VU Research Portal

Perceptions of having less in the U.S. but having more in China are associated with stronger inequality aversion

Ding, Yi; Wu, Junhui; Ji, Tingting; Chen, Xu; Van Lange, Paul A.M.

Link to publication in VU Research Portal

Perceptions of having less in the U.S. but having more in China are associated with stronger inequality aversion☆

Yi Ding [a,b,1], Junhui Wu [c,d,1], Tingting Ji [b], Xu Chen [a,*], Paul A.M. Van Lange [e]

[a] *Faculty of Psychology, Southwest University, Chongqing 400715, PR China*
[b] *School of Psychology, Nanjing Normal University, Nanjing, Jiangsu Province 210097, PR China*
[c] *CAS Key Laboratory of Behavioral Science, Institute of Psychology, Chinese Academy of Sciences, Beijing 100101, PR China*
[d] *Department of Psychology, University of Chinese Academy of Sciences, Beijing 100049, PR China*
[e] *Department of Experimental and Applied Psychology, VU Amsterdam, Institute for Brain and Behavior Amsterdam (IBBA), Van der Boechorststraat 7, 1081 BT Amsterdam, the Netherlands*

ARTICLE INFO

ABSTRACT

Decades of research predominantly conducted in Western societies reveals that people, especially the less wealthy, are averse to high levels of inequality. However, empirical comparative studies on perceived wealth and inequality aversion across nations are rare. Here, we examine how responses to unequal monetary allocations among those with high or low subjective wealth might differ in the U.S. and China. Four studies reveal that in the U.S. people who perceive themselves as less (versus more) wealthy are more likely to reject unequal allocations—the less wealthy are sensitive to some restoration of equality. Conversely, in China, the wealthy rather than the less wealthy are more prone to reject unequal allocations. We also find some evidence that differences in feelings of deservingness help explain the observed opposing effects of subjective wealth and inequality aversion. Thus, it is plausible that the well-established tendencies of equality restoration observed in Western societies may not necessarily generalize to non-Western societies, especially those societies where differences in income and wealth are more strongly respected, valued, and protected.

Although wealth inequality is common in many countries around the world, research shows that individuals have strong preferences for equality and are averse to large disparities in wealth (Fehr & Schmidt, 1999; Norton & Ariely, 2011; Van Lange, 1999). Wealth inequality yields differences in individuals' social class and socioeconomic status (SES), as well as in their subjective perceptions of own wealth, which may shape different thoughts, feelings, and behaviors within and between groups (see Kraus, Piff, Mendoza-Denton, Rheinschmidt, & Keltner, 2012). In particular, people who perceive themselves as less wealthy are often inclined to reduce the wealth gap, and may react more strongly to inequality (Brandt, 2013; Greitemeyer & Sagioglou, 2016; Tricomi, Rangel, Camerer, & O'Doherty, 2010; cf. Jost, Banaji, & Nosek, 2004). However, extant research on wealth and equality restoration is mainly restricted to Western societies, and whether the relation between wealth and equality restoration varies across societies remains unclear. In this research, we examine how wealth affects individuals' responses to

unequal resource allocation in the U.S. and China, two nations with similarly high levels of wealth inequality but with substantially different cultural values (Hofstede, Hofstede, & Minkov, 2010; Piketty, Yang, & Zucman, 2019; Xie & Zhou, 2014). Here, we focus on wealth—a key aspect of social class or socioeconomic status (SES)—rather than the broader construct of social class or SES, because the latter reflects one's standing in the socioeconomic hierarchy in terms of their income and wealth, education, and occupational prestige (Kraus et al., 2012; Piff, Kraus, Côté, Cheng, & Keltner, 2010), and the different facets of social class or SES can have distinct effects on people's thoughts, feelings, and behaviors (e.g., Dubois, Rucker, & Galinsky, 2015; Tan, Kraus, Carpenter, & Adler, 2020).

Clearly, inequality aversion is an overarching phenomenon that subsumes decades of research (Deutsch, 1975; Fehr & Fischbacher, 2003; Fehr & Schmidt, 1999; Henrich et al., 2001). Research that either observed real-life experiences of inequality or experimentally

---

manipulated it in economic games converges to the conclusion that people are inequality-averse and prefer an equal distribution of resources (Fehr & Fischbacher, 2004; Norton & Ariely, 2011; Van Lange, 1999). Such preferences have been observed in many cultures (Henrich et al., 2005; Henrich et al., 2006), and even among young children in elementary schools (Blake et al., 2015; Fehr, Bernhard, & Rockenbach, 2008; Guinote, Cotzia, Sandhu, & Siwa, 2015).

Despite this general preference, extant evidence suggests that compared to those with high wealth or SES, people with low wealth or SES tend to be more sensitive to inequality (Brandt, 2013; Dawes, Fowler, Johnson, McElreath, & Smirnov, 2007; Guinote et al., 2015; Tricomi et al., 2010). For example, by manipulating (subjective) wealth differences using a lucky drawn game, Tricomi et al. (2010) found that although people with lower and higher subjective wealth both prefer less inequality in outcomes, this tendency is particularly strong among people with lower subjective wealth. Moreover, people who perceive themselves as less wealthy tend to perceive disadvantageous inequality as more unacceptable. For example, relative to their counterparts with higher subjective SES, individuals with lower subjective SES are more prone to attribute their disadvantages to external rather than internal causes (Kluegel & Smith, 1986; Kraus, Piff, & Keltner, 2009), are more supportive of redistributive policies that benefit themselves (Brown-Iannuzzi, Lundberg, Kay, & Payne, 2015), and tend to feel more deprived and express more anger and aggression in response to their disadvantages (Greitemeyer & Sagioglou, 2016; Park et al., 2013). Notably, this effect even occurs above and beyond one's objective wealth or SES, suggesting that subjective indicators of wealth or SES (i.e., perceptions of one's own standing in the socioeconomic hierarchy relative to others) may be a more prominent factor that shapes individuals' thoughts and behaviors (see also Brown-Iannuzzi et al., 2015; Kraus et al., 2009; Smith, Pettigrew, Pippin, & Bialosiewicz, 2012).

Yet, most of these findings on the stronger inequality-aversion preference among the less wealthy have been found in Western contexts, particularly in the U.S. and Western Europe. If wealth affects individuals' responses to inequality, does this effect occur in Asian societies, such as China? According to Hofstede's cultural model, the U.S. and China are substantially different in the cultural dimensions of individualism–collectivism (individualism index: 91 for U.S. and 20 for China; Hofstede et al., 2010) and power distance values (power distance index: 40 for U.S. and 80 for China; Hofstede et al., 2010), which are commonly associated with inequality (Hofstede, 1980; Hofstede et al., 2010; Oyserman, 2006; Schwartz, 1999; Singelis, Triandis, Bhawuk, & Gelfand, 1995). Individualism–collectivism refers to the degree to which people consider themselves as a part of a group or as an independent self (Hofstede et al., 2010). People with individualistic values tend to see themselves as independent of others and generally behave according to their preferences, whereas people with collectivistic values see themselves as interdependent with others and usually behave according to social norms (Hofstede et al., 2010; Markus & Kitayama, 1991). Power distance values refer to the degree to which individuals accept the unequal distribution of power, status, and dominance in society and organizations (Clugston, Howell, & Dorfman, 2000; Hofstede et al., 2010; Kirkman, Chen, Farh, Chen, & Lowe, 2009). In East Asian societies where power distance is high, there is a greater respect for those in superior ranks, and those in superior positions are likely to behave in a more dominant way, whereas in Western societies where power distance is low, subordinates are encouraged to participate in decisions relevant to themselves (Markus & Kitayama, 2010; Miyamoto, 2017; Schwartz, 1999; Tyler, Lind, & Huo, 2000). Notably, many countries that score high on power distance values also tend to be more collectivistic and less individualistic, such as the U.S. (individualistic and low power distance) and China (collectivistic and high power distance; Hofstede et al., 2010).

In this research, we argue that the substantial differences between East Asian and Western societies in individualism-collectivism and power distance values as noted earlier have implications for how people varying in wealth may respond to (disadvantageous) inequality in different societies. Specifically, in Western societies (e.g., the U.S.) with high individualism and low power distance, the less wealthy may be less likely to accept inequality, feel that they deserve more, and thus may be less tolerant of disadvantageous inequality (e.g., Miyamoto, 2017; Park et al., 2013). By contrast, in Asian societies like China (collectivism and high power distance), people who perceive themselves as more wealthy are likely to feel that they deserve the relative advantage (e.g., the rich deserve more and the poor deserve less, see Ding, Wu, Ji, Chen, & Van Lange, 2017), and such feelings may motivate them to maintain their relative advantage and be less tolerant of unfavorable outcomes from others. Supporting this argument, cross-cultural evidence shows that higher-SES (versus lower-SES) East Asians tend to express more anger to display their authority (Park et al., 2013), punish others more often in economic games to protect their own superior ranks (Kuwabara, Yu, Lee, & Galinsky, 2016), and show more autocratic attitudes in groups (Naoi & Schooler, 1985), but these patterns were reversed in Western cultures, such as the U.S. (Kuwabara et al., 2016; Naoi & Schooler, 1985; Park et al., 2013).

Taken together, we propose that the cultural differences in acceptance of inequality predict how people varying in wealth respond to disadvantageous allocations of resources. The general hypothesis is that in the Western societies the less wealthy are less tolerant of disadvantageous unequal allocations of resources, whereas in Asian societies the wealthier are less tolerant of such allocations. Based on previous research that has documented the dominant cultural values in different nations, respondents in the China should exhibit higher levels of collectivism and power distance values than respondents in the U.S. (see Brockner et al., 2001; Hofstede et al., 2010; van Prooijen & Song, 2021; Wu, Steffel, & Shavitt, 2021), and thus we tested our hypotheses using samples collected from the U.S. and China. We mainly focused on subjective, instead of objective, wealth because it has been shown to more strongly predict thoughts, feelings, and behaviors (Brown-Iannuzzi et al., 2015; Greitemeyer & Sagioglou, 2016; Smith et al., 2012).

1. The present research

We conducted four studies among U.S. and Chinese samples to test our hypothesis. All the materials were developed in Chinese, and were translated into English and back translated. All measures, manipulations, and exclusions were reported in our studies. Across four studies, we measured participants' subjective wealth (Study 1), manipulated their subjective wealth by providing different feedback about wealth (Study 2), or varying their temporary experience of wealth in a lucky draw game (Studies 3 and 4). While the first three studies mainly addressed how subjective wealth affected individuals' responses to unequal resource allocation in the two countries, Study 4 further tested the potential mechanisms (i.e., feelings of deservingness) underlying this effect in both countries, and whether the source of wealth (i.e., luck vs. effort) and the partner's wealth (high vs. low) moderated this effect (see Almås, Cappelen, Sørensen, & Tungodden, 2010; Gee, Migueis, & Parsa, 2017; Van Doesum, Tybur, & Van Lange, 2017).

To measure participants' responses to disadvantageous unequal resource allocation, we observed their decision to accept or reject an unequal offer from their interaction partner in a commonly-used ultimatum game (UG; see Güth, Schmittberger, & Schwarze, 1982; Studies 1 and 3). If they accepted the offer, both received the proposed amount; otherwise both received nothing. To rule out the alternative explanation that rejection is simply less affordable for the less wealthy in the ultimatum game, we created a variant of this game where if the responder rejects, they would receive the proposed amount, but the proposer received nothing (i.e., the cost-free rejection game; Studies 2, 3 and 4).

2. Study 1

Study 1 sought to provide an initial test of whether U.S. participants who perceive themselves as less wealthy are more likely to reject an

unequal offer, whereas in China those with higher subjective wealth are less tolerant of such an unequal offer. Participants from the U.S. and China were asked to report their perceptions of wealth, and then decided whether to accept or reject an unequal offer in a one-shot ultimatum game.

2.1. Method

Participants. An a-priori power analysis revealed a required sample size of at least 162 participants per country to achieve 80% power to detect a small-to-medium effect (an odds ratio of 2.7, Chen, Cohen, & Chen, 2010; see also Bernhard, Martin, & Warneken, 2020). We recruited 225 U.S. participants (78 females; $M_{age} = 31.00$ years, $SD = 9.58$) and 222 Chinese participants (131 females; $M_{age} = 31.98$ years, $SD = 8.18$) from Amazon Mechanical Turk (MTurk) and Sojump (see https://www.wjx.cn/), respectively. They completed the study for a baseline payment of US$0.3 (U.S. participants) or CN¥3 (i.e., roughly US$0.45 during the time of study; Chinese participants). Similar with MTurk, Sojump is an online participant recruitment platform in China with demographically diverse samples from different regions of China (see Ding et al., 2017; Yuan, Wu, & Kou, 2018).

Procedure. Participants first rated their perceptions of their own wealth compared to others on a 101-point scale (0 = *the lowest wealth*, 100 = *the highest wealth*). Then they indicated their position on a modified version of the 10-rung MacArthur Ladder (0 = *lowest*, 10 = *highest*) representing the place that people occupy in society. They were instructed that "at the top of the ladder are the people who have the highest wealth (including all wages, salaries, housing, cars, jewelry, and other valuable properties), and at the bottom of the ladder are the people who have the lowest wealth". These two measures were highly correlated ($rs = 0.74$ and 0.81 in the U.S. and China, $ps < 0.001$), so we standardized and averaged them to yield a composite score of subjective wealth in each country.

To measure objective wealth, we assessed participants' family income (i.e., yearly household income) with different scales in the U.S. (1 = *less than $10,000*, 40 = *$20,000 to or more*; in $5000 increments) and China (1 = *less than CN¥ 10,000*, 51 = *CN¥ 500,000 or more*; in CN¥ 10,000 increments), and then standardized the scores in each country to make them more comparable. Participants also reported their age, gender, ethnicity, and education level (1 = *high school education or less*, 2 = *at least some post-secondary school*, 3 = *technical degree*, 4 = *bachelor's degree*, 5 = *master's degree or higher*).

Finally, participants played a one-shot ultimatum game, during which they earned monetary units (MUs) that would be converted into money (1 MU = US$0.1 or CN¥1; CN¥1 = US$0.15 at the time of the studies). In this game, they interacted with another participant ("Other") to decide how to divide 10 MUs between them. They learned that this "Other" acted as a proposer and had made an offer earlier in this study. The rules of the UG were: If they accepted the offer, both received the proposed amount; If they rejected the offer, both received nothing. In fact, all participants had to decide whether to accept or reject an offer of "2 MUs for you, 8 MUs for Other" (i.e., a 2/8 offer). We chose this offer because it has been shown to elicit roughly 50% rejection rates (see Camerer, 2003). Participants were debriefed and paid after their decision. Including the baseline payment, the total payment for all U.S. participants ($M = 0.43, range: US$0.3–US$0.5) and Chinese participants ($M = $ CN¥4.28, range: CN¥3–CN¥5) in this study were US$97.3 and CN¥950, respectively.

2.2. Results and discussion

We conducted a binary logistic regression on rejection decisions (0 = accept, 1 = reject) with country (0 = China, 1 = U.S.), subjective wealth, and their interaction as predictors (see Table S1 in the Supplementary Material). This analysis revealed a significant interaction between country and subjective wealth, $b = -1.11$, Wald $\chi^2(1) = 24.73$, $p < .001$,

odds ratio = 0.33, 95% CI [0.21, 0.51]. Specifically, subjective wealth negatively predicted rejection of the unequal offer in the U.S., $b = -0.63$, Wald $\chi^2(1) = 15.53$, $p < .001$, odds ratio = 0.53, 95% CI [0.39, 0.73], but positively predicted rejection of this offer in China, $b = 0.48$, Wald $\chi^2(1) = 9.48$, $p = .002$, odds ratio = 1.62, 95% CI [1.19, 2.19]. Neither country nor subjective wealth were significant independent predictors ($ps > 0.55$). We obtained the same patterns of results when we also included family income and interactions with family income in the model while controlling for age, gender, ethnicity, and education level. Neither family income nor the interactions with family income were significant predictors of rejection decision ($ps > 0.30$; see Supplementary Material). Overall, these findings provided preliminary evidence that people with lower subjective wealth in the U.S. but those with higher subjective wealth in China were more likely to reject an unequal offer of 2/8 in a one-shot ultimatum game.

3. Study 2

To replicate and extend the findings in Study 1, Study 2 manipulated subjective wealth by providing participants with different feedback (i.e., they had more or less than many others) after they answered some wealth-related questions. We also varied the equality levels of the offers (i.e., responder/proposer: 2/8 vs. 5/5) to test whether subjective wealth only affected rejection decisions of unequal, but not equal, offers. Notably, rejecting an unequal offer in the ultimatum game is costly for both parties. Thus, the findings on the effect of wealth on rejection decisions in the UG in Study 1 cannot rule out an alternative explanation that rejection is simply less affordable for the less wealthy. To address this issue, we created a variant of ultimatum game where if the responder rejects, they would receive the proposed amount but the proposer would receive nothing (i.e., the cost-free rejection game, CFRG). Thus, rejection in the CFRG is costless, making the wealthy and the less wealthy's decisions more comparable.

3.1. Method

Participants and design. As in Study 1, the minimum required sample size for this study was 162 participants per country. To increase statistical power, and to provide a statistically stringent test of our hypotheses, we aimed to recruit at least 100 participants for each between-group condition. We recruited 402 U.S. participants (197 females; $M_{age} = 36.42$ years, $SD = 11.57$) and 419 Chinese participants (248 females; $M_{age} = 30.89$ years, $SD = 8.12$) from MTurk and Sojump, respectively. They completed the study for a baseline payment of US$0.3 (U.S. participants) or CN¥3 (Chinese participants). The study was a 2 (country: U. S. vs. China) × 2 (subjective wealth: high vs. low) × 2 (equality level: 2/8 vs. 5/5) between-participants design. Participants from each country were randomly assigned to one of four conditions (i.e., subjective wealth × equality level).

Procedure. Participants first completed a battery of questions about their wealth and financial behavior, including items about their personal and family income, housing, cars, other valuable properties (e.g., jewelry, stocks, and bonds), as well as loans and ZIP code. Afterward, they were randomly assigned to high or low subjective wealth condition with the following feedback: "From your responses, we cannot give a precise estimate on your wealth, but generally we can say that you are 'having more' ('having less') than many other people in your surroundings or further away from home. When bringing to mind these other people, you can consider yourself relatively high (low) in terms of wealth". Then they were asked to write down some sentences to explain why they received this feedback. After answering some filler questions about their financial behavior, they reported their age, gender, ethnicity, and education level. As a manipulation check of subjective wealth, participants rated their wealth relative to others on a 101-point scale and responded to the 10-rung modified MacArthur Ladder used in Study 1.

Next, participants played a one-shot cost-free rejection game (CFRG) as a responder. They learned that the monetary units (MUs) they earned in this game would be converted into money (1 MU = US$0.1 or CN¥1) and paid to them. The CFRG was similar to the UG except that responders would also receive the proposed amount even if they reject the offer, and only they knew about this, but proposers learned that both players would receive nothing if rejected. Participants were randomly assigned to decide whether to accept or reject an unequal offer of "2 MUs for you, 8 MUs for Other" (i.e., a 2/8 offer) or an equal offer of "5 MUs for you, 5 MUs for Other" (i.e., a 5/5 offer). They were debriefed and paid after they made their decision. Including the baseline payment, the total payment for all U.S. participants (M = US$0.65, range: US$0.5–US$0.8) and Chinese participants (M = CN¥6.52, range: CN¥5–CN¥8) in this study were US$261.6 and CN¥2731, respectively.

3.2. Results and discussion

Manipulation checks. The subjective wealth was manipulated successfully in both countries: participants in the high and low subjective wealth conditions in the two countries showed significant differences in perceived wealth (U.S.: Ms = 47.26 and 37.66, p < .001, d = 0.46; China: Ms = 49.95 and 39.60, p < .001, d = 0.53) and ratings on the modified MacArthur Ladder (U.S.: Ms = 5.03 and 4.33, p < .001, d = 0.39; China: Ms = 5.08 and 4.24, p < .001, d = 0.51).

Subjective wealth and rejection decision. Participants' decisions to accept or reject the 2/8 or 5/5 offer across all conditions are summarized in Fig. 1. We conducted a binary logistic regression on rejection decision with country, subjective wealth, equality level, and all the two-way and three-way interactions with equality level as predictors (see Table S2 in the Supplementary Material). Equality level significantly predicted rejection decision, b = 3.99, Wald $\chi^2(1)$ = 165.24, p < .001, odds ratio = 54.02, 95% CI [29.40, 99.24], suggesting that participants rejected the 2/8 offer more often than the 5/5 offer.

More importantly, we found a significant Country × Subjective Wealth × Equality Level interaction, b = −1.52, Wald $\chi^2(1)$ = 13.27, p < .001, odds ratio = 0.22, 95% CI [0.10, 0.50]. Analyzing each country separately, we found that subjective wealth negatively predicted rejection of the 2/8 offer in the U.S., b = −0.76, Wald $\chi^2(1)$ = 6.58, p = .01, odds ratio = 0.47, 95% CI [0.26, 0.84], but positively predicted rejection of this offer in China, b = 0.76, Wald $\chi^2(1)$ = 6.69, p = .01, odds ratio = 2.14, 95% CI [1.20, 3.80]. However, subjective wealth did not significantly predict the rejection rate of 5/5 offer in either country (ps > 0.16). These findings suggest that lower subjective wealth in the U.S. but higher subjective wealth in China triggers more rejections of unequal offers, but not equal offers. We obtained the same significant effects when we also included family income and interactions with family

income in the model while controlling for age, gender, ethnicity, and education level. Neither family income nor the interactions with family income were significant predictors of rejection decision (ps > 0.29; see Supplementary Material).

4. Study 3

Study 3 sought to further extend Studies 1 and 2 by using a manipulation of subjective wealth that was completely independent of the actual wealth in society. We did so by using a lucky draw game in which participants could win a bonus with varying outcomes (Tricomi et al., 2010). This game varied temporary feelings of wealth independent of power, status, social class, or the histories that they bring with them. Equality levels of the offers were implemented in both an ultimatum game (UG) and a cost-free rejection game (CFRG) using strategy method: participants indicated whether to accept or reject each of nine possible offers (i.e., responder/proposer: 1/9, 2/8, 3/7, 4/6, 5/5, 6/4, 7/3, 8/2, and 9/1) from the proposer (e.g., Henrich et al., 2006; Yamagishi et al., 2009).

4.1. Method

Participants and design. As in Study 2, we aimed to recruit at least 100 participants per between-group condition. A total of 602 U.S. participants (338 females; M_{age} = 35.30 years, SD = 11.40) from MTurk and 603 Chinese participants (313 females; M_{age} = 34.55 years, SD = 8.18) from Sojump completed the study for a baseline payment of US$0.3 (U.S. participants) or CN¥3 (Chinese participants). The study was a 2 (country: U.S. vs. China) × 3 (wealth: high vs. moderate vs. low) × 2 (game type: UG vs. CFRG) × 9 (equality level: 1/9, 2/8, 3/7, 4/6, 5/5, 6/4, 7/3, 8/2, 9/1) mixed design. Only equality level was a within-participant variable. Participants from both countries were randomly assigned to one of six conditions (i.e., wealth × game type).

Procedure. Participants learned that they would play two unrelated games (i.e., a lucky draw game and a money allocation game), during which they earned monetary units (MUs) that would be converted into money (1 MU = US$0.1 or CN¥1) and paid to them.

Participants first played a lucky draw game in which they learned that by drawing a lottery, they had an equal chance to receive one of 11 options of bonus ranging from 0 to 10 MUs. We actually randomly assigned them to a high-wealth (Win 10 MUs), moderate-wealth (Win 5 MUs), or low-wealth condition (No Win, see Fig. 2). As a manipulation check, they rated their perceptions of their income in this game (0 = *the lowest income*, 100 = *the highest income*) and their wealth at that moment (0 = *extremely poor*, 100 = *extremely rich*) relative to others on 101-point scales.
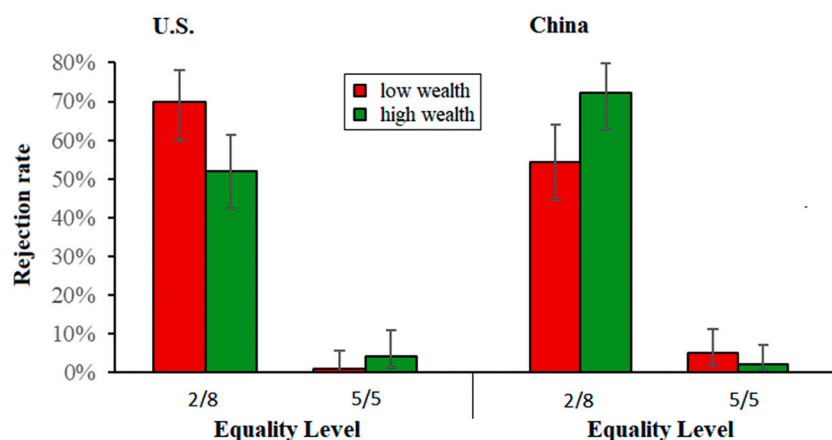
Fig. 1. Rejection rates of the 2/8 and 5/5 offers among U.S. participants (left) and Chinese participants (right) in Study 2. Error bars represent 95% confidence intervals.
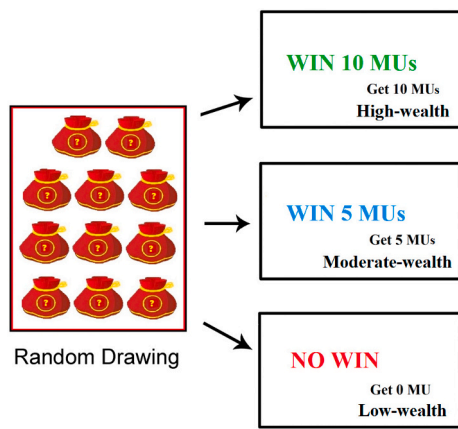
Fig. 2. The lucky draw game.

Next, participants played a money allocation game (i.e., UG or CFRG) as a responder. In this game, they interacted with another participant (i.e., the proposer) to decide how to split 10 MUs. They indicated whether to accept or reject each of nine possible offers (i.e., responder/proposer: 1/9, 2/8, 3/7, 4/6, 5/5, 6/4, 7/3, 8/2, and 9/1; *strategy method*) from the proposer. The rules of the UG and CFRG were the same as in Studies 1 and 2. All participants actually received 5 MUs in the money allocation game. After their decisions, participants reported their age, gender, ethnicity, education level, and family income. Finally, they were debriefed and paid. Including the baseline payment, the total payment for all U.S. participants (M = US$1.32, range: US$0.8–US$1.8) and Chinese participants (M = CN¥13.02, range: CN¥8–CN¥18) were US$792.1 and CN¥7854, respectively.

4.2. Results and discussion

Manipulation checks. The subjective wealth was manipulated successfully in both countries: participants in the high-, moderate-, and low-wealth conditions in the U.S. and China showed significant differences
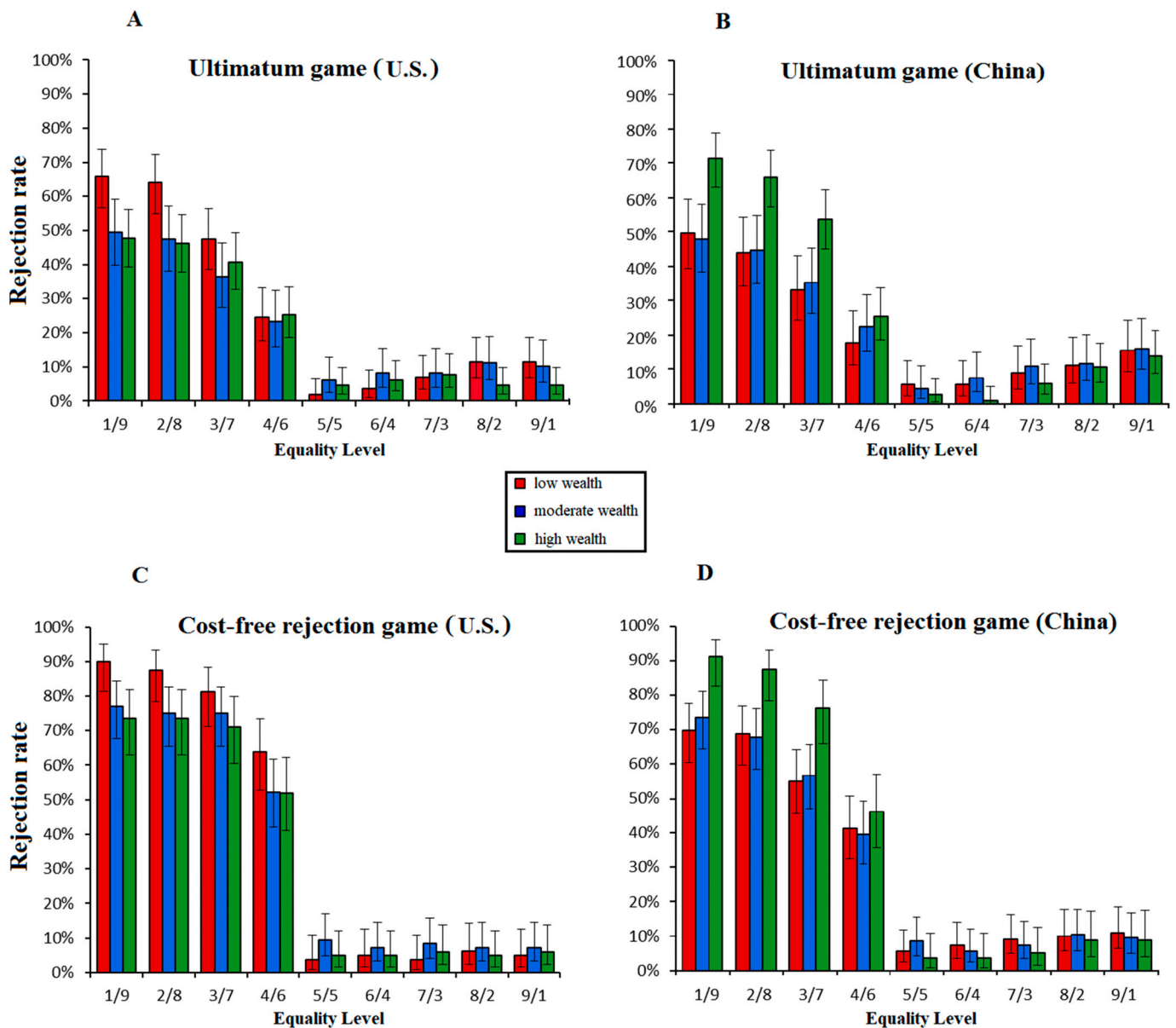
Fig. 3. Participants' rejection rate of the nine possible offers in Study 3. Rejection rate in the (A) UG in the U.S., (B) UG in China, (C) CFRG in the U.S., and (D) CFRG in China. Error bars represent 95% confidence intervals.

in perceived income (U.S.: Ms = 80.57, 50.05, and 13.30, $p < .001$, η_p^2 = 0.63; China: Ms = 78.66, 46.64, and 7.22, $p < .001$, η_p^2 = 0.66) and perceived wealth (U.S.: Ms = 56.32, 39.10, and 21.75, $p < .001$, η_p^2 = 0.27; China: Ms = 64.32, 47.96, and 20.56, $p < .001$, η_p^2 = 0.39).

Manipulated wealth and rejection decision. Participants' decisions to accept or reject nine possible offers (i.e., responder/proposer: 1/9, 2/8, 3/7, 4/6, 5/5, 6/4, 7/3, 8/2, and 9/1) in both games are summarized in Fig. 3. To test whether wealth affects rejection decisions differently in the two countries, we conducted a full generalized linear mixed model (GLMM) predicting rejection decision using a likelihood ratio test (LRT; Bolker et al., 2009; see Supplementary Material). Country, wealth, game type, equality level, and all the two-way and three-way interactions with equality level were the predictors. Participant ID was treated as a random effect. We compared this full model to a reduced model without the Country × Wealth × Equality Level interaction, and found that this interaction was a significant predictor, $\chi^2(18) = 73.19$, $p < .001$. Thus, the effect of wealth on rejection decision varied in these two countries. We further conducted two separate GLMMs to test this effect among U.S. and Chinese participants.

U.S. sample: Do low-wealth individuals reject unequal offers more often? Among U.S. participants, the Wealth × Equality Level interaction was significant, $\chi^2(16) = 38.28$, $p = .001$ (see Supplementary Material). Planned contrasts revealed that low-wealth U.S. participants rejected extremely disadvantageous unequal offers (i.e., 1/9 and 2/8) more often than high- and moderate-wealth U.S. participants ($ps < 0.01$), but the latter two groups did not differ in their rejection rates of these offers ($ps > 0.05$, see Table 1). The Game Type × Equality Level interaction was significant, $\chi^2(8) = 145.15$, $p < .001$, suggesting that U.S. participants were sensitive to the costs in rejecting disadvantageous unequal offers (i. e., 1/9, 2/8, 3/7, and 4/6), and thus rejected these offers less often in the UG than in the CFRG ($ps < 0.001$).

Chinese sample: Do high-wealth individuals reject unequal offers more often? Among Chinese participants, the Wealth × Equality Level interaction, $\chi^2(16) = 55.78$, $p < .001$, and the Game Type × Equality Level interaction, $\chi^2(8) = 66.48$, $p < .001$, were significant. High-wealth Chinese rejected disadvantageous unequal offers (i.e., 1/9, 2/8, and 3/7) more often than those with low ($ps < 0.001$) or moderate wealth ($ps < 0.001$), but the low- and moderate-wealth Chinese showed no difference ($ps > 0.05$, see Table 1). Moreover, Chinese participants rejected disadvantageous unequal offers (i.e., 1/9, 2/8, 3/7, and 4/6) more often in the CFRG than in the UG ($ps < 0.001$; see Fig. 3).

To test whether objective wealth affected participants' decision, we conducted two separate GLMMs that also included family income and the interaction between family income and equality level in the model. We found no significant effect of family income on rejection decision in the U.S. or China ($ps > 0.17$; see Supplementary Material).

Table 1
Rejection rates as a function of country, wealth, and equality level in Study 3.

Equality level	U.S.			China		
	High wealth	Moderate wealth	Low wealth	High wealth	Moderate wealth	Low wealth
1/9	0.58 [a]	0.63 [a]	0.76 [b]	0.79 [a]	0.62 [b]	0.61 [b]
2/8	0.57 [a]	0.61 [a]	0.74 [b]	0.74 [a]	0.57 [b]	0.58 [b]
3/7	0.53 [a]	0.55 [a]	0.61 [a]	0.63 [a]	0.47 [b]	0.45 [b]
4/6	0.36 [a]	0.37 [a]	0.41 [a]	0.33 [a]	0.32 [a]	0.31 [a]
5/5	0.05 [a]	0.08 [a]	0.03 [a]	0.03 [a]	0.07 [a]	0.06 [a]
6/4	0.06 [a]	0.08 [a]	0.04 [a]	0.02 [a]	0.07 [a]	0.07 [a]
7/3	0.07 [a]	0.08 [a]	0.06 [a]	0.05 [a]	0.09 [a]	0.09 [a]
8/2	0.05 [a]	0.09 [a,b]	0.09 [b]	0.10 [a]	0.11 [a]	0.11 [a]
9/1	0.05 [a]	0.09 [a]	0.09 [a]	0.12 [a]	0.13 [a]	0.13 [a]

Note. Means with different superscripts per row in each country are statistically different ($p < .05$ with Bonferroni corrections using 'lsmeans' package in R, see Bates, Mächler, Bolker, & Walker, 2015).

5. Study 4

In Study 4, we aimed to test potential mechanisms (i.e., feelings of deservingness) that may explain the effects of subjective wealth on rejections of unequal offers in two countries. As noted earlier, in the U.S. people with lower perceived wealth may feel that they deserve more when they are in a disadvantageous situation, whereas in China people with higher perceived wealth may readily consider their advantageous situation as a privilege, thereby assuming a strong sense of deservingness. Thus, differences in how people feel about what they deserve may explain the effect of subjective wealth in both countries.

As noted earlier, people may take into account the source of wealth (e.g., luck vs. effort) and their partner's wealth when considering their deservingness, inequality, and equality restoration. For example, in Western cultures, especially the U.S. where individual effort and merit are highly valued (Schwartz, 1999), people might find it considerably easier to justify their relative wealth if it can be clearly linked to personal effort (Almås et al., 2010). When wealth is determined by luck or chance, inequality is likely seen as somewhat unacceptable, particularly for the less wealthy. In this case, norms of equality would imply that the poor do not deserve to be poor and the rich do not deserve to be rich (Lefgren, Sims, & Stoddard, 2016). In addition, in support of equality as a general norm, people may also take into account the interests of lower and middle SES more than the interests of higher SES who have more resources (Van Doesum et al., 2017). Thus, Study 4 further varied the source of wealth (i.e., luck vs. effort) and manipulated the interaction partner's wealth (i.e., high vs. low) to test whether these two factors moderate the subjective wealth effect observed in our prior studies.

5.1. Method

Participants and design. As in Studies 2 and 3, we aimed to recruit at least 100 participants per between-group condition in this study. A total of 819 U.S. participants (465 females; M_{age} = 36.91 years, SD = 12.08) from MTurk and 819 Chinese participants (443 females; M_{age} = 36.05 years, SD = 10.19) from Sojump completed the study for a baseline payment of US\$0.3 (U.S. participants) or CN¥3 (Chinese participants). The study was a 2 (country: U.S. vs. China) × 2 (own wealth: high vs. low) × 2 (partner's wealth: high vs. low) × 2 (source of wealth: luck vs. effort) between-participants design. Participants from each country were randomly assigned to one of eight conditions (i.e., own wealth × partner's wealth × source of wealth).

Procedure. Participants learned that they would play two unrelated games during which they earned monetary units (MUs) that would be converted into money (1 MU = US\$0.1 or CN¥1) and paid to them. They first played an extra bonus game where they could receive a bonus ranging from 0 to 10 MUs. They were randomly assigned to receive 0 MU (low wealth) or 10 MUs (high wealth) based on luck or effort. The luck-based conditions were the same as Study 3. The effort-based conditions involved a real effort task (i.e., an extra questionnaire with 0 to 100 questions), such that participants were assigned to complete no extra questionnaire (low wealth) or an extra questionnaire with 100 questions (high wealth) after the study, which resulted in an extra bonus of 0 or 10 MUs. For the manipulation check, participants rated two items on perceived income and wealth used in Study 3, and also rated their subjective feelings of their income in the country on a 10-point scale (1 = *lowest income*, 10 = *highest income*).

Next, participants played a CFRG as a responder and were assigned to split 10 MUs with a partner (i.e., the proposer) who had received 10 MUs (high-wealth partner) or 0 MU (low-wealth partner) in the previous extra bonus game. They decided whether to accept or reject an unequal offer of "8 MUs for the proposer, 2 MUs for you".

Post-decision measures. After their decision, participants rated their motivations underlying their decisions in the CFRG on a 7-point Likert scale (1 = *not at all*, 7 = *very strongly*). As noted earlier, differences in how people feel about what they deserve might explain the observed

effect of subjective wealth on rejection decision. To test this explanation, we asked participants to rate the extent to which their decision was motivated by their feelings of deservingness (i.e., "Not receiving the money that I deserve"). We also measured their motivations to promote or harm their partner's welfare (i.e., "Increasing/decreasing the money of the other person"). Finally, participants reported their age, gender, ethnicity, education level, and family income, and were debriefed and paid. Including the baseline payment, the total payment for all U.S. participants (M = US$1.03, range: US$0.5–US$1.5) and Chinese participants (M = CN¥10.03, range: CN¥5–CN¥15) in this study were US $839.5 and CN¥8215, respectively.

5.2. Results and discussion

Manipulation checks. The subjective wealth was manipulated successfully in both countries: participants in the high- and low-wealth conditions in the U.S. and China showed significant differences in perceived income (U.S.: Ms = 79.18 and 8.03, p < .001, d = 3.02; China: Ms = 76.45 and 9.20, p < .001, d = 3.64), perceived wealth (U.S.: Ms = 52.68 and 18.38, p < .001, d = 1.31; China: Ms = 59.21 and 18.40, p < .001, d = 1.74), and subjective feelings of their income in their country (U.S.: Ms = 4.98 and 4.25, p < .001, d = 0.42; China: Ms = 5.40 and 4.39, p < .001, d = 0.70).

Manipulated wealth and rejection decision. Participants' decisions to accept or reject the 2/8 offer across all conditions are summarized in Fig. 4. We conducted a binary logistic regression on rejection decision with country, own wealth, partner's wealth, source of wealth, and all interaction terms as predictors (see Table S4 in the Supplementary Material).

Do participants in the U.S. and China differ in their responses to an unequal offer? The Country × Own Wealth interaction was significant, b = −0.82, Wald $\chi^2(1)$ = 16.43, p < .001, odds ratio = 0.44, 95% CI [0.30, 0.65]. Consistent with our previous studies, low-wealth U.S. participants rejected the 2/8 offer more often, b = −0.30, Wald $\chi^2(1)$ = 4.26, p = .04, odds ratio = 0.75, 95% CI [0.56, 0.99], whereas high-wealth Chinese participants rejected this unequal offer more often, b = 0.53, Wald $\chi^2(1)$ = 13.91, p < .001, odds ratio = 1.70, 95% CI [1.29, 2.24]. Interestingly, as Fig. 4 shows, the effect of own wealth among U.S. participants was moderated by source of wealth (p = .03), such that low-wealth U.S. participants rejected the unequal offer more often than high-wealth ones only when wealth was based on luck (p = .003), rather than effort (p = .84). However, the effect of own wealth among Chinese participants was not moderated by source of wealth (p = .13).

Do high-wealth individuals reject an unequal offer more often when wealth is based on effort rather than luck? The main effect of source of wealth was significant, b = 0.36, Wald $\chi^2(1)$ = 12.90, p < .001, odds ratio = 1.44, 95% CI [1.18, 1.75]. This effect was qualified by a significant Source of Wealth × Own Wealth interaction, b = 0.53, Wald $\chi^2(1)$ = 6.88, p = .01, odds ratio = 1.71, 95% CI [1.15, 2.54]. Specifically, high-wealth participants rejected the 2/8 offer more often when wealth was based on effort than when wealth was based on luck, b = 0.64, Wald $\chi^2(1)$ = 20.09, p < .001, odds ratio = 1.89, 95% CI [1.43, 2.50], whereas low-wealth participants showed no difference in the two conditions, b = 0.07, Wald $\chi^2(1)$ = 0.23, p = .63, odds ratio = 1.07, 95% CI [0.81, 1.42].

How do high-wealth participants respond to an unequal offer from a low-wealth partner? The Country × Own Wealth × Partner's Wealth interaction was significant, b = −0.81, Wald $\chi^2(1)$ = 3.93, p = .048, odds
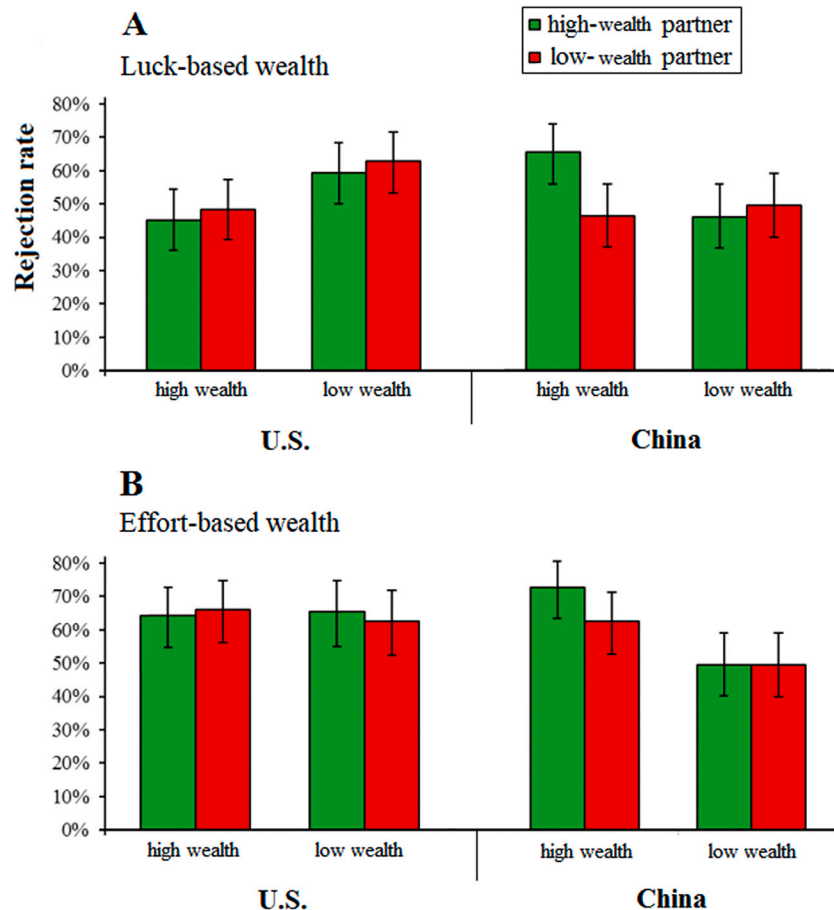

Fig. 4. Participants' rejection rate of the 2/8 offer in Study 4. Rejection rate among U.S. and Chinese participants when wealth was based on (A) luck and (B) effort. Error bars represent 95% confidence intervals.

ratio $= 0.45$, 95% CI [0.20, 0.99]. Further analysis revealed a significant Own Wealth × Partner's Wealth interaction among Chinese participants: high-wealth Chinese participants rejected the 2/8 offer less often from a low-wealth (vs. high-wealth) partner, $b = 0.64$, Wald $\chi^2(1) = 9.62$, $p = .002$, odds ratio $= 1.89$, 95% CI [1.27, 2.83]. However, high- and low-wealth U.S. participants' rejection decisions did not vary with their partner's wealth, $b = -0.06$, Wald $\chi^2(1) = 0.04$, $p = .85$, odds ratio $= 0.95$, 95% CI [0.54, 1.66].

Who deserves more? A 2 (country) × 2 (own wealth) × 2 (partner's wealth) × 2 (source of wealth) ANOVA on feelings of deservingness revealed a significant Country × Own Wealth interaction, $F(1, 1638) = 19.21$, $p < .001$, $\eta_p^2 = 0.01$, and a significant Country × Own Wealth × Source of Wealth interaction, $F(1, 1638) = 4.23$, $p = .04$, $\eta_p^2 = 0.01$. When wealth was based on luck, low-wealth U.S. participants ($M = 3.45$) were more likely to feel that they did not receive what they deserve than high-wealth U.S. participants ($M = 2.81$, $p < .001$); however, when wealth was based on effort, high- and low-wealth U.S. participants did not differ in feelings of deservingness ($Ms = 3.19$ and 3.17, $p = .94$). In contrast, high-wealth Chinese participants ($Ms = 3.64$ and 3.78) felt that they deserve more than low-wealth ones ($Ms = 3.06$ and 3.35, $ps < 0.03$) regardless of whether their wealth was based on luck or effort.

To test whether deservingness mediates the wealth effect in each sample, we conducted two mediated moderation analyses with source of wealth as the moderator using bootstrapping method with 5000 bootstrap samples (Hayes, 2013). Among U.S. participants, the indirect effect of wealth on rejection decision through deservingness was significant for luck-based wealth, $b = -0.31$, 95% CI [−0.53, −0.12], but not significant for effort-based wealth, $b = -0.01$, 95% CI [−0.22, 0.22]. However, the indirect effect through deservingness was significant among Chinese participants regardless of the source of wealth (luck: $b = 0.37$, 95% CI [0.17, 0.59]; effort: $b = 0.28$, 95% CI [0.08, 0.50]). These findings suggested that in the U.S. when wealth was based on luck rather than effort, low-wealth U.S. participants might feel that they did not receive what they deserve, and thus were more likely to reject unequal offers. Yet in China, regardless of the source of wealth, high-wealth Chinese participants would be less tolerant of unequal offers because these offers were not up to the levels they deserve. Notably, high-wealth Chinese participants were less likely to reject unequal offers from a low-wealth (vs. high-wealth) partner, although partner's wealth did not affect their feelings of deservingness. Since the Chinese culture emphasizes the interdependence between self and others, as well as social obligations (Hofstede & Bond, 1988; Miyamoto, 2017), high-wealth Chinese might feel responsible to promote a low-wealth partner's welfare (i.e., "Increasing the money of the other person"). To test this potential explanation, we conducted a mediation analysis using bootstrapping method with 5000 bootstrap samples (Preacher & Hayes, 2008). Among high-wealth Chinese participants, the indirect effect of partner's wealth on rejection decision was significant through the motivation to increase their partner's interest, $b = 0.88$, 95% CI [0.38, 1.40].

Additional binary logistic regressions including only family income or family income and its interactions with other variables revealed that neither family income nor the interactions with family income were significant predictors of rejection decision ($ps > 0.14$; see Supplementary Material).

6. General discussion

This research examined how (subjective) wealth affects rejection responses to inequality in the U.S. and China. Four studies among U.S. and Chinese samples revealed three key findings. First, consistent with inequality aversion, in the U.S. people who perceive themselves as less (versus more) wealthy are more likely to reject unequal offers. Yet, we consistently find the opposite effects in China: the wealthy are more likely to reject unequal offers than the less wealthy. A random-effects mini meta-analysis (Goh, Hall, & Rosenthal, 2016) across four studies

confirmed reliable opposing associations of subjective wealth (high-versus low-wealth) with rejection of the 2/8 offer in the U.S. ($N = 1651$), $Z = -5.66$, $r = -0.14$, 95% CI [−0.19, −0.09], and China ($N = 1651$), $Z = 6.51$, $r = 0.16$, 95% CI [0.11, 0.21]. Second, when wealth was obtained through effort but not luck, there was no significant effect of subjective wealth among U.S. participants (but still a significant effect among Chinese participants). Third, we found that feelings of deservingness helped explain the opposite effects of subjective wealth on responses to unequal offers in these two countries. Notably, subjective wealth invariably predicted rejection of unequal offers in both countries above and beyond the effect of objective wealth.

These findings underline the importance of studying samples beyond WEIRD (Western, Educated, Industrialized, Rich, and Democratic; see Henrich, Heine, & Norenzayan, 2010) to address issues on wealth, wealth inequality, and inequality aversion. Extant literature in Western contexts shows that people tend to pursue equality, and the less wealthy are strongly inclined to restore equality especially when inequality is based on luck rather than effort (e.g., Almås et al., 2010). Our findings suggest that this conclusion does not immediately hold for samples from non-Western societies, such as China, which has received less attention in past research on wealth and inequality aversion. We find that people with more relative wealth in China do not seem to contribute to restoring equality, at least when they have no explicit information about their interaction partner's lack of wealth. It is possible that other non-Western societies with high collectivism and and power distance, such as India (individualism and power distance index: 48 and 77) with strong roots in a caste system (Cotterill, Sidanius, Bhardwaj, & Kumar, 2014), also differ from Western societies in the link between wealth and equality restoration.

We want to briefly discuss some other new findings. First, U.S. (but not Chinese) participants with less relative wealth due to bad luck (vs. more relative wealth due to good luck) feel that they deserve more. This suggests that they may be more motivated to change their unfortunate disadvantages. However, when wealth is obtained through effort, there is an increase in deservingness among the wealthy, but a decrease in deservingness among the less wealthy. This is interesting, because evidence shows that attributions to individual effort and skill are often used to justify wealth inequality in the U.S., especially among the wealthy (Kluegel & Smith, 1986; Kraus et al., 2009). One intriguing issue is how people in the U.S. and China might differ in their construal of "deservingness". It is plausible that people in individualistic societies with low power distance emphasize individual effort, whereas people in collectivist societies with high power distance also emphasize group effort and show respect for different roles and positions within a group.

Second, we found that in China, higher perceived wealth, even when merely based on luck, can make people feel more deserving of such advantages and thus are more likely to reject unequal offers. While we interpreted this in terms of collectivism and high power distance, a complementary explanation may be derived from the rapid economic growth and extensive societal changes in China over the past four decades. Such a rapid modernization process has made Chinese people, especially the "new-rich" more individualistic and narcissistic (Cai, Kwan, & Sedikides, 2012). This raises the possibility that rich people in a rapidly changing society may find it relatively easy to justify their relative wealth, even when such wealth is primarily based on luck. It may be especially important for the wealthy to preserve wealth differences that are recently obtained, compared to the "established" wealth differences that have existed for a long time.

Third, our findings also revealed that when explicit information about others' wealth is available, the wealthy in China are motivated to promote their low-wealth partner's welfare, and thus are less likely to reject unequal offers from others with less wealth. One possible explanation may be that the Chinese culture also emphasizes social obligations of the wealthy to care about the poor so as to enhance social harmony (Miyamoto, 2017). Such obligations are in line with Confucian teaching ("to care for the poor if rich", see Hofstede & Bond, 1988) that

were an inherent part of Chinese traditional culture. Indeed, recent evidence shows that in East Asian cultures such as China and Japan where Confucian teaching is dominant, higher SES is positively associated with both self-orientation and other-orientation (Miyamoto et al., 2018). It is plausible that the Confucian teaching for the wealthy to care for the poor may be activated when one explicitly knows that another person is less wealthy and needs resources (e.g., when the CFRG proposer has low wealth).

Before closing, we should outline some limitations and avenues for future research. First, we based our predictions on the differences of the U.S. and China in the cultural dimensions of collectivism and power distance values. However, we did not measure these cultural dimensions among our U.S. and Chinese samples. Although converging evidence shows that the U.S. and China vary substantially in their collectivism and power distance (see Brockner et al., 2001; Hofstede, Hofstede and Minkov, 2010; van Prooijen & Song, 2021; Wu et al., 2021), we should acknowledge that the cultural variation we observed may be not necessarily generalize beyond convenience samples examined in the two countries. Moreover, evidence suggests that within-culture variations in acceptance of inequalities and other-orientation is likely to persist within each of the countries (Grossmann & Na, 2014; Yamawaki, 2012). For example, in U.S. society high-wealth Democrats (but not Republicans) tended to reduce economic inequality (Kraus & Callaghan, 2014). Thus, it is necessary for future work to directly measure participants' collectivism and power distance values, and provide a nuanced examination of between- and within-culture differences in how wealth affects responses to inequality in larger and more representative samples from the U.S. and China.

Second, our research compared the U.S. and China, both of which are facing high levels of wealth inequality (e.g., Piketty et al., 2019; Xie & Zhou, 2014). Future work could replicate our findings in other societies with lower inequality, such as Scandinavian countries. This is particularly important as some (but controversial) evidence suggests that wealth inequality might moderate the effect of social class on generosity in economic games (Côté, House, & Willer, 2015; but see Schmukle, Korndörfer, & Egloff, 2019).

Third, we acknowledge that the inequality in economic games (i.e., UG and CFRG) and the inequality people face in everyday life are different in many aspects. Moreover, various specific motivations may help to explain rejection decisions in these games, although we attempted to measure some of these motivations (e.g., deservingness). For example, the rejection of an unequal offer in the UG and CFRG might due to the lower payoff rather than the (disadvantageous) inequality of the offer. In other words, it may be that low-wealth U.S. participants but high-wealth Chinese participants are more sensitive to receiving less money in general, even those that not necessarily reflect inequality. However, in Study 3 we found that low-wealth (vs. high-wealth) U.S. participants were also more likely to reject one of the advantageous offers (i.e., 8/2; see Table 1), which may suggest that at least low-wealth U.S. participants are not simply more sensitive to the lower payoff in general. Nevertheless, future research can examine this alternative explanation for the wealth effects in response to inequality in more naturalistic settings.

7. Concluding remarks

Growing wealth inequality is a global issue that has become more prominent in recent years. Yet, societies differ in what is considered fair and deserving and under what conditions this wealth disparity should be reduced. In many Western societies, the guiding norm for those less well-off would be to restore equality when wealth differences are based on luck (versus effort). Across four studies, we find that people who perceive themselves as less wealthy in the U.S. and those with higher subjective wealth in China are less tolerant of unequal resource allocations initiated by others. Our findings also suggest that the wealthy in the U.S. are prone to justify their wealth by emphasizing effort, whereas

the wealthy in China tend to feel entitled and are less likely to consider the precise cause of their fortune in their perceptions of deservingness. These findings challenge the universality of equality restoration across Western and non-Western societies. At least in China equality may originate from a basic belief that existing differences in income, wealth, and perhaps status and power, should be respected, valued, and protected. From a practical perspective, our findings may help explain the different response to the rise in income and wealth inequality among citizens in the United States and China: U.S. people who perceive themselves to be less wealthy, especially when they believe that they did not receive what they deserve, may react more strongly to inequality (e. g., the Occupy Wall Street Movement); in contrast, the wealthy Chinese are more sensitive to inequality because they feel they deserve more, but such tendency is reversed when they are informed of others' low-wealth situations. Such response differences in the United States and China suggest that even if the goals of equality are the same, the paths to be taken to achieve them seem far from the same.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jesp.2022.104342.

References

Almås, I., Cappelen, A. W., Sørensen, E.Ø., & Tungodden, B. (2010). Fairness and the development of inequality acceptance. *Science, 328*(5982), 1176–1178. https://doi.org/10.1126/science.1187300

Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software, 67*(1), 1–48. https://doi.org/10.18637/jss.v067.i01

Bernhard, R. M., Martin, J. W., & Warneken, F. (2020). Why do children punish? Fair outcomes matter more than intent in children's second-and third-party punishment. *Journal of Experimental Child Psychology, 200*, Article 104909. https://doi.org/10.1016/j.jecp.2020.104909

Blake, P. R., McAuliffe, K., Corbit, J., Callaghan, T. C., Barry, O., Bowie, A., … Wrangham, R. (2015). The ontogeny of fairness in seven societies. *Nature, 528* (7581), 258–261. https://doi.org/10.1038/nature15703

Bolker, B. M., Brooks, M. E., Clark, C. J., Geange, S. W., Poulsen, J. R., Stevens, M. H. H., & White, J. S. S. (2009). Generalized linear mixed models: A practical guide for ecology and evolution. *Trends in Ecology & Evolution, 24*(3), 127–135. https://doi.org/10.1016/j.tree.2008.10.008

Brandt, M. J. (2013). Do the disadvantaged legitimize the social system? A large-scale test of the status–legitimacy hypothesis. *Journal of Personality and Social Psychology, 104*(5), 765–785. https://doi.org/10.1037/a0031751

Brockner, J., Ackerman, G., Greenberg, J., Gelfand, M. J., Francesco, A. M., Chen, Z. X., … Shapiro, D. (2001). Culture and procedural justice: The influence of power distance on reactions to voice. *Journal of Experimental Social Psychology, 37*(4), 300–315. https://doi.org/10.1006/jesp.2000.1451

Brown-Iannuzzi, J. L., Lundberg, K. B., Kay, A. C., & Payne, B. K. (2015). Subjective status shapes political preferences. *Psychological Science, 26*(1), 15–26. https://doi.org/10.1177/0956797614553947

Cai, H., Kwan, V. S., & Sedikides, C. (2012). A sociocultural approach to narcissism: The case of modern China. *European Journal of Personality, 26*(5), 529–535. https://doi.org/10.1002/per.852

Camerer, C. F. (2003). *Behavioral game theory: Experiments in strategic interaction*. Princeton: Princeton University Press.

Chen, H., Cohen, P., & Chen, S. (2010). How big is a big odds ratio? Interpreting the magnitudes of odds ratios in epidemiological studies. *Communications in Statistics: Simulation and Computation, 39*(4), 860–864. https://doi.org/10.1080/03610911003650383

Clugston, M., Howell, J. P., & Dorfman, P. W. (2000). Does cultural socialization predict multiple bases and foci of commitment? *Journal of Management, 26*(1), 5–30. https://doi.org/10.1177/014920630002600106

Côté, S., House, J., & Willer, R. (2015). High economic inequality leads higher-income individuals to be less generous. *Proceedings of the National Academy of Sciences, 112* (52), 15838–15843. https://doi.org/10.1073/pnas.1511536112

Cotterill, S., Sidanius, J., Bhardwaj, A., & Kumar, V. (2014). Ideological support for the Indian caste system: Social dominance orientation, right-wing authoritarianism and karma. *Journal of Social and Political Psychology, 2*(1), 98–116. https://doi.org/10.5964/jspp.v2i1.171

Dawes, C. T., Fowler, J. H., Johnson, T., McElreath, R., & Smirnov, O. (2007). Egalitarian motives in humans. *Nature, 446*(7137), 794–796. https://doi.org/10.1038/nature05651

Deutsch, M. (1975). Equity, equality, and need: What determines which value will be used as the basis of distributive justice? *Journal of Social Issues, 31*(3), 137–149. https://doi.org/10.1111/j.1540-4560.1975.tb01000.x

Ding, Y., Wu, J., Ji, T., Chen, X., & Van Lange, P. A. M. (2017). The rich are easily offended by unfairness: Wealth triggers spiteful rejection of unfair offers. *Journal of Experimental Social Psychology, 71*, 138–144. https://doi.org/10.1016/j.jesp.2017.03.008

Dubois, D., Rucker, D. D., & Galinsky, A. D. (2015). Social class, power, and selfishness: When and why upper and lower class individuals behave unethically. *Journal of Personality and Social Psychology, 108*(3), 436–449. https://doi.org/10.1037/pspi0000008

Fehr, E., Bernhard, H., & Rockenbach, B. (2008). Egalitarianism in young children. *Nature, 454*(7208), 1079–1083. https://doi.org/10.1038/nature07155

Fehr, E., & Fischbacher, U. (2003). The nature of human altruism. *Nature, 425*(6960), 785–791. https://doi.org/10.1038/nature02043

Fehr, E., & Fischbacher, U. (2004). Third-party punishment and social norms. *Evolution and Human Behavior, 25*(2), 63–87. https://doi.org/10.1016/S1090-5138(04)00005-4

Fehr, E., & Schmidt, K. M. (1999). A theory of fairness, competition, and cooperation. *The Quarterly Journal of Economics, 114*(3), 817–868. https://doi.org/10.1162/003355399556151

Gee, L. K., Migueis, M., & Parsa, S. (2017). Redistributive choices and increasing income inequality: Experimental evidence for income as a signal of deservingness. *Experimental Economics, 20*(4), 894–923. https://doi.org/10.1007/s10683-017-9516-5

Goh, J. X., Hall, J. A., & Rosenthal, R. (2016). Mini meta-analysis of your own studies: Some arguments on why and a primer on how. *Social and Personality Psychology Compass, 10*(10), 535–549. https://doi.org/10.1111/spc3.12267

Greitemeyer, T., & Sagioglou, C. (2016). Subjective socioeconomic status causes aggression: A test of the theory of social deprivation. *Journal of Personality and Social Psychology, 111*(2), 178–194. https://doi.org/10.1037/pspi0000058

Grossmann, I., & Na, J. (2014). Research in culture and psychology: Past lessons and future challenges. *Wiley Interdisciplinary Reviews: Cognitive Science, 5*(1), 1–14. https://doi.org/10.1002/wcs.1267

Guinote, A., Cotzia, I., Sandhu, S., & Siwa, P. (2015). Social status modulates prosocial behavior and egalitarianism in preschool children and adults. *Proceedings of the National Academy of Sciences, 112*(3), 731–736. https://doi.org/10.1073/pnas.1414550112

Güth, W., Schmittberger, R., & Schwarze, B. (1982). An experimental analysis of ultimatum bargaining. *Journal of Economic Behavior & Organization, 3*(4), 367–388. https://doi.org/10.1016/0167-2681(82)90011-7

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.

Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H., … Tracer, D. (2005). "Economic man" in cross-cultural perspective: Behavioral experiments in 15 small-scale societies. *Behavioral and Brain Sciences, 28*(6), 795–815. https://doi.org/10.1017/S0140525X05000142

Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H., & McElreath, R. (2001). In search of homo economicus: Behavioral experiments in 15 small-scale societies. *American Economic Review, 91*(2), 73–78. https://doi.org/10.1257/aer.91.2.73

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences, 33*(2–3), 61–83. https://doi.org/10.1017/S0140525X0999152X

Henrich, J., McElreath, R., Barr, A., Ensminger, J., Barrett, C., Bolyanatz, A., … Lesorogol, C. (2006). Costly punishment across human societies. *Science, 312*(5781), 1767–1770. https://doi.org/10.1126/science.1127333

Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Newbury Park: Sage Press.

Hofstede, G., & Bond, M. H. (1988). The Confucius connection: From cultural roots to economic growth. *Organizational Dynamics, 16*(4), 5–21. https://doi.org/10.1016/0090-2616(88)90009-5

Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *Cultures and organizations. Software of the mind* (3nd ed.). New York: McGraw-Hill.

Jost, J. T., Banaji, M. R., & Nosek, B. A. (2004). A decade of system justification theory: Accumulated evidence of conscious and unconscious bolstering of the status quo. *Political Psychology, 25*(6), 881–919. https://doi.org/10.1111/j.1467-9221.2004.00402.x

Kirkman, B. L., Chen, G., Farh, J. L., Chen, Z. X., & Lowe, K. B. (2009). Individual power distance orientation and follower reactions to transformational leaders: A cross-level, cross-cultural examination. *Academy of Management Journal, 52*(4), 744–764. https://doi.org/10.5465/amj.2009.43669971

Kluegel, J. R., & Smith, E. R. (1986). *Beliefs about inequality: Americans' views of what is and what ought to be*. New York: Aldine de Gruyter Press.

Kraus, M. W., & Callaghan, B. (2014). Noblesse oblige? Social status and economic inequality maintenance among politicians. *PLoS One, 9*(1), Article e85293. https://doi.org/10.1371/journal.pone.0085293

Kraus, M. W., Piff, P. K., & Keltner, D. (2009). Social class, sense of control, and social explanation. *Journal of Personality and Social Psychology, 97*(6), 992–1004. https://doi.org/10.1037/a0016357

Kraus, M. W., Piff, P. K., Mendoza-Denton, R., Rheinschmidt, M. L., & Keltner, D. (2012). Social class, solipsism, and contextualism: How the rich are different from the poor. *Psychological Review, 119*(3), 546–572. https://doi.org/10.1037/a0028756

Kuwabara, K., Yu, S., Lee, A. J., & Galinsky, A. D. (2016). Status decreases dominance in the west but increases dominance in the east. *Psychological Science, 27*(2), 127–137. https://doi.org/10.1177/0956797615612694

Lefgren, L. J., Sims, D. P., & Stoddard, O. B. (2016). Effort, luck, and voting for redistribution. *Journal of Public Economics, 143*, 89–97. https://doi.org/10.1016/j.jpubeco.2016.08.012

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*(2), 224–253. https://doi.org/10.1037/0033-295X.98.2.224

Markus, H. R., & Kitayama, S. (2010). Cultures and selves: A cycle of mutual constitution. *Perspectives on Psychological Science, 5*(4), 420–430. https://doi.org/10.1177/1745691610375557

Miyamoto, Y. (2017). Culture and social class. *Current Opinion in Psychology, 18*, 67–72. https://doi.org/10.1016/j.copsyc.2017.07.042

Miyamoto, Y., Yoo, J., Levine, C. S., Park, J., Boylan, J. M., Sims, T., … Ryff, C. D. (2018). Culture and social hierarchy: Self-and other-oriented correlates of socioeconomic status across cultures. *Journal of Personality and Social Psychology, 115*(3), 427–445. https://doi.org/10.1037/pspi0000133

Naoi, A., & Schooler, C. (1985). Occupational conditions and psychological functioning in Japan. *American Journal of Sociology, 90*(4), 729–752. https://doi.org/10.1086/228143

Norton, M. I., & Ariely, D. (2011). Building a better America—One wealth quintile at a time. *Perspectives on Psychological Science, 6*(1), 9–12. https://doi.org/10.1177/1745691610393524

Oyserman, D. (2006). High power, low power, and equality: Culture beyond individualism and collectivism. *Journal of Consumer Psychology, 16*(4), 352–356. https://doi.org/10.1207/s15327663jcp1604_6

Park, J., Kitayama, S., Markus, H. R., Coe, C. L., Miyamoto, Y., Karasawa, M., … Ryff, C. D. (2013). Social status and anger expression: The cultural moderation hypothesis. *Emotion, 13*(6), 1122–1131. https://doi.org/10.1037/a0034273

Piff, P. K., Kraus, M. W., Côté, S., Cheng, B. H., & Keltner, D. (2010). Having less, giving more: The influence of social class on prosocial behavior. *Journal of Personality and Social Psychology, 99*(5), 771–784. https://doi.org/10.1037/a0020092

Piketty, T., Yang, L., & Zucman, G. (2019). Capital accumulation, private property, and rising inequality in China, 1978–2015. *American Economic Review, 109*(7), 2469–2496. https://doi.org/10.1257/aer.20170973

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879–891. https://doi.org/10.3758/BRM.40.3.879

van Prooijen, J. W., & Song, M. (2021). The cultural dimension of intergroup conspiracy theories. *British Journal of Psychology, 112*(2), 455–473. https://doi.org/10.1111/bjop.12471

Schmukle, S. C., Korndörfer, M., & Egloff, B. (2019). No evidence that economic inequality moderates the effect of income on generosity. *Proceedings of the National Academy of Sciences, 116*, 9790–9795. https://doi.org/10.1073/pnas.1807942116

Schwartz, S. H. (1999). A theory of cultural values and some implications for work. *Applied Psychology, 48*(1), 23–47. https://doi.org/10.1111/j.1464-0597.1999.tb00047.x

Singelis, T. M., Triandis, H. C., Bhawuk, D. P., & Gelfand, M. J. (1995). Horizontal and vertical dimensions of individualism and collectivism: A theoretical and measurement refinement. *Cross-Cultural Research, 29*(3), 240–275. https://doi.org/10.1177/106939719502900302

Smith, H. J., Pettigrew, T. F., Pippin, G. M., & Bialosiewicz, S. (2012). Relative deprivation: A theoretical and meta-analytic review. *Personality and Social Psychology Review, 16*(3), 203–232. https://doi.org/10.1177/1088868311430825

Tan, J., Kraus, M. W., Carpenter, N. C., & Adler, N. E. (2020). The association between objective and subjective socioeconomic status and subjective well-being: A meta-analytic review. *Psychological Bulletin, 146*(11), 970–1020. https://doi.org/10.1037/bul0000258

Tricomi, E., Rangel, A., Camerer, C. F., & O'Doherty, J. P. (2010). Neural evidence for inequality-averse social preferences. *Nature, 463*(7284), 1089–1091. https://doi.org/10.1038/nature08785

Tyler, T. R., Lind, E. A., & Huo, Y. J. (2000). Cultural values and authority relations: The psychology of conflict resolution across cultures. *Psychology, Public Policy, and Law, 6*(4), 1138–1163. https://doi.org/10.1037/1076-8971.6.4.1138

Van Doesum, N. J., Tybur, J. M., & Van Lange, P. A. M. (2017). Class impressions: Higher social class elicits lower prosociality. *Journal of Experimental Social Psychology, 68*, 11–20. https://doi.org/10.1016/j.jesp.2016.06.001

Van Lange, P. A. M. (1999). The pursuit of joint outcomes and equality in outcomes: An integrative model of social value orientation. *Journal of Personality and Social Psychology, 77*(2), 337–349. https://doi.org/10.1037/0022-3514.77.2.337

Wu, R., Steffel, M., & Shavitt, S. (2021). Buying gifts for multiple recipients: How culture affects whose desires are prioritized. *Journal of Business Research, 132*, 10–20. https://doi.org/10.1016/j.jbusres.2021.04.005

Xie, Y., & Zhou, X. (2014). Income inequality in today's China. *Proceedings of the National Academy of Sciences, 111*(19), 6928–6933. https://doi.org/10.1073/pnas.1403158111

Yamagishi, T., Horita, Y., Takagishi, H., Shinada, M., Tanida, S., & Cook, K. S. (2009). The private rejection of unfair offers and emotional commitment. *Proceedings of the National Academy of Sciences, 106*(28), 11520–11523. https://doi.org/10.1073/pnas.0900636106

Yamawaki, N. (2012). Within-culture variations of collectivism in Japan. *Journal of Cross-Cultural Psychology, 43*(8), 1191–1204. https://doi.org/10.1177/0022022111428171

Yuan, M., Wu, J., & Kou, Y. (2018). Donors' social class and their prosocial reputation. *Social Psychology, 49*, 205–218. https://doi.org/10.1027/1864-9335/a000342