

Economic inequality increases the acceptability of others' unethical behavior

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Societies worldwide are witnessing extreme levels of economic inequality.

Complementing the existing narrative that inequality is harmful for societies, this paper asks:

Does economic inequality make others' dishonesty more acceptable? While prior work has examined ethical judgements towards inequality itself (e.g., "is inequality ethical?"), much less is known about how inequality shapes what is considered ethical (e.g., "is unethicality more acceptable?"). We observe that economic inequality increases the acceptability of others' dishonest behaviors, and test potential underlying mechanisms. Study 1 (World Values Survey; $N = 127,953$) utilizes longitudinal data and finds country-level inequality covaries with acceptability of dishonesty over time. Study 2 ($N = 506$; pre-registered) replicates these findings in a cross-sectional survey in the United States. Studies 3-5 (total $N = 1,326$) were pre-registered experiments where participants were placed under (un)equal environments and asked to rate the acceptability of others' dishonest behaviors. We test several potential mediating pathways, and results indicate consistent evidence for one – inequality decreases individuals' personal control, thereby increasing the acceptability of others' dishonesty. Our results suggest inequality changes ethical standards, thus providing another pathway through which inequality harms societies.

Economic inequality is a growing concern to academics, politicians, and laymen, with nearly half of the countries across the world experiencing a growth in inequality between 2000 to 2015 (Savoia, 2017). Indeed, inequality – or the concentration of more wealth in fewer hands – is expected to continue to grow (Payne, 2017; Sokoloff & Engerman, 2000) with Barack Obama referring to economic inequality as the “defining challenge of our time” (Obama, 2013). As such, a growing wealth of research has focused on understanding the psychological consequences of inequality for societies and their ability to function (for reviews, see Buttrick & Oishi, 2017; Wilkinson & Pickett, 2009).

One growing area of interest is the relationship between inequality and ethicality (e.g., Choe, 2008; Franks & Scherr, 2019; Neville, 2012). Earlier work in economics and criminal justice finds that inequality is associated with higher unethical behavior; for example, inequality is associated with higher financial crimes (Brush, 2007), property and theft (Choe, 2008), and even violent crimes (Hsieh & Pugh, 1993). More recent work from social psychology explores perceptions of when inequality is perceived as more or less ethical; for example, perceptions of the ethicality of inequality are shaped by individual differences, motivations, and political orientation (e.g., Franks & Scherr, 2019; Kteily et al., 2016; Starmans et al., 2017). Here, we explore a third aspect of the relationship between inequality and ethicality: Does economic inequality make others’ dishonesty more acceptable? By unethical behaviors, we refer to self-serving behaviors that violate accepted standards or rules (Bazerman & Gino, 2012; Gino & Ariely, 2012; Shu et al., 2011), including cheating, self-interested lying, and stealing. Thus, while prior work has examined ethical judgements towards inequality itself, we consider how inequality shapes what is considered ethical.

Pragmatically, what is at stake is a basis of smooth societal functioning. Enforcing ethicality and honesty is a cornerstone to successful interpersonal relations (e.g., Haidt & Kesebir, 2010) – people cannot successfully interact if a fundamental basis of cooperation is undermined, and unethicity is more acceptable (Ayal et al., 2016; Ayal & Gino, 2011). Indeed, the gradual acceptability of cheating, fraud, stealing, and other forms of unethicity form the basis of some of society's recent challenges including the Enron scandal, the Wells Fargo's account fraud, and Volkswagen's emissions scandal. While behavioral ethics has drawn attention towards various features that increase the acceptability of unethicity (e.g., Gino & Bazerman, 2009), we highlight economic inequality as a growing societal feature. Below, we explore the possibility that inequality fundamentally alters the acceptability of others' unethicity.

Ethical Judgements and Attributions

Traditionally, the acceptability of others' unethical behavior has been conceptualized as a product of the actor's character and context. Under this framework, unethical behaviors are considered less acceptable if the unethical behavior was due to the actor's internal volition rather than contextual causes (Cushman, 2008; Malle et al., 2014; Monroe et al., 2017; Reeder et al., 2002; Woolfolk et al., 2006). This framework of considering an actors' behavior as due to their internal character or their external situation stems from basic models proposed in attribution theory (e.g., Heider, 1958). Attribution theorists typically suggest that people begin the process of judging the acceptability of someone's unethical behavior by analyzing causal responsibility and personal intentions (Darley & Shultz, 1990; Shaver, 1985; Shultz, 1981; Shultz & Wright, 1986). As such, the acceptability of an actor's unethical behavior can be explained by a number of factors, including the consequences of the behavior (Greene, 2008), the perceived desires of

the actor (Pizarro et al., 2003), and, as discussed, whether the unethical behavior was driven by the actor's internal volition or their context.

More recent research has demonstrated that individuals favor an intuitionist framework grounded in their cultural experiences of the world (Haidt & Joseph, 2004, 2007). However, even when using intuitions, people are still sensitive to, and distinguish between, behaviors due to an actor's internal volition or their context (Goodwin et al., 2014; Reeder et al., 2002; Uhlmann et al., 2015). Indeed, people's cultural experiences help determine intuitions on whether others' behaviors are believed to be driven by internal volition or contextual factors (e.g., Choi et al., 1999; Markus & Kitayama, 1991; Miller, 1984), which can determine the acceptability of unethical behavior (e.g., Jackson, 2001; Mazar & Aggarwal, 2011). As such, understanding when people shift causal blame between an actor's internal volition and an actor's context provides a useful framework for understanding how we judge the acceptability of others' unethicality – the more a person's unethical behavior is attributed to their context, the more ethically acceptable it is; the more a person's unethical behavior is attributed to the person, the less ethically acceptable it is.

The relative emphasis placed on dispositional versus contextual causes of others' behavior shifts according to factors such as societal norms (Jellison & Green, 1981), cultural background (Miller, 1984; Morris & Peng, 1994), personal motives (Malle, 1999; Malle et al., 2014), and perceptions of one's own economic resources (Kraus et al., 2009). Below, we explore how perceptions of economic inequality may affect the acceptability of others' unethical behavior. Building on recent work highlighting how perceptions of low material resources and the relative lack of personal control leads to more contextual explanations (Kraus et al., 2009),

we explore how inequality may also lead to more contextual explanations, and therefore greater acceptability of others' unethicality.

Inequality, Sense of Personal Control, and the Acceptability of Others' Unethical Behavior

Recent research highlights one important feature that shifts explanations of others' behaviors from dispositional to contextual causes – those who lack a sense of personal control report greater contextual explanations for social behavior. Sense of control refers to beliefs about the extent to which one can shape the course of their own outcomes (Lachman, 1986; Lachman & Weaver, 1998). Recently, Kraus et al., (2009) argued how perceptions of lower social class is associated with a lower sense of personal control, thus leading to more contextual explanations of others' behaviors and outcomes (Kraus et al., 2010, 2012). For example, those lower in social class or sense of control reported more contextual explanations for others behaviors in a vignette study (e.g., why a supermarket cashier was irritated) (Beauvois & Dubois, 1988; Kraus et al., 2012), and broader social outcomes (e.g., why one was laid off at work) (Kraus et al., 2009). This is argued to occur because those who lack control rely on an external orientation as a means of managing their external constraints, threats, and other individuals (Keltner et al., 2003; Rusbult et al., 1991). Extended to the context of economic resources, this work demonstrates that individuals who feel a lack of resources develop a worldview whereby behaviors are more driven by contextual forces (Kraus et al., 2012; Stephens et al., 2014). Consistent with this, those who feel a lack of material wealth and less personal control use more contextual explanations when developing attributions for others' behaviors (Kraus et al., 2012)

Building on this work, we expect that people report a lower sense of control under conditions of economic inequality. First, similar to social class, inequality is associated with perceptions of lower material resources. Holding income constant, individuals feel they are

poorer and have less resources in unequal settings (Sánchez-Rodríguez et al., 2019). This effect arises due to social comparisons (Cheung & Lucas, 2016), and should occur across all income levels, whereby even the rich can compare themselves to the richer. That is, due to the psychological asymmetry between upward and downward comparisons (upward comparisons prevail over downward ones; Festinger, 1954; Payne et al., 2017), economic inequality leads people to focus more on wealthier groups. Consequently, high economic inequality makes individuals estimate that their own wealth is lower, compared to conditions of low economic inequality (Sánchez-Rodríguez et al., 2019). As highlighted by Kraus et al., (2009), reduced perceptions of material resources lead to a lower sense of control and a worldview that behaviors are driven by external (as opposed to internal) factors. Second, inequality is associated with indicators of social uncertainty, such as lower community support (Jachimowicz et al., 2020; Uslaner, 2002). Individuals in unequal (versus equal) environments may feel less certain of their social surroundings given the presence of seemingly dissimilar subgroups (Wilkinson & Pickett, 2009). This reduced sense of economic resources and social uncertainty decreases one's sense of personal control (Kraus et al., 2009).

We can also consider prior conceptual work to further support the notion that inequality is associated with a lower sense of control. One common theme in inequality research is that inequality creates feelings of relative deprivation across all income levels (e.g., Payne et al., 2017; Wilkinson & Pickett, 2017). Explicit in the definition of relative deprivation is that one's position cannot be improved without intervention – one has little control and influence in changing their current standing or life (Smith et al., 2012). Thus, despite little empirical work directly linking inequality to a reduced sense of control (c.f., Lynch et al., 2001), prior theory

suggests (and is in fact predicated on) the notion that inequality reduces feelings of control. We therefore predicted that inequality is associated with a reduced sense of control.

As discussed, one's sense of control determines whether we believe social outcomes are due to dispositional or contextual features. One's sense of control provides information about whether the world has a characteristic where others' actions feel willful and controlled, or whether others' actions are less controlled and more a product of a situation (Kraus et al., 2009, 2012; Lachman & Weaver, 1998). Those who feel less control are more likely to use contextual explanations, rather than dispositional features, when explaining others' unethical behaviors (e.g., Cornwell & Higgins, 2019; Genschow et al., 2017; Kraus et al., 2009). Thus, unethicity would be considered less acceptable if we believe others' actions are more willful and controlled (Malle, 1999; Malle et al., 2014), and one's sense of control provides information on whether the world has that characteristic (if actions are willful and controlled versus uncontrolled and driven by external features) (e.g., Cornwell & Higgins, 2019; Genschow et al., 2017; Kraus et al., 2009).

In line with this work, research shows that when making intuitive and deliberate ethical judgments, individuals report less intense judgements of others' unethical behavior when experiencing a weak sense of control in their lives (Cornwell & Higgins, 2019). Other relevant work from the psychology of power indicates similar results – those with a lower sense of psychological power report less moral clarity and are more accepting of others' unethical behaviors (Wiltermuth & Flynn, 2013). Individuals who feel they lack power also punish unethical transgressions less harshly (Fleischmann & Lammers, 2020; Lammers et al., 2015; Wiltermuth & Flynn, 2013). Thus, although some conceptual work may suggest an extreme lack of control could lead to harsher judgements (e.g., Landau et al., 2015), the empirical evidence

suggests the opposite. At least within the context of ethical behaviors, those who feel less personal control are more accepting of others' unethicality (Cornwell & Higgins, 2019; Wiltermuth & Flynn, 2013).

Other work tangential to sense of control provides identical predictions. Work regarding ethical judgements and free will (one of the components of free will involving perceptions of agency over one's actions; Feldman, 2017) makes a similar point – those who believe they have less agency are less willing to endorse the death penalty and similar punishments for others' unethicality (Martin et al., 2017). In support of this, experiments and observational data suggest that when people perceive themselves (or other people) as having less agency over their actions, this leads to less harsh ethical punishment (Genschow et al., 2017; Heathers & Plus, 2014; Martin et al., 2017). This work suggests those who feel a lower sense of control see others' unethical behaviors as more acceptable. Overall, we reason that one's decreased sense of control under conditions of high economic inequality leads to greater acceptability of others' unethical behavior.

Additional Mechanisms

Our reasoning primarily focuses on inequality, sense of personal control, and contextual approaches to ethical judgements. In addition to this approach, we reviewed the research on the psychological consequences of inequality and identified two other pathways which may be relevant to ethical judgments – the frequency of others' unethical behavior (Neville, 2012) and competitiveness (Sommet et al., 2019). We expand on these explanations below, and then offer tests of each mechanism in our studies.

Another line of reasoning is that inequality increases actual unethicality, which may produce expectations that unethical behavior is more acceptable. For various reasons related to

relative deprivation (Hsieh & Pugh, 1993) or lack of trust (Neville, 2012), inequality is associated with higher levels of unethicity in the lab (Gino & Pierce, 2009) and in the field in terms of academic cheating (Neville, 2012) and crime rates (Choe, 2008). When unethical behavior is frequent, people may view others' unethical behavior as more normative and acceptable (Cialdini & Goldstein, 2004). Indeed, according to Ashforth and Anand (2003), as unethical behaviors become more frequent, unethical acts can “become an integral part of day-to-day activities to such an extent that individuals may be unable to see the inappropriateness of their behaviors” (p. 4). Overall, this work suggests people may view unethical behaviors as more acceptable if they are common and expected.

Another line of reasoning is that people are more competitive under unequal environments (Wilkinson & Pickett, 2009) and therefore see unethicity as more acceptable. For example, recent surveys and experiments show an association between inequality and inferences that competitiveness is normative (Sommet et al., 2019; Willis et al., 2019). When norms are competitive, self-interested unethical behaviors come to be more expected (e.g., Pierce et al., 2013). Consistent with this, competitiveness decreases people's moral awareness – or the extent to which they detect ethical issues in others' behavior – which increases the acceptability of otherwise unethical behaviors (Butterfield et al., 2000). Thus, this line of work suggests competitiveness may also provide another pathway for how inequality increases others' unethicity. In sum, a review of the inequality literature indicates multiple reasons for why inequality may increase the acceptability of others' unethical behavior. Below, across five studies (four pre-registered), we provide tests of this novel hypothesis and its mechanisms.

Current Research

We first provide correlational evidence utilizing longitudinal responses from the World Values Survey (Study 1; $N = 127,953$) to examine whether country-level inequality covaries with acceptability of unethical behavior over time. Study 2 replicates this relationship cross-sectionally with participants in the United States (Study 2; $N = 506$; pre-registered). To establish causality, we adopted a previously used role-playing experiment (Blake & Brooks, 2019; Sprong et al., 2019) whereby participants were asked to rate the acceptability of others' unethical behaviors under various levels of inequality. Study 3 ($N = 352$) provides an experimental replication of Studies 1-2, Study 4 ($N = 328$) introduces a crucial control condition, and Study 5 ($N = 646$) provides a test of self-versus-other judgements of unethicality. Except for Study 1 (observational data), all study sample sizes and measures were pre-registered and post-hoc power analyses are provided in Appendix F. We report all participants recruited and experimental conditions, and all data for Studies 2 to 5 were collected until our pre-registered sample sizes were reached or surpassed. As reported in Appendix F, our tests were adequately powered.

We consistently find that others' unethical behaviors are judged as more acceptable when inequality is high. Inequality also typically decreases personal control, as well as increases competitiveness and expectancy of unethical behavior. We find some mediating support for expectancy of unethical behavior and competitiveness; however, decreased personal control appears to be the strongest and most consistent mediating predictor of ethical judgements. Much like many effects in social sciences, there appear to be multiple potential pathways for how inequality affects the acceptability of unethicality. The current evidence consistently indicates that inequality increases the acceptability of others' unethical behavior, and that decreased personal control serves as an important pathway.

Study 1

Methods

As a first test of our question, we merged data from the Standardized World Income Inequality Database (SWIID), the World Values Survey (WVS), and the Penn World Table (PWT). The SWIID is a database of Gini indices for 196 countries from 1960 to the present (Solt, 2019); it contains two measures of country-level inequality: a) disposable income inequality (i.e., gross income minus taxes and transfers paid), and b) market income inequality (i.e., gross income before taxes and transfers) (Solt, 2019). The WVS is a popular survey representing samples from roughly 90% of the world's population between 1981-2014; it contains measures regarding the acceptability of dishonest behavior (e.g., "cheating on taxes"; 1 = Never justifiable; 10 = Always justifiable) and proxies for each of our mediators. The PWT is a standardized database on economic output and development covering 182 countries since 1950 (Feenstra et al., 2015); it contains control variables for country-level economic development including gross domestic product (GDP) expenditure per capita, and human capital index.

To construct our dataset, we took individual-level survey responses and demographics (from the WVS) and merged in country-level information on inequality (from the SWIID) and economic development (from the PWT). All data were merged during the exact year a participant was surveyed (e.g., if a response was completed in 1983, we used inequality measures from 1983). Thus, we were able to longitudinally examine how a country's level of income inequality covaries with the acceptability of unethical behaviors.

Participants. Individual-level responses (i.e., ethical judgements, control variables) were obtained from the longitudinal version of the WVS. For the combination of variables that were of interest to us (described below; ethical judgements, mediators, and demographics), 127,953 responses were available. The responses came from 70 countries across an 18-year period.

Measures. In the WVS, each year, participants were asked to report whether several unethical behaviors were justifiable. To maximize sample size, we only selected behaviors that were repeated during every wave of the survey – i.e., “avoiding fare on public transit,” “cheating on taxes,” “accepting a bribe,” and “claiming government benefits you are not entitled to.” (1 = ‘never justifiable’; 10 = ‘always justifiable’). We averaged these items to create an aggregate measure of ethical judgement ($\alpha = .75$).

We assessed our potential mediators using proxies from prior work. To measure personal control (Kakkar & Sivanathan, 2017), we used a question related to participant’s personal control over their life: “How much freedom of choice and control you feel you have over the way your life turns out” (1 = ‘no choice at all’; 10 = ‘a great deal of choice’). To measure expectations of unethical behavior, we used a proxy for whether participants thought others would behave opportunistically. Expectations of whether others will behave opportunistically are foundational for trust, and we use this measure as a proxy for whether participants believe others may behave unethically (Uslaner, 2002). Participants were asked to indicate whether people could be trusted (“Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?”; 1 = Most people can be trusted; 2 = Need to be very careful). To measure competitiveness, we use a proxy via zero-sum construal. Individuals with a generalized zero-sum construal view the world more competitively and behave as such (Różycka-Tran et al., 2015). Participants were asked to indicate how they viewed success as zero-sum (1 = “people can only get rich at the expense of others”; 10 = “wealth can grow so there is enough for everyone”). We reverse coded this item such that higher scores represented higher competitiveness.

Income inequality. We obtained country-level inequality through the SWIID in two ways: Gini coefficient calculated based on a) disposable income (i.e., inequality in gross income minus taxes and transfers paid), and b) market income (i.e., inequality in gross income before taxes and transfers) (Solt, 2019). Having two similar measures of income inequality ($r = .65$) helps further the robustness of our analyses.

Control variables. We utilized demographic and individual-level controls from the WVS, including a respondent's age, gender, income, and political orientation. Additionally, we controlled for country-level variables including gross domestic product (GDP) expenditure per capita, and human capital index, which refers to the quality of a country's education and health systems. These variables capture a country's wealth and economic development, and were taken from the PWT. As we demonstrate later, results are robust with and without controls.

Results

Since data were collected in different countries, it is important to account for the nested structure of the data. We therefore estimated multilevel models, nesting individual responses within countries. Country and individual-level variables were group mean centered (Bell & Jones, 2015). We first fit a null intercept-only model and found substantial between country variance in ethical judgments ($ICC = 11.27\%$), thus warranting our multilevel model approach. Descriptive statistics and correlations between all variables are provided in Table 1.

Direct Effects. In Table 2, Models 1-2 display the relationship between income inequality and ethical judgements. There was a positive relationship, both when inequality was measured through disposable income, $\beta = 0.04, p < .001$ (Model 1), and market income, $\beta = 0.04, p < .001$ (Model 2). This suggests income inequality is associated with greater acceptability of dishonest behavior.

Models 3-4 display the effects of income inequality on personal control. There was a negative relationship between income inequality and personal control, both when inequality was measured through disposable income, $\beta = -0.02, p < .001$ (Model 3), and market income, $\beta = -0.02, p < .001$ (Model 4). This suggests that inequality is associated with a lower personal control.

Models 5-6 display the effects of income inequality on expectations of dishonesty. There was a positive relationship between income inequality and expectations of dishonesty, both when inequality was measured through disposable income, $\beta = 0.02, p < .001$ (Model 5), and market income, $\beta = 0.02, p < .001$ (Model 6). This suggests that inequality is associated with greater expectations of dishonesty.

Models 7-8 display the effects of income inequality on competitiveness. The relationship between income inequality and competitiveness was positive and marginal when inequality was measured through disposable income, $\beta = 0.00, p = .080$ (Model 7), and positive and significant when inequality was measured through market income, $\beta = 0.01, p = .032$ (Model 8). Given the large sample size and inconsistent findings, we feel this suggests that inequality was unrelated to competitiveness (as measured through our proxy).

Indirect Effects. We test for mediation in Models 9-10. We regressed ethical judgments onto income inequality, our three potential mediators, and our control variables. Personal control had a negative relationship with ethical judgments, both when inequality was measured through disposable income, $\beta = -0.04, p < .001$ (Model 9), and market income, $\beta = -0.03, p < .001$ (Model 10). This indicates those who felt less personal control saw unethical behavior as more acceptable.

Expectations of dishonesty did not have a significant relationship with ethical judgements, both when inequality was measured through disposable income, $\beta = 0.00$, $p = 0.266$ (Model 9), and market income, $\beta = 0.00$, $p = 0.245$ (Model 10). This suggests that expectations of dishonesty did not affect ethical judgements (as measured through our proxy).

Competitiveness was positively associated with ethical judgments, both when inequality was measured through disposable income, $\beta = 0.04$, $p < .001$ (Model 9), and market income, $\beta = 0.04$, $p < .001$ (Model 10). This indicates that increased competitiveness was associated with greater acceptability of unethical behavior. Overall, this suggests that lower personal control and increased competitiveness are associated with greater acceptability of unethical behavior.

We computed bootstrapped bias-corrected confidence intervals for the indirect relationship in a multiple mediation analysis (see Figure 1). When inequality was measured through disposable income, the relationship between inequality and acceptability of others' dishonesty was significantly mediated via personal control (CI = [.00044, .00087]), but not competitiveness (CI = [-.00005, .00017]) or expectations of dishonesty (CI = [-.00003, .00046]). When inequality was measured through market income, the relationship between inequality and acceptability of others' dishonesty was significantly mediated via personal control (CI = [.00062, .00109]), but not competitiveness (CI = [-.00003, .00017]) or expectations of dishonesty (CI = [-.00001, .00051]). Overall, this suggests inequality is associated with greater acceptability of unethical behavior, via a lower sense of personal control.

Supplemental Analyses. In the Appendix, we report several additional analyses. First, we replicate our models without controls (Appendix A). Second, we ran several different model specifications, including using country fixed-effects (i.e., dummy variables for each country) to account for unobservable time-invariant differences between countries, adding country grouped-

means into our random-effects models to account for between group-differences (Bell & Jones, 2015), and logging the Gini coefficient to match the rest of our country-level controls (Appendix A). All effects replicate. Third, we found the relationship between inequality and personal control was not moderated by SES (Appendix B), thus suggesting the relationship between inequality and personal control did not vary by SES. Finally, we conducted our mediation analyses with each mediator independently (rather than simultaneously, as reported above), and find similar patterns (Appendix C). Thus, across two measures of inequality, both fixed- and random-effects models, and with and without controls, the results indicate that inequality is associated with greater acceptability of unethical behavior.

Study 1 provides an externally valid test using survey responses from samples representing 90% of the world's population, across a range of nationalities, demographics, and time-periods. Study 1 focused on objective levels of inequality. In Study 2, we ran a survey measuring subjective levels of inequality, while utilizing another measure of ethical judgements (Gino & Margolis, 2011). We also measured personal control as a mediator, given evidence of its role from Study 1.

Table 1
 Study 1: Correlations and Descriptives.

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. Ethical Judgement	2.35	1.70												
2. Gini (Market)	45.77	7.87	.11**											
3. Gini (Disposable Income)	37.19	8.72	.13**	.65**										
4. Expectations of Dishonesty	1.72	0.45	.04**	.07**	.20**									
5. Competitiveness	7.03	2.24	-.03**	.04**	.04**	-.04**								
6. Personal Control	4.61	2.66	.03**	-.03**	-.07**	.00	-.12**							
7. Subjective SES	4.76	2.34	.01**	-.04**	-.08**	-.10**	.15**	-.04**						
8. Gender	1.50	0.50	-.02**	-.01	-.02**	.00	-.03**	-.03**	-.04**					
9. Age	41.82	16.19	-.15**	-.04**	-.20**	-.07**	-.03**	-.01**	-.08**	-.01**				
10. Political Orientation	5.65	2.32	.01**	-.04**	.05**	.01**	.09**	-.07**	.06**	-.02**	.01**			
11. Population	3.52	1.55	-.03**	.04**	.36**	.05**	.01**	.01*	-.06**	-.03**	-.06**	.05**		
12. Human Capital Index	0.97	0.26	.01**	-.10**	-.53**	-.16**	.05**	-.01**	.08**	.04**	.26**	-.05**	-.32**	
13. Real GDP per capita	9.50	0.98	-.05**	-.01**	-.46**	-.18**	.10**	-.01**	.08**	.03**	.25**	-.08**	-.16**	.81**

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

Human Capital Index and Real GDP per capita were logged; Statistics are *prior* to group mean centering; Political Orientation (1 = Left; 10 = Right); Gender (1 = Male; 2 = Female).

Table 2
Study 1: Regressions.

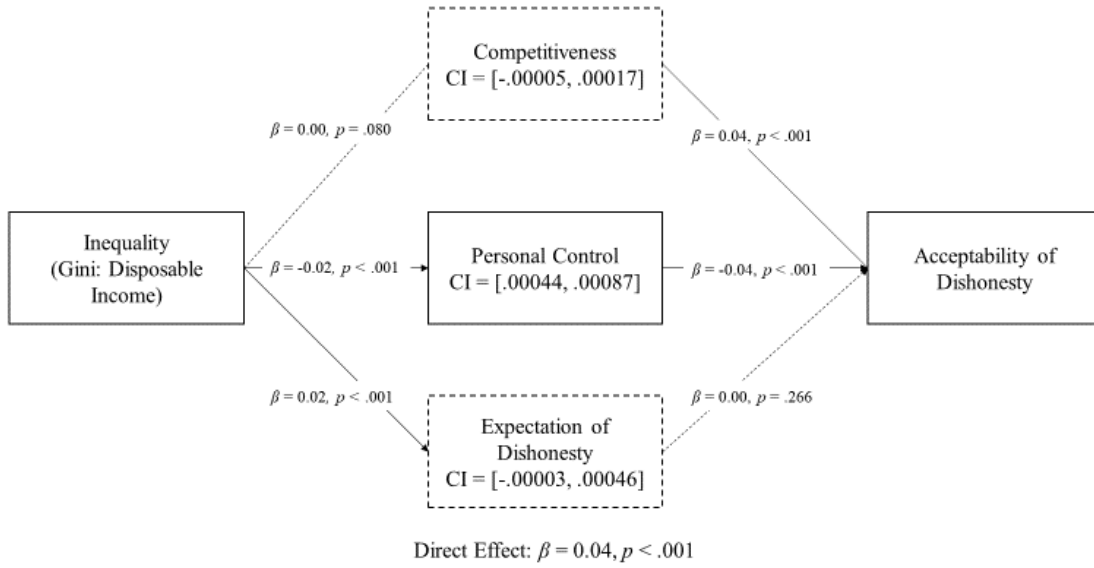
	<i>Dependent variable:</i>									
	Ethical Judgement		Personal Control		Expectations of Dishonesty		Competitiveness		Ethical Judgement	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Yearly Trend	-0.01	-0.03***	0.12***	0.14***	-0.06***	-0.07***	-0.06***	-0.06***	-0.005	-0.02**
Subjective SES	0.02***	0.02***	0.13***	0.13***	-0.06***	-0.06***	-0.05***	-0.05***	0.02***	0.02***
Gender	-0.03***	-0.03***	-0.02***	-0.02***	0.001	0.001	-0.02***	-0.02***	-0.03***	-0.03***
Age	-0.13***	-0.13***	-0.02***	-0.02***	-0.01**	-0.01**	-0.03***	-0.03***	-0.13***	-0.13***
Political Orientation	0.01**	0.01**	0.07***	0.07***	0.02***	0.02***	-0.05***	-0.05***	0.01***	0.01***
Country Population	0.03***	0.03***	-0.01**	-0.02***	0.01+	0.01*	-0.03***	-0.03***	0.03***	0.03***
Human Capital Index	0.09***	0.09***	-0.03***	-0.03***	0.03***	0.03***	0.03***	0.03***	0.09***	0.09***
Real GDP per Capita	-0.06***	-0.05***	-0.02**	-0.02***	0.04***	0.04***	0.09***	0.09***	-0.07***	-0.06***
Gini (Disposable Income)	0.04***		-0.02***		0.02***		0.00+		0.04***	
Gini (Market Income)		0.04***		-0.02***		0.02***		0.01*		0.04***
Personal Control									-0.04***	-0.03***
Expectations of Dishonesty									0.00	0.00
Competitiveness									0.04***	0.04***
Log Likelihood	-239,886	-239,913	-277,462	-277,449	-71,260	-71,262	-	-	-	-
							302,595	302,594	239,663	239,690

Note:

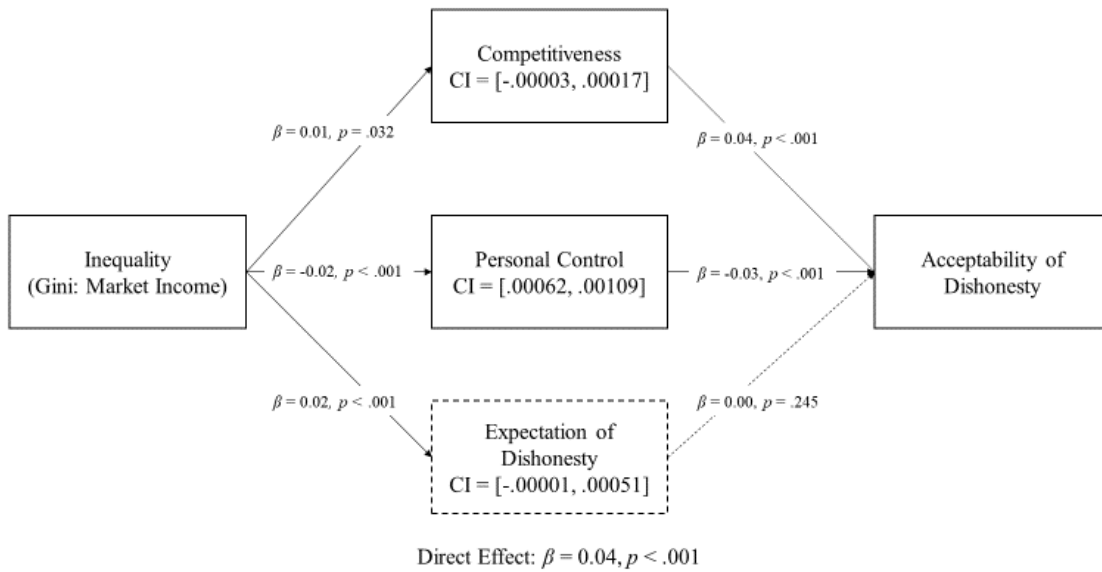
+p<0.1; *p<0.05; **p<0.01; ***p<0.001;

Coefficients are standardized.

Figure 1
 Study 1: Simultaneous Mediation Analysis.
 a) Inequality (Disposable Income)



b) Inequality (Market Income)



Study 2

Methods

All recruitment and measures were pre-registered

(<http://aspredicted.org/blind.php?x=sj2p72>) and materials are provided on OSF

(https://osf.io/t6mey/?view_only=e304f83b5ba347839c2819126675b6ec).

Participants. We did not have any a priori effect size, and therefore decided to recruit 500 participants. This gave us adequate power ($\beta = .80$) to detect effect sizes as small as $f^2 = .016$ (in between a small and medium effect size). We successfully recruited 505 participants from Amazon's Mechanical Turk (226 women, age: $M = 37.98$, $SD = 11.69$). As noted in our pre-registration, all participants were kept in the dataset.

Subjective Inequality. We adopted a previously used measure of subjective inequality (Kteily et al., 2016). Participants were shown an image of a ladder with ten rungs, where each rung had various bags of money. Participants were told each rung represented 10% of the people in a fictitious society, and that the bags of money represented wealth. There were five ladders, and each ladder depicted a different level of wealth inequality. For example, in the most unequal ladder, most of the money bags were held by the top 10% whereas the bottom 10% held very few money bags. In the most equal ladder, money bags were more evenly distributed. Participants selected which ladder best represented the wealth distribution of the zip code they lived in.

Ethical judgements and personal control. To assess ethical judgements, we adopted a scale from prior work (Gino & Margolis, 2011), where participants were asked to rate the acceptability of various dishonest behaviors (1 = Never justifiable; 7 = Always justifiable). The behaviors included "cheating on an exam," "forging a friend's signature," "Copying/downloading a piece of software you do not have copyrights for," "stealing an additional TV cable connection," and "Using office supplies for your personal needs" ($\alpha = .88$).

To assess personal control, we adapted a scale as used by Kraus et al., (2009) (e.g., “I could do just about anything I really set my mind to”; $\alpha = .91$).

Control variables. Participants also indicated their gender (1 = Male; 2 = Female), political orientation (“In political matters, people talk of “the left” and “the right.” How would you place your views on this scale, generally speaking?” 1 = Left; 10 = Right), and their subjective socioeconomic status (via the McArthur ladder; Adler et al., 2000). We report results both with and without controls.

Results

Correlations and descriptive statistics are displayed in Table 3. As per our pre-registration, we report the results of using OLS regression (Table 4).

Direct Effects. We first regressed ethical judgments onto subjective inequality. Results indicated that inequality was positively associated with greater acceptability of unethical behavior both without ($\beta = .09, p = .051$; Model 1) and with ($\beta = .08, p = .053$; Model 4) controls. This indicated higher levels of inequality are associated with greater acceptability of unethical behavior.

Next, we regressed personal control onto subjective inequality. Results indicate that inequality was negatively associated with personal control both without ($\beta = -.15, p < .001$; Model 2) and with ($\beta = -.12, p = .009$; Model 5) controls. This indicates higher levels of inequality are associated with a lower personal control.

Indirect Effects. Finally, we assessed whether a lower personal control mediates the relationship between subjective inequality and ethical judgements. We found that personal control was negatively related to ethical judgements both without ($\beta = -.30, p < .001$; Model 3)

and with ($\beta = -.31, p < .001$; Model 6) controls. This indicates that individuals who felt lower in personal control saw unethical behavior as more acceptable.

The bias-corrected bootstrapped confidence interval (5000 bootstraps) indicated that personal control mediated the relationship between inequality and acceptability of unethical behavior both without ($CI_{95} = [.0186, .0865]$) and with controls ($CI_{95} = [.0083, .0748]$). Thus, although our pre-registered direct relationship between subjective inequality and acceptability of dishonesty was weaker, we note a much stronger indirect relationship between inequality and acceptability of dishonesty.

Overall, this analysis suggests that participants' who perceived greater subjective inequality in their area tended to view unethical behavior as more acceptable, and this relationship could be explained, in part, via a decreased personal control. Therefore, this study replicates Study 1 by assessing subjective inequality at the individual level. We also replicate with a different measure of unethical judgements. In Study 3, we move to an experimental context to better establish claims of causality.

Table 3
Study 2: Correlation and descriptive statistics.

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Ethical Judgement	2.78	1.40						
2. Personal Control	4.93	1.22	-.31**					
3. Age	37.98	11.69	-.40**	.07				
4. Gender	1.45	0.50	-.11*	-.05	.09			
5. Political Orientation	4.58	2.57	-.08	.12**	.09*	-.03		
6. Subjective SES	4.76	1.70	.08	.23**	-.01	-.05	.14**	
7. Subjective Inequality	2.76	1.34	.09	-.15**	-.03	-.04	-.14**	-.15**

Note. Gender (1 = Male; 2= Female). * indicates $p < .05$. ** indicates $p < .01$.

Table 4
 Study 2: Regression analysis.

	<i>Dependent variable:</i>						
	Ethical Judgement	Sense of Control	Ethical Judgement	Sense of Control	Ethical Judgement		
	(1)	(2)	(3)	(4)	(5)	(6)	
Age				-0.39***	0.06***	-0.37***	
Gender				-0.07	-0.05	-0.09	
Political Orientation				-0.05*	0.07**	-0.02	
Subjective SES				0.09**	0.20***	0.15***	
Subjective Inequality	0.09 ⁺	-0.15***	0.04	0.08 ⁺	-0.12**	0.04	<i>Note:</i>
Sense of Control			-0.30***			-0.31***	
Observations	505	505	505	505	505	505	
Log Likelihood	-884.39	-811.24	-860.99	-835.46	-796.80	-806.30	
Akaike Inf. Crit.	1,772.78	1,626.49	1,727.98	1,682.93	1,605.61	1,626.61	

+p<0.1; *p<0.05; **p<0.01; ***p<0.001

Coefficients are standardized.

Study 3

Methods

All recruitment and measures were pre-registered (<https://aspredicted.org/blind.php?x=2ae2ee>) and materials are provided on OSF (https://osf.io/t6mey/?view_only=e304f83b5ba347839c2819126675b6ec).

Participants. Based on a pilot study, we expected a small effect size (Cohen's $d = .21$) and calculated an a-priori sample size based on 80% power. This resulted in a suggested sample size of 400 participants (see Appendix F for post-hoc power analysis). We successfully recruited 399 participants from Amazon's Mechanical Turk ($M_{age} = 35.47$, $SD = 10.62$, 233 Female). As per our pre-registration, we removed "low-effort" responses on open ended questions (e.g., "very good," question prompt was copy-pasted as response). This resulted in a final sample size of 352 participants. Results are qualitatively identical using the full sample size.

Manipulation. We adopted a previously used role-playing paradigm (Blake & Brooks, 2019; Sprong et al., 2019) where participants imagined moving to a fictitious society named Bimboola. Just like any other society, Bimboola was described as having different income tiers, which contained the richest 20% (tier 3), the middle 20% (tier 2), and the poorest 20% (tier 1). All participants were told to imagine they belonged in the middle 20% (tier 2), and that their income (50,000 Bimboolan dollars [BD]) was the mean and median income for the middle 20%. That is, participants always belonged to the middle-income group and their income was held constant across conditions.

In the high-inequality condition, the richest 20% (tier 1; earning 97,000 BD per year) were presented as having substantially greater wealth than the poorest 20% (tier 3; earning 3,000 BD per year). In the low-inequality condition, the income inequality was less pronounced, where the wealthiest earned 60,000 BD per year and the poorest group earned 40,000 BD per year.

To improve the realism of the manipulation, we asked participants to start their life in Bimboola by selecting a house, mode of transportation, vacation, and cellphone. The items participants could purchase were based on their income group and were held constant across conditions. However, the items that other income groups could purchase varied by condition. For example, participants in the high-inequality condition saw pictures of houses that were much more luxurious or lower in quality (e.g., large mansions versus a small house). In the low-inequality condition, the pictures of the other income groups' houses were only slightly more luxurious or lower in quality (e.g., slightly larger versus slightly smaller house). Similar inequalities were presented for modes of transportation (e.g., top-of-the-line sports cars versus older junk cars), cellphones (e.g., latest smartphones versus burner phones), and vacations (e.g., a luxurious skiing holiday versus no vacation). Finally, after choosing their items and viewing the average option of each income group, participants were asked to respond to an open-ended question asking them to describe what they thought their daily life in Bimboola would be like.

Measures. Participants were given two measures of ethical judgement in random order. First, we adapted the same four measures of ethical judgements used in Study 1 from the World Values Survey. Participants were asked to rate how justifiable it would be if someone else committed different actions in Bimboola (e.g., “avoiding fare on public transit,” “cheating on taxes”; 1 = Never justifiable; 10 = Always justifiable; $\alpha = .91$). Second, we adopted four vignettes from prior work where participants read about a hypothetical citizen of Bimboola engaging in ethical misconduct (e.g., stealing money, overstating tax-exempt expenses) (Sharma et al., 2014). Participants then rated the behavior in each vignette on how “wrong”, “blameworthy”, “unacceptable”, and “inappropriate” they were (-3 Strongly Disagree; +3 Strongly Agree; $\alpha = .98$). The two measures were correlated ($r = .37$), thus indicating

convergence between the two measures. The vignette measure was reverse coded to stay consistent with the World Values Survey measure – higher scores reflect greater acceptability of unethical behaviors.

Next, we assessed our three mediators which were presented in random order. To assess competitiveness, we adapted a scale that asked participants to rate how competitive they believed Bimboola would be (e.g., “In Bimboola, I would be competing with others”; $\alpha = .95$) (Sommet et al., 2019). To measure expectations of unethical behavior, we adapted a scale where participants rated how much unethical behavior they expected in Bimboola, as assessed via expectations of crimes (e.g., “In Bimboola, when I am away from home, I would worry about the safety of my property”; $\alpha = .98$) (Ferraro & LaGrange, 1987; Vauclair & Bratanova, 2017). To assess personal control, we adapted a scale as in Study 2 (e.g., “In Bimboola, I could do just about anything I really set my mind to”; $\alpha = .93$).

Manipulation check. At the end of the survey, participants rated how much inequality they believed was in Bimboola (1 = Very low; 6 = Very high). Participants in the high inequality condition ($M = 5.48, SD = 1.02$) believed there was more inequality than participants in the low inequality condition ($M = 1.98, SD = 1.34$), $t(350) = 27.66, p < .001, CI_{95} = [3.25, 3.75], d = 2.95$. Thus, our manipulation worked as expected.

Results

Descriptive statistics and correlations are displayed in Table 5.

Direct Effects. Independent t -tests indicated that participants assigned to the high inequality condition saw others’ unethical behaviors as more acceptable. Using our measure from the World Values Survey, participants in the high (versus low) inequality condition saw others’ unethical behaviors as more justifiable ($M_{Low} = 2.65, SD_{Low} = 2.00$ vs. $M_{High} = 3.55, SD$

High = 2.47), $t(350) = 3.72, p < .001, CI_{95} = [0.42, 1.37], d = 0.40$. Using our vignette measure of ethical misconduct, participants in the high inequality condition saw others' unethicity as less wrong and inappropriate ($M_{Low} = 1.71, SD_{Low} = 0.99$ vs. $M_{High} = 1.96, SD_{High} = 1.28$), $t(350) = 2.04, p = .042, CI_{95} = [0.01, 0.49], d = 0.22$. Thus, using two measures of ethical judgements, we see convergent evidence that inequality increases the acceptability of dishonesty.

Independent t -tests indicated that participants assigned to the high inequality condition reported greater competitiveness, increased expectations of unethical behavior, and lowered personal control. That is, participants in the high inequality condition thought Bimboola would be more competitive ($M_{Low} = 4.00, SD_{Low} = 1.52$ vs. $M_{High} = 5.39, SD_{High} = 1.14$), $t(350) = 9.73, p < .001, CI_{95} = [1.11, 1.67], d = 1.04$. Participants also reported greater expectations of unethicity ($M_{Low} = 3.62, SD_{Low} = 2.46$ vs. $M_{High} = 6.83, SD_{High} = 2.40$), $t(350) = 12.37, p < .001, CI_{95} = [2.69, 3.71], d = 1.32$. Finally, participants in the high inequality condition reported lower personal control ($M_{Low} = 5.22, SD_{Low} = 1.13$ vs. $M_{High} = 4.09, SD_{High} = 1.39$), $t(350) = 8.34, p < .001, CI_{95} = [-1.39, -0.86], d = 0.89$ (see Figure 2).

Indirect Effects. Finally, we examined whether increased competitiveness, increased expectation of unethical behavior, and a lower personal control mediated the relationship between the inequality manipulation and ethical judgements. We conducted a simultaneous test of these mediators by regressing ethical judgements onto a dummy variable for condition and all three mediators simultaneously (see Table 6).

Using the World Values Survey measure, we found both expectation of unethical behavior, $\beta = 0.22, p = .002$, and a lower personal control, $\beta = -0.22, p < .001$, were associated with greater acceptability of unethical behavior; competitiveness had no relationship with acceptability of unethical behavior, $\beta = 0.01, p = .879$. Mediation analysis (5000 bootstraps; bias-

corrected intervals) indicated significant indirect effects for both expectation of unethicity, $CI_{95} = [0.048, 0.198]$, and personal control, $CI_{95} = [0.038, 0.147]$. There was no indirect effect via competitiveness, $CI_{95} = [-0.047, 0.056]$.

Using the vignette measure, we found that only personal control had a significant association, $\beta = -0.27, p < .001$; there was no relationship via expectation of unethical behavior, $\beta = -0.08, p = .253$, or competitiveness, $\beta = -0.09, p = .161$. Mediation analysis indicated a significant indirect effect for personal control, $CI_{95} = [0.061, 0.175]$; no indirect effect was found via expectations of unethical behavior, $CI_{95} = [-0.025, 0.116]$, or competitiveness, $CI_{95} = [-0.102, 0.007]$. Overall, utilizing two measures of ethical judgement, the evidence indicates economic inequality increases the acceptability of others' unethicity, and this effect is mediated by a decreased sense of personal control (see Figure 3).

Finally, similar to Study 1, we conducted our mediation analyses with each mediator independently (rather than simultaneously, as reported above). When tested individually, we generally find support for increased competitiveness and expectations of dishonesty as a mediator (Appendix C). However, the simultaneous mediation analysis (reported above) indicates that sense of control plays the strongest mediating role above and beyond competitiveness and expectations of dishonesty. Overall, this suggests that while expectations of dishonesty and competitiveness do play a mediating role, sense of control plays an important role above and beyond competitiveness and expectations of dishonesty.

Study 3 experimentally replicates our correlational studies across two measures of ethical judgements, thus providing a crucial step towards causality and internal validity. Study 4 introduces a neutral control condition. Since our proposed mediators focus on individuals' experience under high inequality, we expected differences when comparing the high inequality

condition to the neutral control, but not when comparing low inequality to the neutral control. Similar to Study 2, we also focused on personal control as a mediator, having explored other mediators in Study 3. Study 4 thus replicates and extends Study 3 by providing a neutral comparison.

Table 5
Study 3: Correlations and Descriptives.

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Condition	0.51	0.50					
2. Ethicality: WVS	3.11	2.29	.19**				
3. Ethicality: Vignette	1.84	1.16	.11*	.37**			
4. Competitiveness	4.72	1.51	.46**	.20**	.03		
5. Expectation of Dishonesty	5.26	2.91	.55**	.32**	.15**	.61**	
6. Personal Control	4.64	1.39	-.41**	-.31**	-.28**	-.27**	-.45**

Note. Condition (0 = Low Inequality; 1 = High Inequality). WVS = World Values Survey

* indicates $p < .05$. ** indicates $p < .01$.

Table 6
Study 3: Regressions.

	<i>Dependent variable:</i>						
	Ethicality: WVS	Ethicality: Vignette	Competitiveness	Expectation of Dishonesty	Personal Control	Ethicality: WVS	Ethicality: Vignette
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Condition	0.20***	0.11*	0.46***	0.55***	-0.41***	-0.02	-0.01
Competitiveness						-0.01	-0.09
Expectation of Dishonesty						0.22**	0.08
Personal Control						-0.22***	-0.27***
R ²	0.03	0.01	0.21	0.30	0.17	0.14	0.09
Adjusted R ²	0.03	0.01	0.21	0.30	0.16	0.13	0.08

Note. Condition (0 = Low Inequality; 1 = High Inequality). WVS = World Values Survey
 * indicates $p < .05$. ** indicates $p < .01$, *** indicates $p < .001$.
 Coefficients are standardized.

Figure 2
Study 3: Means.

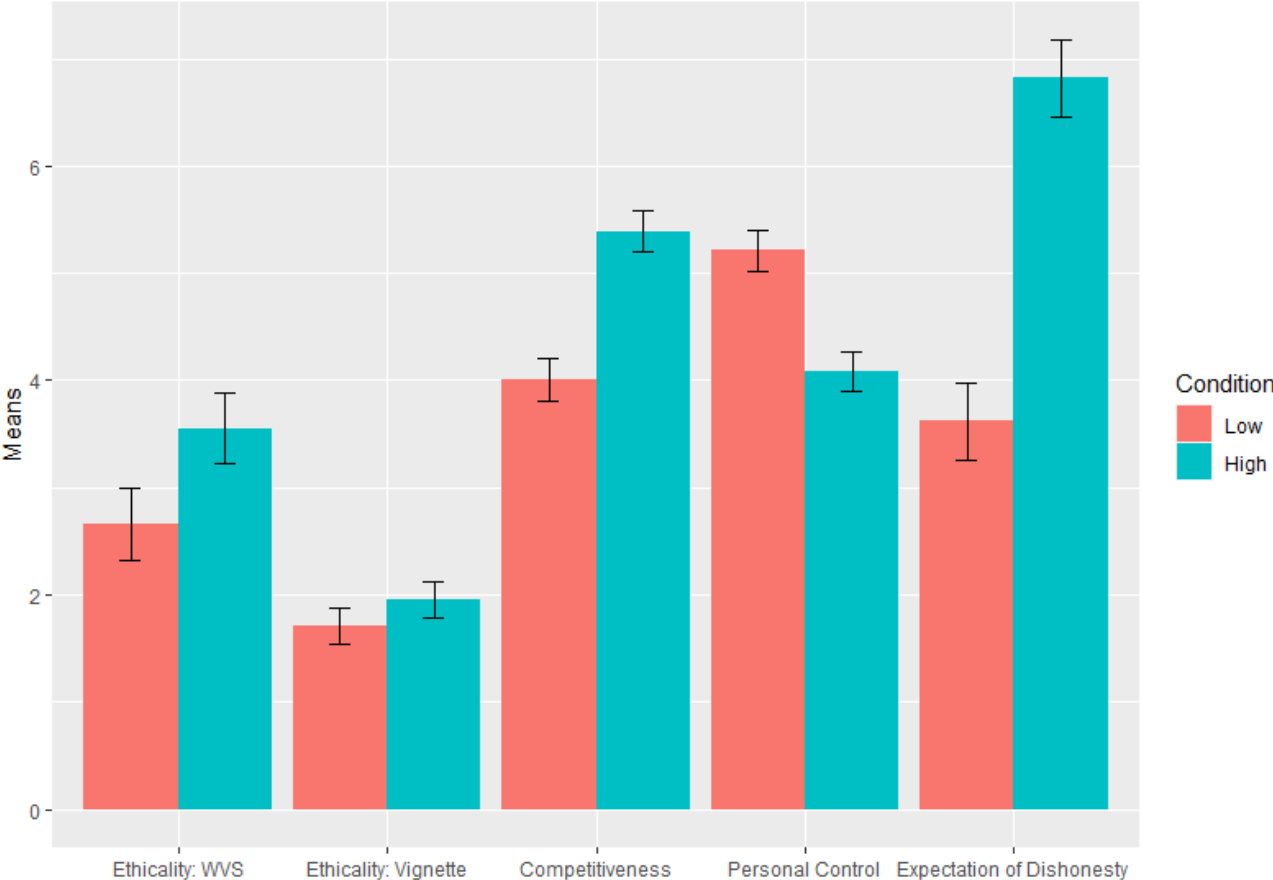
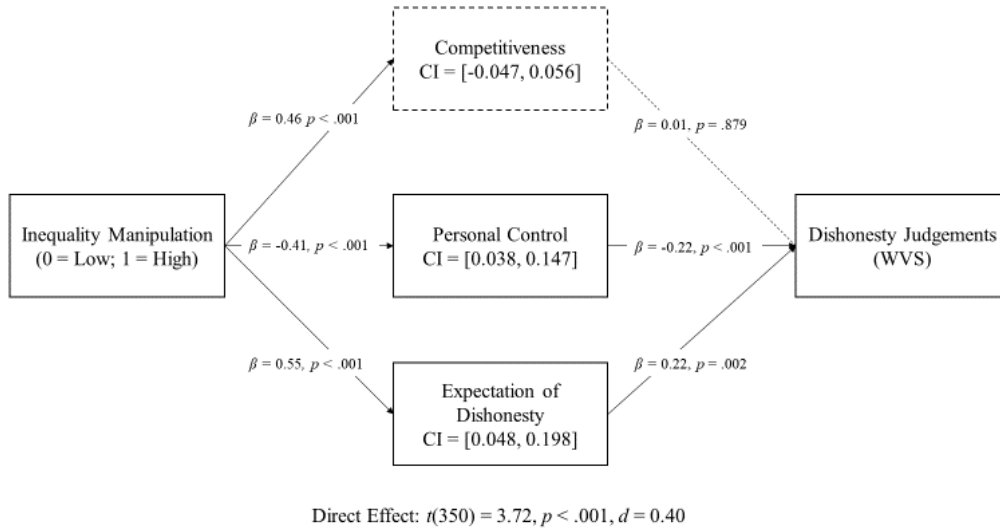
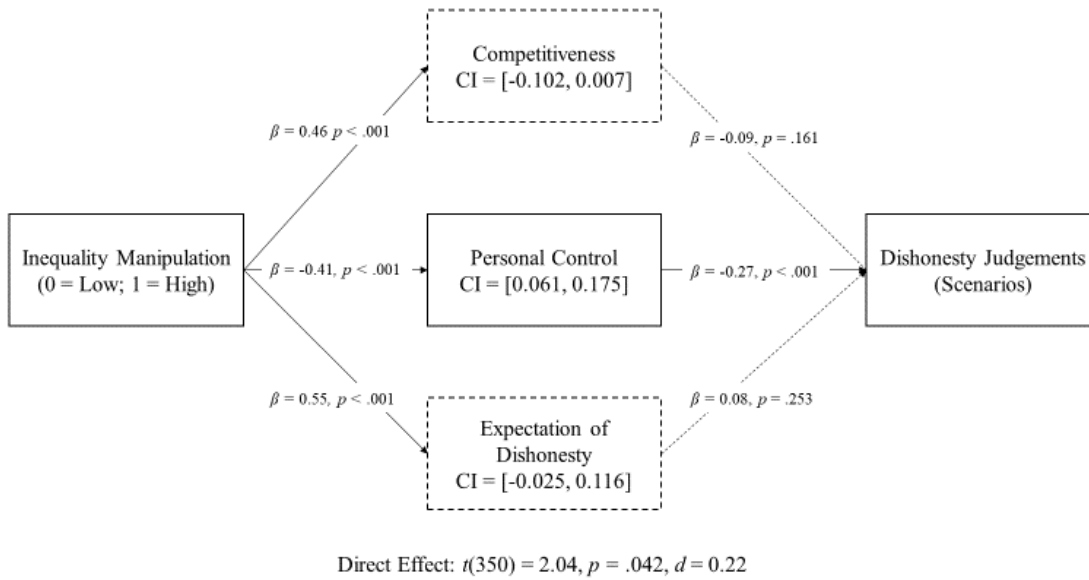


Figure 3
 Study 3: Simultaneous Mediation Analysis.
 a) Ethical Judgements (WVS)



b) Ethical Judgements (Scenarios)



Study 4

All recruitment and data analysis plans were pre-registered (<https://aspredicted.org/blind.php?x=i7j23y>) and materials are provided on OSF (https://osf.io/t6mey/?view_only=e304f83b5ba347839c2819126675b6ec).

Methods

Participants. Based on Study 3, we expected an effect size of $d = .30$ for the comparison between high and low inequality. We therefore calculated an a priori sample size based on 80% power and obtained 300 participants total (100 per cell). We aimed to recruit 350 participants with the expectation of dropping participants due to attention checks.

We successfully recruited 359 participants from Amazon's Mechanical Turk (194 women, age: $M = 37.37$, $SD = 10.77$). As per our pre-registration, we removed "low-effort" responses on open ended questions (e.g., "very good," question prompt was copy-pasted as response). This resulted in a final sample size of 328 participants. Results are identical in significance and direction both with and without excluded participants.

Manipulation. The manipulation for high and low inequality was identical to Study 3 – participants were asked to imagine life in a fictitious society named Bimboola, and were asked to select a house, mode of transportation, vacation, and a cellphone.

The key difference was the inclusion of a neutral control condition. Participants in the control condition were told they made 50,000 Bimboolan dollars (the same amount of income as other participants in the high and low inequality conditions; tier 2). Further, they were still asked to select a house, mode of transportation, vacation, and a cellphone. However, they were not shown the income or choice of other income groups, and there was no mention of the income distribution of Bimboola. Therefore, participants in the neutral control engaged in the same task

of selecting a house, mode of transportation, vacation, and cellphone, but were not given any information on other income groups or the income distribution of Bimboola.

Measures. We measured ethical judgements using the same scale World Values scale from Studies 1 and 3. Participants were asked to imagine how justifiable several actions would be in Bimboola (e.g., cheating on taxes; $\alpha = .91$). We assessed personal control using the same measure in Studies 2 & 3 (e.g., “In Bimboola, I could do just about anything I really set my mind to”; $\alpha = .92$).

Manipulation check. At the end of the experiment, participants rated how much inequality they believed was in Bimboola (1 = Very low; 4 = Neither low nor high; 7 = Very high). A 1 x 3 ANOVA indicated a significant difference across conditions, $F(2, 325) = 224.74$, $p < .001$, $\eta^2 = 0.58$. Participants in the high inequality condition ($M = 6.47$, $SD = 1.08$) believed there was more inequality than participants in the control condition ($M = 4.14$, $SD = 1.04$), $t(325) = 12.58$, $p < .001$, $d = 2.20$, and participants in the low condition ($M = 2.56$, $SD = 1.81$), $t(325) = 21.11$, $p < .001$, $d = 2.62$. Participants in the low inequality condition believed there was less inequality than participants in the control condition, $t(325) = -8.70$, $p < .001$, $d = 1.07$. Thus, our manipulation worked as expected.

Results

Descriptive statistics and correlations are displayed in Table 7.

Direct Effects. A 1 x 3 ANOVA on acceptability of unethicity indicated a significant difference across conditions, $F(2, 325) = 7.93$, $p < .001$, $\eta^2 = 0.05$ (see Figure 4). Participants in the high inequality condition ($M = 3.43$, $SD = 2.53$) saw unethicity as more justifiable than participants in the control condition ($M = 2.33$, $SD = 1.85$), $t(325) = 3.67$, $p < .001$, $d = .50$, and participants in the low inequality condition ($M = 2.47$, $SD = 2.16$), $t(325) = 3.21$, $p = .004$, $d =$

.41. There was no difference in acceptability between the control and low inequality conditions, $t(325) = 0.46, p = .892, d = .07$. Therefore, participants in the high-inequality condition saw unethical behaviors as more acceptable compared to participants in the low inequality and neutral control condition.

A 1 x 3 ANOVA on personal control indicated a significant difference across conditions, $F(2, 325) = 19.67, p < .001, \eta^2 = 0.11$ (see Figure 4). Participants in the high inequality condition ($M = 4.19, SD = 1.43$) reported lower personal control compared to participants in the control condition ($M = 4.95, SD = 1.12$), $t(325) = -4.56, p < .001, d = .59$, and the low inequality condition ($M = 5.19, SD = 1.11$), $t(325) = -6.04, p < .001, d = .78$. There was no difference in personal control between the control and low inequality conditions, $t(325) = -1.51, p = .286, d = .21$. Therefore, participants in the high-inequality condition reported a lower personal control compared to participants in the low inequality and neutral control condition.

Indirect Effects. Consistent with previous studies, we found that a lower personal control was associated with greater acceptability of unethical behaviors, $\beta = -0.40, p < .001$. Mediation analysis (5000 bootstraps; bias-corrected intervals) indicates a significant indirect effect such that the high inequality manipulation decreased perceptions of personal control, which then predicted greater acceptability of dishonesty. This occurred both when high inequality was compared to the neutral control, $CI_{95} = [-0.175, -0.061]$, and the low inequality manipulation, $CI_{95} = [-0.215, -0.096]$. Overall, the evidence suggests that the experience of high inequality (rather than low inequality) lowers one's personal control, thus fostering greater acceptability of unethical behavior.

Study 4 replicates our effects from Study 3 while also including a neutral control. Our proposed mediators focus on individuals' experience under high inequality, and our results

suggest that high inequality appears to be driving our effects. Thus, Study 4 adds a useful neutral comparison to better isolate the effects of high inequality.

Study 5 tests whether the acceptability of dishonesty varies between self/other judgements. One potential empirical limitation of our prior studies is that it is sometimes unclear who is engaging in the unethical behavior – we remedy this by making the character of each scenario more explicit (self vs. other). Furthermore, when considering the link between personal control and judgements of unethicality, some accounts might suggest those who severely lack control may punish others unethicality more harshly to restore control (Landau et al., 2015). Although empirical evidence seems to suggest the opposite (those low in control are more accepting of and punish unethicality less harshly; Cornwell & Higgins, 2019; Wiltermuth & Flynn, 2013), we could directly address this by examining self-other differences. If lacking control causes people to punish others more harshly to restore control, these differences should exist for judgements directed towards others, but not for judgements directed towards the self. Therefore, Study 5 addresses both empirical and conceptual concerns.

Table 7

Study 4: Correlations and Descriptives

Variable	<i>M</i>	<i>SD</i>	1	2	3	4
1. High Inequality Condition (1 = High; 0 = Else)	0.32	0.47				
2. Low Inequality Condition (1 = Low; 0 = Else)	0.34	0.47	-.49**			
3. Control Condition (1 = Control; 0 = Else)	0.34	0.47	-.49**	-.52**		
4. Ethical Judgements: WVS	2.73	2.23	.21**	-.08	-.13*	
5. Personal Control	4.79	1.29	-.32**	.23**	.09	-.42**

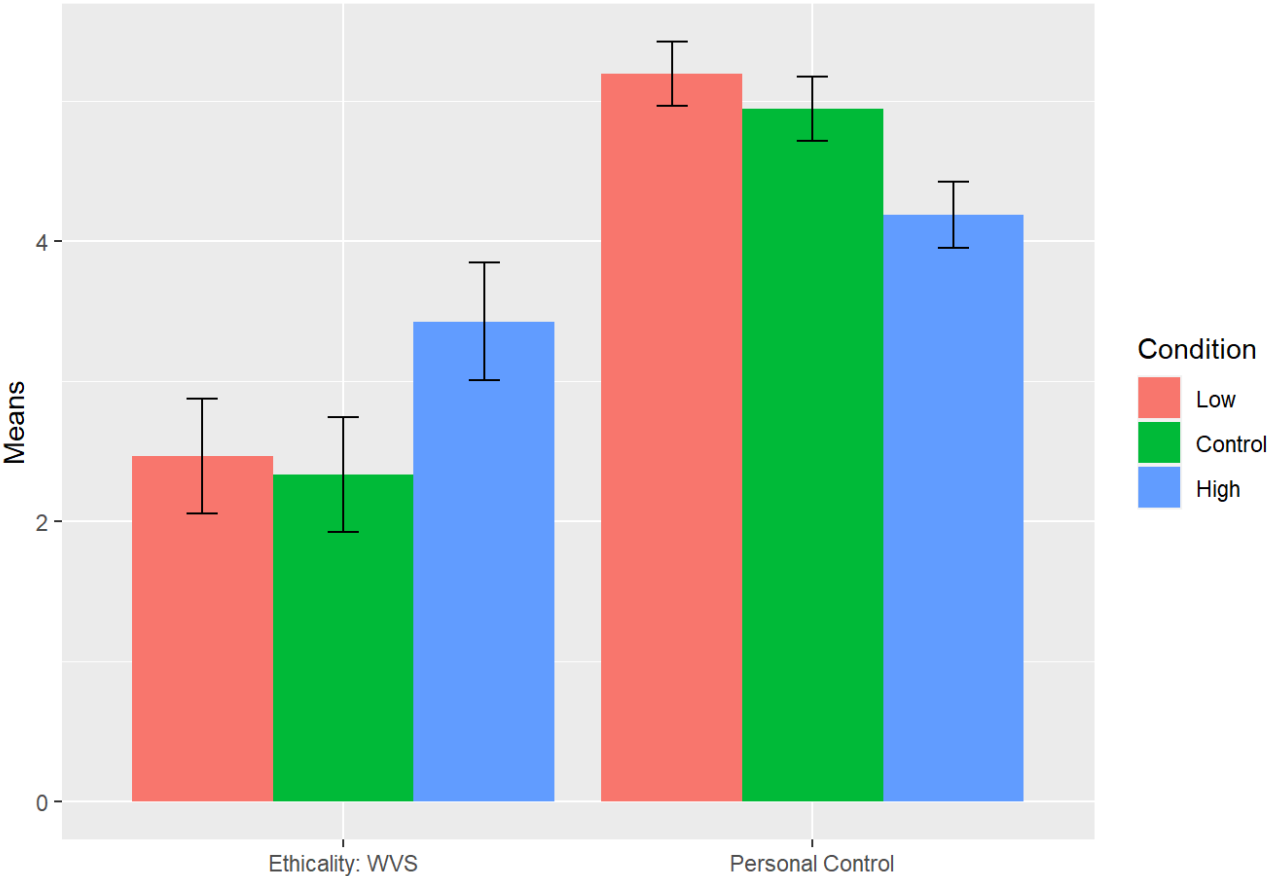
Note. WVS = World Values Survey* indicates $p < .05$. ** indicates $p < .01$.

Table 8
 Study 4: Regressions.

	<i>Dependent variable:</i>		
	Ethical judgements (1)	Personal Control (2)	Ethical Judgements (3)
Control Condition (1 = Control; 0 = Else)	-0.23***	0.28***	-0.12*
Low Inequality Condition (1 = Low; 0 = Else)	-0.20**	0.37***	-0.06
Personal Control			-0.40***
R ²	0.05	0.11	0.19
Adjusted R ²	0.04	0.10	0.18

Note. * indicates $p < .05$. ** indicates $p < .01$, *** indicates $p < .001$.
 Coefficients are standardized.

Figure 4
Study 4: Means.



Study 5

Methods

All recruitment and data analysis plans were pre-registered (<https://aspredicted.org/blind.php?x=6kt2ds>) and materials are provided on OSF (https://osf.io/t6mey/?view_only=e304f83b5ba347839c2819126675b6ec).

Participants. We expected a small effect size ($d = .35$) and calculated an a-priori sample size to detect an effect with 80% power. However, we also want to test the interaction between inequality and self/other judgements. Using an equivalent effect size of $f = .175$, we calculated that a sample size of 600 would be needed to test the interaction with 99% power. We therefore aimed to recruit 650 participants to oversample.

We successfully recruited 650 participants from Amazon's Mechanical Turk ($M_{age} = 40.41$, $SD = 12.80$, 46.15% Female). As planned in our pre-registration, we removed "low-effort" responses on open ended questions that contained irrelevant responses (e.g., less than 10 words; "very good,"). This resulted in a final sample size of 646 participants.¹ Results are qualitatively identical using the full sample size.

Manipulations and Measures. Participants were assigned to a 2 (Inequality: High vs. Low) x 2 (Judgment: Self vs. Other) between-subjects design. The manipulation for high and low inequality was identical to Study 3. Next, participants were presented with four unethical behaviors that were designed to reflect the behaviors from Study 1, 3, and 4 (i.e., cheating on taxes, avoiding fare on public transportation, claiming unearned government benefits, accepting a bribe). In line with a between-subjects design and prior work (Lammers et al., 2010; Polman &

¹ Participant recruitment was done via TurkPrime. To improve the quality of our results, we used a new filter introduced by TurkPrime designed to exclude participants who had previously provided low effort response to TurkPrime's filters. As a result, we received less low-quality responses compared to our prior studies.

Ruttan, 2012), participants responded to each unethical behavior by rating how acceptable it would be if others engaged in the described behavior, or alternatively, if they themselves engaged in the described behavior. Participants' ratings were measured by three items related to acceptability (acceptability, justifiability, appropriateness; $\alpha = .95$). Personal control was assessed using the same items from Studies 2-4 ($\alpha = .95$).

Manipulation check. As in Study 3, participants rated how much inequality they believed was in Bimboola (1 = Very low; 6 = Very high). Participants in the high inequality condition ($M = 5.58, SD = 0.94$) believed there was more inequality than participants in the low inequality condition ($M = 1.91, SD = 1.23$), $t(644) = 42.55, p < .001, CI_{95} = [3.50, 3.84], d = 3.35$. Thus, our manipulation worked as expected.

Results

Correlation and descriptive statistics are displayed in Table 9.

Direct Effects. We ran a 2 x 2 ANOVA on ethical judgements (see Figure 5). As expected, participants in the high inequality condition ($M = 2.17, SD = 1.28$) reported unethical behaviors as more acceptable than participants in the low inequality condition ($M = 1.91, SD = 1.05$), $F(1, 643) = 7.68, p = .006, f = 0.11$. There were no differences between self ($M = 1.97, SD = 1.18$) and other judgements ($M = 2.11, SD = 1.18$), $F(1, 642) = 1.75, p = .186, f = .05$, nor a significant interaction, $F(1, 642) = 2.65, p = .104, f = .06$. Therefore, using scenarios consistent with our prior studies, we replicate the finding that inequality increases the acceptability of dishonesty. We did not observe self-other differences in judgements.

A 2 x 2 ANOVA on personal control indicated identical results from our prior studies. Participants in the high inequality condition ($M = 4.41, SD = 1.26$) reported lower personal control than participants in the low inequality condition ($M = 5.26, SD = 1.07$), $F(1, 642) =$

84.10, $p < .001$, $f = 0.36$. As expected, there were no differences in personal control between the self ($M = 4.87$, $SD = 1.28$) and other manipulations ($M = 4.81$, $SD = 1.20$), $F(1, 643) = 0.00$, $p = .978$, $f = .00$, nor a significant interaction, $F(1, 642) = 0.00$, $p = .999$, $\eta^2 = .00$ (see Figure 5).

Indirect Effects. We conducted mediation analysis by regressing ethical judgements onto dummy variables for inequality, and self-other judgements (see Table 10). Replicating our previous studies, we found that a lower personal control was associated with greater acceptability of unethical behaviors, $\beta = -0.35$, $p < .001$. Mediation analysis (5000 bootstraps; bias-corrected intervals) indicates a significant indirect effect whereby the high inequality manipulation decreased perceptions of personal control, which then predicted acceptability of unethical behaviors, $CI_{95} = [0.039, 0.109]$. This mediation did not vary by self (versus other) judgements.²

Study 5 helps address a potential empirical concern by explicitly highlighting who was engaging in unethical behavior. Overall, we replicate our prior effects of inequality on ethical judgements using scenarios that explicitly state which characters are being judged; the effects of inequality on the acceptability of dishonesty did not differ by self (versus other) differences.

² We also tested whether the relationship between personal control and ethical judgements was moderated by self (versus other) judgements. This analysis is reported in Appendix E. We did not find evidence that the relationship between personal control and ethical judgments was moderated by self (versus other) differences.

Table 9
Study 5: Correlations and Descriptives

Variable	<i>M</i>	<i>SD</i>	1	2	3
1. Inequality Condition (1 = High; 0 = Low)	0.50	0.50			
2. Self vs. Other Condition (1 = Other; 0 = Self)	0.50	0.50	.06		
3. Ethical Judgements	2.04	1.18	.11**	.06	
4. Sense of Control	4.84	1.24	-.34**	-.02	-.23**

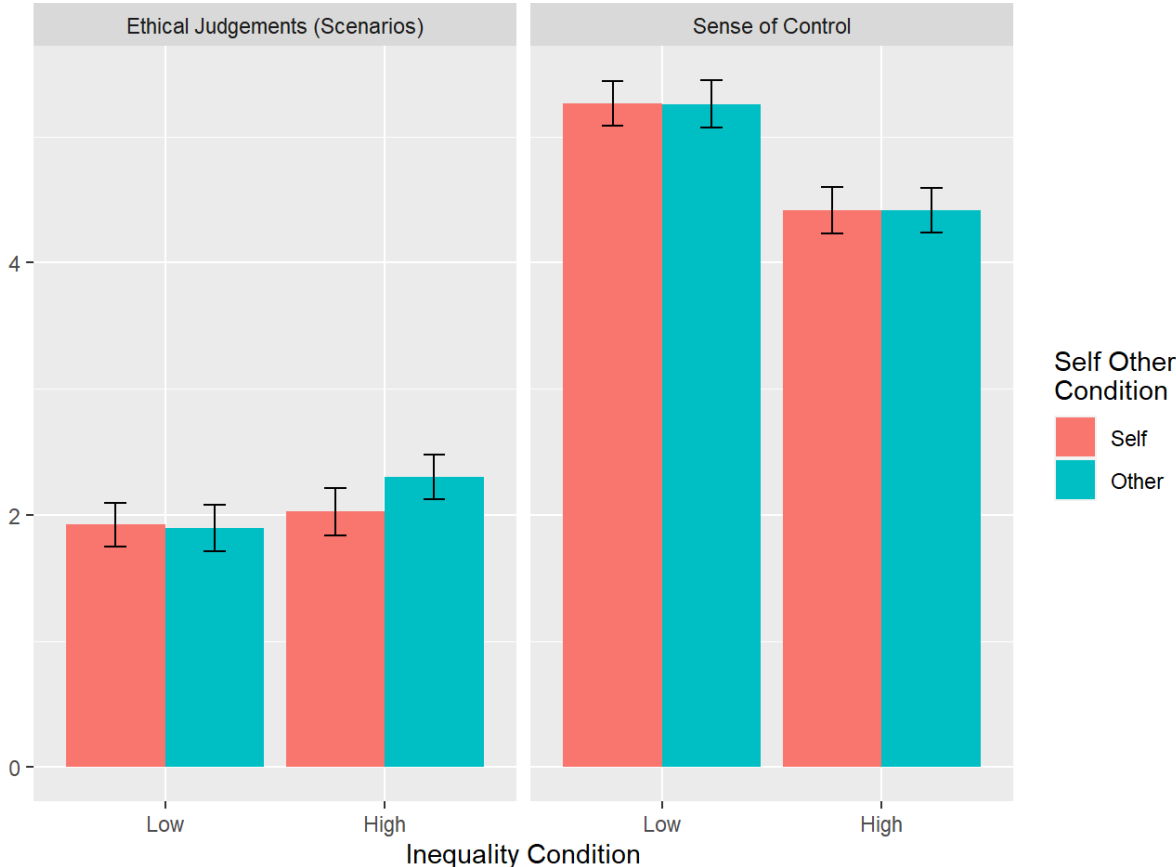
Note. * indicates $p < .05$. ** indicates $p < .01$.

Table 10
 Study 5: Regressions.

	<i>Dependent variable:</i>				
	Sense of Control		Ethical Judgements		
	(1)	(2)	(3)	(4)	(5)
Inequality Condition (1 = High; 0 = Low)	-0.34***	-0.34***	-0.11**	-0.04	0.03
Self vs. Other Condition (1 = Other; 0 = Self)	-0.001	-0.001	-0.05	0.01	0.01
Inequality x Self vs. Other Interaction		0.00		-0.11	-0.11 ⁺
Sense of Control					0.21***
R ²	0.12	0.12	0.02	0.02	0.06
Adjusted R ²	0.11	0.11	0.01	0.01	0.05

Note. * indicates $p < .05$. ** indicates $p < .01$, *** indicates $p < .001$.
 Coefficients are standardized.

Figure 5
Study 5: Means.



General Discussion

Economic inequality can threaten societal well-being, health, and cohesion (Buttrick & Oishi, 2017; Wilkinson & Pickett, 2009). The present research demonstrates another sinister feature of inequality – it increases the acceptability of unethicity, thereby undermining a basic precursor for societal functioning and cooperation. We present five studies (four pre-registered) in which we consistently find that others' unethicity was more acceptable when economic inequality was high (versus low). Furthermore, we explore its underlying mediating mechanisms. While mediation analyses provide some support for competitiveness and expectations of unethical behavior as mediating variables, the most consistent mediating mechanism appeared to be a decreased sense of control. Thus, the current research suggests that inequality can diminish one's sense of control, thereby increasing the acceptability of others' unethical behavior.

Theoretical Implications

This work has several implications for research on inequality and ethical judgements. First, a body of literature on the epidemiology of inequality proposes personal control as a pathway explaining how inequality worsens health outcomes (e.g., Marmot & Bobak, 2000; Wilkinson, 1996). However, personal control as a mechanism in this literature is inferred with econometric data and not directly tested (c.f., Lynch et al., 2001). Our work empirically demonstrates that diminished feelings of personal control are one downstream consequence of experiencing economic inequality. In doing so, our findings demonstrate evidence for a psychological mechanism underlying the experience of economic inequality that is consistent with previous theorizing, but also offers new directions for research. For example, a lower personal control is associated with decreased trust, poorer health and hopelessness, increased risk taking, and increased preferences for a strong leader (Kakkar & Sivanathan, 2017; Kouchaki et

al., 2014; Uslaner, 2002), all of which are also consequences of high economic inequality (Buttrick & Oishi, 2017; Payne et al., 2017; Sprong et al., 2019). Thus, a lower sense of control seems to offer an integrative mechanism for the effects of inequality that is consistent with prior research. Yet, sense of control also offers a useful lens to explore novel outcomes of inequality, especially given its pervasive role in social perceptions and decision-making (e.g., Folkman, 1984; Kraus et al., 2009; Landau et al., 2015). For example, a lack of personal control increases conspiracy beliefs (Stojanov & Halberstadt, 2020), which seems to lend support for recent lay and academic assertions that inequality fosters conspiracy beliefs (Guilhot & Moyn, 2020; Jaiswal et al., 2020). As a more speculative example, a lack of personal control increases the belief one has enemies who seek to undermine them (Sullivan et al., 2010), which is consistent with arguments that inequality creates worse interpersonal relations and more group-divisions in society (Wilkinson & Pickett, 2017). Thus, we contribute to inequality research by offering a sense of control as a useful mechanism for exploring established and potentially new consequences of inequality.

The results regarding expectations of unethical behavior also helps extend existing inequality research. Researchers are starting to consider how inequality fosters different societal norms, such as increased self-interest and individualism (Sommet et al., 2019; Willis et al., 2019). We extend this research by highlighting ethical descriptive norms (e.g., Cialdini & Goldstein, 2004) – inequality increases expectations that others may behave more unethically, an effect that is consistent with prior research on how inequality decreases interpersonal and generalized trust (e.g., Neville, 2012; Wilkinson & Pickett, 2009). Norms provide a basis for several phenomenon in interpersonal relations including conformity, compliance, and behavioral and attitudinal mimicry (e.g., Cialdini & Goldstein, 2004), and future work could examine how

inequality shapes such phenomenon through the lens of ethical norms. For example, unethicality may spread more quickly when people believe that others are engaging in unethical behaviors (Gino, Ayal, et al., 2009; Gino, Gu, et al., 2009; Gino & Bazerman, 2009). This would seem to be consistent with early sociological observations that economic inequality in Boston may have contributed to the rapid spread of looting during riots back in the early 20th century (Jacobs, 1979; Ziskand, 1940). Our research furthers inequality research by highlighting how inequality can shape perceptions of societal norms.

Secondly, we advance the literature on ethical judgments by providing further evidence that a low sense of control drives ethical judgements (Cornwell & Higgins, 2019). By implicating sense of control as a driver of ethical judgements, we conceptually replicate related work from literatures on power and free will – individuals who are low in power (e.g., Wiltermuth & Flynn, 2013), or believe that they (or others) lack free will (e.g., Martin et al., 2017; Monroe et al., 2017) are more accepting of others' unethical behaviors. In doing so, we also extend prior research on the socioeconomic drivers of behavioral ethics. Prior research identifies features such as social class and education (Dubois et al., 2015; Pitesa & Thau, 2014), or economic upturns (e.g., Bianchi & Mohliver, 2016) as drivers of ethical behavior. In the current work, we focus on broader contexts such as economic inequality, thus extending research on how background economic features such as the presence of money and wealth affects ethical behaviors and judgements (c.f., Gino & Pierce, 2009; Kouchaki et al., 2013).

Finally, our work extends research in the intersection between inequality and ethics. Research on inequality and ethics could be broadly characterized as having two streams: 1) how inequality affects unethical behaviors (e.g., Choe, 2008; Gino & Pierce, 2009; Neville, 2012), and 2) when inequality itself is seen as more or less ethical (e.g., Franks & Scherr, 2019). Our

work pivots research attention towards a third question, namely “how does inequality affect what is considered ethical?” We highlight that inequality not only affects our own unethical behaviors, but it affects how we perceive and accept others’ unethicality as well. The accepting of others’ unethical behaviors has costly societal financial and social downsides (Ayal et al., 2016), and our research extends inequality research by offering a step in this new research direction. Thus, our work offers a starting point for future work to explore this important question of when and how inequality affects the acceptability of others’ unethical behaviors.

Strengths, Qualifications, and Future Directions

Our range of methodologies and measures increases our confidence in the robustness of the association between inequality and the judgements of others’ unethical behaviors. Studies 1 and 2 provide initial correlational data using both objective country-level and subjective individual-level measures of inequality. Studies 3 to 5 moved to an established experimental paradigm to develop claims of causality and internal validity (Blake & Brooks, 2019; Sprong et al., 2019). In doing so, we also introduce additional nuances by testing our three mechanisms (Study 3), introducing a neutral comparison condition (Study 4), and comparing self-versus-other differences ethical judgements (Study 5). This last study was particularly striking because it is consistent with prior work that inequality increases one’s own unethical behavior (e.g., Choe, 2008; Gino & Pierce, 2009; Neville, 2012), while also extending it to judgements towards others’ unethicality.

Nevertheless, this work is not without limitations and there remain some important questions deserving of further attention. For example, future work could directly assess attributions of others’ unethical behaviors. We rely on existing literatures from sense of control, power, and free will to highlight that a lower sense of control increases contextual explanations

for others behaviors and greater acceptability of others' unethical behavior (Cornwell & Higgins, 2019; Martin et al., 2017; Wiltermuth & Flynn, 2013). As such, we do not directly measure attributions, which could offer a reasonable next step. It is worth noting that some of our measures approximate attributions of whether an actor was responsible for their unethical behavior – for example, in Study 3, we include measures of “blameworthiness” in our measure of acceptability. This item presumably reflects attributions of whether an actor is to blame for their actions (Malle et al., 2014) and, as expected, is highly correlated with measures of acceptability ($r = .75$). Nonetheless, future work could more thoroughly assess attributions of responsibility.

Our surveys and experiments were based on well-established role-playing paradigms where participants imagined themselves in a fictitious society. A possible downside to this method is the reliance on participants' subjective perceptions of an unequal society, rather than objective and “real” indicators inequality. We contend that subjective perceptions of inequality may be a stronger predictor than actual levels of inequality (see Phillips et al., 2020). Indeed, a basic psychological principle is that subjective construals are often stronger predictors than objective reality (e.g., Adler et al., 2000; Griffin & Ross, 1991), and we suspect that subjective inequality plays an important role in determining its psychological consequences. Nevertheless, concerns of differences between objective and subjective inequality may be mitigated once considering that we replicate our effects across both objective (Study 1) and subjective inequality (Studies 2-5). Future research could consider whether the effects of inequality differ based on whether they are measured via subjective perceptions or objective levels.

It is also worth considering additional nuances regarding different types of unethical behavior. In the current research, we focused on unethical behaviors reflecting dishonesty and

harm because such behaviors tend to be universally frowned upon (Haidt et al., 1993; Mikhail, 2007; Schein & Gray, 2015, 2018). However, future work could explore nuances highlighted by behavioral ethics scholars, such as whether judgements vary based on whether the issues are financial (versus non-financial), whether the behaviors are selfish (versus prosocial), or whether the behaviors involve acts of omission (versus commission). In addition, we generally focused on unethical behaviors that harmed societal outcomes (e.g., tax evasion; avoiding fare on public transit) rather than specific individuals (e.g., stealing from a friend). Thus, future work could vary the target of who is being harmed, perhaps by considering whether judgements differ based on whether the target is harming an individual (rather than society) and whether the target is higher or lower in SES. Finally, future work could explore if inequality affects the acceptability of “unethical” behaviors reflecting sociocultural moral norms (e.g., abortion, homosexuality, or divorce). Our focus on behaviors universally deemed to be unethical was done to establish generalizability (Haidt et al., 1993; Mikhail, 2007; Schein & Gray, 2015, 2018), though future work could explore the nuances between universally and culturally determined immoral behaviors (see Appendix D for initial analyses). Overall, our work takes a crucial step towards establishing a link between inequality and ethical judgements, thus offering a pathway for future work to explore greater nuances regarding different types of unethical behaviors.

We also do not contend that personal control, expectations of unethicality, and competitiveness are the only psychological mechanisms underlying the experience of inequality and increased acceptability of others’ unethicality. Our selection of mechanisms was informed by a review of the inequality literature, which highlighted three outcomes which may be relevant to ethical judgements (e.g., Buttrick & Oishi, 2017; Wilkinson & Pickett, 2009, 2017). Researchers could also, for example, draw from the behavioral ethics literature and examine

possible mechanisms that arise from that literature. For example, future work could examine how inequality could decrease moral identity (Detert et al., 2008): Perhaps inequality causes people to view morality as less crucial to their identities, which could increase the acceptability of others' unethicality. Behavioral ethics also highlights other potential mediators including cynicism or deontological reasoning. For example, inequality may increase perceptions of injustice and unfairness about one's society (cynicism; Chen et al., 2016), which may increase the acceptability of others' unethicality in general. Inequality may also reduce the use of deontological (i.e., rule-based) reasoning due to a low sense of control (e.g., Fleischmann & Lammers, 2020), which may increase the acceptability of others' unethicality. Thus, our work provides the basis for future work to examine additional mechanisms.

Finally, we tested our predications with different samples, including observational data from the World Values Survey, which represents samples from 90% of the world's population. Nonetheless, our follow-up surveys and experiments sampled from American populations through online platforms and panels. Although our observational study helps establish some generalizability, it is possible that some non-Western cultures differ in their responses to our measures and manipulations of subjective inequality. Furthermore, our unethical behaviors of harm and dishonesty were chosen because such behaviors are universally frowned upon – however, future work could examine specific cultural nuances in which unethical behaviors are frowned upon, and how inequality may affect these judgments.

Conclusion

In the public domain, debates rage on how seriously we should take the issue of inequality. Our work has broad implications for how inequality may harm societal functioning: inequality may undermine one fundamental element of properly functioning societies—the

acceptability and condemnation of unethical behavior. Our work complements the growing narrative arising from social psychological research by highlighting how policy makers and laymen should pay serious attention to the dangers of economic inequality: Inequality increases the acceptability of unethicality.

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