

The effects of resource inequality on bribery

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Abstract

People differ fundamentally in their propensity to engage in bribery. Herein, we tested the effects of inequality of (monetary) resources between bribers (individuals who can offer bribes) and bribees (individuals who might receive bribes) on bribery. We implemented a bribery game where bribers and bribees could engage in bribery to benefit themselves at the cost of others. To manipulate resource inequality, we allocated each briber with a high or a low endowment (resulting in “rich” and “poor” bribers) and matched them with a bribee who received either a high or a low endowment (resulting in “rich” and “poor” bribees). In a large-scale pre-registered study ($N = 2,401$), we found that rich (vs. poor) bribees exhibited a stronger preference for (1) accepting bribes from rich, rather than poor bribers, and (2) accepting higher, rather than lower bribes. Furthermore, we found that both poor and rich bribers indicated they would only accept relatively high bribes from rich (rather than poor) bribees. Finally, rich and poor bribers benefitted in different ways when engaging in bribery: to get their bribes accepted, rich bribers had to spend lower proportions of their endowments than poor bribees, however, rich bribers had to spend more in absolute terms.

Keywords: inequality, Bribery, Corruption

Introduction

Bribery and corruption cause severe negative consequences worldwide¹. To illustrate, according to the United Nations, the global costs of corruption amount to at least US\$2.6 trillion per year². In light of these tremendous costs, a broad array of research has identified multiple factors shaping engagement in bribery and corruption, including social norms^{3–5}, negative externalities^{6,7}, as well as various types of punishment^{8–10}.

Herein, we focus on a specific type of corruption, i.e., bribery—defined as “giving someone, especially someone in a position of authority, money, a gift, etc. so that they will do something illegal or dishonest”¹¹. One crucial factor that lacks a systematic, large-scale investigation in the context of bribery is the inequality of (monetary) resources between individuals who might engage in bribery, that is between the bribers (individuals who can offer bribes) and bribees (individuals who might receive bribes). Inequality of resources between interaction partners occurs when one party involved in an interaction has privileged access to resources, while the other is disadvantaged in this regard^{12–14}. Previous research found that inequality of resources damages a range of socially relevant outcomes, such as cooperation^{14–16}, trust^{17,18}, and satisfaction with life^{17,19,20}. As such, it constitutes a major problem, especially given the large number of countries facing substantial levels of economic inequality²¹.

Despite the impact of resource inequality on individuals as well as on the society as a whole, its impact on the critical issue of bribery remains unclear. Are rich/poor individuals more likely to bribe rich or poor interaction partners? Do rich/poor *accept* more bribes from rich or from poor interaction partners? The answers to these questions are far from trivial. If rich/poor individuals are more likely to engage in bribery with rich/poor interaction partners, it might inform policy makers on (1) who should be targeted by bribery prevention and detection policies, and (2) whether bribery in public institutions can be reduced by assuring

certain levels of public officials' wages (relatively to the citizens' wages and the potential bribes citizens can offer^{22–24}). Furthermore, shedding light on bribery involving rich and poor interaction partners could clarify to what degree, and in what ways people benefit from successful bribery, depending on both the briber's and the bribee's resources.

Such potential practical implications seem especially relevant given that resource inequality seems ubiquitous across a range of bribery interactions. For instance, media reports suggest that people with more money and resources bribe those who are worse off, e.g., celebrities bribing medical workers to get COVID-19 vaccines ahead of time²⁵, or a voter fraud scheme offering homeless people bribes in exchange for forging signatures on ballot petitions²⁶. On the other hand, people with less money and resources, often forced by circumstances, might bribe those who are better off, e.g., refugees bribing border patrols to escape war²⁷, or young job-seekers in South Africa bribing companies in exchange for being offered a job²⁸. In light of the relevance of resource inequality in bribery, herein we examine the effects of resource inequality between the bribers and the bribees on bribery engagement (i.e., offering and accepting bribes, as well as amounts offered and accepted as bribes).

The theoretical basis of the effects of resource inequality on bribery

Expected utility theory

Expected utility theory states that the utility (i.e., worth or value) of any reward is lower for a person who has high resources than for a person who has low resources^{29–31}. To illustrate, imagine two individuals, with a respective wealth of \$100,000 and \$100 who are faced with a possibility to engage in a bribery interaction which would result in a profit of \$1,000. In such a case, the possibility of gaining \$1,000 by engaging in bribery has lower utility (i.e., is less attractive) for the person who owns \$100,000 than for the person who owns \$100—hence, the former might be less likely to engage in bribery involving \$1000 than the latter. Notably, while standard economic models such as expected utility theory^{29–31}—

which assumes that people are rational and self-interested³²—can only provide a limited account of bribery and related behaviors^{33–35}, in some contexts they do make correct predictions about when people engage in antisocial behavior^{36–38}, and hence should not be disregarded.

Expected utility theory brings forward several predictions relevant for the current investigation. The most basic prediction is that poor bribers will be more willing to offer bribes because the value of a given service they can obtain via bribery will be higher to them than to rich bribers. Next, when it comes to accepting bribes, expected utility theory suggests that rich bribees might be more willing to accept (1) higher (rather than lower) bribes because only such bribes are of sufficient utility for rich bribees, as well as (2) bribes from rich (rather than poor) partners because only rich partners can offer high bribes. On the other hand, poor bribees should be willing to accept bribes of various sizes—from both poor and rich bribers—as both low and high bribes should be attractive from the perspective of poor bribees' low endowments. In accordance with these preferences, bribers might anticipate that in order to get their bribes accepted, they need to offer higher bribes to rich, than to poor bribees. This might be especially the case for rich bribers, because poor bribers might not have sufficient resources to adjust their bribes to rich bribees' expectations.

Equity and fairness considerations

In contrast to expected utility theory, equity theory predicts that people are motivated not only by financial incentives, but also by the fairness of a given situation^{39,40}. Specifically, equity theory assumes that people judge the fairness of their current situation by comparing the ratio of their own inputs and outcomes to the ratio of other peoples' incomes and outcomes. If these ratios are unequal, individuals experience distress and are motivated to either modify their own or others' ratios, change their perceptions of the situation, or abandon the situation altogether^{39,40}. In support of this theory, several studies found that people are

concerned with equity and fairness, and are willing to change their present situation to restore equity^{41–44}.

In the context of the present investigation, equity theory suggests that in an inequitable situation, bribery might be used as a means to restore equity. Specifically, rich individuals might be motivated to benefit poor bribees, and as a result, (1) offer more and higher bribes to poor than to rich bribees, as well as (2) accept more and lower bribes from poor than from rich bribers. The poor, on the other hand, might choose to restore the overall equity by disadvantaging the rich, i.e., offering and accepting less bribes to/from the rich than the poor, as well as offering lower, and accepting higher (rather than lower) bribes to/from the rich than the poor. As an alternative, poor bribers might choose to focus on benefiting themselves to restore equity—i.e., offer and accept a similar number and size of bribes to/from both the poor and the rich, because both interactions with the poor and the rich might be beneficial. Summarizing, herein we contribute to the literature by contrasting predictions arising from the expected utility and equity theories in the context of bribery (see, Table 1).

Table 1. Predictions from expected utility and equity theories.

	Expected utility theory	Equity theory	Results
Offering bribes	1. Poor bribers will offer more bribes than rich bribers.	1. Rich bribers will offer more and higher bribes to poor, than to rich bribees.	Support for predictions 2 and 3 from expected utility theory.
	2. Bribers will offer higher bribes to rich, than to poor bribees.	2. Poor bribers will offer less and lower bribes to rich, than to poor bribees.	Support for prediction 3 from equity theory.
	3. Rich bribers will offer higher bribes than poor bribers, especially to rich bribees.	Alternatively: 3. Poor bribers will offer a similar number and size of bribes to poor and to rich	

bribees.			
Accepting bribes	<p>4. Rich bribees will be more willing to accept higher (rather than lower) bribes than poor bribees.</p> <p>5. Rich bribees will be more likely to accept bribes from rich than from poor bribers, while poor bribees will be similarly likely to accept bribes from both rich and poor bribers.</p>	<p>4. Rich bribees will accept more and lower bribes from poor, than from rich bribers.</p> <p>5. Poor bribees will accept less and higher bribes from rich, than from poor bribers.</p> <p>Alternatively:</p> <p>6. Poor bribees will accept a similar number and size of bribes from poor and rich bribers.</p>	<p>Support for predictions 4 and 5 from expected utility theory.</p> <p>Partial support for predictions 4 and 5 from equity theory (i.e., all bribees accepted were willing to accept only higher, rather than lower, bribes from rich than from poor bribers)</p> <p>Partial support for prediction 6 from equity theory (i.e., poor bribees accepted a similar number of bribes from poor and rich bribers)</p>

Previous research on the effects of resource inequality on bribery

Several studies to date have aimed to shed some light on whether inequality of resources between bribers and bribees affects bribery engagement. However, the findings to date remain rather preliminary and often contrasting. For instance, Gneezy and colleagues conducted a study involving a bribery game where two “workers” competed for a prize awarded by a “judge”. The judge was endowed with either a higher or a lower amount than the workers. The study found that the workers offered higher bribes to judges with lower rather than higher endowments; however, the judges’ bribe acceptance decisions were not impacted by whether the workers had higher or lower endowments⁴⁵. In contrast, van Veldhuizen found that difference of endowments did impact bribe acceptance decisions, that is, bribees who received higher endowments than the bribers, accepted less bribes than bribees who received the same endowments as the bribers²³. In another study, bribees

demanded higher bribes from bribers with higher, rather than lower endowments than themselves⁴⁶. In contrast, however, in a field study, police officers (bribees) demanded higher bribes from citizens (bribers) who seemed poor, rather than rich (i.e., citizens driving less expensive, rather than luxurious cars⁴⁷. In summary, the contrasting findings described above provide an inconsistent picture of the effects of resource inequality between the bribers and the bribees on engagement in bribery.

Aside from presenting contrasting evidence, the findings outlined above face several other problems that limit the overall understanding of the observed effects. Specifically, the studies operationalized resource inequality between the briber and the bribee in a variety of ways. For instance, some studies compared bribery among dyads where the briber had higher resources than the bribee, to dyads where the briber had lower resources than the bribee⁴⁵, while others compared the latter dyads to dyads where both parties had symmetrical resources²³, which makes it difficult to compare and integrate findings across multiple studies. Furthermore, despite these various operationalizations of inequality, none of the studies so far included all the conditions necessary to systematically investigate the effects of resource inequality between the briber and the bribee on bribery, that is, (1) dyads with a rich briber and a rich bribee (i.e., where both have high resources), (2) dyads with a rich briber and a poor bribee (i.e., where the briber has high, and the bribee has low resources), (3) dyads with a poor briber and a rich bribee (i.e., where the briber has low, and the bribee has high resources), (4) dyads with a poor briber and a poor bribee (i.e., where both have low resources). Only by including all four of the above listed dyads, can one answer the question capturing the essence of resource inequality, that is, how does having high or low resources affect bribery engagement with an interaction partner who has high or low resources.

Herein, we investigated the effects of resource inequality between the briber and the bribee on bribery, addressing the limitations of previous research on the topic. In doing so,

we contribute to the literature by comparing predictions from two influential theories: the expected utility²⁹⁻³¹ and the equity^{39,40} theory. We conducted a large-scale, systematic investigation ($N = 2,401$), testing whether rich/poor bribers are more likely to engage in bribery interactions with rich/poor bribees, and whether rich/poor bribees are more likely to engage in bribery interactions with rich/poor bribers. In doing so, we provided a comprehensive assessment of bribery interactions in terms of both offering and accepting bribes, focusing on (1) the *probabilities* of offering and accepting bribes, (2) the *amounts* offered as bribes and the minimum amounts accepted as bribes, and (3) the *proportion* of one's own endowment offered as bribes, as well as the proportion of one's partner's endowment accepted as bribes. In brief, we hypothesized that one's own high/low resources, one's partner's high/low resources, as well as the interaction between the one's own and one's partner's high/low resources, will impact bribery engagement. Because different theoretical models as well as previous findings provide contrasting suggestions regarding the direction of the relations in question, we pre-registered non-directional hypotheses. The detailed hypotheses as well as power analyses are available in our preregistration (https://osf.io/8z65t/?view_only=1d8afeae8e9c4adca417541ab88f5a27). Results from all pre-registered hypotheses are available either in the manuscript or the Supplemental Material (Table 1S)

Methods

Participants and procedure

In line with our pre-registered power analyses (see the OSF repository), we used Prolific Academic to recruit 2,401 participants from the general population in the UK, aged from 18 to 79 ($M = 37.86$, $SD = 13.07$) including 1,513 women, 878 men, and 10 participants who chose the response option “other”. All participants were UK residents. The entire study procedure is available at <https://bribery-inequality.formr.org/>. All measures, manipulations

and exclusions are reported in the manuscript and/or the associated Supplemental Material. Data was collected in accordance with the ethical recommendations of the American Psychological Association. All participants provided informed consent to participate in the study.

In the beginning of the study, participants were presented with the Participant Information Form, which provided them with general information about the study. Then, participants were asked to read and agree to the Consent Form, and were asked about their demographic information (gender and age). Afterwards, participants were randomized to receive a high or a low endowment and to be matched with a high- or a low-endowment partner in the bribery game. All participants were presented with the instructions to the bribery game. First, participants learnt about the general structure of the game, then, they learnt about their own and their partner's endowment, and finally participants learnt about the details of the game (i.e., the number of points they can win, the size of negative externalities, etc.)

After reading the instructions to the bribery game, participants were presented with three control questions asking (1) what happens if a participant rejects a bribe, (2) what happens to the other participants if a participant decides to offer a bribe, and (3) what are the participant's own and their partner's endowments. Participants were given two chances to answer all control questions correctly. If they failed to do so, they were excluded from further participation in the study (16% of participants failed or left the study when presented with the control questions, and hence were excluded from the study). Participants who answered the control questions correctly were instructed that they will make decisions in the bribery game, and that their monetary incentive will be based on one of these decisions (based on a random choice). When participants were making their decisions in the bribery game, a brief reminder of the instructions was present on the screen. After making the decisions, participants took

part in a brief survey including questions about their expectations, preferences, and personality (exploratory analyses regarding the survey are available in the Supplemental Material, Table S2). Finally, participants were debriefed and thanked for their participation.

Measures

Bribery game

The basic idea of the bribery game is that participants could benefit themselves at the cost of other participants by engaging in bribery with their interaction partner (for similar designs, see^{4,48,49}). In the game, participants were randomly assigned to groups of eight, consisting of four “citizens” (bribers) and four “public officials” (bribees). Each citizen was paired with one public official within their group, and the goal of each citizen was to obtain a certificate from the public official they were paired with. The certificate was worth an additional 150 points (£0.75) on top of the citizen's basic pay, and each citizen had a 50% chance of obtaining the certificate. In order to increase their chances of getting the certificate, each citizen could choose to offer a bribe to the public official they were paired with.

If a citizen offered a bribe and a public official accepted it, the citizen increased the chance of gaining the certificate by 0.5 percentage points for each point spent on the bribe, but the chances of the other three citizens in the group decreased by 0.5 percentage points in total (i.e., 0.5 divided by three citizens). For example, if the citizen decided to spend 30 points on a bribe, their chances of getting the certificate would increase by 15 percentage points (i.e., from the basic 50% to 65% in total), and the chances of the other citizens in the group of eight would decrease by $15\% / 3 = 5$ percentage points (to 45% for each citizen). Furthermore, for each accepted bribe, all members of the group lost three points each (to model inefficiency of bribery for the society). On the other hand, if a citizen offered a bribe and a public official rejected it, the citizen had to pay a fine of 10 points, but they did not lose the amount spent on the bribe.

Within the game, participants were randomly allocated to one of the four conditions where (1) participants and their partner both received high endowments, (2) participants themselves received a high endowment and their partner received a low endowment, (3) participants themselves received a low endowment and their partner received a high endowment, or (4) participants and their partner both received low endowments. The high endowment corresponded to 100 points (£0.50), and the low endowment corresponded to 30 points (£0.15). Participants had to leave nine points of their endowments aside for potential negative externalities (if all other citizens in the group got their bribes accepted, it would amount to nine points). The citizens could spend the remaining part of their endowment on bribes or keep it to themselves, while the public officials kept the remaining part of their endowment to themselves. All participants were informed about the composition of their groups of eight, which included one dyad from each of the four conditions, and hence modeled a society facing some levels of resource inequality.

After reading the instructions to the bribery game, participants were asked to make a decision as a citizen and as a public official in random order, and they were informed that only one of these decisions would be chosen for final payoff (based on a random allocation to the role of a citizen or a public official). As citizens, participants were asked to indicate whether they would offer a bribe, and if so, how much they would offer. As public officials, participants were asked to indicate whether they would accept a bribe, and if so, what the minimum amount is they would accept.

Results

Effects of unequal resources on bribe offers

Herein, we use logistic regression models (for details, see the pre-registration). The analyses on probabilities of offering and accepting bribes are conducted using the entire sample ($N = 2,401$), while the analyses including the amounts and proportions of

endowments offered/accepted as bribes are conducted using participants who offered ($N = 1,458$) and accepted ($N = 1,468$) bribes, respectively.

At first, we tested if citizens' and public officials' endowments affected the decision to offer a bribe (yes vs. no). We found similarly high probabilities of offering a bribe among rich and poor citizens (60.99% and 60.46%, respectively; $OR = 1.02$; 95% CI = [0.87; 1.20]; $p = .792$). Similarly, 60.52% of citizens paired with rich public officials and 60.94% of citizens paired with poor public officials decided to offer a bribe ($OR = 0.98$; 95% CI = [0.83; 1.16]; $p = .833$). Finally, we found no significant interaction between citizens' and public officials' endowments when predicting the probability of offering a bribe ($OR = 1.18$; 95% CI = [0.85; 1.65]; $p = .310$; see Figure 1A). In summary, neither the citizens' nor the public officials' endowments had a significant effect on the decision to offer a bribe.

In contrast, both citizens' and public officials' endowments had a significant impact on the absolute *amounts* offered as a bribe. Specifically, rich citizens offered higher bribes ($M = 42.36$; $SD = 23.93$) than poor citizens ($M = 15.13$; $SD = 5.62$; $\beta = 1.23$; 95% CI = [1.15; 1.32], $p < .001$). Furthermore, citizens offered significantly more as bribes when paired with rich ($M = 30.16$; $SD = 22.69$) than with poor public officials ($M = 27.19$; $SD = 21.29$; $\beta = 0.13$; 95% CI = [0.03; 0.24], $p = .010$). Importantly, however, we found a significant interaction effect ($\beta = 0.25$; 95% CI = [0.09; 0.41], $p = .003$), suggesting that the two effects described above were driven by rich citizens offering more to rich public officials. More specifically, rich citizens offered higher bribes to rich public officials ($M = 45.10$; $SE = 0.90$) than to poor public officials ($M = 39.50$; $SE = 0.92$; $\beta = 0.26$; $t(1,454) = 4.42$; $p < .001$). On the other hand, poor citizens did not differentiate between rich and poor public officials in the amounts they offered as bribes ($M = 15.00$; $SE = 0.89$ vs. $M = 15.20$; $SE = 0.91$, respectively; $\beta = 0.01$; $t(1,454) = 0.17$; $p = .998$; see Figure 1B). To summarize, rich citizens offered

higher bribes to rich than to poor public officials. Poor citizens, however, offered similar bribes to both rich and poor public officials.

Next, we tested if citizens' and public officials' endowments affected how much of their own endowments citizens offered as bribes (i.e., the percentage of their endowments offered as bribes). Please note that we subtracted nine points from endowments before calculating the percentages reported below, because participants had to set aside nine points for potential negative externalities (and hence could not spend them on bribes). Rich citizens offered significantly less of their own endowments on bribes ($M = 46.54\%$; $SD = 26.29\%$) than poor citizens ($M = 72.04\%$; $SD = 26.75\%$; $\beta = -0.87$; 95% CI = $[-0.96; -0.77]$, $p < .001$). Furthermore, citizens paired with rich public officials offered more of their own endowment as a bribe than citizens paired with poor public officials ($M = 61.08\%$; $SD = 28.72\%$ vs. $M = 57.50\%$; $SD = 30.04\%$, respectively; $\beta = 0.12$; 95% CI = $[0.02; 0.22]$, $p = .020$). Finally, we found that the citizens' and the public officials' endowments had no interactive effect on the percentage of the citizens' endowment offered as a bribe ($\beta = 0.18$; 95% CI = $[-0.01; 0.36]$, $p = .062$, see, Figure 1C). In sum, rich citizens offered less of their endowment on bribes, and citizens paired with rich public officials offered more of their own endowment as bribes.

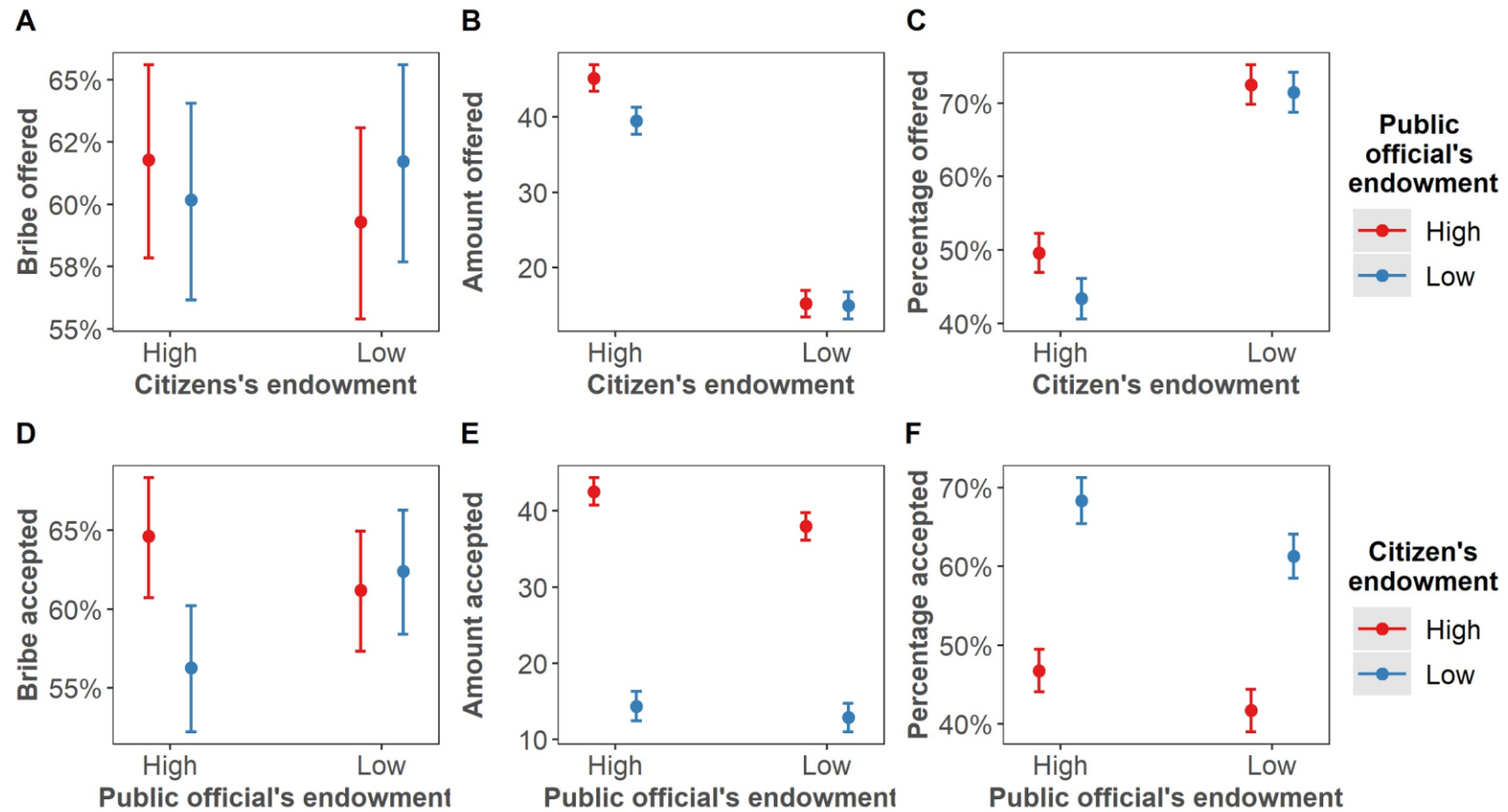


Figure 1. Effects of endowments on bribery. Figure 1A presents the probabilities of offering a bribe, 1B presents the amounts offered as bribes, 1C presents the percentage of one's own endowment offered as a bribe, 1E presents the probabilities of accepting a bribe, 1D presents the minimum amounts accepted as bribes, 1E presents the percentage of one's partner's endowment accepted as bribes. Dots indicate means, vertical lines indicate 95% confidence intervals.

Effects of asymmetric resource distribution on *accepting* bribes

We tested if citizens' and public officials' endowments had a significant impact on the likelihood of accepting a bribe. In this regard, we did not document a difference in accepting bribes when looking at the endowment of the public officials: we found that 60.49% of rich and 61.79% of poor public officials decided to accept a bribe ($OR = 0.95$; 95% $CI = [0.80; 1.12]$; $p = .513$).

Next, we examined the likelihood of accepting a bribe depending on who offers it: 62.88% of public officials matched with rich citizens and 59.32% of public officials matched with poor citizens decided to accept a bribe ($OR = 1.16$; 95% $CI = [0.98; 1.37]$; $p = .074$, see, Figure 1C). Furthermore, we found a significant interaction between the public officials' and the citizens' endowments ($OR = 1.49$; 95% $CI = [1.07; 2.08]$; $p = .017$). Specifically, rich public officials were more likely to accept bribes when matched with rich citizens as opposed to when matched with poor citizens (65% vs. 56%, respectively; $OR = 1.29$; $SE = 0.84$; $p = .017$). Poor public officials, on the other hand, did not differentiate between rich and poor citizens when it comes to accepting bribes (61% vs. 62%, respectively; $OR = 0.95$; $SE = 0.15$; $p = .142$, see, Figure 1D). Summarizing, rich public officials accepted more bribes from rich than from poor citizens, while poor public officials accepted a similar number of bribes from rich and poor citizens.

Next, we tested the effects of citizens' and public officials' endowments on the *minimum amounts* public officials indicated that they would accept as bribes ("minimum bribes"). We found that both public officials' and citizens' endowments had significant effects on the minimum amounts public officials accepted as bribes. Specifically, rich public officials indicated that they would accept higher minimum bribes ($M = 29.57$; $SD = 22.22$) than poor public officials ($M = 25.80$; $SD = 22.65$; $\beta = 0.17$; 95% $CI = [0.07; 0.27]$, $p = .001$). Furthermore, public officials indicated that they would accept higher minimum bribes from

rich ($M = 40.27$; $SD = 24.38$) than from poor citizens ($M = 13.58$; $SD = 5.81$; $\beta = 1.19$; 95% CI = [1.10; 1.27], $p < .001$). Finally, we found no significant interaction between public officials' and citizens' endowments and the minimum amount accepted as a bribe ($\beta = 0.14$; 95% CI = [-0.03; 0.30], $p = .10$; see, Figure 1E). In summary, rich public officials accepted higher minimum bribes than poor public officials. Additionally, public officials paired with rich citizens accepted higher minimum bribes than those paired with poor citizens.

Furthermore, we investigated if citizens' and public officials' endowments play a role in how much of the citizens' endowments public officials required as a bribe (i.e., the percentage of citizens' endowments required as a bribe). We found that the amounts the rich public officials indicated as minimum bribes they would accept, required more of the citizens' endowments ($M = 56.71\%$; $SD = 28.12\%$) than the amounts indicated by poor public officials ($M = 51.20\%$; $SD = 29.67\%$; $\beta = 0.19$; 95% CI = [0.09; 0.29], $p < .001$; see Figure 1F). Furthermore, public officials who were paired with rich citizens indicated that they would accept a lower percentage of the citizen's endowment as a bribe ($M = 44.25\%$; $SD = 26.79\%$), than public officials who were paired with poor citizens ($M = 64.67\%$; $SD = 27.65\%$; $\beta = -0.70$; 95% CI = [-0.80; -0.61], $p < .001$). Finally, there was no significant interaction effect between citizens' and public officials' endowments on the minimum percentage of the citizens' endowment accepted as a bribe ($\beta = -0.07$; 95% CI = [-0.26; 0.12], $p = .475$; see Figure 1F). To summarize, the minimum bribes accepted by rich public officials required more of the citizens' endowments than the minimum bribes accepted by poor public officials. Furthermore, public officials paired with rich citizens accepted minimum bribes requiring less of the citizens' endowment than those paired with poor citizens.

Discussion

Bribery and inequality are ubiquitous in many peoples' lives²⁶⁻²⁸. Herein, we systematically tested the effects of resource inequality among bribers (individuals who can offer bribes) and bribees (individuals who might receive bribes). We found that rich bribees accepted more bribes from rich (rather than poor) bribers, and that rich bribees were willing to accept only higher (rather than lower) bribes. These results align with expected utility theory²⁹⁻³¹—specifically, rich bribees might have perceived only the relatively high bribes (offered by rich bribers) as attractive compared to their already high endowments. In contrast, we found that poor bribees were willing to accept both lower and higher bribes, offered by both poor and rich bribers, possibly because—again, in accord with expected utility theory²⁹⁻³¹—both low and high bribes should be of high utility for people with relatively low resources. Furthermore, in line with expected utility theory²⁹⁻³¹, our results show that bribers anticipated that they needed to offer higher bribes to the rich than to the poor bribees in order to get their bribes accepted. However, we observed that only the rich bribers made such an adjustment, possibly because the poor bribers did not have enough resources to offer sufficiently higher bribes to rich bribees. Summarizing, our investigation predominantly supports the predictions arising from expected utility theory.

Furthermore, we examine several predictions based on equity theory suggesting that bribery might be used as a means to restore equity in inequitable situations. However, we did not observe the rich offering and accepting more bribes from the poor, the rich offering higher and accepting lower bribes from the poor, or the poor disadvantaging the rich by not engaging in bribery with them. Notably, however, we did find that both poor and rich bribees indicated that they would only accept relatively high bribes from rich (vs. poor) bribers. Such preference might be interpreted as an expression of equity and fairness preferences—specifically, of an expectation that the rich have to pay more than the poor to reach their goal

in an inequitable situation. Finally, we observed that poor bribers/bribees offered and accepted a similar number, and offered a similar size of bribes to the poor and the rich bribees. Because successful bribery interactions with both poor and rich bribees are beneficial, this might be interpreted as an attempt of the poor bribers/bribees to restore equity by benefiting themselves. Summarizing, the present work contributed to the existing literature by testing the predictive validity of two prominent theories in the context of bribery—and finds mostly support for expected utility theory but less so for equity theory.

Next, the current study provides insights into different ways in which rich and poor bribers might benefit from getting their bribes accepted (for related macroeconomic analyses on the topic, see^{50–52}). Specifically, we found that compared to poor bribers, rich bribers needed to offer a lower proportion of their endowments to get a bribe accepted by the bribees. Hence, it might be that in real life settings, rich bribers benefit from successful bribery more than poor bribers because they need to spend a smaller part of their resources to get a bribe accepted. On the other hand, we did observe that compared to poor bribers, rich bribers needed to offer more in absolute terms to get a bribe accepted. Therefore, in contexts where poor and rich bribers aim to get services/goods of equal value, the relative value of said services/goods (i.e., the service/good value minus the value of the bribe), might actually be higher for the poor bribers because they are expected to pay lower bribes (in absolute terms). In this way, poor bribers might, in some situations, benefit from bribery more than rich bribers.

The current study brings about several practical implications. Specifically, we found that rich bribees were more willing to accept higher bribes, and bribes from rich bribers. This suggests that in real life settings, bribery involving rich bribees might be especially prevalent when bribers are rich as well. Hence it might be beneficial to direct bribery prevention and detection efforts towards such interactions. Furthermore, we found that receiving high

endowments resulted in bribees being less willing to accept relatively lower bribes, while receiving low endowments resulted in bribees accepting both relatively higher and lower bribes. This observation suggests that public institutions might benefit from assuring that individuals who are exposed to bribe offers (e.g., public officials) receive salaries high enough, so that the potential bribes do not seem valuable in comparison (for a similar implication, see^{23,53}). Finally, the practical implications are based on results from one study only and hence our findings should be replicated before implemented in practice.

Notably, the study faces several limitations. First, the study includes UK residents only, hence future studies should test if our findings generalize to other populations. Second, similarly to other studies on the topic of bribery, the results presented herein are based on a stylized bribery game which certainly might not capture all the complexities involved in real life bribery. Finally, the stakes used in the bribery game were small. However, please note that several studies suggest that the size of stakes involved has little meaning when it comes to engagement in antisocial behavior, such as bribery^{33,34}.

Summarizing, we found that compared to poor bribees, rich bribees had a preference to accept bribes involving higher, rather than lower amounts of money, as well as involving rich, rather than poor bribers. Furthermore, both poor and rich bribers indicated they would only accept relatively high bribes from rich (rather than poor) bribees. Finally, rich and poor bribers benefited from successful bribery in different ways, that is (1) the rich bribers spent a smaller portion of their resources on bribes, and (2) the poor spent less in absolute terms on bribes.

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