

Perception of economic inequality weakens Americans' beliefs in both upward and downward socioeconomic mobility

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The prospect of socioeconomic mobility has long been a prominent concept in American life; however, research has shown that economic inequality can weaken Americans' beliefs in the prospect of upward mobility for poorer individuals in their country. In one correlational study, two experimental studies, and an internal meta-analysis, we extend this work by demonstrating that Americans' perceptions of inequality can also influence their beliefs about another form of mobility that is necessary in a truly mobile society: downward mobility for richer individuals. Specifically, we found that the more that Americans' perceptions of inequality in their country shifted toward extreme levels—toward the view that a small minority of the population holds a much greater proportion of the state's wealth than all other groups combined—the more likely they were to believe that both upward *and* downward mobility were unlikely. That is, they believed that social class groups in their country were largely ossified and impermeable, and thus that Americans were unlikely to move out of the groups they were born into. We discuss the potential implications of these findings for important motivational and behavioural outcomes.

Keywords: beliefs, inequality, mobility, perceptions.

Rising economic inequality is a noteworthy trend in today's world, with the richest 1% of the world's population now holding more than half of the world's wealth (Credit Suisse, 2017). These trends are especially pronounced in the United States: The top 1% of Americans now have more than twice as large a share of the nation's wealth as the bottom 90%, and the bottom 90% have not held the same amount of wealth as the top 1% since 1962 (Saez, 2016; Stone et al., 2018; Wolff, 2017).

These high levels of economic inequality have well-documented and dramatic economic and health consequences. For instance, both countries and U.S. states with higher (vs. lower) levels of economic inequality have worse health outcomes and higher rates of high-school dropout, gambling, and teenage birth (for a review, see Wilkinson & Pickett, 2009). In the present work, we examine how economic inequality—specifically the *perception* of economic inequality—may also have important consequences for a *psychological* factor that is central to the American psyche: their beliefs

about whether people can or cannot change their position on the socioeconomic ladder in their country.

Americans' Perceptions of Socioeconomic Mobility

People's beliefs about the attainability of socioeconomic mobility in their society are particularly central to the American context because “the promise that all Americans have a reasonable chance to achieve success” is strongly inscribed into the creed of American life (Hochschild, 1995, p. xi). Americans have historically been inundated with rags-to-riches stories via messages from their parents (Carter-Black, 2001; Coard et al., 2004; Johnson, 2014; López, 2001), mainstream media and literature (Foster, 2005), and prominent political figures (Obama, 2007; Reagan, 1989). Consequentially, the societal message that socioeconomic mobility is attainable has long been reflected in their personal beliefs about mobility. Consistently from 1952 to 1998, more than 80% of Americans felt that there was “plenty of opportunity to get ahead in America” (Gallup, 2013). In more recent years, however, these trends have shifted drastically: In 2013, only 52% agreed with this statement. In other words, while the vast majority of Americans have historically perceived there to be high levels of socioeconomic mobility in the United States, their beliefs are much more divided today.

Understanding the nature of this shift is critical, as Americans' perceptions of socioeconomic mobility shape

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the extent to which they trust and act in ways consistent with the prevailing social system, which includes both beneficial and harmful elements (see Browman, Svoboda, et al., 2019). For example, experimental research has found that among adolescents and young adults from lower socioeconomic status (SES) backgrounds, holding weaker mobility beliefs (i.e., believing that their low SES is unlikely to change) reduces persistence and resilience in domains that are promoted as means to upward mobility (i.e., academics; Browman et al., 2017; Browman, Svoboda, et al., 2019; Laurin et al., 2011) and can contribute to poorer psychological well-being (Kraus & Tan, 2015). At the same time, American adults holding weaker perceptions of mobility view their society as being less meritocratic and just, thereby reducing their tendency to rationalise and defend unfair economic and social policies—normally a major barrier to societal change (Day & Fiske, 2017; Newman et al., 2015; Shariff et al., 2016).

Economic Inequality and Perceptions of Socioeconomic Mobility

Psychological, economic, and sociological theorists have proposed that unequal environments likely signal to inhabitants that few people will be able to acquire wealth in their society (Browman, Destin, et al., 2019; Genicot & Ray, 2017; Kearney & Levine, 2016; McCall et al., 2017; Odgers & Adler, 2018; Sawhill & Reeves, 2016). Specifically, economic inequality entails disparities in lower and higher SES individuals' ability to access resources and opportunities that contribute to success and well-being in life, such as well-funded schools and social services, jobs with livable wages and benefits, safe neighbourhoods, and political influence (Gilens, 2012; Hayes, 2014; Owens et al., 2016; Reardon, 2011; Reardon & Bischoff, 2011a, 2011b; Watson, 2009). As a result, it seems logical that people may perceive socioeconomic mobility as being unlikely when inequality is higher.

However, high levels of inequality may only have direct psychological consequences when they are apparent to those inhabiting that context (Gimpelson & Treisman, 2018; Kraus et al., 2017; McCall et al., 2017; Payne et al., 2017). Indeed, research across a number of different contexts has found that individuals (e.g., residents of poor neighbourhoods, economy-class airplane passengers, participants in a networked economic game) are more strongly impacted by inequality when the disparities between them and others are visible (e.g., when they live adjacent to rich neighbourhoods, when they have to pass near the first-class cabin) than when inequality is still present, but not visible (e.g., when they live adjacent to other poor neighbourhoods, when the plane does not have a first-class cabin; DeCelles & Norton, 2016; Nishi et al., 2015; Pellowski et al., 2013).

This issue of salience is critical, as research has shown that both Americans and citizens of many other wealthy nations significantly underestimate how unequal their societies actually are (Hauser & Norton, 2017; Kiatpongsan & Norton, 2014; Kraus et al., 2017; Norton & Ariely, 2011). For this reason, in the present work, we focus on the psychological consequences of people's *perceptions* of economic inequality.

Recent research has provided support for the contention that Americans' perceptions of economic inequality can lead them to view mobility as being unlikely in their society. Specifically, American participants for whom inequality in their environment was experimentally made salient were more likely to believe that "getting ahead" in society (or one's lack of ability to do so) depended largely on external and structural factors (e.g., "having well-educated parents," "lack of money inherited from family;" Davidai, 2018; McCall et al., 2017). Ultimately, such exposure to inequality and these resulting attributions weakened Americans' beliefs about the likelihood that people at the bottom of the socioeconomic ladder could experience upward mobility (Davidai, 2018).

These findings represent important initial explorations of the causal relation between salient inequality and Americans' perceptions of socioeconomic mobility. However, research to date has focused only on people's perceptions of one element of the mobility equation: the relation between Americans' perceptions of inequality and their beliefs about the attainability of *upward mobility for the poorest individuals*. As such, questions remain as to whether salient inequality also influences Americans' beliefs about two other forms of mobility that are necessary in a truly mobile society: *downward mobility for richer individuals* and *any mobility (upward or downward) for those in the middle of the wealth distribution*. The present studies address these open questions.

How Inequality May Affect Americans' Beliefs About Different Types of Mobility

Economic inequality means, by definition, that some individuals in society will have less than others. Even in its least extreme form, then, it means that the poorest group has less access to resources and opportunities than any other group in society. It therefore follows that when people perceive their society to be more unequal, they should be more likely to believe that the poorest individuals in that society are less able to move up the socioeconomic ladder, as prior research has shown (Davidai, 2018; McCall et al., 2017).

However, as discussed, America is characterised by *extreme inequality*, where most of the nation's wealth,

resources, and opportunity are concentrated among those at the top of the socioeconomic distribution. That is, the distribution of these commodities is not just one where the poorest group has less than all the other groups but where *a small minority of individuals has far more than all of the other groups combined* (Saez, 2016; Stone et al., 2018; Wolff, 2017). Thus, in addition to believing that the poorest individuals (and even those of mid-level wealth) have such little access to resources and opportunities that they are unlikely to move up the socioeconomic ladder, people who are aware of this extreme (vs. a more moderate) level of inequality may be more likely to believe that wealthier individuals have such unparalleled access to resources and opportunities that it is very unlikely that they will move down the ladder. In other words, they may believe that virtually no mobility is possible—that all SES groups in their county are essentially ossified and impermeable. Thus, we hypothesised that while perceptions of the *general* existence of inequality (at more moderate levels) can make upward mobility seem less attainable (Davidai, 2018; McCall et al., 2017), as perceptions of *extreme* (i.e., top-concentrated) inequality increase, Americans should be less likely to believe that any mobility (both upward movement of individuals at the bottom and middle of the wealth distribution, and downward movement of middle and richer individuals) can occur.

We report three studies and an internal meta-analysis that test the relations between Americans' lay (Study 1) and induced (Studies 2a & 2b) perceptions of more versus less extreme degrees of economic inequality in their society and their beliefs about the prospect of socioeconomic mobility in general, upward mobility, and downward mobility.

Study 1

As discussed, higher levels of economic inequality produce greater disparities in lower and higher SES individuals' access to resources and opportunities. As a result, Americans—whose society is characterised by extreme, top-concentrated economic inequality—may come to believe not only that lower SES people (who have less and less access to resources and opportunities) are unlikely to move up the SES ladder but also that higher SES people (who have largely monopolised these assets) are unlikely to move down. That is, they may come to feel that people's positions on the socioeconomic ladder in America are largely ossified and impermeable. Study 1 tests this by examining the relations between Americans' lay perceptions of the extremity of economic inequality in the United States and their beliefs about various social classes' prospects of upward mobility, downward mobility, and overall mobility therein.

Method

Participants

Participants were 240 American adults, recruited from Amazon's Mechanical Turk online respondent pool in April 2018, who completed the study for \$1.50 U.S. The stopping points for data collection in both Study 1 and Study 2a (which were run 1 month apart) were jointly set a priori at a maximum of 240 participants per study. This decision was based on considerations of our funding restrictions at the time, the sample sizes around which correlations in the typical range for personality and social psychology tend to stabilise (for Study 1; Schönbrodt & Perugini, 2013; Vazire, 2014), and recommended guidelines to collect at least 50 participants per condition (for Study 2a; Simmons et al., 2013). Following an a priori rule, 69 participants were excluded for failing a comprehension check (described later), for a final sample size of 171; however, our results were largely similar when all 240 participants were included (see Supporting Information). The final sample size provided a statistical power of .80 to detect an effect of $r \geq |.212|$ (for demographics, see Table 1).

Ethical Consent

All studies were approved by the Institutional Review Board at Boston College (Protocol 18.248.01e) and were conducted with informed consent from all participants.

Materials

Assessing perceptions of economic inequality. As in prior work (Norton & Ariely, 2011), to assess perceptions of economic inequality, participants were asked to "indicate what percent of all of the United States' wealth you think is owned by each of the following groups in the United States:" "the richest 20% of the population," "the second richest 20% of the population," "the middle 20% of the population," "the second poorest 20% of the population," and "the poorest 20% of the population" (for descriptive statistics for all Study 1 measures, see Table 2). Participants' responses had to total 100% for them to proceed. Similar to prior research using this measure (Norton & Ariely, 2011), as a comprehension check, participants were excluded if they reported believing that a poorer group (e.g., the second richest 20% of the population) had more wealth than a richer group (e.g., the richest 20% of the population), as this suggested that they did not understand the instructions.

To summarise the overall degree of inequality that participants perceived *across the wealth distribution as a whole*, participants' wealth estimates for the five groups

Table 1
Participant demographics

	Study 1	Study 2a	Study 2b
Final <i>n</i>	171	116	331
Male	119	66	191
Female	51	50	134
Nonbinary	0	0	4
Undisclosed	1	0	2
Age [<i>M</i> (<i>SD</i>)] (%)	35.56 (11.1)	35.81 (10.7)	38.13 (11.6)
18–24	14.6	10.3	6.9
25–34	40.4	44.0	38.7
35–44	25.1	26.7	26.6
45–54	11.7	10.3	16.6
55–64	5.8	7.8	7.9
65+	2.3	0.9	3.3
Race/Ethnicity (%)			
White	74.3	78.4	71
Black or African American	9.4	3.4	7.9
Latino or Hispanic	1.8	4.3	5.4
Asian	8.8	6.9	8.2
American Indian or Alaska Native	0.6	0	0.6
Multiracial	5.3	6.0	6.6
Other or undisclosed	0	0.9	0.3
Education [<i>M</i> (<i>SD</i>)] (%)	4.12 (1.26)	4.06 (1.23)	4.37 (1.2)
(1) Did not complete high school	1.2	0	0
(2) Completed high school	11.7	13.8	8.5
(3) Some college	22.8	22.4	19.6
(4) Associate's degree	12.3	16.4	12.4
(5) Bachelor's degree	42.7	38.8	45.0
(6) MD, JD, PhD, or Master's	9.4	8.6	14.5
Income [<i>M</i> (<i>SD</i>)] (%)	4.01 (1.77)	4.01 (1.78)	4.53 (1.93)
(1) <\$15,000	7.6	9.5	9.1
(2) \$15,000–\$24,999	14	12.1	6.9
(3) \$25,000–\$34,999	18.1	17.2	11.8
(4) \$35,000–\$49,999	21.1	21.6	19.3
(5) \$50,000–\$74,999	22.2	19.8	22.4
(6) \$75,000–\$99,999	7.6	12.9	14.8
(7) \$100,000–\$150,000	6.4	2.6	10.6
(8) \$150,000–\$199,999	1.8	4.3	2.4
(9) >\$200,000	1.2	0	2.4
Undisclosed	0	0	0.3

were used to calculate a Gini coefficient—the most commonly used summary index of general economic inequality (De Maio, 2007)—for each participant. These *perceived Gini coefficients* were calculated by entering each participant's wealth estimates for the five groups

into the `ineq` function from the `ineq` package in R (Zeileis, 2014). Higher scores indicated greater perceived general inequality.

To isolate the effects of different types of perceived inequality, we computed indexes of *perceived top-bottom inequality*, *perceived top-middle inequality*, and *perceived middle-bottom inequality* (Reeves & Cuddy, 2015; World Bank, 2000) by subtracting, respectively, (a) the bottom 20%'s perceived share of wealth from the top 20%'s, (b) the middle 20%'s perceived share from the top 20%'s, and (c) the bottom 20%'s perceived share from the middle 20%'s.

Assessing perceptions of socioeconomic mobility. Drawing from prior work (Davidai & Gilovich, 2015a), to assess perceptions of mobility, participants responded to three prompts which asked them to “imagine a person born to a family in:” “the poorest 20% of the population,” “the richest 20% of the population,” and “the middle 20% of the population.” For each prompt, participants indicated on a 0% to 100% scale “the likelihood that such a person would be in each of the following wealth groups as an adult:” “the richest 20%,” “the second richest 20%,” “the middle 20%,” “the second poorest 20%,” and “the poorest 20%.”

To summarise the general likelihood of mobility that participants perceived across the wealth distribution as a whole, we averaged (across the three prompts) participants' responses to all items that indicated movement out of the target's quintile at birth. Perceived upward mobility was originally calculated from the items that indicated upward movement from the target's quintile at birth—specifically, by averaging the likelihood that those born into the poorest 20% would move up to any of the four higher quintiles, and the likelihood that those born into the middle 20% would move up to either of the top two quintiles. However, factor analyses also supported a two-factor model of the upward mobility items—one consisting of the two items involving movement to the top-most quintile (*top-bound upward mobility*), and one consisting of the four items involving movement to the non-top-most quintiles (*non-top-bound upward mobility*)—so these indices were also computed and included in our analyses (for details about the factor analysis, see the Supporting Information). Perceived downward mobility was calculated from the items that indicated downward movement from the target's quintile at birth—specifically, by averaging the likelihood that those born into the richest 20% would move down to any of the four lower quintiles, and the likelihood that those born into the middle 20% would move down to either of the bottom-two quintiles. The factor analysis supported this single-factor scoring of the downward mobility index.

Table 2
Descriptive Statistics and Correlations Between Perceptions of Economic Inequality and Socioeconomic Mobility in Study 1

Variable	<i>M</i>	<i>SD</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Perceived Gini coefficient	0.52	0.22	–	–	–	–	–	–	–	–
(2) Perceived top-bottom inequality	60.31	27.70	.99** [.99, .99]	–	–	–	–	–	–	–
(3) Perceived top-middle inequality	55.12	28.35	.97** [.95, .97]	.99** [.98, .99]	–	–	–	–	–	–
(4) Perceived middle-bottom inequality	5.20	4.56	.02 [–.13, .17]	–.06 [–.21, .09]	–.22** [–.36, –.07]	–	–	–	–	–
(5) Perceived total mobility	47.56	18.60	–.46** [–.57, –.34]	–.44** [–.55, –.31]	–.41** [–.53, –.28]	–.11 [–.25, .05]	–	–	–	–
(6) Perceived overall upward mobility	40.82	18.90	–.26** [–.40, –.12]	–.24** [–.37, –.09]	–.21** [–.35, –.06]	–.11 [–.26, .04]	.80** [.73, .85]	–	–	–
(7) Perceived top-bound upward mobility	9.11	13.52	–.15** [–.30, –.00]	–.12 [–.26, .03]	–.09 [–.23, .06]	–.18** [–.32, –.03]	.53** [.42, .63]	.72** [.64, .79]	–	–
(8) Perceived non-top-bound upward mobility	31.65	13.11	–.23** [–.36, –.08]	–.22** [–.36, –.07]	–.22** [–.36, –.07]	.03 [–.12, .18]	.60** [.49, .69]	.70** [.61, .77]	.01 [–.15, .16]	–
(9) Perceived downward mobility	30.49	17.16	–.46** [–.57, –.33]	–.45** [–.56, –.32]	–.43** [–.55, –.30]	–.05 [–.20, .10]	.75** [.67, .81]	.19** [.04, .33]	.08 [–.08, .22]	.20** [.05, .34]

Note. One participant's non-top-bound upward mobility score was missing; thus, there is a small difference in the means and *SDs* of the overall upward mobility measure versus the sum of the top-bound and non-top-bound upward mobility measures.

***p* < .01. **p* < .05.

Results

As shown in Table 2, we found that participants' perceptions of inequality across the wealth distribution as a whole (i.e., perceived Gini coefficients) were significantly and negatively correlated with their perceptions of the general possibility of experiencing socioeconomic mobility. In other words, the more that participants generally believed that their country was unequal, the less likely they were to believe that mobility could occur in their society in general. In addition, the more that participants perceived their country to be unequal, the less likely they were to believe that *either overall upward mobility or downward mobility* could occur. That is, they were more likely to believe that *all* SES groups in their country were more ossified and impermeable.

Breaking down these findings and examining participants' perceptions of the different types of inequality (top-bottom inequality, top-middle inequality, and middle-bottom inequality) revealed that only participants' perceptions of inequality between *the top and the rest of the wealth distribution* (i.e., top-bottom and top-middle inequality) were consistently correlated (significantly and negatively) with their perceptions of upward, downward, and total mobility. By contrast, participants' perceptions of middle-bottom inequality were only correlated (and to a weaker degree) with their perceptions of top-bound upward mobility. Finally, examining the differences between the different types of upward mobility beliefs suggested that these results were more consistently driven by participants' perceptions of *non-top-bound* upward mobility (which were correlated with their perceptions of overall, top-bottom, and top-middle inequality), and less so by their perceptions of *top-bound* upward mobility (which only correlated more weakly with their perceptions of overall and middle-bottom inequality). In other words, the more that participants felt that the degree of inequality in America was extreme—that is, that the great majority of their society's wealth was concentrated among a small minority at the top of SES distribution—the less likely they were to believe that moving either down or up (though not to the top) of the socioeconomic ladder was possible in that society.^{1,2}

Discussion

By examining multiple indices of people's perceptions of economic inequality and socioeconomic mobility, we found that Americans' perceptions of inequality in the United States were negatively associated with their perceptions of general mobility, upward mobility, and downward mobility in the United States. As discussed,

prior research has suggested that when high levels of inequality are salient, Americans are more likely to believe that *upward mobility* is less attainable for and less within the control of less advantaged individuals (Davidai, 2018; McCall *et al.*, 2017). The results of Study 1 extend these findings by demonstrating that Americans who perceive their country as having higher levels of inequality may be less likely to perceive that *multiple kinds* of mobility (upward *and* downward) are possible—that where one is born is where they are likely to stay throughout their life.

In addition, the correlation between participants' perceptions of upward and downward mobility was relatively small (see Table 2), and the measures were differentially correlated with other important psychological constructs (see the General Discussion and the Supporting Information). This suggests that downward mobility beliefs are a relatively independent psychological construct from the upward mobility beliefs that have been the focus of prior work (Davidai, 2018; McCall *et al.*, 2017). Furthermore, Study 1 suggests that Americans may also hold separate beliefs about the prospect of moving up to the *top* of the socioeconomic ladder versus moving up the ladder but *not* to the top, and that these beliefs are highly independent of each other, $r = .01$.

Finally, we found that it was participants' perceptions of inequality between the top and the rest of the wealth distribution—between the “rich and the rest” (Odgers & Adler, 2018)—that were most consistently correlated with their beliefs about mobility. In other words, in line with our hypotheses, the more participants perceived inequality to be extreme, such that the great majority of their society's wealth was concentrated among a small minority of the population—the form of inequality that currently exists in America (Saez, 2016; Stone *et al.*, 2018; Wolff, 2017)—the more likely they were to believe that the socioeconomic position an American is born into is the position in which they are likely to stay. As discussed, this may occur because unlike with middle-bottom inequality, when inequality between the rich and the rest is high, the rich are likely to be the only ones with reasonable access to the wealth, resources, and opportunities that contribute to future success.³ This should therefore suggest to those living in that society that the likelihood of any kind of mobility is low—that richer people are likely to stay richer, and all others are likely to stay poorer. Given these findings, it is perhaps counterintuitive that perceptions of inequality were only weakly related to Americans' beliefs about the likelihood of moving up to the very top of the socioeconomic ladder. However, this may be because of how unlikely participants generally perceive such an

occurrence to be ($M = 9.11$, $SD = 13.52$; discussed further in the General Discussion).

Of course, Study 1's correlational results cannot confirm a causal relation between more extreme levels of inequality and Americans' beliefs about mobility. In Studies 2a and 2b, we therefore experimentally tested whether participants' perceptions of extreme inequality in America causally influence their perceptions of general, upward, and downward socioeconomic mobility by directly manipulating the perceived extremity of inequality in America.

Studies 2a and 2b

Study 2a method

Participants. Participants were 161 American adults, recruited from Amazon's Mechanical Turk online respondent pool in May 2018, who completed the study for \$1.05 U.S. (for discussion of stopping point determination, see Study 1). Following an a priori rule, 45 participants were excluded for either failing comprehension checks related to the manipulation materials (described next) or providing bot-like answers to open-ended questions, for a final sample size of 116. This final sample size provided a statistical power of .80 to detect a between-condition difference of Cohen's $d \geq 0.529$ (for demographics, see Table 1).

Materials

Manipulating economic inequality. Adapting procedures from prior research (Côté et al., 2015), participants indicated their U.S. state of residence before being randomly assigned to view one of two pie charts that ostensibly depicted the proportion of wealth owned by each quintile of the population in their state. In the *extreme inequality condition* ($n = 51$), participants were presented with proportions that approximated the actual level of inequality in the United States at large, such that the richest 20% of the population held a far greater proportion of the state's wealth than all of the other groups combined (richest 20% of the population: 81% of total wealth; second richest 20%: 11%; middle 20%: 4%; second poorest 20%: 3%; poorest 20%: 1%). In the *low inequality condition* ($n = 65$), participants were instead presented with proportions that still made salient that inequality existed in their state, but such that no quintile had more wealth than the two quintiles immediately below it combined (richest 20%: 35%; second richest 20%: 21%; middle 20%: 18%; second poorest 20%: 15%; poorest 20%: 11%).⁴

As comprehension checks, participants were asked to indicate (a) how well they felt that they understood the

information contained in the chart on a scale of 1 (*I do not feel I understand the chart at all*) to 7 (*I feel I understand the chart very well*), and (b) what percentage of wealth in their state was owned by people who did not belong to the wealthiest fifth of the population. Following an a priori rule, participants who did not respond ≥ 5 or within 10% of the correct answer on the two questions, respectively, were excluded from our analyses, as reported earlier.

Finally, all participants completed a manipulation check in which they indicated "how equally distributed is [state]'s private wealth in your opinion?" on a scale of 1 (*unequally distributed*) to 7 (*equally distributed*). This confirmed that the manipulation was effective: Participants in the extreme inequality condition saw their society as significantly less equal ($M = 1.82$, $SD = 1.23$) than those in the low inequality condition ($M = 3.72$, $SD = 1.36$), $t(114) = 7.78$, $p < .001$, Cohen's $d = 1.455$.

Measuring postmanipulation perceptions of socioeconomic mobility. Participants then completed a similar measure of their perceptions of socioeconomic mobility as in Study 1. Their responses were used to calculate the same indices as in Study 1: perceived general mobility ($M = 48.67\%$, $SD = 18.74\%$), perceived overall upward mobility ($M = 40.34\%$, $SD = 16.09\%$), perceived top-bound upward mobility ($M = 7.58\%$, $SD = 7.89\%$), perceived non-top-bound upward mobility ($M = 32.76\%$, $SD = 11.59\%$), and perceived downward mobility ($M = 32.66\%$, $SD = 16.09\%$).

Study 2a Results and Discussion

Figure 1 illustrates the results of Study 2a. Similar to prior work (Davidai, 2018; McCall et al., 2017), participants exposed to extreme inequality reported weaker beliefs about general mobility ($M = 45.47\%$, $SD = 20.38\%$) and upward mobility ($M = 38.14\%$, $SD = 17.36\%$) than those exposed to low inequality (general mobility: $M = 51.17\%$, $SD = 17.09\%$; upward mobility: $M = 42.07\%$, $SD = 14.94\%$). More interestingly, extending this prior work, we also found that participants exposed to extreme inequality also reported weaker beliefs about downward mobility ($M = 30.07\%$, $SD = 16.75\%$), top-bound upward mobility ($M = 6.61\%$, $SD = 7.60\%$), and non-top-bound upward mobility ($M = 31.53\%$, $SD = 13.11\%$) than those exposed to low inequality (downward mobility: $M = 34.69\%$, $SD = 15.37\%$; top-bound upward mobility: $M = 8.34\%$, $SD = 8.08\%$; non-top-bound upward mobility: $M = 33.73\%$, $SD = 10.24\%$). However, while these trends are encouraging, they did not reach statistical significance—general mobility: $t(114) = 1.64$, $p = .104$, Cohen's $d = 0.306$;

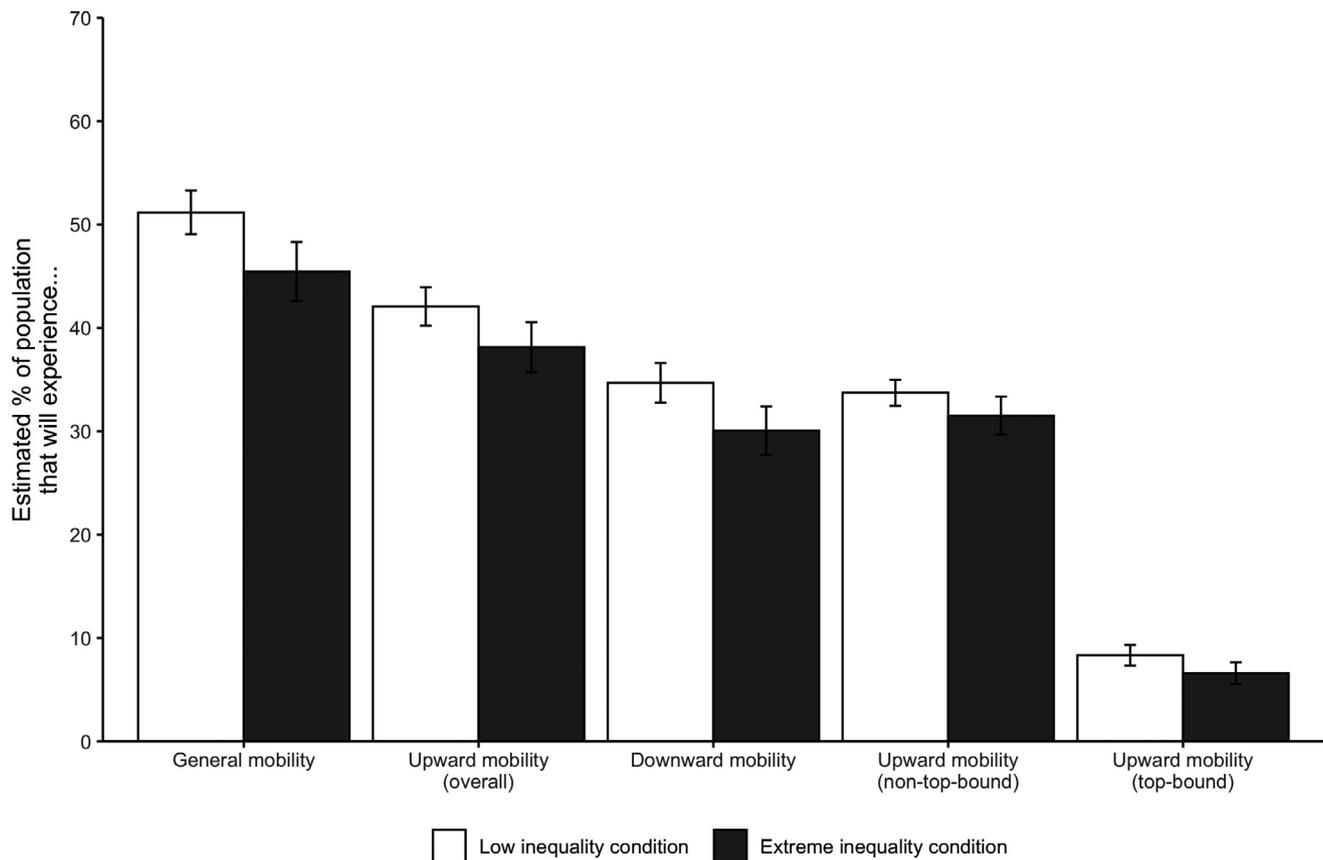


Figure 1 Study 2a participants' estimations of the percentage of the American population they believed would experience mobility in general, upward mobility, and downward mobility, separated by experimental condition. Error bars represent ± 1 SEM in each condition.

overall upward mobility: $t(114) = 1.31$, $p = .193$, Cohen's $d = 0.245$; downward mobility: $t(114) = 1.55$, $p = .125$, Cohen's $d = 0.289$; top-bound upward mobility: $t(114) = 1.18$, $p = .242$, Cohen's $d = 0.220$; non-top-bound upward mobility: $t(114) = 1.01$, $p = .313$, Cohen's $d = 0.190$.

In sum, Study 2a revealed some supportive (though not statistically significant) trends with regard to both (a) the previously explored relations between perceived inequality and beliefs about general and upward mobility (Davidai, 2018; McCall *et al.*, 2017), and (b) our novel hypothesis regarding the relation between perceived inequality and downward mobility. However, note that this study was underpowered in its ability to detect the small-to-medium effects of inequality on mobility beliefs that emerged (general mobility: Cohen's $d = 0.306$; overall upward mobility: Cohen's $d = 0.245$; downward mobility: Cohen's $d = 0.289$, top-bound upward mobility: Cohen's $d = 0.220$; non-top-bound upward mobility: Cohen's $d = 0.190$). As discussed, funding restrictions at the time limited our sample size to one that could only detect medium-sized effects (*i.e.*, Cohen's $ds \geq 0.529$).

In addition, participants in Study 2a were only led to perceive one of two very different levels of inequality: very low and very high. Indeed, participants viewing the extreme inequality graph perceived their society to be significantly less equal than those viewing the low inequality graph, and the effect size associated with this difference was very large, Cohen's $d = 1.455$. Study 2a therefore could not test whether Americans' mobility beliefs are also sensitive to smaller shifts in their perceptions of economic inequality, versus only to extreme shifts.

The goal of Study 2b was therefore to replicate Study 2a while addressing these limitations. To test whether Americans' mobility beliefs are sensitive to smaller differences in economic inequality than were made salient in Study 2a, we included a novel *mid-level inequality condition* in which some segments of the population had substantially more wealth than others (unlike in the low inequality condition), but where the richest 20% of the population did *not* hold a greater proportion of the state's wealth than the other groups combined (unlike in the extreme inequality condition). In addition, to

enhance our power to detect the kinds of small-to-medium effects that emerged in Study 2a, we approximately doubled our per-condition sample size. Finally, as a further test of the reliability of the impact of manipulating perceived inequality on Americans' mobility beliefs, we conducted an internal meta-analysis of the results of Studies 2a and 2b.

Study 2b Method

Participants

Participants were 370 American adults, recruited from Amazon's Mechanical Turk online respondent pool in May 2020,⁵ who completed the study for \$1.50 U.S. This stopping point for data collection was determined a priori based on a decision to collect an average of 125 participants per condition, prior to exclusions. Thirty-nine participants were excluded for either failing attention or comprehension checks related to the manipulation materials (described next), or for providing bot-like answers to open-ended questions, for a final sample size of $n = 331$. This final sample size provided a statistical power of .80 to detect a difference of Cohen's $d \geq 0.381$ between the low and extreme inequality conditions (for demographics, see Table 1).

Materials

Manipulating economic inequality. Participants were first randomly assigned to conditions. The extreme inequality condition ($n = 105$) and low inequality condition ($n = 114$) were identical to Study 2a. In the novel *mid-level inequality condition* ($n = 112$), participants saw a pie chart indicating that the great majority of their home state's wealth was distributed almost equally across the top-three quintiles of the SES distribution, with the bottom two quintiles having relatively little by comparison (richest 20%: 32%; second richest 20%: 30%; middle 20%: 27%; second poorest 20%: 7%; poorest 20%: 4%).

To ensure that participants attended to and understood the differences between the previously used and novel conditions, we created new attention and comprehension check items and corresponding criteria. Specifically, participants responded (1 = *strongly disagree*; 7 = *strongly agree*) to a series of 12 statements (discussed later) regarding the differences in wealth between the various quintiles. We then used the *careless* package in R (Yentes & Wilhelm, 2018) to compute two indices of participant attentiveness (see Curran, 2016; Meade & Craig, 2012). First, we computed within-condition Mahalanobis Distances (D^2) for each participant's responses to these 12 items. This indexed how different

a given participant's set of responses to the 12 items was from the average responses of all participants in the same condition. Because participants' responses to these items (e.g., "The middle fifth of [state]'s population holds substantially less wealth than the wealthiest fifth") depend on which inequality graph they were exposed to, if a participant was inattentive, their responses are likely to have significantly deviated from the responses of others in the same condition. Participants with outlier Mahalanobis D^2 s were identified and excluded from our analyses using the function `mahad(x, flag = TRUE, confidence = .99)`. As a second attention check, we then used the `longstring` function to identify and exclude participants who provided the same response to a suspiciously high number of 18 consecutive items that used the same response scale (i.e., straightlining).

Next, as comprehension checks, we used these items to create indices of participants' understanding of (a) the depicted differences in wealth between the wealthiest quintile and all of the other quintiles ("The wealthiest fifth of [state]'s population holds substantially more wealth than the [second wealthiest/middle/second poorest/poorest] fifth," "The [middle/poorest] fifth of [state]'s population holds substantially less wealth than the wealthiest fifth"), and (b) the depicted differences in wealth between the middle quintile and all of the other quintiles ("The wealthiest fifth of [state]'s population holds substantially more wealth than the middle fifth" (reverse-scored), "The middle fifth of [state]'s population holds substantially less wealth than the [wealthiest/second wealthiest] fifth" (reverse-scored), "The middle fifth of [state]'s population holds substantially more wealth than the [second poorest/poorest] fifth," "The poorest fifth of [state]'s population holds substantially less wealth than the middle fifth"). Analyses of these indices confirmed that participants understood the graphs in their respective conditions. Compared to those viewing both the mid-level inequality graph ($M = 5.50$, $SD = 0.87$) and the low inequality graph ($M = 5.82$, $SD = 0.96$), participants viewing the extreme inequality graph ($M = 6.23$, $SD = 1.03$) were significantly more likely to report that the wealthiest fifth of a state's population held substantially more wealth than any of the other quintiles, $ps \leq .005$, Cohen's $ds \geq 0.412$. By contrast, compared to those viewing both the extreme inequality graph ($M = 3.41$, $SD = 0.71$) and the low inequality condition ($M = 3.74$, $SD = 0.59$), participants in the mid-level inequality condition ($M = 4.69$, $SD = 1.02$) were significantly more likely to see the middle quintile as having substantially more wealth than the bottom two quintiles, but not substantially less wealth than the top-two quintiles, $ps \leq .007$, Cohen's $ds \geq 0.502$.

Finally, participants completed two manipulation checks. The first (which was the same as in Study 2a)

confirmed that the mid-level inequality condition ($M = 2.98$, $SD = 1.59$) instilled perceptions of equality that lay between those of participants in the extreme inequality condition ($M = 2.02$, $SD = 1.53$), $p < .001$, Cohen's $d = 0.616$, and the low inequality condition ($M = 3.46$, $SD = 1.58$), $p = .055$, Cohen's $d = 0.305$, thereby addressing a limitation of Study 2a. The second check confirmed that participants in the extreme inequality condition ($M = 6.29$, $SD = 1.15$) and mid-level inequality condition ($M = 6.12$, $SD = 1.04$) were both significantly more likely than those in the low inequality condition ($M = 5.71$, $SD = 1.23$) to agree that "Some segments of [state]'s population have substantially more wealth than others," $ps \leq .022$, Cohen's $ds \geq 0.356$. The former two conditions did not differ in their agreement with this statement, $p = .519$, Cohen's $d = 0.155$.

Thus, in line with the goals of this study, the manipulation and comprehension checks together confirmed that both the extreme and mid-level inequality conditions led participants to perceive that some segments of the population had substantially more wealth than others, but

only the extreme inequality condition led participants to believe that the richest 20% of the population held a much greater proportion of the state's wealth than all of the other groups.

Measuring postmanipulation perceptions of socioeconomic mobility. Participants then completed the same measure of perceptions of socioeconomic mobility as in Study 2a, which was used to calculate the same mobility indices: perceived general mobility ($M = 51.24\%$, $SD = 18.61\%$), perceived overall upward mobility ($M = 42.00\%$, $SD = 17.02\%$), perceived top-bound upward mobility ($M = 8.99\%$, $SD = 10.18\%$), perceived non-top-bound upward mobility ($M = 33.01\%$, $SD = 11.40\%$), and perceived downward mobility ($M = 34.85\%$, $SD = 17.39\%$).

Study 2b Results and Discussion

As shown in Figure 2 and Table 3, perceptions of general and upward mobility varied significantly and

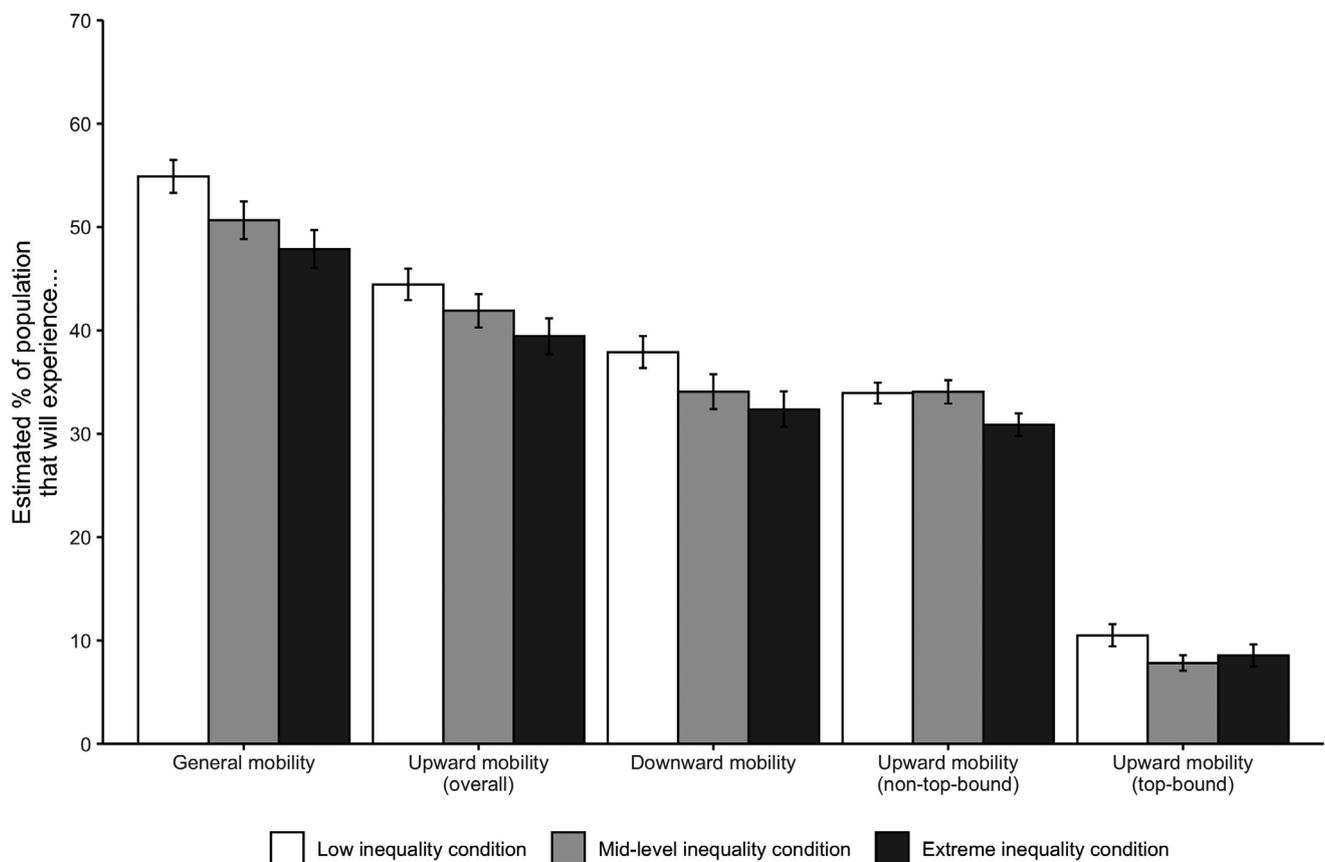


Figure 2 Study 2b participants' estimations of the percentage of the American population they believed would experience mobility in general, upward mobility, and downward mobility, separated by experimental condition. Error bars represent ± 1 SEM in each condition.

Table 3

Descriptive Statistics (Means and SDs [in Brackets]) and Statistical Tests Comparing Between-Condition Estimations of the Percentage of the American Population They Believed Would Experience Mobility in General, Upward Mobility, and Downward Mobility in Study 2b

	General Mobility	Upward Mobility (Overall)	Downward Mobility	Upward Mobility (Non-Top-Bound)	Upward Mobility (Top-Bound)
(1) Extreme inequality condition	47.88% (18.95%)	39.45% (17.78%)	32.38% (17.60%)	30.89% (11.32%)	8.56% (10.81%)
(2) Mid-level inequality condition	50.65% (19.25%)	41.90% (16.93%)	34.08% (17.73%)	34.07% (11.93%)	7.83% (7.81%)
(3) Low inequality condition	54.90% (17.10%)	44.45% (16.17%)	37.90% (16.53%)	33.93% (10.77%)	10.51% (11.47%)
One-way ANOVA	$F(2, 328) = 4.04, p = .018$	$F(2, 328) = 2.38, p = .094$	$F(2, 328) = 2.97, p = .053$	$F(2, 328) = 2.71, p = .068$	$F(2, 328) = 2.10, p = .124$
Tukey's HSD: (1) vs. (2)	$p = .511, \text{Cohen's } d = 0.145$	$p = .536, \text{Cohen's } d = 0.141$	$p = .750, \text{Cohen's } d = 0.096$	$p = .099, \text{Cohen's } d = 0.273$	$p = .858, \text{Cohen's } d = 0.078$
Tukey's HSD: (1) vs. (3)	$p = .014, \text{Cohen's } d = 0.390$	$p = .076, \text{Cohen's } d = 0.295$	$p = .049, \text{Cohen's } d = 0.324$	$p = .117, \text{Cohen's } d = 0.276$	$p = .331, \text{Cohen's } d = 0.175$
Tukey's HSD: (2) vs. (3)	$p = .195, \text{Cohen's } d = 0.233$	$p = .497, \text{Cohen's } d = 0.154$	$p = .221, \text{Cohen's } d = 0.223$	$p = .996, \text{Cohen's } d = 0.012$	$p = .118, \text{Cohen's } d = 0.273$

Note. Tukey's HSD = Tukey's honestly significant difference test.

marginally by condition, respectively (i.e., as a function of the level of inequality to which participants were exposed). That is, replicating prior work (Davidai, 2018; McCall et al., 2017) and the trends that emerged in Study 2a, participants in the extreme inequality condition reported significantly and marginally weaker perceptions of general and upward mobility, respectively, than those in the low inequality condition. By contrast, participants in the mid-level inequality condition reported perceptions of general and upward mobility that fell between those of participants in the low and extreme inequality conditions, though these differences did not reach statistical significance.

Most critically, a marginally significant effect of condition on *downward mobility* also emerged, such that participants in the extreme inequality condition reported significantly weaker downward mobility beliefs compared to those in the low inequality condition. Again, participants for whom mid-level inequality was made salient reported perceptions of downward mobility that fell between (but did not differ significantly from) those of participants in the low and extreme inequality conditions. Finally, there were slightly directionally consistent marginal effects of condition on participants' non-top-bound upward mobility beliefs than on their top-bound upward mobility beliefs. In other words, as in Study 2a, participants who were led to see the level of inequality in their society as more extreme were more likely to believe that almost *no mobility*—either upward or downward—could occur in that society, compared to those who were exposed to lower levels of inequality.

In addition, while Study 2a was underpowered to detect the small-to-medium effects that emerged, the results of Study 2b support the accuracy of the estimates that emerged in Study 2a. Specifically, in the two conditions that Studies 2a and 2b shared, participants reported statistically similar point estimates for general mobility—low inequality condition: $p = .163$, Cohen's $d = 0.218$; extreme inequality condition: $p = .480$, Cohen's $d = 0.124$ —overall upward mobility—low inequality condition: $p = .321$, Cohen's $d = 0.151$; extreme inequality condition: $p = .662$, Cohen's $d = 0.074$ —top-bound upward mobility—low inequality condition: $p = .141$, Cohen's $d = 0.151$; extreme inequality condition: $p = .194$, Cohen's $d = 0.074$ —non-top-bound upward mobility—low inequality condition: $p = .899$, Cohen's $d = 0.151$; extreme inequality condition: $p = .765$, Cohen's $d = 0.074$ —and downward mobility—low inequality condition: $p = .193$, Cohen's $d = 0.199$; extreme inequality condition: $p = .429$, Cohen's $d = 0.133$. Furthermore, the effect sizes (Cohen's ds) of the differences in mobility estimates between the low and extreme inequality conditions were very similar across the two studies—general mobility: 0.306 (Study 2a) versus 0.390 (Study 2b); overall upward mobility: 0.245 (Study 2a) versus 0.295 (Study 2b); top-bound upward mobility: 0.220 (Study 2a) versus 0.175 (Study 2b); non-top-bound upward mobility: 0.190 (Study 2a) versus 0.276 (Study 2b); downward mobility: 0.289 (Study 2a) versus 0.324 (Study 2b).

Together, then, the results of Study 2b provide further support for the hypothesis that the more extreme

Americans' perceptions of inequality become—that is, the more they view a small minority of the population as holding a much greater proportion of the state's wealth than all of the other groups combined—the more they will view SES as ossified and impermeable not only with regard to upward mobility but also to downward mobility.

Single-Paper Meta-Analysis of Studies 2a and 2b

As discussed, Study 2a was underpowered to detect the small-to-medium effects that emerged; however, the results of Study 2b supported the accuracy of the estimates that emerged in Study 2a. Thus, to provide further support for the reliability of the impact of manipulating perceived inequality on Americans' mobility beliefs, we conducted a single-paper meta-analysis (McShane & Böckenholt, 2017). By conjointly analysing the results of multiple studies, this approach can yield estimates of the overall effects that are more accurate and therefore have greater statistical power than the estimates revealed by the individual studies.

We therefore used McShane and Böckenholt's (2017) Single-Paper Meta-Analysis software (<http://www.singlepapermetaanalysis.com>) to analyse the differences in general, upward, and downward mobility beliefs between participants in the low and extreme inequality conditions in both Studies 2a and 2b. The meta-analytic estimates of the effect of condition (low inequality [−1] vs. extreme inequality [+1]) on general mobility, −6.47% [−10.42%, −2.53%], overall upward mobility, −4.58% [−8.18%, −0.98%], non-top-bound upward mobility, −2.97% [−5.39%, −0.55%], and downward mobility, −5.12% [−8.72%, −1.52%], were all negative, and their 95% confidence intervals (in square brackets) all excluded zero, whereas those for top-bound upward mobility did not exclude zero, −1.81% [−3.87%, 0.24%]. This indicated that, averaging across both studies, the negative effect of exposing participants to extreme (vs. low) levels of inequality on their general, overall and non-top-bound upward, and downward mobility beliefs was statistically significant, whereas the effect on top-bound upward mobility was not significant.

General Discussion

The present findings replicate and extend our understanding of an important psychological consequence of the rise of extreme economic inequality in America: a weakening of Americans' beliefs about socioeconomic mobility. Prior research has shown that when Americans perceive inequality to be higher (vs. lower) in their country, they are more likely to report feeling that attaining *upward* mobility in

America (or failing to do so) depends largely on structural factors that are outside of their control (e.g., “having well-educated parents,” “lack of money inherited from family;” Davidai, 2018; McCall *et al.*, 2017), and these attributions can ultimately weaken their perceptions of the attainability of upward mobility for poorer individuals (Davidai, 2018). The present studies extend this work by not only replicating findings regarding the existence of negative correlational (Study 1) and causal (Studies 2a & 2b) relations between Americans' perceptions of economic inequality in their country and their beliefs about upward mobility for poorer (and mid-level wealth) individuals but also by demonstrating that these perceptions may also influence another form of mobility that is necessary in a mobile society: *downward mobility for richer and mid-level wealth individuals*. Specifically, we found that the more that our American participants believed (both naturally [Study 1] and following experimental manipulation [Studies 2a & 2b]) that a small minority of the population held a much greater proportion of the state's wealth than all other groups combined, the more likely they were to believe that both upward *and* downward mobility was unlikely, and thus that SES is ossified and impermeable in their country. Furthermore, we found that most of the relations between inequality and upward mobility beliefs were driven by participants' beliefs about the likelihood of moving up to quintiles other than the richest quintile.

These findings may help inform our understanding of the *psychological* pathways by which inequality can affect important lifetime and societal outcomes. Theorists have speculated that as a result of the disparities it creates in more versus less advantaged individuals' access to resources and opportunities, high levels of economic inequality might lead disadvantaged individuals to believe that future socioeconomic success is unachievable for them (Browman, Destin, *et al.*, 2019; Genicot & Ray, 2017; Kearney & Levine, 2016; McCall *et al.*, 2017; Odgers & Adler, 2018; Sawhill & Reeves, 2016). In this way, in addition to the real opportunity-based barriers to economic advancement that inequality imposes (Gilens, 2012; Hayes, 2014; Owens *et al.*, 2016; Reardon, 2011; Reardon & Bischoff, 2011a, 2011b; Watson, 2009), systemic inequality may also influence the perceived value of engaging in behaviours that are touted as pathways to future socioeconomic success (e.g., persisting in school; Browman, Destin, *et al.*, 2019). In the long term, these negative psychological effects may therefore lead to even larger gaps between the rich and the rest (Browman, Destin, *et al.*, 2019) and perhaps ultimately promote support for systemic change (Day & Fiske, 2017; Newman *et al.*, 2015; Shariff *et al.*, 2016). In fact, because extreme inequality entails a lack of access to resources for all but the wealthiest, our findings suggest that such processes might also influence middle-class Americans. The present

findings therefore help to link the separate literatures that have explored the effects of economic inequality (Day & Fiske, 2017; Newman et al., 2015; Shariff et al., 2016) and perceptions of mobility (Browman et al., 2017; Browman, Svoboda, et al., 2019; Kraus & Tan, 2015; Laurin et al., 2011) on important motivational and behavioural outcomes. Specifically, the present work provides support for the relation between the proposed contributing cause (perceived economic inequality) and the proposed mediator (people's beliefs about the attainability of mobility) of important life outcomes for nonrich individuals living in unequal societies. In addition, the present findings may help explain why more (vs. less) wealthy individuals are more supportive of inequality (Cohn et al., 2019; Wiwad et al., 2019) and are more likely to engage in behaviours that sustain and increase inequality (Cohn et al., 2019; Nishi et al., 2015). Specifically, if the wealthy feel that they are less likely to lose their wealth (i.e., to experience downward mobility) when inequality is higher, then wealthy individuals should favour and seek to perpetuate and maintain extreme inequality.

The emergence of these effects on both upward and downward mobility beliefs is also important. As discussed in Study 1, the correlation between participants' perceptions of upward and downward mobility was relatively small. Furthermore, as detailed in the Supporting Information, the two constructs are differentially correlated with important psychological constructs that have been explored in prior research. For example, prior work has found that Americans who believe that *general* or *upward* mobility is more (vs. less) likely are more supportive of economic inequality (Shariff et al., 2016), but are not more explicitly supportive of using social dominance to maintain inequality (Day & Fiske, 2017). Extending these results, we found that participants' *downward* mobility beliefs were significantly more predictive of both their levels of support for both economic inequality *and* using social dominance to maintain inequality than were their upward mobility beliefs. This suggests that downward mobility beliefs are a relatively independent psychological construct from the upward mobility beliefs that have been the focus of much prior work (Davidai, 2018; McCall et al., 2017), and therefore may predict different outcomes. Thus, given that support for inequality, group-based dominance, and other related constructs drive opposition to equality-promoting policies such as economic redistribution and social welfare (Ho et al., 2015; Wiwad et al., 2019), future work should further explore the independent contributions of upward and downward mobility beliefs to these important psychological antecedents.

Finally, our findings also suggest that Americans' baseline perceptions of inequality may be rapidly shifting, and become more accurate. In December 2005,

Americans believed that the richest 20% of the country held 59% of the nation's wealth (Norton & Ariely, 2011). In reality, it was 84%. Almost 13 years later, when we conducted Study 1, Americans' estimates had only risen by 5.7%. However, when we conducted Study 2b, only 2 years later, these estimates had already risen another 6.3% (to 70.9%; see pilot study in the Supporting Information). While the present studies did not involve nationally-representative samples, these findings highlight some potentially important considerations for future research. From a practical perspective, the present and prior studies suggest that as Americans' baseline perceptions of inequality become more aware of the actual extreme levels of inequality in America (i.e., that the richest 20% hold 89.9% of America's wealth; Wolff, 2017), we should expect their baseline beliefs about *all* mobility to become weaker. As discussed, this may have important implications for Americans' motivational and behavioural tendencies (Day & Fiske, 2017; Shariff et al., 2016), especially for those from less advantaged backgrounds (Browman et al., 2017; Browman, Svoboda, et al., 2019; Kraus & Tan, 2015; Laurin et al., 2011). In addition, Americans' increasingly accurate baseline perceptions of inequality may help explain why perceived inequality was at best only weakly associated with participants' top-bound upward mobility beliefs in the present work. Specifically, this may be because Americans' current default beliefs about how much wealth the top quintile holds are already so extreme that they naturally (and correctly) feel that it is extremely unlikely that someone outside that group can reach that level of wealth (a mean of only a 7.75% chance in the most recent study we conducted [Study 2b]).

From a methodological perspective, the increasing extremity of Americans' perceptions of inequality may have implications for the kinds of experimental materials that can be used in future research on these topics. For example, as Americans' perceptions of inequality become more extreme, a condition in which the top quintile only holds 35% of society's wealth (i.e., the current low inequality condition) may be too far from participants' natural perceptions to be believable. Furthermore, while researchers have previously been able to use a no-graph control condition as a neutral comparison group (Davidai, 2018), the results of Studies 2a and 2b (see Footnote 2) and the pilot study (see the Supporting Information) suggest that this may no longer be possible, as Americans' baseline perceptions of mobility have become increasingly extreme. We urge researchers to consider these trends when selecting manipulation materials for use with American samples in the future.

Note that there are potential constraints on generality regarding our findings. Given the demographic focus of this work, our samples consisted of American participants

who were diverse in terms of age, gender, and SES, but not race ($\geq 71\%$ White; see Table 1). On one hand, because inequality is generally more salient for minoritised group members (Pew Research Center, 2016) and is ever a more salient issue in other wealthy nations (Niehues, 2014), it seems plausible that similar findings might also emerge among Americans from racial/ethnic minority backgrounds and in other highly unequal wealthy nations. By contrast, research has also found that Black Americans have long acknowledged caste-like patterns of social class; that is, a system where class is ascribed using visible markers such as skin color, and is therefore fixed across the life course (Cohen *et al.*, 2017). As a result, it also seems possible that information about particular rates of inequality may have weaker effects on individuals from groups that are more likely to recognise such historic patterns of social class stratification. Future research is needed to test these possibilities.

Finally, note that Study 2b did not find significant differences in the mobility beliefs of those exposed to extreme inequality versus more mid-level inequality. While only exposure to extreme inequality—not to mid-level inequality—notably weakened mobility beliefs compared with exposure to low inequality, the lack of differences between the extreme and mid-level inequality conditions stand in contrast to our prediction that all mobility beliefs might only be weakened when inequality is perceived to be top-concentrated. Future research should therefore aim to identify other wealth distributions' contrasts that reliably influence Americans' beliefs about the possibility of *both* upward and downward mobility.

As economic inequality continues to rise, the psychological consequences of inequality are likely to play an increasing role in human decision-making and behaviour. In highlighting weakened beliefs about mobility as a specific psychological consequence of these trends—with known implications for health and motivation—the present findings provide important insights into how inequality may ultimately impact important, long-term societal-level outcomes.

Conflict of Interest

The authors declare that they have no conflicts of interest.

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Open Research Badges



This article has earned Open Data and Open Materials badges. Data and materials are available at <https://osf.io/425pn>

Data Availability Statement

The studies presented in this paper represent all of the data we have collected examining the relations between Americans' perceptions of more versus less extreme degrees of economic inequality and their general, upward, and downward mobility beliefs. All data omissions are reported. Thus, the reported findings and effect sizes are not qualified by the omission of unreported results. Analyses were not conducted prior to collection of the full samples in all studies. Data and materials are available at <https://osf.io/425pn>.

Materials Availability Statement

All materials, data, and analytic syntax relevant to present studies (including measures not relevant to the present hypotheses) can be found either in the Supporting Information or at <https://osf.io/425pn>. A list of the analytic software and versions used can be found in the Supporting Information.

Pre-registration Statement

The study presented in this paper was not pre-registered.

Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's website.

End Notes

- 1 It is worth noting that participants perceived top-bottom, top-middle, and overall inequality (perceived Gini coefficients) to be almost identical constructs whereas top-bottom and overall inequality were viewed as being almost completely different from middle-bottom inequality, as evidenced by the extremely high and low correlations, respectively (see Table 2). This suggests that Americans' general perceptions of inequality may be based more on their perceptions of top-concentrated inequality, versus other forms.
- 2 Study 1 also replicated prior findings regarding Americans' misperceptions of the true levels of inequality and mobility in their country (Davidai & Gilovich, 2015a; Norton & Ariely, 2011; for details, see the Supporting Information).
- 3 Note that participants' perceptions of middle-bottom inequality were very low (see Table 2), and this restricted range could have contributed to this variable's weak correlations with mobility beliefs.
- 4 Studies 2a and 2b also included a control condition in which participants were not presented with a pie chart (Davidai, 2018). Because an original goal of these studies was to experimentally test whether participants' perceptions of extreme inequality (and not their perceptions of more moderate forms of inequality) could influence their beliefs about mobility, this condition was included with the expectation that it would

provide an “inequality not salient” group against which to compare our focal conditions in which different levels of inequality were made salient. Unexpectedly, however, we found that control condition participants naturally saw their states as *less equal* (Study 2a: $M = 3.00$, $SD = 1.46$; Study 2b: $M = 2.60$, $SD = 1.31$) than those in the low inequality condition in both studies, $ps \leq .006$, Cohen’s $ds \geq 0.510$, and even than those in the mid-level inequality condition in Study 2b, $p = .082$, Cohen’s $ds = 0.327$. Most critically, control condition participants’ perceptions of inequality differed significantly across the two studies: Those in Study 2a saw their society as more equal than did those in Study 2b, $p = .015$, Cohen’s $d = 0.361$. In fact, participants in Study 2b’s control condition only saw their society as marginally more equal than did those in the extreme inequality condition, $p = .075$, Cohen’s $ds = 0.347$, whereas this difference was highly significant in Study 2a, $p < .001$, Cohen’s $d = 0.857$. In other words, despite not being exposed to inequality in the context of the studies, the control condition did not provide an “inequality not salient” groups against which our focal conditions could be meaningfully compared in either study nor did it even provide groups in which similar levels of inequality were salient in both studies. As a result, the control conditions were excluded from our primary analyses in both studies. However, similar trends to those described here emerged when the control conditions were included (for further details, see the Supporting Information).

- 5 A pilot study conducted during the same month as Study 2b suggested that the economic impacts of the 2019–2020 coronavirus pandemic (i.e., how much participants’ income and subjective SES had changed as a result of the pandemic) had not influenced Americans’ perceptions of inequality in the United States at the time that Study 2b was run (for details, see the Supporting Information).

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Supplementary Materials for “The Perception of Economic Inequality Weakens Americans’ Beliefs in Both Upward and Downward Socioeconomic Mobility”

Study 1

Discriminant validity of the mobility belief indices. To test the discriminant validity of our perceived upward and downward mobility measures, we examined their relations with four constructs that have been explored in relation to mobility beliefs in prior work (Day & Fiske, 2017; Shariff et al., 2016): Belief in a Just World (e.g., “I believe that, by and large, people get what they deserve”; Dalbert, 1999), Social Dominance Orientation-Dominance and Social Dominance Orientation-Egalitarianism (i.e., support for high status groups forcefully oppressing lower status groups (e.g., “An ideal society requires some groups to be on top and others to be on the bottom”), and support for subtle hierarchy-enhancing ideologies and social policies (e.g., “We shouldn’t try to guarantee that every group has the same quality of life”), respectively; Ho et al., 2015), and Support for Economic Inequality (e.g., “Overall, economic inequality is good for the world”; Wiwad et al., 2019). These variables were independently regressed on participants’ perceptions of downward and overall upward mobility, and the `linearHypothesis` function from the `car` package in R (Fox & Weisberg, 2019) was used to determine whether whether one set of mobility beliefs was more strong related to the dependent variable. We found that participants’ downward mobility beliefs were more strongly related to their Social Dominance Orientation-Dominance beliefs, $b = 0.012$, and to their Support for Economic Inequality, $b = 0.008$, than were their upward mobility beliefs, $bs = 0.028$ and 0.015 , $F_s = 5.202$ and 3.629 , $ps = .024$ and $.059$. These findings both provide support for the discriminant validity of upward mobility versus downward mobility, and suggests that future work should further explore the independent contributions of upward and downward mobility beliefs to these important psychological antecedents.

Internal consistency of the mobility belief indices. We had originally planned to only score our measures of participants' upward and downward mobility beliefs in a manner similar to prior work (Davidai, 2018; Davidai & Gilovich, 2015a). However, following a reviewer's suggestion, we conducted an exploratory factor analysis (EFA) of the 12 items used to calculate our original measures of participants' upward and downward mobility beliefs. First, the number of factors to extract was determined by Horn's Parallel Analysis (HPA; Horn, 1965), with principal axis factoring as the factoring method. Unexpectedly, the HPA suggested that three factors should be extracted, instead of the expected two. Based on these results, using the psych package in R (Revelle, 2020), we used the principal factor solution to extract three factors (initial eigenvalues: 3.49, 2.03, and 1.67) and then applied an oblimin rotation. Squared multiple correlations were used as initial estimates of communalities.

Table S1

Pattern matrix of factor loadings from the exploratory factor analysis examining the upward and downward mobility belief items. Bolded values indicate our interpretation of which factor each item loaded onto.

	Factor 1	Factor 2	Factor 3
Move up from poorest 20% to richest 20%	0.090	0.777	-0.058
Move up from poorest 20% to 2nd richest 20%	0.399	0.186	0.530
Move up from poorest 20% to middle 20%	-0.007	-0.102	0.711
Move up from poorest 20% to 2nd poorest 20%	-0.043	-0.354	0.357
Move up from middle 20% to richest 20%	0.007	0.771	0.006
Move up from middle 20% to 2nd richest 20%	-0.019	0.078	0.439
Move down from middle 20% to 2nd poorest 20%	0.424	-0.434	-0.243
Move down from middle 20% to poorest 20%	0.679	-0.167	-0.166
Move down from richest 20% to 2nd richest 20%	0.265	-0.081	0.195
Move down from richest 20% to middle 20%	0.727	-0.055	0.220
Move down from richest 20% to 2nd poorest 20%	0.915	0.092	0.044
Move down from richest 20% to poorest 20%	0.707	0.136	-0.068

As shown in Table S1, the EFA revealed that five of the six downward mobility items loaded reasonably well on the first factor, though one of these items negatively cross-loaded

onto the second factor. We felt that this pattern of loadings supported our original operationalization of the downward mobility construct well enough for us to continue operationalizing it in the same way. By contrast, the six items original used to assess participants' upward mobility beliefs loaded most logically (despite two cross-loadings) onto two distinct factors—one consisting of the two items that indicated movement to the top-most quintile (i.e., top-bound upward mobility), and one consisting of the four items that indicated upward movement to the non-top-most quintiles (i.e., non-top-bound upward mobility). Thus, in order to account for the novel factor structure suggested by our data, but also stay consistent with previous operationalizations of similar measures (e.g., Davidai, 2018; Davidai & Gilovich, 2015a), we calculated and analyzed one measure of downward mobility beliefs (as in our original submission) and three measure of upward mobility beliefs (our existing measure, and our new, separate measures of top-bound and non-top-bound upward mobility).

Analyses with the complete sample ($N = 240$). As shown in Table S1, results were similar when we did not exclude the participants who failed the comprehension check. Participants' perceptions of inequality across the wealth distribution as a whole (i.e., perceived Gini coefficients) were significantly and negatively correlated with their perceptions of total mobility, upward mobility, and downward mobility. Furthermore, participants' perceptions of top-bottom and top-middle inequality were significantly and negatively correlated with their perceptions of upward, downward, and total mobility, and the relations with upward mobility were largely attributable to their non-top-bound beliefs, not their top-bound beliefs. Participants' perceptions of middle-bottom inequality were also significantly (but much more weakly) related to their perceptions of total and downward mobility, but not to their perceptions of upward mobility. Note that this full sample size provided a statistical power of .80 to detect an effect of $r \geq |0.180|$.

Table S2

Correlations between perceptions of economic inequality and mobility, with full Study 1 sample.

Variable	M	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Perceived Gini coefficient	0.47	0.22								
(2) Perceived top-bottom inequality	42.08	39.94	.76** [.70, .81]							
(3) Perceived top-middle inequality	36.31	41.16	.74** [.67, .79]	.95** [.93, .96]						
(4) Perceived middle-bottom inequality	5.77	13.39	.01 [-.11, .14]	.08 [-.05, .20]	-.25** [-.37, -.13]					
(5) Perceived total mobility	51.59	19.77	-.46** [-.56, -.36]	-.42** [-.52, -.31]	-.36** [-.47, -.24]	-.14* [-.27, -.02]				
(6) Perceived overall upward mobility	42.81	18.52	-.31** [-.42, -.19]	-.20** [-.32, -.08]	-.19** [-.31, -.06]	-.02 [-.15, .11]	.75** [.69, .80]			
(7) Perceived top-bound upward mobility	9.76	13.84	-.17** [-.29, -.05]	-.05 [-.18, .08]	-.02 [-.14, .11]	-.10 [-.22, .03]	.51** [.41, .60]	.73** [.67, .79]		
(8) Perceived non-top-bound upward mobility	33.02	12.61	-.27** [-.38, -.14]	-.24** [-.36, -.12]	-.26** [-.38, -.14]	.08 [-.05, .20]	.54** [.45, .63]	.66** [.59, .73]	-.02 [-.15, .10]	
(9) Perceived downward mobility	34.53	19.82	-.41** [-.51, -.29]	-.44** [-.54, -.33]	-.36** [-.47, -.25]	-.19** [-.31, -.07]	.79** [.74, .83]	.19** [.07, .31]	.09 [-.04, .21]	.19** [.07, .31]

Note. ** $p < .01$, * $p < .05$.

Replicating prior work (excluding participants as described in the main text).

Americans' misperceptions of economic inequality.

Replicating prior work (Norton & Ariely, 2011), participants drastically underestimated the extent of economic inequality in the United States. Specifically, participants significantly underestimated the amount of wealth held by the richest 20% (estimated: $M = 64.66\%$, $SD = 22.38\%$; actual: 89.9% (Wolff, 2017)), $t(170) = 14.75$, $p < .001$, Cohen's $d = 1.128$, and significantly overestimated the amount of wealth held by the second richest 20% (estimated: $M = 15.19\%$, $SD = 7.80\%$; actual: 8.2%), $t(170) = 11.72$, $p < .001$, Cohen's $d = 0.896$, the middle 20% (estimated: $M = 9.55\%$, $SD = 6.26\%$; actual: 2.4%), $t(170) = 14.93$, $p < .001$, Cohen's $d = 1.141$, the second poorest 20% (estimated: $M = 6.25\%$, $SD = 5.87\%$; actual: .3%), $t(170) = 13.26$, $p < .001$, Cohen's $d = 1.014$, and the poorest 20% (estimated: $M = 4.35\%$, $SD = 6.10\%$; actual: -.8%), $t(170) = 11.03$, $p < .001$, Cohen's $d = 0.843$.

Americans' misperceptions of socioeconomic mobility.

Study 1 replicated a number of findings from prior work (see Davidai & Gilovich, 2015a, 2015b; Kraus et al., 2017a). First, participants believed that a person born into a family in the poorest 20% of the population was significantly more likely to end up in one of the three richest wealth quintiles as an adult ($M = 31.05\%$, $SD = 22.73\%$) than a person born into a family in the richest 20% of the population was to end up in one of the three poorest quintiles as an adult ($M = 18.79\%$, $SD = 20.51\%$), $t(170) = 6.58$, $p < .001$, Cohen's $d = 0.503$. Second, participants believed that a person born into a family in the poorest 20% of the population was significantly less likely to remain in the poorest quintile as an adult ($M = 46.88\%$, $SD = 24.88\%$) than a person born into a family in the richest 20% of the population was to remain in the richest quintiles as an adult ($M = 65.72\%$, $SD = 65.72\%$), $t(170) = 8.52$, $p < .001$, Cohen's $d = 0.651$. Third, participants significantly

underestimated the actual likelihood of a person born into a family in the richest 20% of the population ending up in one of the bottom three wealth quintiles as an adult (perceived: $M = 18.79\%$, $SD = 20.51\%$; actual: 37% [The Pew Charitable Trusts, 2012]), $t(170) = 11.61$, $p < .001$, Cohen's $d = 0.888$ (Davidai & Gilovich, 2015a). Finally, participants reported believing that upward mobility ($M = 40.82\%$, $SD = 18.90\%$) was significantly more likely to occur than downward mobility ($M = 30.49\%$, $SD = 17.16\%$), $t(169) = 5.84$, $p < .001$, Cohen's $d = 0.448$ (see Davidai & Gilovich, 2015b for a detailed analysis of this finding). In contrast to this prior work, participants accurately estimated the actual likelihood of a person born into a family in the poorest 20% of the population ending up in one of the top three quintiles as an adult (perceived: $M = 31.05\%$, $SD = 22.73\%$; actual: 30% (The Pew Charitable Trusts, 2012)), $t(170) = 0.60$, $p = .547$, Cohen's $d = 0.046$.

Relations between SES and mobility beliefs.

In contrast to prior work (Kraus & Keltner, 2013), higher subjective SES participants (i.e., those who believed that they stood nearer to the top of socioeconomic ladder, in terms of their income, education, and job status; Adler, Epel, Castellazzo, & Ickovics, 2000) reported stronger beliefs about general mobility, $r(168) = 0.250$, $p = .001$, upward mobility, $r(168) = 0.192$, $p = .012$, and downward mobility, $r(169) = 0.194$, $p = .011$. Americans' mobility beliefs were not significantly correlated with their level of educational attainment (in line with Kraus and Keltner's (2013) findings) or income (in contrast to Davidai and Gilovich's (2015a) findings), $|r|s \leq 0.109$, $ps \geq .158$.

SES and political ideology as moderators of the relationship between perceived inequality and mobility beliefs. Finally, we examined whether the relations between perceived inequality and mobility beliefs were moderated by participants' SES or political ideologies. We therefore conducted a number of independent regression analyses, each with one the five mobility belief measures (perceptions of general, overall upward, top-bound upward, non-top-bound upward, and downward mobility) as the dependent variable. In each regression, the independent variables were one of the four

measures of perceived inequality (perceived Gini coefficients, top-bottom inequality, top-middle inequality, and middle-bottom inequality), one of the four moderator variables (participants' income, subjective SES, educational attainment level, and political ideology (e.g., "I endorse many aspects of [liberal/conservative] political ideology"; Eastwick, Richeson, Son, & Finkel, 2009)), and their interaction. The only variable that emerged as a significant moderator of our results of interest was participants' subjective SES.

Specifically, simple slopes analyses revealed that among those with weaker ($-1 SD$) perceptions of inequality (across all four inequality measures), participants higher ($+1 SD$) in subjective SES believed that downward mobility was significantly or marginally more likely than did those lower ($-1 SD$) in subjective SES, $ts = 1.719 - 3.973$, $ps = .023 - < .001$. In addition, among those with weaker ($-1 SD$) perceptions of middle-bottom inequality, participants higher ($+1 SD$) in subjective SES also believed that general mobility was significantly more likely than did those lower ($-1 SD$) in subjective SES, $t = 4.315$, $p < .001$. When upward mobility was broken up into its top-bound and non-top-bound components, among those with stronger ($+1 SD$) perceptions of general, top-bottom, or top-middle inequality or weaker ($-1 SD$) perceptions of middle-bottom inequality, participants higher ($+1 SD$) in subjective SES believed that non-top-bound upward mobility was significantly more likely than did those lower ($-1 SD$) in subjective SES, $ts = 2.386 - 2.641$, $ps = 0.018 - 0.009$. In addition, among those with weaker ($-1 SD$) perceptions of top-middle inequality, participants higher ($+1 SD$) in subjective SES also believed that top-bound upward mobility was marginally more likely than did those lower ($-1 SD$) in subjective SES, $t = 1.770$, $p = 0.079$.

Studies 2a and 2b

Manipulation materials. The graphs used in the low, mid-level, and extreme inequality conditions (left, middle, and right, respectively; adapted from Côté et al. (2015)) appear in Figure S1.

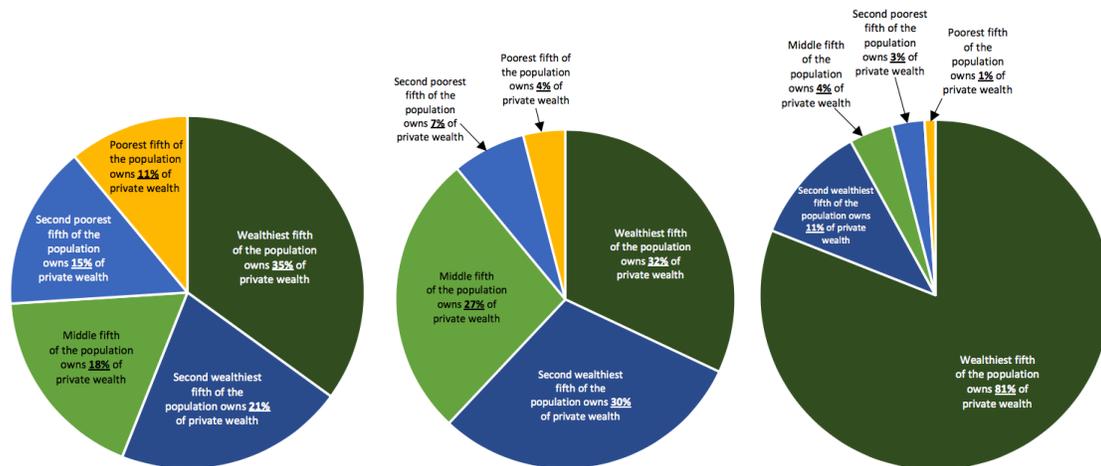


Figure S1. Graphs used in the low, mid-level, and extreme inequality conditions.

Study 2a analyses with the control condition. As discussed in the main text, Studies 2a and 2b both included a control condition in which participants were not presented with a pie chart (e.g., Davidai, 2018), with the aim of providing an “inequality not salient” group against which to compare our focal conditions in which different levels of inequality were made salient. Unexpectedly, however, analyses of the manipulation check (“How equally distributed is [state]’s private wealth in your opinion?”; 1 = “unequally distributed”, 7 = “equally distributed”) revealed that participants in the control condition rated their states as significantly *less* equal than those in the low inequality condition, $p = .006$, Cohen’s $d = 0.510$. In other words, despite not being exposed to inequality in the context of the studies, the control condition did not provide “inequality not salient” group against which our focal conditions could be meaningfully compared.

When the control condition ($N = 76$) was included in our primary analyses, we found that control condition participants had marginally stronger general and upward mobility beliefs than low inequality condition participants, and significantly stronger general, overall upward, top-bound, non-top-bound, and downward mobility beliefs than those in the extreme inequality condition (see Table S2). The finding that control condition participants had stronger mobility beliefs than low inequality condition participants seems at odds with the result of the manipulation check—which suggests that control condition

participants saw their society as more unequal than low inequality condition participants. However, when we examined the cross-condition correlations between perceived inequality (the manipulation check) and perceived mobility, we found that across conditions, the more equal their state's wealth distribution was perceived to be, the stronger participants' perceptions of total mobility, $r(190) = 0.473$ [0.355, 0.576], $p < .001$, overall upward mobility, $r(190) = 0.406$ [0.281, 0.518], $p < .001$, top-bound upward mobility, $r(190) = 0.287$ [0.152, 0.412], $p < .001$, non-top-bound upward mobility, $r(190) = 0.331$ [0.198, 0.451], $p < .001$, and downward mobility, $r(190) = 0.399$ [0.272, 0.511], $p < .001$. This provides further support for the hypothesized relation between participants' perceptions of economic inequality and their perceptions of socioeconomic mobility.

Table S3

Descriptive statistics (means and standard deviations [in brackets]) and statistical tests comparing between-condition estimations of the percentage of the American population they believed would experience mobility in general, upward mobility, and downward mobility in Study 2a.

	General mobility	Upward mobility (overall)	Downward mobility	Upward mobility (non-top-bound)	Upward mobility (top-bound)
(1) Extreme inequality condition	45.47% (20.38%)	38.14% (17.36%)	30.07% (16.75%)	31.53% (13.11%)	6.61% (7.60%)
(2) Low inequality condition	51.17% (17.09%)	42.07% (14.94%)	34.69% (15.37%)	33.73% (10.24%)	8.34% (8.08%)
(3) Control condition	58.27% (17.86%)	47.88% (16.84%)	39.53% (16.70%)	37.11% (12.47%)	10.77% (11.92%)
One-way ANOVA	$F(2, 189) = 7.70, p = .001$	$F(2, 189) = 5.69, p = .004$	$F(2, 189) = 5.24, p = .006$	$F(2, 189) = 3.52, p = .032$	$F(2, 189) = 2.95, p = .055$
Tukey's HSD: (1) vs. (2)	$p = .222, \text{Cohen's } d = 0.306$	$p = .406, \text{Cohen's } d = 0.245$	$p = .284, \text{Cohen's } d = 0.289$	$p = .588, \text{Cohen's } d = 0.190$	$p = .606, \text{Cohen's } d = 0.220$
Tukey's HSD: (1) vs. (3)	$p < .001, \text{Cohen's } d = 0.677$	$p = .003, \text{Cohen's } d = 0.571$	$p = .004, \text{Cohen's } d = 0.566$	$p = .029, \text{Cohen's } d = 0.438$	$p = .049, \text{Cohen's } d = 0.400$
Tukey's HSD: (2) vs. (3)	$p = .059, \text{Cohen's } d = 0.405$	$p = .092, \text{Cohen's } d = 0.363$	$p = .187, \text{Cohen's } d = 0.300$	$p = .218, \text{Cohen's } d = 0.294$	$p = .300, \text{Cohen's } d = 0.235$

Study 2b's pilot study and analyses with the control condition. Study 2b was conducted in May 2020, during the COVID-19 pandemic, which exacerbated economic inequality in the U.S. (e.g., North, 2020). We therefore ran a pilot study ($N = 136$) during the same month to determine the extent to which the coronavirus pandemic had influenced their baseline perceptions of inequality in America. Participants indicated their perceptions of economic inequality in the U.S. using the same measure as in Study 1, and we calculated the same inequality metrics (i.e., perceived Gini coefficient, perceived top-bottom inequality, perceived top-middle inequality, and perceived middle-bottom inequality).

Compared to participants in Study 1 (which took place in April 2018), participants in the pilot study reported much more extreme perceptions of inequality—that is, that a small minority of the population held a far greater proportion of the state's wealth than all of the other groups. Specifically, while their perceptions of perceived middle-bottom inequality did not differ statistically (Study 1: $M = 5.20\%$, $SD = 4.56\%$; pilot study: $M = 5.44\%$, $SD = 4.72\%$), $t(285.00) = 0.45$, $p = .652$, Cohen's $d = 0.052$, participants in the pilot study had significantly higher scores for perceived Gini coefficients ($M = 0.59\%$, $SD = 0.15\%$), $t(295.34) = 3.33$, $p = .001$, Cohen's $d = 0.365$, perceived top-bottom inequality ($M = 68.46\%$, $SD = 20.25\%$), $t(302.96) = 2.98$, $p = .003$, Cohen's $d = 0.330$, and perceived top-middle inequality ($M = 63.02\%$, $SD = 22.93\%$) $t(304.91) = 2.70$, $p = .007$, Cohen's $d = 0.303$, than those in Study 1 (perceived Gini coefficients: $M = 0.52\%$, $SD = 0.22\%$; perceived top-bottom inequality: $M = 60.31\%$, $SD = 27.70\%$; perceived top-middle inequality: $M = 55.12\%$, $SD = 28.35\%$). However, participants' perceptions of inequality were statistically unrelated to their self-reported changes in income and subjective SES as a result of the coronavirus pandemic, $0.035 \leq rs \leq 0.141$, $.685 \geq ps \geq .101$. Taken together, these results suggests that while the economic impacts of the coronavirus pandemic may not have influenced participants' perceptions of inequality in the U.S. at the time Study 2b was run, Americans' baseline perceptions of inequality in their country had increased considerably in the time between when Studies 1-2a and Study 2b were run. This

explains why participants in Study 2b's control condition saw their states as significantly more unequal than those in Study 2a's control condition, and were as likely as those in both the mid-level and extreme inequality conditions to agree that "some segments of [state]'s population have substantially more wealth than others" (see Footnote 2 in the main text). In other words, despite *not* being exposed to inequality in the context of the study, participants in Study 2b's control condition perceived their society to be highly unequal. By contrast, participants in the extreme inequality condition (Study 2: $M = 1.82$, $SD = 1.23$; Study 2b: $M = 2.02$, $SD = 1.53$) and the low inequality condition (Study 2: $M = 3.72$, $SD = 1.36$; Study 2b: $M = 3.46$, $SD = 1.58$) saw their societies as similarly unequal in both Studies 2a and 2b, $ts \leq 1.15$, $ps \geq .252$. In other words, as in Study 2a, the control condition did not provide a "inequality not salient" group, or even "similar inequality salient in both studies" groups against which our focal conditions could be meaningfully compared.

It is perhaps unsurprising, then, that when the control condition was included in our primary analyses ($N = 116$), these participants reported perceptions of general mobility ($M = 51.31\%$, $SD = 18.25\%$), overall upward mobility ($M = 41.27\%$, $SD = 14.88\%$), non-top-bound upward mobility ($M = 33.71\%$, $SD = 11.26\%$), and downward mobility ($M = 35.69\%$, $SD = 17.39\%$) that fell between those of participants in the low and mid-level inequality conditions (see Table 2 in the main text for other means and standard deviations), though none of these differed significantly from those of participants in any other condition, $ps \geq .251$, Cohen's $ds \leq 0.250$. However, similar to the results reported in the main text, with the control condition participants included in the analysis, participants in the extreme inequality condition reported weaker perceptions of general mobility, $p = .026$, Cohen's $d = 0.390$, downward mobility, $p = .086$, Cohen's $d = 0.324$, overall upward mobility, $p = .112$, Cohen's $d = 0.295$, top-bound upward mobility, $p = .438$, Cohen's $d = 0.175$, and non-top-bound upward mobility, $p = .193$, Cohen's $d = 0.276$, than those in the low inequality condition, though the latter three did not reach significance. In addition,

replicating the additional analyses conducted in Study 2a, we examined the cross-condition correlations between perceived inequality (the manipulation check) and perceived mobility. Again, we found that across conditions, the more equal their state's wealth distribution was perceived to be, the stronger participants' perceptions of total mobility, $r(445) = 0.374$ [0.291, 0.451], $p < .001$, overall upward mobility, $r(445) = 0.317$ [0.231, 0.398], $p < .001$, top-bound upward mobility, $r(445) = 0.248$ [0.159, 0.333], $p < .001$, non-top-bound upward mobility, $r(445) = 0.249$ [0.160, 0.334], $p < .001$, and downward mobility, $r(445) = 0.297$ [0.210, 0.379], $p < .001$. This provides further support for the relation between participants' perceptions of economic inequality and their perceptions of socioeconomic mobility.

SES and political ideology as moderators of the relationship between perceived inequality and mobility beliefs in Studies 2a and 2b (analyses conducted without the control condition). As in Study 1, we examined whether the relations between perceived inequality (i.e., condition) and mobility beliefs were moderated by participants' SES or political ideologies in Studies 2a and 2b. We therefore conducted a number of independent regression analyses, each with one of the five mobility belief measures (perceptions of general, overall upward, top-bound upward, non-top-bound upward, and downward mobility) as the dependent variable. In each regression, the independent variables were condition, one of the four moderator variables (participants' income, subjective SES, educational attainment level, and political ideology), and their interaction.

In contrast to Study 1, no significant interactions emerged in Study 2a, $t_s = 0.024 - 1.255$, $p = 0.981 - 0.212$. In Study 2b, a different moderator emerged as significant: participants' income. In addition, simple slopes analyses revealed a different pattern of results than that noted in Study 1: among those in both the low and extreme inequality conditions, lower-income participants ($-1 SD$) reported significantly or moderately stronger general and downward mobility beliefs than higher-income participants ($+1 SD$), $t_s = 1.733 - 2.662$, $p_s = .084 - .008$. No other significant or marginal results emerged.

To summarize, the present studies do not provide clear insights regarding the

moderating role of SES on the relations between perceived inequality and mobility beliefs. However, the present studies were not designed to test these interactions, and these supplementary tests were therefore underpowered. Future research should therefore seek to directly address this question, using samples with sufficient power and socioeconomic diversity to do so.

Data Analytic Software

All statistical analyses described in this work were conducted using R (Version 3.6.3; R Core Team, 2020) and the R-packages *apaTables* (Version 2.0.5; Stanley, 2018), *car* (Version 3.0.10; Fox & Weisberg, 2019; Fox et al., 2020b; Yentes & Wilhelm, 2018), *carData* (Version 3.0.4; Fox et al., 2020b), *careless* (Version 1.1.3; Yentes & Wilhelm, 2018), *citr* (Version 0.3.2; Aust, 2019), *data.table* (Version 1.13.2; Dowle & Srinivasan, 2020), *emmeans* (Version 1.5.2.1; Lenth, 2020), *english* (Version 1.2.5; Fox et al., 2020a), *ggplot2* (Version 3.3.2; Wickham, 2016), *ineq* (Version 0.2.13; Zeileis, 2014), *lsr* (Version 0.5; Navarro, 2015), *papaja* (Version 0.1.0.9997; Aust & Barth, 2020), *plyr* (Version 1.8.6; Wickham, 2011), *psych* (Version 2.0.9; Revelle, 2020), *pwr* (Version 1.3.0; Champely, 2020), and *tidyr* (Version 1.1.2; Wickham, 2020).

Additional Measures in Study 1 (S1), Study 2a (S2a), Study 2b's Pilot Study (S2bp), Study 2b (S2b) Not Discussed in the Main Text or Supplementary Materials

- Coarse beliefs about socioeconomic mobility^{S1,S2a} (e.g., “People can do things differently, but their status in society can’t really be changed”; Browman et al., 2017)
- Exposure to economic inequality in daily life^{S1}
- Perceived excessiveness of economic inequality^{S1}
- Support for economic inequality^{S2a} (Wiwad et al., 2019)
- Perceived fairness of their state’s economic distribution^{S2b}
- Current^{S1,S2a,S2bp,S2b} and childhood^{S1,S2a,S2b} places of residence

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