the extant studies examining the effects of economic inequality and inequity framing have examined how framing can impact upper-class individuals' views of themselves, rather than their support for actions to mitigate inequality (e.g., policy outcomes, collective action). However, similar to the racial inequality framing literature, major differences in the control conditions and stimuli have produced a complicated picture. As with racial inequality framing, upper-class individuals react to information about class advantages with denial and distancing²⁵, while lower-class disadvantage information can morally threaten upper-class individuals and lead to highlighting discrimination experiences in other domains of identity (e.g., gender, race²⁶). The sole study (to our knowledge) that has specifically examined the effect of economic inequality framing on support for action to reduce it found that income inequality framed as rich people making more than poor people (i.e., advantage

frame) garnered more support for redistributive policies than a disadvantage frame, however this effect only emerged among conservatives²⁴. While intriguing, the small sample size ($N=79$) suggests a cautious interpretation.

Thus, it remains unanswered which economic inequality frame facilitates greater support for reparative action and whether one's own social class affects this process. The current research seeks to address these gaps in the literature in a comprehensive investigation. In five studies, using nationally-representative samples, samples with targeted recruitment of upper-class and lower-class people, diverse methodologies (e.g., social media engagement), and control conditions to provide baseline comparisons, we examine the effects of framing redistributive policy (Study 1) and economic inequality (Studies 2-5) on support for collective action. Further, we investigate how belonging to the advantaged or disadvantaged social class groups and perceptions of injustice (reliable predictors of collective action^{21,27}) may influence these reactions.

Results

Study 1

In Study 1, we analyzed publicly available data from a nationally-representative survey about economic inequality that fortuitously included an experimental manipulation of redistributive policy framing ($N=1504$)²⁸. Respondents were randomly-assigned to answer two questions about economic inequality policy framed in one of two ways (advantage-reducing policy or disadvantage-reducing policy). Respondents reported their degree of support for governmental intervention to reduce economic inequality. Specifically, respondents were asked how much (1=*Nothing at all*, 4=*A lot*) the government should either a) reduce the gap between the rich and everyone else

(advantage frame), or b) reduce poverty (disadvantage frame). Afterwards, respondents were asked about their views on government efficacy to enact policies to reduce inequality—i.e., how much the government *can* either a) reduce the gap between the rich and everyone else, or b) reduce poverty—with the same response options.

Table 1 presents descriptive statistics for all studies. In addition, we use two-tailed statistical tests (i.e., multivariate regression analysis) in all analyses except for Study 4 where we do not have access to the raw data and, thus, do not use inferential statistics. We conducted weighted linear regression analyses to examine the effects of policy framing (0 = disadvantage frame, 1 = advantage frame) on respondents' preferences for reducing inequality, controlling for respondent demographics (i.e., age, gender, ethnicity, political ideology, social class categorization). See Supplemental Information (SI) for comprehensive regression and correlation tables.

Respondents were more likely to indicate that the government should reduce poverty (i.e., disadvantage frame) than the gap between the rich and everyone else (i.e., advantage frame), $B = -0.309$, $t = -5.279$, $p < .001$, 95% CI[-0.424, -0.194], Cohen's $f^2 = .023$ (Figure 1). We also tested if respondents' social class (i.e., using two dummy variables indicating advantaged upper classes [upper-middle class or upper class] or disadvantaged lower classes [lower-middle or lower class], with the middle-class as the reference group) or political ideology moderated the observed effect. Neither advantaged class membership, $p = .502$, disadvantaged class membership, $p = .076$, nor ideology, $p = .148$, significantly moderated the effect.

We then examined how policy framing influenced respondents' views of government efficacy to reduce inequality, controlling again for demographics. In a

similar pattern to that of preferences for government action, respondents expressed that government policies and programs can do more to reduce poverty than to reduce the gap between the rich and everyone else, $B = -0.185$, $t = -3.490$, $p < .001$, 95% CI $[-0.290, -0.081]$, $f^2 = .009$ (Figure 2).

Again, we tested if social class (with dummy variables indicating belonging to the advantaged or disadvantaged economic groups) or political ideology moderated the observed effects. While ideology and disadvantaged class membership did not moderate the effect ($p = .289$ and $p = .375$, respectively), advantaged class membership was a significant moderator. The effect of framing was exacerbated among upper-class individuals who reported less optimism for the notion that the government can reduce the gap between the rich and everyone else, compared with their middle-class counterparts, $B = -0.408$, $t = -2.721$, $p = .007$, 95% CI $[-0.702, -0.114]$ or their lower-class counterparts, $B = -0.305$, $t = -1.979$, $p = .048$, 95% CI $[-0.607, -0.003]$.

Taken together, these data suggest that individuals more favorably view government action to reduce economic inequality if the action is framed as reducing disadvantages (i.e., poverty), compared with reducing advantages (i.e., the gap between the rich and everyone else). This preference holds for individuals regardless of their ideology and their own social class standing. The framing effect in ratings of government efficacy to reduce inequality was exacerbated among upper-class individuals who deemed the government less capable of reducing advantages, compared with middle-class or lower-class respondents. The relative pessimism expressed by upper-class individuals about the government's efficacy to reduce advantages could stem from multiple factors. Upper-class individuals may be motivated to downplay politicians' capabilities to reduce

rich advantages because it would affect them directly. Alternatively, they might base these judgements on real experiences, such as decades of stable effective tax rates for the rich and greater experience with how wealth impacts access to politicians²⁹.

Study 2

While the national survey data from Study 1 provide confidence in generalizability and suggest broad relevance of the documented policy framing effect, a limitation is that researchers conducting secondary analyses (as we did) did not create the survey questions. In this case, the questions likely were developed for purposes other than providing a clean experimental test of the framing of economic inequality policy and as such, the two conditions differed in several aspects other than their focus on advantages or disadvantages. For example, the advantage frame explicitly compared the rich to everyone else, whereas the disadvantage frame only referenced poverty. In addition to methodological concerns, past research has shown that individuals' support for policies aimed at reducing advantages vs. disadvantages is influenced by the framing of economic inequality itself. Thus, for the remainder of this manuscript, we focus our investigation on this more antecedent process and examine how the framing of economic inequality may influence support for action to reduce inequality.

To provide a tightly controlled test of how economic inequality framing influences support for action, in Study 2 we randomly distributed infographics with information about economic inequality (Figure 3) framed as either lower-class disadvantages or upper-class advantages and measured individuals' reported willingness to take collective action. Across condition, the two infographics provided identical information about U.S. economic inequality, except that one infographic framed

inequality as upper-class advantages (advantage frame) and one as lower-class disadvantages (disadvantage frame). Then, participants filled out a questionnaire and reported their willingness to take collective action. Given the class-based variability in judgments of government efficacy in Study 1 and Americans' complex views on government involvement (e.g., redistribution policies) to address economic inequality³⁰, we chose two actions that do not rely on government involvement, but instead relate to increasing awareness and activism within one's community. Participants reported their likelihood (1=*extremely unlikely*, 7=*extremely likely*) of a) sharing the infographic on social media and b) attending a protest about reducing income inequality in the United States. Consistent with the results of Study 1, we hypothesized that the disadvantage frame would garner more support for collective action to reduce economic inequality, compared with the advantage frame.

We conducted this study in two samples. Study 2a ($N=315$) was conducted online on Amazon's Mechanical Turk (MTurk) crowdsourcing platform to access a more diverse sample than most college student pools³¹. However, upper-middle and upper-class individuals are underrepresented on MTurk, compared to the general population. To provide a sample of relatively higher-socioeconomic status individuals, Study 2b ($N=100$) sought to replicate the results sampling from visitors to Washington Square Park, a wealthy area in New York City (median ZIP-code income=\$104,561³²); indeed, this successfully boosted the proportion of self-reported upper-middle and upper-class individuals to 38.96% in Study 2b (from 10.66% in Study 2a). Procedure and materials paralleled those of Study 2a except that Study 2b was conducted in-person instead of online.

We again conducted linear regression adjusting for participants' demographics. As predicted, in both samples, individuals exposed to an infographic explaining economic inequality as lower-class disadvantages (as opposed to upper-class advantages) reported greater likelihood of engaging in collective action against economic inequality, Study 2a: $B = -0.408$, $t = -2.004$, $p = .046$, 95% CI $[-0.809, -0.007]$, $f^2 = .013$; Study 2b: $B = -0.986$, $t = -2.608$, $p = .011$, 95% CI $[-1.742, -0.231]$, $f^2 = .080$. We tested if ideology moderated the framing effect of Study 2a (participants' ideology was not measured in Study 2b), but no significant interaction emerged, $p = .480$. No significant social class interactions emerged in either study, however, these results should be treated tentatively given the small social class subsamples (see SI for details).

Study 3

Studies 2a and 2b provide consistent evidence that framing information about economic inequality as lower-class disadvantages motivates individuals to support collective action more than framing economic inequality as wealthy people's advantages, an effect that appears in a predominantly lower-class sample as well as in a wealthier sample. But why may this be the case? Decades of research in collective action reveals that one of the most potent precursors to support for collective action is perceptions that the situation is unjust^{27,33}. Thus, in Study 3 (and Study 5) we investigate the potential mediating role of injustice appraisals. Based on this prior work, we test whether economic inequality framed as lower-class disadvantages is perceived as more unjust than an upper-class advantage frame, and if this potentially explains why the disadvantage frame motivates greater support for action to reduce inequality.

Second, while an individual's own social class did not impact the observed effects of Studies 1-2 (except government efficacy judgments in Study 1), a substantial body of intergroup relations research underscores the importance of one's group membership on reactions to group-based advantages/disadvantages¹⁹. As such, Study 3 aimed to provide a stringent test of whether social class moderates the effect of inequality framing on support for collective action by recruiting equal numbers of lower-class and upper-class participants within the same nationally-representative online sample ($N=1861$; NORC's AmeriSpeak Panel). The methods were similar to those of Study 2: Participants were randomly assigned to read one of the two infographics varying in the framing of economic inequality (Figure 3) and then reported their perceptions that social class inequality in the United States is unjust and as in Study 2, their support for collective action to reduce economic inequality.

First, we used weighted linear regression to test for a framing effect on support for collective action to reduce economic inequality, adjusting for participants' demographics. Consistent with the results of Study 2, the results revealed that individuals exposed to the disadvantage frame expressed more support for collective action than individuals exposed to the advantage frame, $B = -0.298$, $t = -2.459$, $p = .014$, 95% CI[-0.537, -0.060], $f^2 = .007$. We tested if social class or political ideology moderated the observed effects, but again found no significant moderation by either variable ($p = .699$ and $p = .107$, respectively).

Next, we tested the hypothesis that individuals support more collective action in response to the lower-class disadvantage frame because this framing leads economic inequality to be perceived as more unjust. We conducted a weighted mediational analysis

with structural equation modeling^{34,35}. The results of this analysis are presented in Figure 4. First, individuals indeed perceived social class inequality as more unjust if the infographic framed inequality as lower-class disadvantages, compared with upper-class advantages, $B = -0.318$, $t = -3.204$, $p = .001$, 95% CI[-0.513, -0.123], $f^2 = .011$. We also found a significant positive association between perceptions of injustice and support for collective action, $B = .310$, $t = 7.866$, $p < .001$, 95% CI[0.233, 0.387], $f^2 = .062$. As shown in Figure 3, the direct effect of inequality framing on collective action is no longer significant, $B = -0.209$, $t = -1.774$, $p = .076$, 95% CI[-0.441, 0.022] if the influence of injustice perceptions is accounted for in the model. Indeed, perceptions of injustice served as a statistical mediator of the effect of inequality framing on collective action support (indirect effect: $B = -0.094$, $t = -2.919$, $p = .004$, 95% CI[-0.156, -0.031]).

Overall, these results demonstrate that across a nationally-representative sample of lower-class and upper-class Americans, inequality framed as lower-class disadvantages is more likely to marshal support for collective action than inequality framed as upper-class advantages. This effect occurs independently of participants' social class or political ideology. In addition, mediation analyses reveal that the effect of economic inequality framing on support for collective action is, in part, driven by heightened perceptions of injustice in response to the lower-class disadvantage frame.

Study 4

Across a variety of study populations, from nationally-representative samples to pedestrians in a city park, Studies 1-3 reveal that individuals express more support for disadvantage-reducing (vs. advantage-reducing) policy and for reducing economic inequality framed as lower-class disadvantages (vs. upper-class advantages). However, it

is not yet clear whether the disadvantage frame increased support relative to baseline or if the advantage frame decreased support relative to baseline (or if both effects occurred). Thus, Study 4 includes a control frame to ascertain baseline levels of engagement with inequality information.

Study 4 moves beyond “the lab” to investigate if a newspaper headline framing inequality as lower-class disadvantages (vs. upper-class advantages or a neutral control frame) gets distributed more widely online on the most popular social networking website, Facebook³⁶. We created different versions of a sponsored post presenting a headline about economic inequality and tested them against each other to assess which version reached the most users. While there are some limitations to this approach—Facebook evaluates the statistical significance of the event (i.e., Facebook’s proprietary algorithm determines which headline “wins”) but does not allow us to directly evaluate the statistical significance of the difference between each pair of ads—this approach is ecologically valid, as the results are equivalent to what other ad buyers (e.g., organizers, leaders, and politicians) would use to optimize online communications on this topic.

We created advertisements with different inequality frames (advantage, disadvantage, control) that were randomly assigned to appear in users’ news feeds (Figure 5). The headline in the advantage frame was taken directly from a major newspaper article: “Rich Americans live up to 15 years longer than poor peers, studies find”³⁷. We then created additional headlines: a) “Poor Americans live up to 15 years shorter than rich peers, studies find” (disadvantage frame) and b) “Studies find a 15-year difference in life expectancy between poor and rich Americans” (control frame, Study 4a) or “Studies find a 15-year difference in life expectancy based on income” (control frame,

Study 4b). Study 4b was a pre-registered replication of Study 4a with a slight modification of the control frame wording to ensure that word order (i.e., mentioning “poor” before “rich”) did not inadvertently resemble a disadvantage frame.

We tested the effectiveness of each ad by creating a “split test” (i.e., randomized experiment) on Facebook. A split test shows the different ads to randomly-assigned, demographically-equivalent audiences to determine a “winning ad”. The exact algorithm that Facebook uses to determine the winning ad is proprietary and unavailable to the public. In simplified terms, reach increases (and the cost of running the ad decreases) if users, particularly users with large friend networks, engage with an ad (eg., spend time viewing, reacting to, liking, commenting on, sharing, and/or clicking on the ad). Based on this feedback, Facebook’s algorithm gives higher priority to ads with more engagement and distributes them more widely, for example to users’ friend networks, which in turn, increases unique views (i.e., reach) and decreases cost.

Study 4a. We ran the split test for 24 hours and Facebook determined the disadvantage ad to be the winner—it had the lowest cost per 1,000 people reached (i.e., it distributed the information most cost-effectively). In addition, Facebook determined that the disadvantage ad has a 95% chance of outperforming the other ads in a replication of the test (see Figure 6). Within a single day, the disadvantage ad reached 623 (2.66%) more people than the advantage ad (which was the least effective ad). The disadvantage ad also outperformed the control ad, albeit by a much smaller margin (i.e., it reached 34 or 0.05% more people). Thus, the ad that framed economic inequality as disadvantages faced by lower-class Americans reached the broadest audience in the most cost-

effectively manner (see SI, Supplementary Figures 1-3 for more details on the reach metric).

Study 4b. For the preregistered replication study, we again ran a split test on Facebook for 24 hours. Replicating the previous result and consistent with the pre-registered hypothesis, Facebook determined the disadvantage ad the winner—it had the lowest cost per 1,000 people reached (Figure 7). Again, Facebook calculated that the disadvantage ad had a greater than 95% chance of outperforming the other ads if the test was conducted again. In terms of absolute numbers, the disadvantage ad reached 180 (0.08%) more people than the advantage ad, which again, reached the fewest people. The control ad reached 81 (0.03%) fewer people than the disadvantage ad and 99 (0.04%) more people than the advantage ad, again performing second best in terms of reach (see SI, Supplementary Figures 1-3 for more details).

In sum, Study 4b provides a pre-registered replication of the framing effect observed in Study 4a: A news headline framing economic inequality as disadvantages faced by lower-class Americans increases the potential virality of the message—it reached the most people—compared with a rich advantage frame or control frame. Based on these results, an individual or an organization (e.g., newspaper, non-profit, think tank) publishing this content would be advised to frame economic inequality as lower-class disadvantages if they sought to reach the maximum number of people with their message. The finding dovetails with the results of Studies 1-3, while also extending the findings from self-report measures to behavioral engagement in a real-world setting.

Study 5

Across Studies 2-4, we provide evidence that economic inequality framed as lower-class disadvantages increases Americans' engagement and concern for the issue. However, thus far, our experimental materials (i.e., infographics and Facebook ads) have described at least one outcome of economic inequality that was related to health. Human life and related factors such as health and medical care are considered by many to be "sacred values"—values that are absolute and not subject to trade-offs³⁸. If health-related inequalities are seen as compromising these sacred values, a violation of this kind could elicit severe moral outrage (i.e., affective injustice), which could explain motivation to act to help the disadvantaged^{39,40}. Thus, in Study 5 we sought to disambiguate whether the documented effect only occurs due to the perceived injustice of health-based inequalities or if results replicate without the salience of health-related disparities. We hypothesized that the effect is not driven by health-related inequality framing, in particular, but by economic inequality framing, more generally.

Study 5 ($N=1112$) was a preregistered experiment conducted online on the Prolific Academic crowdsourcing platform⁴¹. The methods were almost identical to those used in Study 3, however individuals were exposed to a shortened version of the lower-class disadvantage (vs. upper-class advantage) infographic that did not include the health-related piece of information and individuals from all social classes were included in the sample.

Consistent with previous results and our preregistered hypothesis, individuals exposed to the lower-class disadvantage infographic (compared to the upper-class advantage infographic) expressed more support for collective action, $B = -0.248$, $t = -2.424$, $p = .016$, 95% CI $[-0.449, -0.047]$, $f^2 = .005$, controlling for participants'

demographic characteristics. Again, neither advantaged class membership, $p = .349$, disadvantaged class membership, $p = .830$, nor ideology, $p = .331$, significantly moderated the effect of inequality framing. Next, we tested for the same mediation process model as in Study 3. Replicating the effects of Study 3, participants reported that inequality was more unjust if exposed to lower-class disadvantages (vs. upper-class advantages), $B = -0.164$, $t = -2.171$, $p = .030$, 95% CI[-0.313, -0.016], $f^2 = .003$. We also replicated the significant positive association between perceptions of injustice and support for collective action, $B = .524$, $t = 13.519$, $p < .001$, 95% CI[0.448, 0.600], $f^2 = .142$. Finally, we replicate the finding that the direct effect of inequality framing on collective action is not significant, $B = -0.163$, $t = -1.728$, $p = .084$, 95% CI[-0.347, 0.022] if the influence of perceived injustice is accounted for in the model. In sum, perceptions of injustice again served as a mediator of the effect of inequality framing on collective action support (indirect effect: $B = -0.085$, $t = -2.157$, $p = .031$, 95% CI[-0.163 -0.008]).

Discussion

Using diverse methodologies, representative national samples, and preregistered hypotheses, the present research finds that Americans are more supportive of policy framed as reducing disadvantages faced by lower-class Americans, more supportive of action to reduce economic inequality framed as lower-class disadvantages, and more engaged online with a lower-class disadvantage frame, compared to an upper-class advantage frame or a neutral control frame. In addition, a representative sample of lower-class and upper-class Americans and a large preregistered replication experiment reveals that the lower-class disadvantage (vs. upper-class advantage) frame is perceived as more

unjust and that this difference in perceived injustice partially explains why the disadvantage frame enhanced collective action support. While social class and ideology are important individual-difference factors that reliably predict reactions to economic inequality (see SI for full regression tables), we do not find consistent moderation by social class or political ideology. We intentionally focused the outcome measures of Studies 2-5 on actions that are independent of government involvement and instead, are collectively enacted within one's local community. Thus, the results of this work are applicable to organizers, leaders, and politicians who may be motivated to mobilize average Americans, independent of their attitudes toward the government, political ideology, and social class standing.

The present research is limited in important ways that should be addressed in future research. We provide an examination of both the effects of framing government policy (Study 1) and of framing inequality itself (Studies 2-5), but more work is needed to clarify how these effects may interrelate with one another. For example, similar to research conducted within the domain of race^{21,23}, it could be the case that economic inequality framed as upper-class advantages elicits stronger support for policies perceived to reduce advantages (e.g., support for government action to reduce the gap between the rich and everyone else) than a lower-class disadvantage frame or no frame. The sole other study²⁴ that also investigated the effect of economic inequality frames on support for government action provides support for this possibility. The authors found that framing economic inequality as rich people's advantages (vs. poor people's disadvantages) led to more support for redistributive policies among conservatives and importantly, the redistributive policies in question were advantage-reducing: New tax brackets for people

who earn above \$1 million and \$5 million. While interesting, clearly, more research is needed to understand why this would be the case (and why only for conservatives) and to understand the relationship between government-based policy frames and economic inequality frames, more generally.

The results of the present research are consistent across contexts, samples, and outcome measures, however, the size of the effects of inequality framing on support for collective action and engagement are relatively modest (semi-partial correlations between information framing and collective action support ranged 0.07 to 0.27, which are considered small- to medium-sized effects in psychology⁴² (in comparison, the semi-partial correlations between collective action and ideology, our consistently strongest individual-difference predictor, ranged 0.22 to 0.35). This is perhaps unsurprising, given the subtlety of the experimental manipulation—the information conveyed through the infographic and Facebook ads were the same, with only a few words differing across conditions—and the relatively short study durations (and exposure time to information). However, even small to medium effect sizes are potentially impactful in the long run⁴². For example, in Study 4a, after 24 hours of data collection, the disadvantage ad had reached 623 more people than the advantage ad. It's possible that this number could increase exponentially with each day as the audience reach of the ad continued to grow over time. Future research should test this possibility empirically, but the potential cumulative impact of information framing over time may be anything but trivial.

The present work identified one underlying factor that helps explain why a disadvantage frame garners more support for taking action—the disadvantage frame highlights the inequity of economic inequality. That is, we found that individuals across

social classes responded to economic inequality framed as disadvantages faced by people living in poverty with greater reports that the inequality is inequitable or unjust. While past research has typically focused on the framing of inequality (i.e., disparities between groups) or inequity (i.e., disparities that are described as unjust) separately, the present work suggests that inequality framing can impact inequity judgments. The literature would benefit by delving further into how perceptions of inequality and inequity may be interrelated and impact one another.

Overall, this work represents a large-scale investigation of economic inequality framing and the dissemination of information on the topic with emphasis on precision, generalizability, and ecological validity.

While messages about economic inequality often highlight the exuberant advantages and wealth of the 1%, the present research reveals that emphasizing the struggles of the economically disadvantaged may be more effective in mobilizing support for collective action to reduce inequality and provides insight into individuals' engagement with one of the most challenging issues of our time.

Materials and Methods

The Institutional Review Board at New York University approved all study protocols. Participants in this research gave informed consent in accordance with the guidelines set forth by the Institutional Review Board at New York University. All data collected by the authors and all data analyses were performed blind to the conditions of the experiments.

Study 1

Participants. The data is based on telephone interviews conducted between January 15-19, 2014 among a national sample of adults living in all 50 U.S. states and the District of Columbia ($N=1504$)²⁸. 138 participants were excluded from the analysis due to missing data on one or more variables of interest. Thus, the final sample consisted of 1384 participants (642 male, 742 female; aged 18-97, $M = 50.46$, $SD = 17.91$). 77.19% of participants identified as white/Caucasian, 10.11% as Black/African American, 4.19% as Hispanic/Latino, 2.46% as Asian/Asian American, 1.26% as Native American/American Indian, 2.73% participants identified multiple ethnicities, and 2.06% participants specified another ethnicity, don't know or refused to answer. 1.37% of participants identified as lower class, 17.49% as lower-middle class, 48.27% as middle class, 23.63% as upper-middle class, and 9.25% as upper class.

Materials and Procedure. All interviews were conducted in English and Spanish (depending on the respondent's language preference). We conducted weighted analyses in Stata (Version 15.1)⁴³ to correct for selection probability and nonresponse rates, which facilitates generalizable inferences. For detailed information on study weights and the full questionnaire, see the Pew Research website⁴⁴. Respondents were randomly assigned to one of two forms. In form 1 (advantage frame), respondents answered the following two questions: "How much, if anything, should the government do to reduce the gap between the rich and everyone else?" and "How much do you think government policies and programs can do to reduce the gap between the rich and everyone else in this country?" (1 = *Nothing at all*, 2 = *Not much*, 3 = *Some*, 4 = *A lot*). Respondents randomly assigned to form 2 (disadvantage frame) answered the following two questions: "How much, if anything, should the government do to reduce poverty?" and "How much do you think

government policies and programs can do to reduce poverty in this country?” Participants also answered questions about their demographics including age, gender, ethnicity, conservatism, and social class categorization.

For consistency, we used the same demographic covariates (except ideology in Study 2b, which we did not collect) and a similar coding scheme for all demographic covariates across studies. Age and political conservatism were included as continuous variables. We dummy-coded gender (0 = male, 1 = female), as well as ethnicity (using whites as the reference group). Two dummy-coded variables reflected respondents’ identification as part of the advantaged (upper-middle class and upper class) or disadvantaged (lower-middle class and lower class) social classes, using the middle class as the reference group.

Study 2a

Participants. Participants were 315 workers on Amazon’s Mechanical Turk crowdsourcing platform³¹. We calculated power to detect a traditionally small to medium effect size ($d=.35$). The power analysis revealed that a sample size of 260 participants was required to achieve 80% power. Anticipating potential exclusions, we decided to collect a final sample of 300 participants. The data was collected between June 12 – June 13, 2017. We restricted our sample to participants from the United States and excluded 11 participants who were not in the U.S. at the time of the study and 32 participants who were not raised in the U.S. After these exclusions the final sample consisted of 272 participants (167 female, 104 male, 1 other), aged between 18 to 70 ($M = 36.73$, $SD = 11.23$). 73.90% of participants identified as white/Caucasian American, 9.56% as Black/African American, 4.41% as Latino/a/Hispanic, 5.88% as Asian American, and

1.47% as Native American, 4.41% of participants specified multiple ethnicities, and 0.37% of participants specifying another ethnicity. 6.62% of participants identified as poor, 37.13% as working class, 45.59% as middle class, 10.29% as upper-middle class, and 0.37% as upper class.

Materials and Procedure. Participants were randomly assigned to read an infographic (500 x 1250 pixels) presenting information about economic inequality framed either as low-income disadvantages or high-income advantages. For example, in the advantage frame participants read that budgets of public schools in high-income neighborhoods are three times *higher* than in low-income neighborhoods. In the disadvantage frame, participants read that budgets of public schools in low-income neighborhoods are three times *lower* than in high-income neighborhoods. In total, the infographic described five pieces of information about economic inequality that were framed as high-income advantages or low-income disadvantages. After reading the infographic, participants reported how likely they would be to share the infographic on social media and the likelihood that they would participate in protest or demonstration about reducing social class inequality in the United States (1 = *extremely unlikely*, 7 = *extremely likely*). Both items were averaged into a collective action composite ($r = .49, p < .001$). We also assessed individuals' ideology and social class. The social class category probe read as follows: "People talk about social classes such as the poor, the working class, the middle class, the upper-middle class, and the upper class. Which of these classes would you say you belong to?" This measure has been shown to intuitively and meaningfully capture group-based class distinctions in the United States⁴⁵⁻⁴⁷. We include this social class category measure in all remaining studies. Participants also reported their age, gender,

and ethnicity. Conservatism was assessed with one item: “I endorse many aspects of conservative political ideology.” (1 = *strongly disagree*, 7 = *strongly agree*). Additional measures were included for exploratory purposes. We used the same demographic covariates as in Study 1 and covariates were coded similarly to the coding scheme used in Study 1. As such, age and political conservatism were included as continuous variables. We dummy coded gender (0 = male, 1 = female), as well as ethnicity (using whites as the reference group). Since we used a different social class category measure than in Study 1, we created two comparable social class dummy variables (disadvantaged class = working class and poor; advantaged class = upper-middle class and upper class), again using middle-class as a reference group.

Study 2b

Participants. One hundred participants were recruited in a public park to participate in Study 2b. We determined *a priori* to collect 100 participants considering the challenges of in-person field data collection and given that prior work used similar sample sizes²³. The data was collected between August 30 – September 13, 2017. Seven participants were excluded from data analysis because they conversed with another person while completing the survey, 15 participants were excluded because they were not U.S. citizens or residents (e.g., foreign tourists), and three participants were excluded because they had missing data on one of the variables of interest. The final sample consisted of 75 participants (45 female, 30 male), aged between 18 to 78 ($M = 23.20$, $SD = 9.12$). 38.66% of participants identified as white/Caucasian American, 10.67% as Black/African American, 13.33% as Latino/a/Hispanic, 24.00% as Asian American, and 2.67% as Native American, 4.00% of participants specified multiple ethnicities, and 6.67% of

participants specifying another ethnicity. 2.67% of participants identified as poor, 14.67% as working class, 44.00% as middle class, 32.00% as upper-middle class, and 6.67% as upper class.

Materials and Procedure. The materials and procedure were similar to those of Study 2a. Research assistants approached participants who were sitting or walking in Washington Square Park in New York City and asked them to participate in a short study in exchange for a snack of their choice (candy, water, or a can of soda). Participants were randomly assigned to view a laminated infographic (10 x 15 in) presenting information about economic inequality either framed in terms of lower-class disadvantages or upper-class advantages (Figure 1). The infographics were identical to those used in Study 2a, with the exception that we switched the words “high-income” and “low-income” for the words “upper social class” and “lower social class” to test for generalizability of language around economic inequality. After participants finished reading the infographic, participants were asked to fill out a paper questionnaire that included our dependent variables of interest, among other exploratory questions. We assessed participants’ support for collective action against economic inequality with the same two items as in Study 2a (i.e., likelihood to share infographic on social media, likelihood to attend a protest against economic inequality). Both items were averaged into a collective action composite ($r = .44, p < .001$). Demographic variables (age, gender, ethnicity) were assessed as in Study 2a, although we did not assess ideology. As in Study 2a, we used the social class category measure⁴⁵ to assess social class. We used the same demographic covariates as in Study 2a (except ideology) and all covariates were coded as in Study 2a.

Study 3

Participants. Data were collected as part of the Time-sharing Experiments for the Social Sciences program (TESS; NSF Grant 0818839, J. Freese and J. N. Druckman, Principal Investigators) which allowed us to conduct a study using NORC's AmeriSpeak Panel to recruit a national sample of upper and lower-class participants. Prior studies testing similar effects of racial inequality framing and/or moderation of membership in the advantaged/disadvantaged groups reveal small to medium effect sizes (i.e., η_p^2 ranging from .02-.09 and Cohen's d between .29 -.49). A power analysis revealed that a sample size of 1,302 participants was required for 95% power to detect a small effect. In order to account for potential exclusions, we requested a national sample of 1,500 participants comprised of an equal number of people who identify as lower social class (poor and working class) and higher social class (upper-middle and upper class). However, the TESS program administrators allowed us to recruit a total of 1,800 participants. The study was fielded between February 8 - March 12, 2018 with a final sample of 1816 adults, living in all 50 U.S. states. Thirty-six participants were excluded from the analysis due to missing data on one of the variables of interest. Thus, the final sample consisted of 1780 participants (880 female, 900 male; aged 18-90, $M = 47.49$, $SD = 16.23$). 68.60% of participants identified as white/Caucasian American, 10.34% as Black/African American, 13.76% as Latino/a/Hispanic, 2.70% as Asian American, 3.15% of participants specified multiple ethnicities, and 1.46% of participants specified another ethnicity. Because we were interested in responses from individuals identifying as lower-class and upper-social class, this study specifically recruited participants who identified as poor and working class as well as those identifying as upper-middle and upper class (i.e., the sample did not

include those who identified as middle class). 12.02% of participants identified as poor, 44.66% as working class, 40.22% as upper-middle class, and 3.09% as upper class.

Materials and Procedure. The experimental design went through rigorous pre-fielding peer review as part of the funding process and the final research proposal serves as a form of pre-registration (for the full data set and proposal, see: <https://osf.io/nj5dx/>). We conducted weighted analyses in Stata (Version 15.1) to correct for selection probability and nonresponse rates. The materials and procedure were similar to those of Study 2. Participants were randomly assigned to read an infographic (500 x 1250 pixels) highlighting economic inequality either in terms of lower-class disadvantages or upper-class advantages. The infographics were identical to those used in Study 2b (Figure 1). After reading the infographic, we assessed participants' support for collective action against economic inequality with the same two items as in Study 2 (i.e., likelihood to share infographic on social media, likelihood to attend a protest against economic inequality). Both items were averaged into a collective action composite (weighted $r = .62$, $p < .001$). Injustice appraisals were assessed with 1 item: "The level of social class inequality in the United States is unjust" (1 = *Strongly disagree*, 7 = *Strongly agree*). Additional measures were included for exploratory purposes (see full data set and proposal). As in Study 2, we assessed social class with the social class category measure. Again, participants reported their gender, age, ethnicity and political ideology (1 = *Extremely liberal*, 7 = *Extremely conservative*). Since middle-class individuals were not included in Study 3, we created a comparable binary social class dummy variable (0 = working class and poor, 1 = upper-middle class and upper class). We used the same

demographic covariates as in Study 2 and all covariates were coded as in Study 2 (except the binary social class covariate).

Study 4a

Participants. Our audience (i.e., individuals who would be randomly assigned to the ad manipulation) was composed of adult Facebook users (aged 18+), located within the United States, who accessed the news feed feature on desktops to ensure that the ads appeared correctly. An individual user could only see one of the ad versions and to count as a unique view, each user could only see it once. A total of 72,324 users were presented with the ads between March 4 – March 5, 2019. We set our ad budget to \$150, which allowed for estimated 95% power to detect a frame effect (i.e., the likelihood of detecting a difference in the ad versions, if there is one to detect, as calculated by Facebook).

Materials and Procedure. We used Facebook’s ad manager to create the three different advertisements to run a “split test”. In a split test, ads are tested against each other to determine which ad performs best in terms of the marketing objective. We selected “reach” as our marketing objective because we considered this to be the best proxy for measuring potential for collective engagement. This objective tests which ad reaches the maximum number of unique users. Reach increases if users (particularly those who have large friend networks) engage with the ad. The potential audience is divided into random, non-overlapping samples for accurate split test results. At the end of the testing period, Facebook determines the winning ad by calculating the cost for each ad to reach 1,000 people (Facebook could also declare no winner, if the ads perform equally well). In addition, Facebook reports the absolute number of people reached by each ad. Precisely how Facebook's algorithm weights different engagement variables (e.g., viewing,

sharing, liking) to determine the winning ad is unknown to the public. For a recent example of the complexity involved in split test optimization and attribution algorithms, see⁴⁷.

As an ad format, we used a single image advertisement, which included a headline, descriptive text, an image, and a website URL (Supplementary Figure 4). Each ad was labeled as sponsored content. We used the same free stock image and NYU Qualtrics URL for each ad. If users clicked on the ad, they were forwarded to a form which included the contact information of the researchers.

Study 4b

Participants. Our audience was adult Facebook users (aged 18+), located within the United States. As in Study 4a, each user saw one version of the ad, once. Based on the results of Study 4a, we set the budget to \$225 to aim to reach a sample of 100,000 people within a 24-hour period; at the end of the 24 hours (from April 2 - April 3, 2019), a total sample of 67,491 users had been presented with the ads.

Materials and Procedure. The materials were identical to Study 4a, except that in the control frame, we removed any reference to poor or rich people (i.e., “between poor and rich Americans” was replaced with “between Americans based on income”; Figure 5). Before data collection began, we preregistered our procedure and our hypothesis that Facebook would determine the disadvantage ad the winner on OSF (see <https://osf.io/ewt8r>).

Study 5

Participants. In anticipation that the revised infographic utilized in Study 5 might represent a somewhat weaker manipulation than the prior studies’ infographic (it is

shorter and includes fewer pieces of information about inequality), we chose to calculate power based on a traditionally small effect size (Cohen's $f^2 = .010$). A power analysis revealed that a sample size of 1,054 participants was required for 90% power to detect a small effect of inequality framing on support for collective action. Consistent with our previous studies, we planned to exclude participants who were not raised in the United States and thus, we oversampled and opened the survey to 1100 participants. The initial sample included 1112 workers on Prolific Academic crowdsourcing platform who participated in the study on February 19, 2020. We excluded 65 participants who were not raised in the U.S. After these exclusions the final sample consisted of 1047 participants (558 female, 485 male, 4 other), aged between 18 to 82 ($M = 36.16$, $SD = 13.06$). 73.93 % of participants identified as white/Caucasian American, 7.45% as African American, 5.16% as Latino/a/Hispanic, 5.92% as Asian American, and 0.67% as Native American, 6.11% of participants specified multiple ethnicities, and 0.76% of participants specifying another ethnicity. 8.89% of participants identified as poor, 37.00% as working class, 40.44% as middle class, 13.00% as upper-middle class, and 0.67% as upper class.

Materials and Procedure. The materials were identical to Study 3, except that we removed one piece of information from the infographics—the item that described differences in health outcomes ("Medical professionals spend more [less] time and give more [less] accurate diagnoses when treating upper-class [lower-class] patients"). Thus, the revised infographic presented four (not five, as was the case in Studies 2 and 3) pieces of information, framed either as upper-class advantages or lower-class disadvantages (see SI, Supplementary Figure 5). Before we began data collection, we preregistered our

procedure and our hypothesis that the lower-class disadvantage infographic (compared to the upper-class advantage infographic) would increase support for collective action on OSF on February 18, 2020 (see <https://osf.io/btz96>).

Data Availability Statement

All data and materials have been made publicly available via the Open Science Framework and can be accessed at <https://osf.io/f9sr7/>.

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Author Contributions

P. D. and M. A. C. designed the experiments, collected, and analyzed the data, and wrote the manuscript.

Competing Interests

The authors declare no competing interests.

Figure Legends

- Figure 1.** Raincloud plots with jittered data for respondents' preferences for the government to reduce poverty (bottom plot) or to the gap between the rich and everyone else (top plot). Respondents were randomly assigned to answer one of the two questions, which provided the manipulation of policy framing. Respondents who were asked about how much the government should do to reduce poverty expressed more support than respondents asked about reducing the gap between the rich and everyone else ($N = 1384$; $B = -0.31$, $t = -5.28$, $p < .001$, 95% CI[-0.42, -0.19]). The dotted areas reflect the raw data and the solid areas reflect data distributions. The black diamonds signify the means for each question, the black line signifies the 95% confidence interval around the mean.
- Figure 2.** Raincloud plots with jittered data for respondents' views on government efficacy to reduce poverty (i.e., reduce disadvantages; bottom plot) or to the gap between the rich and everyone else (i.e., reduce advantages; top plot). Respondents were randomly assigned to answer one of the two questions, which provided the manipulation of policy framing. Respondents who were asked about how much government policies and programs can do to reduce poverty expressed more support than respondents asked about reducing the gap between the rich and everyone else ($N = 1384$; $B = -0.19$, $t = -3.49$, $p < .001$, 95% CI[-0.29, -0.08]). The dotted areas reflect the raw data and the solid areas reflect data distributions. The black diamonds signify the means for each question, the black line signifies the 95% confidence interval around the mean.
- Figure 3.** Amazon's Mechanical Turk workers (Study 2a, $N = 272$), park-goers in New York City (Study 2b, $N = 75$), and a nationally-representative sample of Americans (Study 3, $N = 1780$) were randomly assigned to either read an infographic about economic inequality with a disadvantage frame (left) or an advantage frame (right). The infographic referred to low-income and high-income instead of lower-class and upper-class in Study 2a.
- Figure 4.** The relationship between economic inequality framing and support for collective action, mediated by perceived injustice in Study 3 ($N = 1780$; a path: $B = -0.32$, $t = -3.20$, $p = .001$, 95% CI[-0.51, -0.12]; b path: $B = .31$, $t = 7.87$, $p < .001$, 95% CI[0.23, 0.39]; c path: $B = -0.30$, $t = -2.46$, $p = .014$, 95% CI[-0.54, -0.06]; c' path: $B = -0.21$, $t = -1.77$, $p = .076$, 95% CI[-0.44, 0.02]). The point estimates are calculated adjusting for covariates (i.e., social class, age, gender, ethnicity, and ideology) and the analyses were weighted according to guidelines provided by the study administrator (NORC's AmeriSpeak). The value in parentheses (in the figure) represents the direct effect after the inclusion of the mediator.

Figure 5. The Advantage (top left) and Disadvantage (top right) Ads used in Study 4a ($N = 72,324$) and Study 4b ($N = 67,491$). The Control Ad used in Study 4b is shown below. In Study 4a, the control ad headline read: “Studies find a 15-year difference in life expectancy between poor and rich Americans”. Facebook users were randomly assigned to view one of the three ads (Advantage Ad, Disadvantage Ad, Control Ad) embedded in their newsfeed marked as sponsored content. Photo by rawpixel / Unsplash.

Figure 6. Results from Study 4a ($N = 72,324$): Facebook determined the ad framing economic inequality in terms of disadvantages (Disadvantage Ad) to be the winner with the lowest cost per 1,000 people reached (top). Further information provided by Facebook about the chance of replication if you click on the information icon (bottom).

Figure 7. Results from Study 4b ($N = 67,491$): Facebook determined the ad framing economic inequality in terms of disadvantages (Disadvantage Ad) to be the winner with the lowest cost per results.

Table 1.

Means (and Standard Errors in parentheses) for advantage and disadvantage conditions across studies.

	Advantage condition	Disadvantage condition
Study 1	<i>n</i> = 706	<i>n</i> = 678
Preference for Government Action	3.001 (0.045)	3.310 (0.038)
Efficacy Judgment of Government	2.966 (0.041)	3.151 (0.034)
Study 2a	<i>n</i> = 133	<i>n</i> = 139
Support for Collective Action	3.365 (0.145)	3.773 (0.142)
Study 2b	<i>n</i> = 36	<i>n</i> = 39
Support for Collective Action	3.274 (0.266)	4.260 (0.255)
Study 3	<i>n</i> = 888	<i>n</i> = 892
Support for Collective Action	2.748 (0.089)	3.046 (0.084)
Injustice Perceptions	5.027 (0.081)	5.345 (0.059)
Study 5	<i>n</i> = 524	<i>n</i> = 523

Support for Collective Action	3.363 (0.072)	3.611 (0.072)
Injustice Perceptions	5.620 (0.053)	5.784 (0.053)

Note. Descriptive statistics (survey weights adjusted in Study 1 and Study 3) for the dependent variables by experimental condition and study, controlling for covariates. The *n* for each framing condition for each study is presented above the means (and *SEs*).