Higher Economic Inequality Intensifies the Poor's Financial Hardship by Fraying the Community Buffer

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Abstract

The current research investigates whether higher economic inequality disproportionately intensifies the financial hardship of low-income individuals. We propose that higher economic inequality increases financial hardship for low-income individuals by reducing their ability to rely on their community as a buffer against financial difficulties. This may occur—in part—because a frayed community buffer reduces low-income individuals' propensity to seek informal financial support from others. We provide empirical support across eight studies ($N = 1,029,900$) from the U.S., Australia, and rural Uganda, through correlational and experimental data, and an instrumental variable analysis. On average across our studies, a one *SD* increase in economic inequality is associated with an increase of financial hardship amongst low-income individuals of .10 *SDs*. We discuss the implications of these results for policy aimed to help the poor buffer against the adverse effects higher economic inequality imposes on them.

Keywords: economic inequality, poverty, financial hardship, community support

Economic inequality is at high levels around the world. In the United States—the most unequal of all Western nations—the top 20% of households own 84% of the wealth, while the bottom 40% own just 0.3%¹. While in some countries, particularly in Latin America², economic inequality is stagnating or declining, in others, such as the U.S., the growth of economic inequality is accelerating: the share of U.S. wealth concentrated among the top 1% is at a 65-year high, while the combined wealth of the bottom 90% is at a 65-year low³.

Prior research finds inconsistent effects on the outcomes of higher economic inequality. While initial studies found a negative effect of economic inequality on subjective well-being^{4–6}, subsequent work did not corroborate these results^{7–9}, with a recent meta-analysis finding no statistically significant relationship between economic inequality and subjective well-being¹⁰. Similarly, while initial studies found that higher economic inequality is associated with worse health outcomes^{11,12}, subsequent research has not found consistent support^{13,14}. We here focus on the relationship between economic inequality and financial hardship, given the latter's key influence in predicting well-being, health, and other important outcomes^{15,16}. Based on extant research, it is unclear for whom and how economic inequality may have adverse outcomes.

In the current research, we propose that economic inequality has a particularly detrimental effect on the financial hardship of low-income individuals, rather than an effect that is equal among all income groups. That is, we predict that the relationship between economic inequality and financial hardship is moderated by income, such that only individuals with less financial resources experience greater financial hardship at higher levels of economic inequality. In the studies we describe below, we contrast the effects of economic inequality for individuals at lower levels of income with those at median and higher incomes, and propose that the detrimental effect of economic inequality on financial hardship is

specific to low-income individuals but does not arise for individuals with greater financial resources.

We suggest that this effect occurs because individuals are less able to depend on their community for support at higher levels of economic inequality. Indeed, several prior studies combine to suggest that individuals in communities where economic inequality is higher may rely on community members less^{17–20}. This is particularly detrimental for low-income individuals who may depend on their community as a buffer in times of financial difficulty^{21–23}. That is, we propose that because community buffers are weakened by higher economic inequality, low-income individuals facing financial difficulties are less able to depend on their community as a buffer in times of financial difficulty, in turn intensifying their financial hardship. Figure 1 illustrates our theoretical model.

Insert Figure 1 about here

A two-pronged empirical approach provides support for our theory. We first establish empirical support for the detrimental effect of higher economic inequality on the financial hardship of low-income individuals (Studies 1-4). In these studies, we measured or manipulated economic inequality in correlational and experimental studies; in addition, in one study—Study 3—we made use of a natural instrument for economic inequality. We find the same pattern of results regardless of the type or source of data and after the inclusion of relevant control variables: higher economic inequality increases low-income individuals' financial hardship. The second set of studies provide support for a mechanism that explains why higher economic inequality intensifies the financial hardship of the poor (Studies 5-7, and Study S1). Drawing on correlational and experimental data using online samples, representative U.S. panels, and a field study conducted in rural Uganda, we show that greater

economic inequality erodes the community buffer, and that the lack of this buffer—which low-income individuals may rely on—in turn intensifies their financial difficulties.

Our strategy of combining various methods and analyses—correlational data, instrumental variable analysis, lab experiments, and field studies—is deliberate. While each approach has its strengths and weaknesses, they complement each other. The correlational studies help expose the underlying mechanisms but cannot rule out reverse causality; the instrumental variable analysis and experimental studies provide causal evidence, but the former may lack precision and the latter external validity; and the field data provide external validity, but potentially lack internal rigor. We note that while this strategy has inherent strengths, it also poses a challenge of comparability across studies as the samples and methods vary across studies. Table 1 provides an overview of studies (for data and code to reproduce our results, please see: <https://osf.io/a3qy8/>).

Insert Table 1 about here

Given our interest in delineating whether economic inequality disproportionately affects the financial hardship of the poor, we illustrate the effects of economic inequality on financial hardship at low income (specified as 0.5 *SD* below the income median), which we test against the effects at median income and high income (specified as 0.5 *SD* above the income median). We conduct these analyses for all of our studies with the exception of Study 6 which was conducted with participants from rural Uganda whom we consider as low income. We note that all results presented below and in the SI Appendix are based on standardized independent and dependent variables to enable comparisons between studies, whereas the Figures 2, 3, and S4 show the results with non-standardized output to facilitate comprehension of each individual study. That is, we report standardized beta coefficients

throughout our studies which have standard deviations as their units and thus enable an understanding of effect sizes across our studies.

Results

Higher Economic Inequality Intensifies the Financial Hardship of the Poor

We first report the results of four studies which show that higher economic inequality has a particularly detrimental effect on the poor's financial hardship. Across these studies, we measure economic inequality and income as predictor variables, including through an instrumental variable analysis and through experimental manipulation. The SI Appendix provides full information about the observed main effects of economic inequality and income on financial hardship for each study. Below, we only focus on the interaction between the two, which is the crux of our thesis.

Study 1: Individual level U.S. dataset. The Behavioral Risk Factor Surveillance System (BRFSS) survey provides data on income, self-reported financial hardship, and control variables for 109,241 individuals in the US. This dataset also records the U.S. counties the survey respondents reside in, allowing us to match each individual to economic inequality data in their county obtained from the U.S. Census Bureau.

We regressed the interaction between economic inequality and income on financial hardship, specifying county as a random intercept, and found a statistically significant interaction effect ($b = -.030$, $SE = .003$, $CI_{95\%} = [-.036; -.025]$, $p < .001$). Subsequent simple slopes analysis showed that the relationship between economic inequality and financial hardship was statistically significant at the low-income level ($b = .031$, $SE = .010$, $CI_{95\%} = [.011, .051]$, $p = .002$), but not at the median-income ($b = .016$, $SE = .010$, $CI_{95\%} = [-.036; .180]$, $p = .103$) nor at the high-income level ($b = .0005$, $SE = .010$, $CI_{95\%} = [-.020; .020]$, $p = .959$; see Figure 2). We next re-ran the analysis including age, gender, unemployment, education, marital status, number of individuals in the household as well as

county level median income, unemployment, education and percent of people living under the poverty line as control variables. Similar to our previous results, this analysis yielded a statistically significant interaction effect ($b = -.018$, $SE = .003$, $CI_{95\%} = [-.024; -.013]$, $p < .001$). A simple slopes analysis revealed that the effect of economic inequality on financial hardship was again statistically significant at the low-income level ($b = .028$, $SE = .013$, $CI_{95\%} = [.054; .004]$, $p = .026$) but was not statistically significant at the median ($b = .019$, $SE = .012$, $CI_{95\%} = [.044; -.004]$, $p = .126$) nor high-income level ($b = -.010$, $SE = .012$, $CI_{95\%} = [.035; -.013]$, $p = .427$). These findings provide tentative support for our notion that higher economic inequality is associated with higher levels of financial hardship, but only for low-income individuals. We next explored whether this detrimental effect of economic inequality for low-income individuals held both for actual and perceived economic inequality.

Insert Figure 2 about here

Study 2: Similar Effects for Perceived and Actual Economic Inequality. To test whether our effects remained similar for both actual and perceived economic inequality, we collected data from 1,127 participants recruited through Amazon's Mechanical Turk, an online labor market, who provided information on their perceived economic inequality, income, and financial hardship. Following prior research, we assessed perceived economic inequality by asking participants to estimate the average income for each quintile in their ZIP code, and then divided the top by the bottom quintile ^{24,25}. In addition, we asked participants for their home location, and matched data on actual economic inequality from the U.S. Census Bureau.

We first tested the effects of actual economic inequality. Similar to Study 1, we regressed the interaction between actual economic inequality and income on financial

hardship, specifying county as a random intercept, and found a marginally significant interaction effect ($b = -.049$, $SE = .028$, $CI_{95\%} = [-.104; .006]$, $p = .080$). We subsequently tested the effects of actual economic inequality on financial hardship at varying income levels. Crucially, subsequent simple slopes analyses revealed that the relationship between actual economic inequality and financial hardship was statistically significant and positive at the low-income level ($b = .103$, $SE = .035$, $CI_{95\%} = [.034; .172]$, $p = .004$), was statistically significant but weaker at median levels of income ($b = .079$, $SE = .030$, $CI_{95\%} = [.020; .138]$, $p = .008$), and was marginally significant at the high-income level ($b = .054$, $SE = .032$, $CI_{95\%} = [-.009; .116]$, $p = .089$). After controlling for age, gender, and education as well as county level median income, unemployment, education and percent of people living in poverty, the interaction effect of actual economic inequality and income on financial hardship was qualitatively similar ($b = -.052$, $SE = .027$, $CI_{95\%} = [-.106; .001]$, $p = .059$). A simple slopes analysis showed that the relationship between actual economic inequality and financial hardship was statistically significant and positive at low levels of income ($b = .104$, $SE = .037$, $CI_{95\%} = [.176; .031]$, $p = .005$), statistically significant and weaker at median levels of income ($b = .078$, $SE = .032$, $CI_{95\%} = [.141; .015]$, $p = .014$), and not statistically significant at high levels of income ($b = .051$, $SE = .034$, $CI_{95\%} = [.118; -.015]$, $p = .129$). This pattern of results thus replicates our findings in Study 1. (We note that in this study, the results are also statistically significant at median levels of income, an effect that throughout our studies is not as consistent as the effects of economic inequality at low-income levels. We provide further discussion of the more varied results at median-income levels in the General Discussion.)

Next, we explored whether the pattern of results was similar for perceived economic inequality. To do so, we regressed the interaction between perceived economic inequality and income on financial hardship, specifying county as a random intercept, and found a marginally significant interaction effect ($b = -.048$, $SE = .028$, $CI_{95\%} = [-.104; .008]$, p

= .091). We similarly tested the effects of perceived economic inequality on financial hardship at varying income levels. Similar to before, simple slopes analyses reveal that the relationship between perceived economic inequality and financial hardship was statistically significant and positive at the low-income level ($b = .090$, $SE = .034$, $CI_{95\%} = [.023; .157]$, $p = .007$), was statistically significant but weaker at median levels of income ($b = .066$, $SE = .029$, $CI_{95\%} = [.009; .123]$, $p = .024$), and was not statistically significant at the high-income level ($b = .042$, $SE = .032$, $CI_{95\%} = [-.059; .105]$, $p = .185$). After controlling for age, gender, and education as well as county level median income, unemployment, education and percent of people living in poverty, the interaction effect of perceived economic inequality and income on financial hardship was not statistically significant ($b = -.041$, $SE = .028$, $CI_{95\%} = [-.097; .014]$, $p = .146$). Crucially, the results of the simple slope analysis with control variables revealed that the relationship between perceived economic inequality and financial hardship was statistically significant and positive at low levels of income ($b = .072$, $SE = .034$, $CI_{95\%} = [.138; .005]$, $p = .035$), marginally significant and weaker at median levels of income ($b = .051$, $SE = .030$, $CI_{95\%} = [.110; -.008]$, $p = .086$), and not statistically significant at high levels of income ($b = .030$, $SE = .032$, $CI_{95\%} = [.093; -.003]$, $p = .348$).

The results from Study 2 thus reveal that across both actual and perceived economic inequality, individuals at the lower end of the income spectrum experience greater financial hardship at higher levels of economic inequality. While extending our findings from actual to perceived economic inequality, these results do not provide evidence of a causal direction, which is the aim of the next two studies.

Study 3: Instrumental Variable Analysis in Australian Panel Data. To provide evidence for a causal effect of economic inequality on the financial hardship of low-income individuals, we next conducted an instrumental variable analysis. This technique can control for potential endogeneity in observational studies, such as from omitted variables, allowing

researchers to draw causal inferences from observational data ²⁶. For example, omitted variables that affect certain sections of the labor market could simultaneously affect both economic inequality and financial hardship.

Our instrumental variable analysis utilized data from the Household, Income and Labour Dynamics in Australia Survey (HILDA), a household-based panel study that collects information about well-being, labor market dynamics, and family life in Australia over 17 waves from 2001-2017 ($N_{\text{observations}} = 341,170$). To measure the level of financial hardship experienced by the respondents, we took the standardized inverse of the answers given to the question “How satisfied are you with your financial situation?” with response options varying from 0 (“Totally dissatisfied”) to 10 (“Totally satisfied”), such that higher responses were associated with greater financial hardship in line with our prior studies. We calculated economic inequality as the (standardized) Gini coefficients based on the income distribution of participants in areas categorized by the Australian Statistical Geography Standard (ASGS) Statistical Area Level 4, the largest sub-state regions in the categorization. Econometric tests of exogeneity on our data strongly support an instrumental variable analysis. Specifically, Davidson-Mackinnon tests of exogeneity (see ref. ²⁷), which test whether an OLS estimator of the model would produce consistent estimates, strongly reject the exogeneity of both economic inequality and its interaction with income when tested individually as well as jointly ($p < .001$ for both tests; see SI Appendix for details).

As an instrument for economic inequality, following prior research ²⁸, we made use of the “Temporary Budget Repair Levy” (TBRL), a tax introduced by the Australian Government from 2014-2017 that increased the tax rate of high-income taxpayers (i.e., those with yearly incomes above A\$180,000) by 2%. The explicit purpose of the tax was to reduce the Australian fiscal budget deficit. A useful feature of this instrument is that we can mechanically ensure that the TBRL does not directly affect financial hardship (i.e., that our

instrument only affects the dependent variable through our explanatory variable, the “exclusion criterion”) by restricting our analysis to individuals below the tax threshold. Furthermore, the first-stage analysis suggests that the TBRL is a strong (or “relevant”) instrument both for economic inequality ($b = .773$, $SE = .043$, $CI_{95\%} = .689, .856$], $p < .001$) and for the interaction between economic inequality and income ($b = .039$, $SE = .011$, $CI_{95\%} = [.017, .061]$, $p < .001$). To test the assumption that our instrument is uncorrelated with the error terms in the main explanatory equation—for example, that the implementation of the tax did not coincide with changes to other macro-level factors that affected economic inequality—we included macroeconomic indicators as controls in our panel instrumental variable specifications. We also re-ran our analyses after splitting the sample by income classes. In all of our robustness checks, the results were statistically significant and consistent (see SI Appendix for detailed analysis, and for additional discussion about the validity of this measure as an instrument for economic inequality).

The results of the random-effects panel IV estimation including relevant control variables reveal that higher economic inequality intensified the financial hardship of low-income individuals, i.e., the interaction between economic inequality and income on financial hardship is statistically significant ($b = -.477$, $SE = .135$, $CI_{95\%} = [-.742, -.212]$, $\chi^2 = 12.44$, $p < .001$). Subsequent post-hoc IV estimation analysis highlighted that for low-income individuals, economic inequality increases financial hardship ($b = .077$, $SE = .025$, $CI_{95\%} = [.029, .125]$, $\chi^2 = 9.76$, $p = .002$), a relationship that was not statistically significant at the median- ($b = -.018$, $SE = .028$, $CI_{95\%} = [-.072, .037]$, $\chi^2 = .40$, $p = .53$) or high-income level ($b = -.024$, $SE = .031$, $CI_{95\%} = [-.086, .037]$, $\chi^2 = .60$, $p = .44$). This pattern of results was robust to variations in the parameters used in pruning income, to the inclusion of macroeconomic control variables, and when high-income earners subject to the TBRL were also included in the sample (see SI Appendix for the results of these analyses). In sum, the instrumental

variable analysis in Study 3 provides tentative causal evidence for the notion that higher economic inequality increases financial hardship for the poor. To provide further causal evidence, we next conducted an experimental lab study.

Study 4: Experimental Study. We designed an experimental study which aimed to provide further evidence for the causal relationship between economic inequality and financial hardship for low-income individuals in a more tightly controlled setting. Analogous to prior studies that presented participants with varying information about the level of economic inequality^{29–31}, our aim in this study was to test how people think about their financial situation when placed in the mindset of either low versus high levels of economic inequality. While placing individuals in these varying mindsets may not have long-term effects on how they think about their financial situation, analogous experiments that for example place participants in a mindset of financial scarcity have been shown to produce similar outcomes as facing actual financial scarcity^{32–34}.

We recruited 2,509 participants from Amazon's Mechanical Turk online labor market who were informed that we had collected data on economic inequality for each U.S. ZIP code. Next, participants were shown two pieces of information: the average level of economic inequality in the U.S. (the richest 10% earn 15.9 times more than the poorest 10%), and a description and visual representation of the level of economic inequality in their ZIP code (for a similar methodology, see ref.³¹).

We subsequently randomly allocated participants to one of two conditions (see SI Appendix for further details, and Figures S1 and S2 for visual depictions of the experimental materials). Participants in the *low economic inequality* condition were told that their ZIP code was in the 11th percentile of economic inequality, such that the richest 10% only earn 4.5 times more than the poorest 10%. In contrast, participants in the *high economic inequality* condition were told that their ZIP code was in the 89th percentile, such that the richest 10%

earn 60.4 times more than the poorest 10%. Next, we asked participants to recall three personal experiences where “they had the feeling that the level of inequality in their ZIP code area was very low [high].” We then asked participants to respond to three items that measured financial hardship (e.g., “My financial situation is pressing”; $\alpha = .96$). Finally, we asked participants to report their income and asked them whether they were suspicious of the information about economic inequality provided. In the main analyses, we exclude participants who indicated they were suspicious^{35,36}, but the pattern of results remains the same when we include those participants (see SI Appendix). In addition, we find no statistically significant difference in the number of suspicious participants between the two conditions ($X^2(1) = .296, p = .586$).

We regressed financial hardship on the economic inequality condition and income, and found a statistically significant interaction effect ($b = -.165, SE = .045, CI_{95\%} = [-.253; -.077], p < .001$). A simple slopes analysis revealed that the relationship between the economic inequality condition and financial hardship was statistically significant and positive at the low-income level ($b = .223, SE = .051, CI_{95\%} = [.123; .323], p < .001$), was weaker but still statistically significant at the median-income level ($b = .143, SE = .044, CI_{95\%} = [.057; .228], p = .001$), and was not statistically significant at the high-income level ($b = .062, SE = .047, CI_{95\%} = [-.029; .154], p = .183$; see Figure 3). That is, being randomly assigned to the *high economic inequality* condition was associated with greater financial hardship but only for individuals toward the lower end of the income spectrum. (Indeed, and as reported in the SI Appendix, when including suspicious participants, the results were no longer statistically significant at the median-income level but remained statistically significant at the low-income level).

Insert Figure 3 about here

Taken together, Studies 1-4 provide empirical support for the prediction that greater economic inequality increases the poor's financial hardship. This pattern of results is consistent across different datasets and countries, for both perceived and actual economic inequality, and includes support for the causal direction of the effect through an instrumental variable analysis and a lab experiment. However, the findings do not shed light on a mechanism underlying economic inequality's detrimental effect on low-income individuals, which we turn to next.

Economic Inequality Erodes the Poor's Buffer against Financial Hardship

Four studies examined whether greater economic inequality reduces the community buffer—whether individuals can rely on community members for support when encountering financial difficulties—and if a reduced community buffer subsequently exacerbates the financial difficulties experienced by low-income individuals (see SI Appendix for more detail on each study). We begin with Study 5, which investigates whether higher economic inequality is associated with a reduced community buffer, and whether this in turn intensifies the financial hardship of the poor.

Study 5: Nationally Representative Survey in the US. A nationally representative sample of 1,212 U.S. participants recruited via a Qualtrics.com panel provided information on their perceived economic inequality, community buffer, income, and financial hardship. Similar to Study 2, we assessed perceived economic inequality by asking participants to estimate the average income for each quintile in their ZIP code, and then divided the top by the bottom quintile^{24,25}. We measured the community buffer using a three-item scale (e.g., “When I run into financial difficulties, I can rely on others to support me”; $\alpha = .95$), and financial hardship using the same three-item scale as in Study 2 and Study 4 ($\alpha = .95$).

Analogous to our earlier studies, we regressed financial hardship on the interaction between perceived economic inequality and income, and found a statistically significant interaction effect ($b = -.083$, $SE = .029$, $CI_{95\%} = [-.140; -.026]$, $p = .004$). A simple slopes analysis revealed that the relationship between perceived economic inequality and financial hardship was statistically significant and positive at the low-income level ($b = .084$, $SE = .034$, $CI_{95\%} = [.018; .150]$, $p = .012$), but was not statistically significant at the median income level ($b = .043$, $SE = .028$, $CI_{95\%} = [-.012; .097]$, $p = .124$) or at the high-income level ($b = .001$, $SE = .029$, $CI_{95\%} = [-.055; .058]$, $p = .968$). After controlling for age, gender, education, and unemployment, the interaction between perceived economic inequality and income on financial hardship remained statistically significant ($b = -.080$, $SE = .028$, $CI_{95\%} = [-.135; -.025]$, $p = .004$). A simple slopes analysis showed that the relationship between perceived economic inequality and financial hardship was statistically significant at the low-income level ($b = .107$, $SE = .033$, $CI_{95\%} = [.172; .042]$, $p = .001$), was statistically significant but weaker at the median-income level ($b = .067$, $SE = .027$, $CI_{95\%} = [.120; .014]$, $p = .013$), and was no longer statistically significant at the high-income level ($b = .027$, $SE = .028$, $CI_{95\%} = [.081; -.028]$, $p = .336$). These findings replicate our earlier results.

Next, we regressed the community buffer on perceived economic inequality and found a statistically significant relationship ($b = -.079$, $SE = .030$, $CI_{95\%} = [-.139; -.019]$, $p = .010$), such that higher perceived economic inequality is associated with a reduced community buffer. Finally, we tested whether for low-income individuals, the relationship between perceived economic inequality and financial hardship was mediated by the community buffer. We specified a moderated mediation with perceived economic inequality as the independent variable, community buffer as the mediator, financial hardship as the dependent variable, and income as the moderator between the community buffer and financial hardship (10,000 bootstrapped iterations).

We found that for low-income individuals, the path from perceived economic inequality to financial hardship via the community buffer was statistically significant and positive ($[\.006; .056]$), such that higher perceived economic inequality is associated with greater financial hardship through a lower community buffer. This mediation path was statistically significant and positive for individuals at median levels of income ($[\.003; .041]$), but was not statistically significant for individuals at higher levels of income ($[-.002; .032]$). These results thus provide tentative evidence for one underlying mechanism of the detrimental effect of higher economic inequality for those at the lower end of the income spectrum.

We replicated these findings in a large-scale U.S. survey, and with actual economic inequality, which we report in the SI Appendix as **Study S1** ($N = 572,248$), and next turn to a test of our hypotheses in a low-income context.

Study 6: Correlational Field Study in Rural Uganda. As part of a broader study, we recruited 2,393 participants (47% female) from 29 villages in rural Uganda in collaboration with an international NGO. All participants in this study had very low incomes; for instance, 83.74% of participants lived in housing that had no concrete floor. Enumerators verbally asked participants to respond to four items on a scale ranging from 1 (strongly disagree) to 7 (strongly agree). We measured perceived economic inequality with the item: “In my neighborhood, the difference between the poor and rich is very high”; community buffer with the two items, “I can rely on others in my community to support me” and “I can turn to others in my local area for help” ($\alpha = .79$); and financial hardship with the item, “I am in financial difficulty.”

Because all participants in this study are very poor, we directly regressed financial hardship on perceived economic inequality specifying village as a random intercept, and found a statistically significant relationship ($b = .132$, $SE = .020$, $CI_{95\%} = [.092; .172]$, p

< .001), such that higher perceived economic inequality is related to increased financial hardship. The same analysis including gender and the number of individuals in the respondent's household as control variables similarly yielded a statistically significant effect ($b = -.119$, $SE = .040$, $p = .003$).

Next, we regressed the community buffer on perceived economic inequality and found a statistically significant relationship ($b = -.057$, $SE = .021$, $CI_{95\%} = [-.096; -.017]$, $p = .006$), such that higher perceived economic inequality is related to a reduced community buffer. Finally, we tested whether a reduced community buffer mediates the relationship between higher perceived economic inequality and increased financial hardship and found a statistically significant indirect effect ($[.001, .005]$, 10,000 bootstrapped iterations).

In this field setting, we thus replicate our earlier findings, such that greater economic inequality is associated with higher financial hardship in part by decreasing the community buffer. Taken together, Studies 5, 6, and S1 provide correlational evidence for the underlying mechanism of higher economic inequality's detrimental effect on the financial hardship of low-income individuals. Study 7 sought to establish causal evidence for the role of the community buffer in underlying this effect.

Study 7: Extension of Prior Experimental Study. This study reports the results of analyses including an additional measurement conducted in Study 4. After the experimental manipulation, but before participants responded to the dependent variable (financial hardship), participants responded to the same three items assessing their community buffer as in Study 5 (e.g., "When I need money, I can rely on others") on a 7-point scale (1: *strongly disagree* to 7: *strongly agree*; $\alpha = .96$).

We first examined whether the economic inequality condition reduced the community buffer, and found that the community buffer is lower in the *high economic inequality* ($M = 2.29$, $SD = 1.45$) relative to the *low economic inequality* condition ($M = 2.97$, $SD = 1.64$; $b =$

$-.683$, $SE = .077$, $CI_{95\%} = [-.834, -.532]$, $t(1614) = 8.86$, $p < .001$). Next, we tested whether for low-income participants, the relationship between the experimental condition and financial hardship was mediated by the community buffer. We specified a moderated mediation, with the economic inequality condition as the independent variable, community buffer as the mediator, financial hardship as the dependent variable, and income as the moderator between the community buffer and financial hardship (10,000 bootstrapped iterations).

For low-income individuals, the mediation from the economic inequality condition to financial hardship via the community buffer was statistically significant ($[.116; .229]$). The indirect path for individuals at median levels of income ($[.088; .182]$), as well as higher income levels ($[.055; .140]$), was also statistically significant, but in both cases weaker than for low-income individuals. Taken together, Studies 5-7 and Study S1 provide support for the community buffer as one underlying mechanism of economic inequality's detrimental effect for low-income individuals.

Discussion

Across eight studies and with over a million individuals, we here provide evidence that higher economic inequality intensifies the financial hardship of the poor and identify the weakened community buffer as one underlying driver of this effect. In our first four studies, we establish empirical support for the detrimental effect of higher economic inequality on low-income individual's financial hardship. Notably, our results replicate for both perceived and actual economic inequality; in an instrumental variable analysis and an experimental study; and both in online studies and in the field. In four additional studies, we find support for a mechanism underlying this effect, i.e., that higher economic inequality weakens the community buffer, a key source of support for low-income individuals in times of financial hardship²³, in turn intensifying the poor's financial hardship.

Higher economic inequality may therefore contribute to a vicious, self-perpetuating cycle of increasing poverty for the poor: Feeling financially destitute may prompt low-income individuals to engage in detrimental behaviors which may worsen their actual financial situation. While the current research only captures self-reported financial hardship, prior research provides strong evidence for the link between this measure and objective metrics of financial hardship ^{33,37,38}. The poor, from this perspective, are unable to improve their lot not because of inherent traits, but because they are less able to rely on their community as a buffer against financial difficulties when faced with higher economic inequality (for further discussion of the “deficit model” of poverty, see also ref. ³⁹).

Across the studies presented here, economic inequality was consistently related to higher financial hardship for low-income individuals, and was not related to financial hardship for high-income individuals. The results at median levels of income are more inconsistent, with some of our studies finding a relationship between economic inequality and financial hardship (e.g., Studies 2 and S1) while others do not (e.g., Studies 1 and 3). As a result, while our studies combine to suggest that economic inequality has adverse effects for low- but not high-income individuals, they do not shed light on how economic inequality affects individuals at median income levels. We encourage future research to more closely disentangle when economic inequality has a negative effect on individuals at median income levels, which may depend on—for example—the availability of liquid assets and other kinds of wealth, as well as the access to financial markets ⁴⁰.

Additional data collected as part of Study 5 sheds further light on why the community buffer is important in reducing the poor’s financial hardship. Consider that individuals who experience financial hardship commonly worry about being stigmatized by others ⁴¹. As a result, they may refrain from seeking help, for fear of being shamed ⁴². Conversely, when individuals believe they can rely on other community members more—i.e., when they have a

stronger community buffer—they may be less worried about being stigmatized by others and, as a result, be more likely to seek them out for financial support ⁴³. To provide evidence for this notion, we additionally asked participants at the end of Study 5 to read the following scenario and respond to the subsequent question on a scale ranging from 1 (not likely at all) to 7 (extremely likely): “Imagine you are encountering financial difficulties, and you turn to members of your community for help in overcoming your immediate financial needs. How likely do you think it is that the people you turn to for help will make you feel ashamed for having financial difficulties?”. Analysis reveals that individuals who indicated having a stronger community buffer were less likely to believe others would make them feel ashamed when seeking out financial support ($r = -.156, p < .001$). This suggests that when the community buffer is stronger, individuals may be more likely to ask for help when encountering financial difficulties because they are less afraid of being stigmatized by others for doing so.

This additional finding highlights that one way a weakened community buffer may intensify the poor’s financial hardship at higher levels of economic inequality is by making it less likely low-income individuals seek help when encountering financial difficulties ⁴⁴. This perspective is aligned with recent research which finds that higher economic inequality is associated with increased perceptions of competitiveness ⁴⁵, which may increase status threat and thus make it less likely that individuals reveal a potentially lower status position ⁴⁶. Seeking help from others in one’s community, however, represents a crucial step in alleviating financial hardship ⁴⁷; indeed, taking on the burden of financial difficulties alone may be associated with additional psychological costs associated with keeping these a secret from others ⁴⁸. Future research could further investigate how a weakened community buffer relates to low-income individuals’ tendency to ask for help, and explore potential interventions to minimize the stigma associated with doing so ⁴⁹.

We also call attention to additional potential mechanisms that may underlie the detrimental effects of higher economic inequality on the financial hardship of low-income individuals. In the current manuscript, we highlight that a weakened community buffer reflects one mechanism through which our effects operate, but additional channels are likely. For example, based on prior research which finds that increased economic inequality is associated with perceptions of higher competitiveness⁴⁵, individuals may also be more likely to engage in wealth displays to denote their position in the status hierarchy (see also ref.⁵⁰). Indeed, more visible wealth disparities are associated with more detrimental downstream consequences^{51,52}. As a result, at higher levels of economic inequality, individuals may feel greater spending pressure, which may be particularly difficult to bear for those with lower incomes⁵³. We encourage future research to further explore these complementary explanations underlying the detrimental effect of higher economic inequality for low-income individuals, and in particular, how differences in the visibility of economic inequality may influence its perception and associated downstream consequences.

Across our studies, we find that a one *SD* increase in economic inequality is associated with an increase of financial hardship amongst low-income individuals of .10 *SDs* (effect sizes from Study 1 to Study 7, respectively: .031 *SD*; .103 *SD*; .077 *SD*; .223 *SD*; .084 *SD*; .132 *SD* and .024 *SD*). To put this effect size in context, we find that this effect is about 1/7th the size of the relationship between income and financial hardship; across our studies, a one *SD* increase in income is associated with a decrease in financial hardship of .67 *SDs* (excluding Study 6 which focused only on low-income participants). Based on this comparison and the *SD* of income in Study S1—which contained a large-scale US dataset with 572,248 respondents—the effect of a one *SD* increase in economic inequality on the financial hardship of low-income individuals is roughly equal to a decrease in income of about \$6,587.

Higher levels of economic inequality may also have real-world consequences for the poor beyond their financial situation ^{54,55}. For example, consider that one recent study found that truck drivers with higher financial difficulties were more likely to cause avoidable accidents, in part because of the reduced cognitive capacities imposed by their financial hardship ⁵⁶, implying that the effects of higher financial hardship may enter the workplace and reduce an individuals' ability to earn a living wage. This is particularly important given that an additional study we conducted (and reported as Study S2 in the SI Appendix) found that people largely underestimate the extent to which higher economic inequality intensifies the financial hardship of low-income individuals, a result that is aligned with research showing that individuals tend to misjudge the structural implications of inequality more broadly ^{57,58}.

Our findings have implications for theory and policy. First, our results indicate that higher economic inequality is particularly hard on those at the bottom at the income distribution. That is, a more vulnerable subset of the population—those facing financial scarcity—are more likely to be detrimentally affected by higher economic inequality. Second, our theory and results suggest that researchers and policy-makers should move beyond a sole focus on low-income *individuals* and instead focus on low-income *communities*. For example, policy-makers could implement—and researchers could study—changes that give individuals in low-income communities more opportunities to develop stronger community buffers. This can be achieved, for example, by giving community members more say over decision making at the local level, as a recent study has successfully done ²³.

Economic inequality detrimentally affects societies worldwide. Our theory and results highlight that the poor are particularly negatively affected by these developments: higher economic inequality imposes an additional cost carried by the poor.

Data and Code Availability Statement

The data and the analysis codes are available on the Open Science Framework at the following link: <https://osf.io/a3qy8/>. We note that the data providers did not allow us to share the data for Study 3 and Study S1, but the code to analyze the results is posted on the OSF. To request access to these datasets, please contact the authors.

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Author Contributions

J.M.J. and B.S. contributed to this manuscript equally and are listed alphabetically. J.M.J. and B.S. conceived of the idea and designed the studies. J.M.J., B.S., M.L. and D.S. collected the data and performed the analysis. J.M.J. and B.S. wrote the paper, and all authors provided critical revisions.

Figure Legends

Figure 1. Theoretical Model. The relationship between economic inequality and financial hardship is moderated by income, such that the relationship is stronger for low-income individuals. Higher levels of economic inequality also reduce the community buffer, which is particularly detrimental for low-income individuals.

Figure 2. Financial Hardship Predicted by the Interaction of Actual Economic Inequality and Income. Figure 2 shows the relationship between individuals' financial hardship and actual economic inequality of in Study 1. Bands reflect 95% Confidence Intervals. Economic inequality is only associated with increased financial hardship at lower levels of income, while the slope is not statistically significant at median or high levels of income.

Figure 3. Financial Hardship Predicted by the Interaction Between the Economic Inequality Condition and Income. Figure 3 shows the relationship between the economic inequality condition and financial hardship by individuals' income in Study 4. Participants with lower and median but not higher income reported higher levels of financial hardship when economic inequality was higher.

Table 1
Overview of Studies

Finding	Study	Sample & Analysis	N
<u>Part 1</u> <u>(Main Effect):</u> The poor experience greater financial hardship with higher income inequality	1	Correlational Study with U.S. Individuals (BFRSS)	109,241
	2	Correlational Study with U.S. Individuals (MTurk)	1,127
	3	Instrumental Variable Analysis in Australian Panel Data (HILDA)	341,170
	4	Experimental Study with U.S. Individuals (MTurk)	2,509
<u>Part 2</u> <u>(Underlying Mechanism):</u> Higher economic inequality erodes the community buffer, diminishing an important source of support for the poor.	5	Correlational Study with U.S. Individuals (Qualtrics Panel)	1,212
	6	Correlational Study with Rural Ugandan Individuals	2,393
	7	Additional Analysis of Study 4 Data	---
	S1	Correlational Study with U.S. Individuals (Gallup)	572,248

Note. Eight studies provide evidence for the main effect as well as one underlying mechanism. Further detail on each study can be found in the main text below, as well as in the SI Appendix. In addition, Study S1 is reported in the SI Appendix in full.