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In-Group Favoritism in the Gain and Loss Domain: Experimental Evidence from China and the US

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Abstract

How individuals allocate resources across social groups depends on economic conditions. While prior research has documented strong in-group favoritism in domains reflecting favorable economic conditions, it remains unclear how this tendency shifts in domains that reflect economic downturns. We investigate this question by running two artefactual field experiments, one in China and one in the US, where participants, depending on the treatment, either allocate money to in-group and out-group recipients (reflecting the gain domain) or take money away from them (reflecting the loss domain). In both experiments, we document in-group favoritism in the gain domain, which decreases in the loss domain. However, this reduction in in-group favoritism is not due to a greater tendency to treat different recipients equally. Instead, we find that the loss domain leads to more dispersed allocation decisions. This pattern translates into in-group favoritism being counteracted by a higher share of participants who favor out-group recipients.

JEL classification: C99, D30, D63, D81, J10, J15

Keywords: in-group favoritism, group bias, discrimination, loss vs. gain domain, social preferences.

Conflicts of interest: none.

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1. Introduction

While favorable economic conditions allow for the distribution of promotions, bonuses, and expanded resources, economic downturns, such as the 2008 financial crash, or the economic crisis because of COVID-19, necessitate decisions about layoffs, wage reductions, and resource cutbacks. How are the decisions about who benefits in “good times” made? Do the same principles guide the decisions about who suffers in “bad times”?

One crucial factor that may shape these decisions is in-group favoritism. Prior research has shown that individuals exhibit more favorable behavior toward others who share the same group identity as themselves (in-group) than toward others with a different group identity (out-group) (Akerlof and Kranton, 2000; Balliet, 2014; Charness and Chen, 2020; Lane, 2016). Such a tendency to discriminate against out-group members with different cultural, ethnic, and religious backgrounds (among other characteristics) is known as the in-group bias or in-group favoritism (Chen and Li, 2009; Tajfel and Turner, 1979; Turner et al., 1979). This favoritism shapes economic and organizational outcomes, influencing decision-making at multiple levels. For example, it plays a role in workplace interactions and managerial decision-making, affecting organizational dynamics (Cassar and Klein, 2019; Eren, 2023), hiring decisions (Carlsson and Eriksson, 2019), occupational segregation (Fischbacher et al., 2024), e-commerce disputes (Kwan et al., 2024), and perceptions of financial resilience of firms (Jannati et al., 2025), among others.

While in-group favoritism is a well-established phenomenon, prior research has predominantly examined it in situations that reflect economic stability and growth (the gain domain). For example, in modern organizations with diverse employees, differing in ethnicity, political affiliation, and other social identities, employer-employee interactions such as promotion decisions, compensations, and recognition often reflect in-group favoritism (Đuriník et al., 2023). Yet, organizations and individuals do not operate solely in favorable conditions (i.e., gain domain), economic downturns introduce loss contexts (i.e., loss domain) that may profoundly alter decision-making. Such unfavorable conditions introduce a fundamentally different set of decisions. How might in-group favoritism influence these different types of decisions? For instance, in the loss domain, are employers more likely to lay off out-group employees than they are to favor in-group employees in promotions in the gain domain? Furthermore, how would employers discriminate between out-group employees who differ in their social distance to the employer? Consider an employer and three employees: Employee 1 shares both the religion and native language with the employer (in-group); Employee 2 shares

only the religion but not the native language (close out-group); and Employee 3 shares neither the religion nor the native language (far out-group). While all three employees are equally qualified for the job, would the same favoritism patterns emerge, for example, when deciding whom to promote versus whom to let go during financial cutbacks?

On the one hand, the loss domain may deepen in-group favoritism. Research suggests that individuals become more focused on their own outcomes (De Dreu, 1996; Fisman et al., 2015) and exhibit greater individualism (Poppe and Valkenberg, 2003) in the loss domain compared to the gain domain. Moreover, Akerlof and Kranton (2000) argue that when individuals strongly identify with an in-group, their sense of identity, and thus their well-being, is closely linked to the group's welfare. Consequently, the heightened self-interest seen during economic losses should naturally extend toward favoring in-group members. In other words, just as individuals prioritize their own outcomes more strongly in the loss domain, they will similarly prioritize outcomes beneficial to their in-group. On the other hand, the loss frame might evoke different social norms (List, 2007). Specifically, a decision to lay off an employee or cut their wage might be perceived as "taking from that person." Decisions involving taking rather than giving are often considered as less socially appropriate (Krupka and Weber, 2013) and morally more costly (Korenok et al., 2018). As a result, individuals might act more fairly, potentially reducing favoritism towards in-group members. Therefore, it remains unclear whether in-group favoritism indeed strengthens or whether other ethical considerations outweigh in-group favoritism in loss contexts.

Motivated by the abovementioned discussion, we report results of two artefactual field experiments (Al-Ubaydli and List, 2015; Harrison and List, 2004) designed to test in-group favoritism in the loss and gain domains. Artefactual field experiments offer a valuable addition to lab studies, as they retain the control of a standard lab experiment, while increasing the external validity of the findings by using non-student actors (List and Rasul, 2011). Moreover, to further increase the realism of our setting, we have deliberately chosen group identities that are proven to affect interpersonal dynamics within organizations and society at large.

In Study 1, Chinese participants recruited by a marketing research agency gain (lose) money for themselves and have to decide how to allocate a fixed amount of gains (losses) between three passive recipients: an in-group recipient, a close out-group recipient, and a far out-group recipient. The identities are primed through ethnic variations and the complex Chinese registration system called "hukou". Both group identities are among key factors shaping

workplace and societal dynamics in China (Cheo, 2017; Dulleck et al., 2020; Maurer-Fazio, 2012; Mobius et al., 2016; Siddique, 2020; Xiao and Bian, 2018). The decision-makers belong to the Han ethnicity and have an urban (Shanghai) hukou. The three recipients vary in whether they belong to the in-group (Han ethnicity and urban hukou), to a close out-group (Han ethnicity and rural hukou), or to a far out-group (Uyghur ethnicity and rural hukou).

In Study 2, conducted with US participants recruited through Prolific (Palan and Schitter, 2018), the task of the decision-maker is identical to that of Study 1. The identities are primed through the political affiliations of the participants and their views on abortion rights. The decision-makers are either Republicans opposing abortion rights or Democrats supporting them. Like the identities in Study 1, these group identities are significant drivers shaping workplace and societal dynamics in the US (Abel et al., 2024; Fos et al, 2022; McConnell et al., 2018; Scoglio and Nayak, 2023). The in-group recipient shares the same political affiliation and attitude toward abortion rights as the decision-maker, while the close out-group differs in the political affiliation, and the far out-group differs in both dimensions. In Study 2, we add *an additional* treatment variation by manipulating whether recipients start with the same initial endowments or whether initial endowments gradually decrease from the in-group to the close out-group and then to the far out-group. This results in a 2 (gain or loss condition) \times 2 (equal or unequal recipient endowment) factorial design. The reason for the additional treatment variation is the following. Despite the experimental instructions of Study 1 clearly stating that all recipients start the experiment with the same endowments, the priming of group identities through ethnicities and hukous may evoke perceptions of recipients' wealth outside the experiment. More specifically, given the social context in China, Uyghur recipients (far out-group) may be perceived as economically worse off than Han recipients with rural hukou (close out-group), who, in turn, may be considered as economically worse off than Han recipients with urban hukou (in-group). The additional treatment variation accounts for these possible perceptions of economic differences among the recipients, aiming to alleviate this confounding factor. Moreover, group identities in Study 2 are chosen in a way not to be associated with differences in recipients' wealth outside the experiment.

Following the literature, we define in-group favoritism in our experimental setup as the tendency of decision-makers to allocate more money to in-groups than to out-groups (Chen and Li, 2009; Dimant, 2023; Grimm et al., 2017). In both studies, that starkly vary in the cultural context and group identities, we provide robust evidence of in-group favoritism in the gain domain, which decreases in the loss domain. This result might suggest that decision-

makers in the loss domain exhibit more uniform views on treating in-group and out-group recipients equally (i.e., allocating an equal amount of loss to all three recipients). However, the distribution of allocation patterns across the two domains reveals a different picture. Specifically, the loss domain leads to more dispersed allocation decisions than the gain domain. This pattern translates into in-group favoritism being counteracted by a higher share of participants who favor out-group recipients in the loss domain.¹

Overall, we extend the existing literature on in-group favoritism in several directions. First, and most importantly, we extend the decision-making context to the loss domain. Despite the economic literature discussing the effects of gains vs. losses on preferences for altruism (Antinyan et al., 2024; Fiedler and Hillenbrand, 2020), fairness (Buchan et al., 2005; Thunström, 2019), cooperation (Andreoni, 1995), and inequality aversion (Boun et al., 2018), to the best of our knowledge, in-group favoritism across these domains is understudied.² The distinctive features of the current study are that it administers an artefactual field experiment with non-student populations (List and Rasul, 2011) and natural social identities (Chen et al., 2014; Dimant, 2023; Goette et al., 2006), systematically manipulating the economic domain. This approach contrasts with existing literature in social psychology exploring in-group favoritism in the allocation of negative resources (see, e.g., Buhl, 1999; Hewstone et al., 2002), which typically relies on student populations and employs the minimal or near-minimal group paradigm, a method that assigns social identities based on arbitrary criteria, such as preference for paintings or choice of geographical objects.

Second, we introduce two out-group recipients who belong to social groups that are either socially close or socially distant from the decision-maker's social group (i.e., close vs. far out-group). The existing literature that studies multiple out-groups (Abbink and Harris, 2019; Grimm et al., 2017) does not impose a clear distinction between close and far out-groups. Thus, little is known about how individuals interact with out-groups of different degrees of social distance, yet this is an important aspect of social interactions in both gain and loss domains in diverse organizations and societies. Lastly, we follow the call for replications as emphasized,

¹ A decision-maker is in-group favoring if they favor the in-group recipient more than both out-group recipients. A decision-maker is out-group favoring if they favor both out-group recipients more than the in-group recipient.

² Prior research has examined the distinction between “in-group love” and “out-group hate,” that is, favoring the in-group vs. harming the out-group (e.g., Buttelmann and Böhm, 2014; Weisel and Böhm, 2015). Some studies have also investigated how participants assign losses to in-group and/or out-group members (e.g., Bernhard et al., 2006; Doğan et al., 2022; Gershon and Fridman, 2022; Weisel, 2015). However, none of these studies manipulate the economic domain (i.e., gain vs. loss), and therefore address fundamentally different research questions from ours.

amongst others, by Camerer et al. (2016). Our findings conceptually replicate across two distinct cultural contexts (China and the US), different types of social identities, and exposure to social and economic inequalities outside the experiment. Hence, our study contributes to the robustness and external validity of existing findings on in-group favoritism.

The remainder of the paper is organized as follows. In Sections 2 and 3, we present the experimental designs and results of Studies 1 and 2, respectively. Section 4 provides a brief discussion and concludes the paper.

2. Methods

2.1. Experimental Design

2.1.1. Social Identities

Our two studies prime natural social identities (Chen et al., 2014; Chmura et al., 2016; Dimant, 2023; Goette et al., 2006; Hoff & Pandey, 2006; Levine et al., 2005; Mobius et al., 2016; Ravetti et al., 2019). Specifically, we match each participant in the role of decision-maker with three recipients whose profiles vary in similarity based on two key characteristics:

- In-group: shares both characteristics with the decision-maker.
- Close out-group: shares one characteristic but differs in the other.
- Far out-group: differs in both characteristics.

In Study 1, we take advantage of the ethnic variations and the complex registration system in China. While the majority ethnic group in China is Han, there are also many minority groups such as the Uyghurs (a Turkic ethnic group) located in the Xinjiang province. The registration system, called “hukou”, identifies each Chinese citizen as a permanent resident of an area. It classifies Chinese citizens as either agricultural (rural) hukou holders or non-agricultural (urban) hukou holders. Agricultural hukou holders are considered migrants in urban areas and are not entitled to the same benefits as urban hukou holders. In this study, the decision-maker is Han and holds a Shanghai hukou. The recipients’ profiles are defined as follows:³

- In-group: Han ethnicity, Shanghai hukou and hence a local in Shanghai.
- Close out-group: Han ethnicity, rural hukou from a nearby region and hence a migrant in Shanghai.

³ The order in which the three recipients were presented to each decision-maker was randomized, and this order was kept constant for each individual decision-maker across different screens.

- Far out-group: Uyghur ethnicity, rural hukou from near Urumqi (Xinjiang’s capital) and hence a migrant in Shanghai.

In Study 2, decision-makers are either Republicans who oppose abortion rights or Democrats who support them. The profiles of the three recipients are as follows:⁴

- In-group: same party and same abortion stance.
- Close out-group: opposite party, same abortion stance.⁵
- Far out-group: opposite party and opposite abortion stance.

To confirm the effectiveness of social identity priming, we use an adaptation of the Bogardus social distance scale (Wark and Galliher, 2007) in a post-experimental questionnaire, where decision-makers indicate the maximum level of intimacy they would accept with a representative member of each recipient group.

2.1.2. The Game

Our experiment employs a “bystander” allocation game (e.g., Chen and Li, 2009; Tajfel et al., 1971). Participants in the role of decision-makers are matched with three other passive participants in the role of recipients. Depending on the treatment, decision-makers allocate a certain amount of gain (in the **GAIN** treatment) or loss (in the **LOSS** treatment) among the recipients. The allocation decisions neither affect the decision-makers’ own earnings nor are influenced by the recipients’ actions. These design choices allow us to study in-group favoritism in the gain and loss domains independently of any strategic considerations and material self-interest of the decision-maker.⁶

To manipulate the domain, we introduce a lottery that, with some probability, either increases the initial endowments of both the decision-makers and the recipients (in **GAIN**) or decreases them (in **LOSS**) (Antinyan et al., 2024; Benistant and Suchon, 2021). The rationale is that a decision-maker forms a reference point based on the status quo (i.e., the initial endowment) and evaluates both their own and the recipients’ final endowments relative to this reference

⁴ The in-group and far out-group recipient were presented to the decision-maker in a random order, which remained constant across all screens. To avoid confusion, particularly in the **UNEQUAL** treatment where recipients had different endowments (introduced in Section 1.1.2), the close out-group recipient was always placed in the middle position.

⁵ A reasonable alternative to the definition of the close out-group recipient is that they differ from the decision-maker only in their attitude towards abortion rights, but not in political affiliation. However, a pre-test revealed that a participant’s perceived social distance to such a recipient does not statistically differ from that of the in-group.

⁶ An alternative design used by some prior studies includes a classic dictator game, where decision-makers share money between themselves and a recipient. However, we refrained from a dictator game as the decision-makers’ self-interest might interact with our domain manipulation, confounding the results on in-group favoritism.

point (Benistant and Suchon, 2021). The introduction of gains and losses both for the decision-makers and the recipients mimics situations in which everyone involved faces either collectively favorable or unfavorable conditions. In the following, we describe the lottery in greater detail, including how it introduces the gain and loss domains.

At the beginning of the game, every decision-maker (DM) starts with an initial endowment of e_{DM} while each of the three recipients (R_i) starts with an endowment of e_{R_i} . Next, participants jointly enter a lottery with two potential outcomes:

- Outcome 1: The game ends and all participants receive their initial endowments.
- Outcome 2: Everyone's endowment changes. Specifically, in **GAIN**, the decision-maker gains 10, while the recipients gain 30 in total. In **LOSS**, the decision-maker loses 10, while the recipients lose 30 in total. The decision-maker is then asked to allocate the amount of 30 that represents the recipients' gain in **GAIN** or, respectively, their loss in **LOSS**, among the three recipients, subject to two restrictions: a) the entire amount of $|30|$ must be allocated among the three recipients and b) the allocation towards each recipient, denoted by x_i , must lie within the interval $[0, 20]$.

In both treatments, the analysis is based on decision-makers' behavior when Outcome 2 occurs.⁷

The following design choices ensure that the **GAIN** and **LOSS** treatments are comparable:

- The decision-maker's and each recipient's initial endowment is higher by 20 units in **LOSS** compared to **GAIN**. This ensures that after the realization of Outcome 2, the decision-maker earns the same amount in both treatments: in **GAIN**, $\pi_{DM} = e_{DM} + 10$, and in **LOSS**, $\pi_{DM} = (e_{DM} + 20) - 10$.
- The recipients' total final payoff after the realization of Outcome 2 is also identical across treatments: in **GAIN**, $\sum_{i=1}^3 \pi_{R_i} = \sum_{i=1}^3 (e_{R_i}) + 30$, and in **LOSS**, $\sum_{i=1}^3 \pi_{R_i} = \sum_{i=1}^3 (e_{R_i} + 20) - 30$.
- The decision-maker allocates the same absolute amount of $|30|$ across the three recipients in both treatments, and each individual allocation x_i is bounded within the

⁷ In both **GAIN** and **LOSS**, Outcome 1 occurs with a 1% probability, while Outcome 2 occurs with a 99% probability. These probabilities are not disclosed to participants. We chose these probabilities to collect sufficiently many analysis-relevant decisions within the given budget constraint.

interval $[0,20]$, ensuring that the decision-maker faces the same set of feasible choices in both treatments.

- Finally, the difference between the decision-maker's and the recipients' initial endowments is held constant across **GAIN** and **LOSS**.

Table 1 summarizes the earning structure in Study 1 (see also Figure A.1 in Appendix A for a summary of our experimental design). Note that earnings in the experiment were paid in Renminbi (RMB).

Table 1: Earning Structure (Study 1)

| GAIN | | | LOSS | |
|-------------|--------------------------|---------------------------|--------------------------|----------------------------|
| | Decision-maker | Recipient i | Decision-maker | Recipient i |
| Outcome 1 | $\pi_{DM} = e_{DM} = 20$ | $\pi_{R_i} = e_{R_i} = 0$ | $\pi_{DM} = e_{DM} = 40$ | $\pi_{R_i} = e_{R_i} = 20$ |
| Outcome 2 | $\pi_{DM} = 20 + 10$ | $\pi_{R_i} = 0 + x_i$ | $\pi_{DM} = 40 - 10$ | $\pi_{R_i} = 20 - x_i$ |

Notes: The table summarizes the decision-makers' (DM) and recipients' (R) earnings depending on the decision-makers' allocation decisions, denoted by $x_i \in [0,20]$, $\sum_i x_i = 30$, $i=\{1,2,3\}$. Earnings are shown in RMB (1 RMB = 0.1426 USD at the time of the study).

Study 2 manipulates not only the gain/loss domain but also whether or not the three recipients start off with the same initial endowments. This design choice reflects potential wealth differentials among the recipients in Study 1. This results in a 2 (**GAIN**, **LOSS**) \times 2 (**EQUAL**, **UNEQUAL**) factorial design with four treatments: **GAIN-EQUAL**, **LOSS-EQUAL**, **GAIN-UNEQUAL**, and **LOSS-UNEQUAL**. Compared to Study 1, all treatments in Study 2 scale up the decision-maker's initial endowments so that $e'_{DM} = e_{DM} + 40$. For the recipients, we scale up the initial recipients' endowments in the **EQUAL** treatments to $e'_{R_i} = e_{R_i} + 20$. In the **UNEQUAL** treatments, we additionally vary the three recipients' initial endowments as follows:

- In-group: $e'_{R_i} + 5$ (i.e., the endowment is 5 units higher than in **EQUAL**).
- Close out-group: e'_{R_i} (i.e., the endowment is the same as in **EQUAL**).
- Far out-group: $e'_{R_i} - 5$ (i.e., the endowment is 5 units lower than in **EQUAL**).

Table 2 summarizes the earning structure in Study 2. Remember that comparability between the gain and loss domains requires that the initial endowments of decision-makers and recipients in **LOSS** are increased by 20 compared to **GAIN**. Note that earnings in the experiment were paid in pence, as the subjects were recruited through Prolific.

Table 2: Earning Structure (Study 2)

Panel a: Treatment *EQUAL*

| <i>GAIN</i> | | | <i>LOSS</i> | |
|-------------|----------------------------|------------------------------|----------------------------|------------------------------|
| | Decision-maker | Recipient i | Decision-maker | Recipient i |
| Outcome 1 | $\pi'_{DM} = e'_{DM} = 60$ | $\pi'_{R_i} = e'_{R_i} = 20$ | $\pi'_{DM} = e'_{DM} = 80$ | $\pi'_{R_i} = e'_{R_i} = 40$ |
| Outcome 2 | $\pi'_{DM} = 60 + 10$ | $\pi'_{R_i} = 20 + x_i$ | $\pi'_{DM} = 80 - 10$ | $\pi'_{R_i} = 40 - x_i$ |

Panel b: Treatment *UNEQUAL*

| <i>GAIN</i> | | <i>LOSS</i> | |
|----------------|--------------------------------|----------------------------|--------------------------------|
| Decision-maker | Recipients | Decision-maker | Recipients |
| Outcome 1 | $\pi'_{DM} = e'_{DM} = 60$ | $\pi'_{DM} = e'_{DM} = 80$ | $\pi'_{Rin} = e'_{Rin} = 45$ |
| | $\pi'_{Rc-o} = e'_{Rc-o} = 20$ | | $\pi'_{Rc-o} = e'_{Rc-o} = 40$ |
| | $\pi'_{Rf-o} = e'_{Rf-o} = 15$ | | $\pi'_{Rf-o} = e'_{Rf-o} = 35$ |
| Outcome 2 | $\pi'_{DM} = 60 + 10$ | $\pi'_{DM} = 80 - 10$ | $\pi'_{Rin} = 45 - x_{in}$ |
| | $\pi'_{c-o} = 20 + x_{c-o}$ | | $\pi'_{Rc-o} = 40 - x_{c-o}$ |
| | $\pi'_{Rf-o} = 15 + x_{f-o}$ | | $\pi'_{Rf-o} = 35 - x_{f-o}$ |

Notes: The tables summarize the decision-makers' (DM) and recipients' (R) earnings depending on the decision-makers' allocation decisions, denoted by $x_i \in [0, 20]$, $\sum_i x_i = 30$, $i = \{in, c-o, f-o\}$. The abbreviations "in", "c-o", and "f-o" denote the three recipient groups in-group, close out-group, and far out-group, respectively. Earnings are shown in pence (1 GBP = 1.267 USD at the time of the study).

2.2. Experimental Protocol and General Procedures

2.2.1. Experimental Protocol

Both studies were conducted online via Qualtrics. Before proceeding with the allocation task, decision-makers were provided with detailed experimental instructions and requested to answer a set of control questions to test their understanding of the instructions. They could not proceed until they had answered all control questions correctly. In the final part of the experiment, they completed a post-experimental questionnaire consisting of socio-demographic questions and the Bogardus scale. Additionally, in Study 2 participants were asked to estimate the percentage of other decision-makers in similar situations who favored the in-group recipient, along with brief items on altruism and inequality aversion. Please refer to Appendix B.1 and Appendix B.2 for the experimental instructions and the post-experimental questionnaires.

2.2.2. General Procedures

Study 1 took place between November and December 2019. The data collection was outsourced to a major marketing research company operating in China. 255 participants were recruited as decision-makers and randomly assigned to either *GAIN* or *LOSS*. Given the heterogeneity and passive nature of the recipients (no decision to be made, only to receive money), they were planned to be recruited and paid separately, either using the same company (for in-group recipients) or different channels (for out-group recipients). While we planned to pay all the recipients and developed several methods for contacting the appropriate individuals, the Covid lockdowns, which began shortly after running the experiment, and the increasingly sensitive nature of the recipients' ethnicity made the payment of out-group recipients impossible. Unlike in Study 1, all participants are paid in the follow-up Study 2, discussed below.

Out of the 255 decision-makers in Study 1, 224 completed the money allocation task, with only 204 providing their contact information for payment through Alipay. We focus on these 204 observations for the sake of incentive compatibility (107 in *GAIN*, 97 in *LOSS*). The median time a decision-maker spent on the experiment was around 6.7 minutes with a mean payment of 29.95 RMB (around 4.3 USD). The average decision-maker was roughly 33 years old with around 59% being female. In Appendix A (Section A.2.), Panel (a) of Table A.1 summarizes the descriptive statistics of the sample. We do not find any statistically significant differences in the observable characteristics of the participants across the two treatments (Wilcoxon rank-sum tests: $p \geq 0.161$ for all continuous and ordinal variables; Fisher's exact test for all binary variables: $p \geq 0.144$), indicating that the randomization procedure was successful.⁸

Study 2 is pre-registered on Open Science Framework (<https://osf.io/mgfgt>).⁹ Ethical approval was obtained from WHU—Otto Beisheim School of Management and GfEW. Between February and March 2024, participants in the role of decision-makers were recruited through Prolific (Palan and Schitter, 2018), subject to several restrictions: they had to be located in the US, fluent in English, have an approval rate of at least 95%, and identify as either pro-life (i.e.,

⁸ Whenever we speak about several binary comparisons, we report the maximum (minimum) z-value and the minimum (maximum) p for statistically significant (insignificant) results.

⁹ In the pre-registration for Study 2, we predict in-group favoritism in *GAIN*, which decreases in *LOSS*, replicating the pattern observed in Study 1. For the *EQUAL* vs. *UNEQUAL* manipulation, the pre-registration does not include a directional hypothesis. We also pre-registered our planned sample size based on a power analysis aiming for 80% power at a 5% false-positive rate, resulting in a target of 1,280 decision-makers. The final number of decision-makers for whom Outcome 2 was realized is slightly higher ($n = 1,294$), as the realization of Outcome 1 or Outcome 2 was determined by a random draw.

oppose abortion rights) Republicans or pro-choice (i.e., support abortion rights) Democrats. The recipients were also recruited through Prolific, based on their indicated political affiliation and attitude toward abortion rights. For each decision-maker, we recruited three recipients corresponding to the group characteristics defined in the instructions. Recipients were informed that they were invited to participate as passive participants in a study on decision-making. They were told that a decision-maker had made (or might make) a decision about how to allocate money between them, based on their political characteristics. Recipients were then given the choice to participate in the study or not. If they agreed, they were paid accordingly: if the lottery outcome required the decision-maker to allocate money, recipients received the amount assigned to them by that decision-maker. If the lottery outcome did not trigger an allocation task, recipients received the endowments implied by the outcome of the lottery. To comply with Prolific's minimum payment policies and avoid cases where recipients would receive no compensation, all participating recipients completed a brief questionnaire and were guaranteed a flat payment of 30 pence for their time.

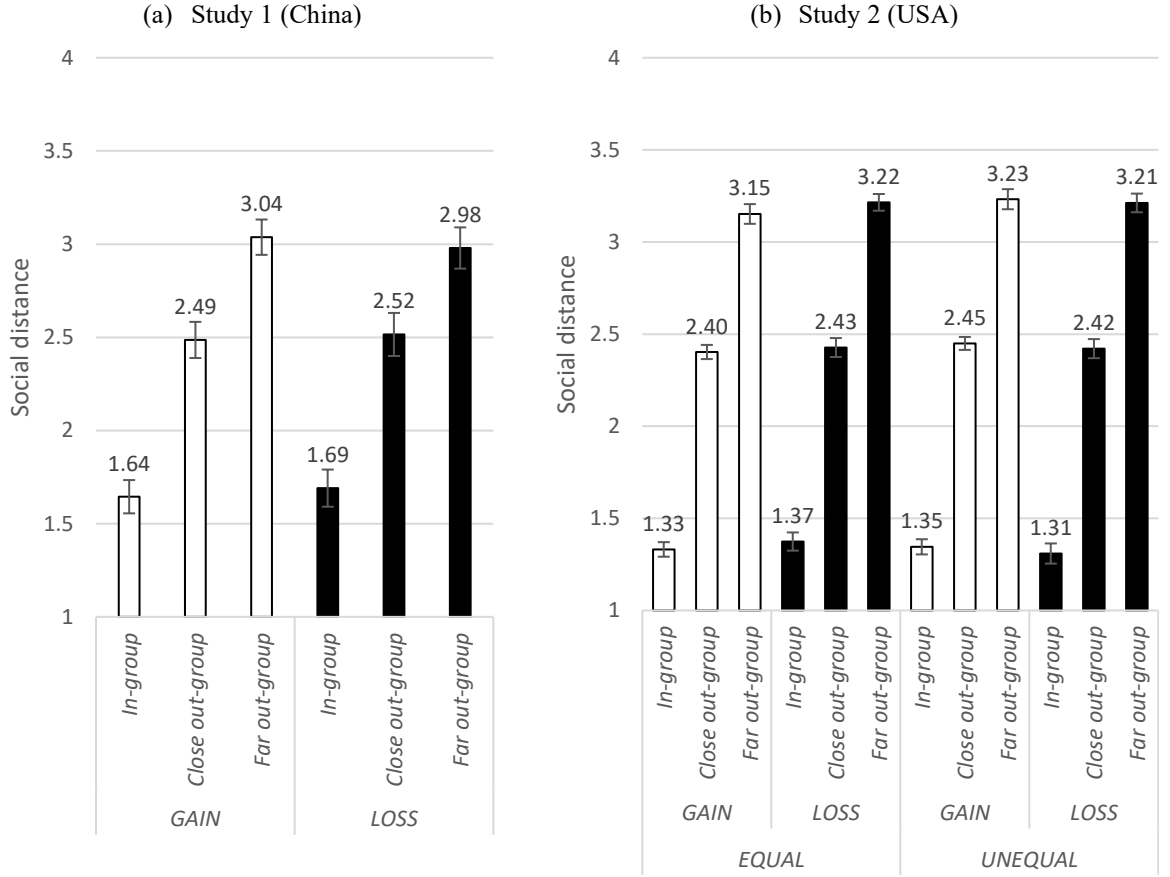
The median time a decision-maker spent on the experiment in Study 2 was around 8.7 minutes, with a mean payment of 2.20 GBP (2.79 USD). Aligned with the pre-registration documents, we excluded 143 out of 1,450 decision-makers whose stated political affiliations and abortion attitudes in the post-experimental questionnaire did not match the Prolific records used for participant filtering. For another 13 participants, Outcome 1 was realized. Thus, the final sample consists of 1,294 decision-makers (**GAIN-EQUAL**: $n=335$; **LOSS-EQUAL**: $n=302$; **GAIN-UNEQUAL**: $n=327$; **LOSS-UNEQUAL**: $n=330$) with a mean age of around 42. Roughly 49% of the sample identifies as female. 34% of the decision-makers are Republicans opposing abortion rights and the remaining 66% are Democrats supporting abortion rights.¹⁰ The descriptive statistics of the sample are summarized in Appendix A (Section A.2), Panel (b) of Table A.1. We do not find any statistically significant differences in the observable characteristics of the participants across treatments (Wilcoxon rank-sum tests: $p \geq 0.185$ for all continuous and ordinal variables; Fisher's exact test for all binary variables: $p \geq 0.697$), indicating that the randomization procedure was successful.

¹⁰ We initially planned to have an equal share of Republicans and Democrats in our sample. This, however, proved unfeasible due to the Prolific participant pool being skewed toward Democrats.

3. Results

In the following, we present the results for Study 1 as well as for the *EQUAL* and *UNEQUAL* treatments of Study 2 side by side. All main results discussed in this section are consistent across all conditions, except where explicitly stated.¹¹

Figure 1: Decision-Makers' Perceived Social Distance toward Recipients



Notes: The figure indicates the decision-makers' mean perceived social distance toward recipients with respective standard errors in *GAIN* and *LOSS*. Panel (a) depicts the data from Study 1 (*GAIN*: $n=107$; *LOSS*: $n=97$); Panel (b) depicts the data from the *EQUAL* treatment of Study 2 (*GAIN*: $n=335$; *LOSS*: $n=302$) and from the *UNEQUAL* treatment of Study 2 (*GAIN*: $n=327$; *LOSS*: $n=330$). Social distance is measured using an adaptation of the Bogardus social distance scale (Wark and Galliher, 2007) ranging from 1 to 4, where higher values indicate a higher social distance.

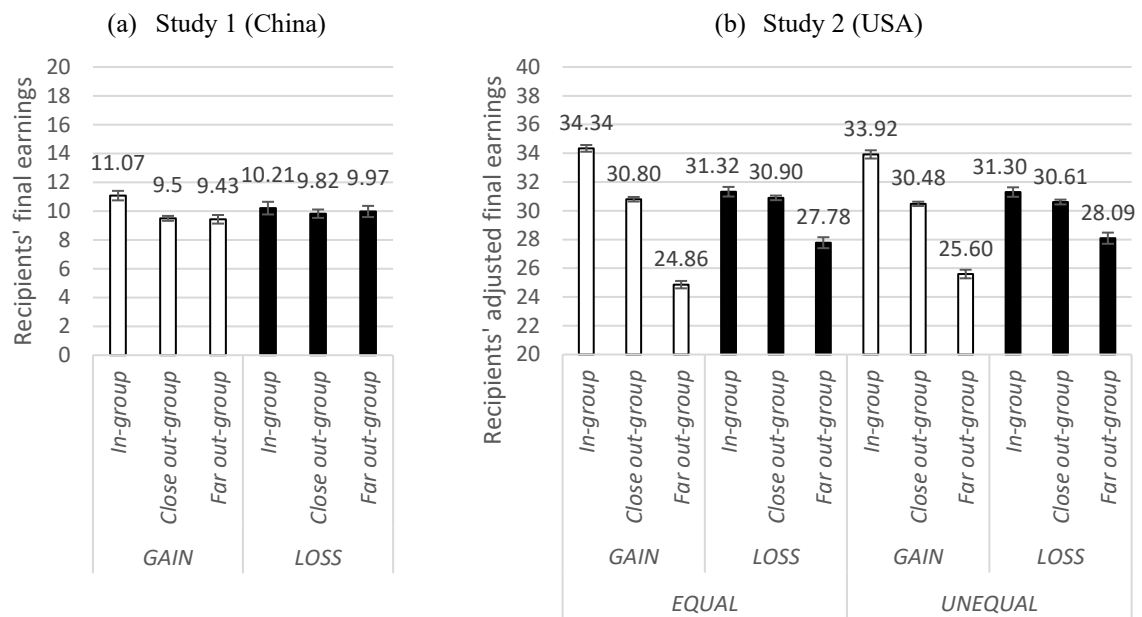
Before proceeding with the analysis of in-group favoritism, we first check whether our group identity priming was successful. Figure 1 illustrates that the decision-makers' perception of social distance toward the recipients increases as we move from the in-group to the close out-group, and further to the far out-group. All these differences are statistically significant

¹¹ We do not directly compare the *EQUAL* and *UNEQUAL* treatments in Study 2 because their primary purpose is to address a potential confound from Study 1, not to test for differences between them.

($p < 0.001$ for all binary comparisons using random-effects GLS regressions). For the sake of brevity, the formal analysis is relegated to Appendix A (Section A.3.).¹²

Having successfully established the presence of distinct group identities, we focus on in-group favoritism in the gain and loss domains. For Study 1, we use *Recipients' Final Earnings* (π_{Ri} in Table 1) as our main dependent variable, because of their comparability across treatments. For Study 2, to facilitate comparison between **EQUAL** and **UNEQUAL**, we adjust the recipients' final earnings in **UNEQUAL** to account for higher or lower initial endowments relative to **EQUAL** (see Table 2, Panel b). Specifically, in **UNEQUAL**, we subtract 5 units from all in-group recipients and add 5 units to all far out-group recipients. This yields our main dependent variable for **UNEQUAL**, *Recipients' Adjusted Final Earnings*. After this adjustment, any remaining difference in recipients' final earnings is solely attributable to decision-makers' allocation decisions. Figure 2 graphically summarizes recipients' average (adjusted) final earnings, providing an initial indication of in-group favoritism in **GAIN** that decreases in **LOSS**.

Figure 2: Recipients' (Adjusted) Final Earnings



Notes: The figure indicates the mean (adjusted) final earnings of the recipients with respective standard errors in **GAIN** and **LOSS**. Panel (a) depicts the data from Study 1 (**GAIN**: $n=107$; **LOSS**: $n=97$); Panel (b) depicts the data from the **EQUAL** treatment of Study 2 (**GAIN**: $n=335$; **LOSS**: $n=302$) and from the **UNEQUAL** treatment of Study 2 (**GAIN**: $n=327$; **LOSS**: $n=330$). The allocations can result in earnings between 0 and 20 RMB in Study 1 and between 20p and 40p in Study 2.

¹² Appendix A (Section A.4.) also presents non-parametric robustness checks for the parametric results discussed in this section.

Table 3: Random-Effects Tobit Regression Models with *Recipients' (Adjusted) Earnings* as the Dependent Variable

| | Study 1 (China) | | Study 2 (USA) – <i>EQUAL</i> | | Study 2 (USA) – <i>UNEQUAL</i> | |
|----------------------------------|----------------------|----------------------|------------------------------|-----------------------|--------------------------------|-----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Close Out-group | -1.631*** (0.470) | -1.631*** (0.470) | -4.536*** (0.476) | -4.535*** (0.476) | -4.694*** (0.532) | -4.693*** (0.532) |
| Far Out-group | -1.688*** (0.470) | -1.688*** (0.470) | -12.125*** (0.493) | -12.127*** (0.495) | -11.123*** (0.550) | -11.125*** (0.550) |
| <i>LOSS</i> | -0.909* (0.483) | -0.907* (0.485) | -3.879*** (0.493) | -3.879*** (0.493) | -3.580*** (0.536) | -3.591*** (0.536) |
| Close Out-group X <i>LOSS</i> | 1.232* (0.682) | 1.232* (0.682) | 3.955*** (0.687) | 3.955*** (0.688) | 3.664*** (0.746) | 3.663*** (0.746) |
| Far Out-group X <i>LOSS</i> | 1.424** (0.683) | 1.424** (0.683) | 7.595*** (0.705) | 7.597*** (0.705) | 6.683*** (0.764) | 6.683*** (0.764) |
| Controls | No | Yes | No | Yes | No | Yes |
| Constant | 11.117*** (0.333) | 11.141*** (1.036) | 35.376*** (0.343) | 35.200*** (1.070) | 35.203*** (0.384) | 35.409*** (1.170) |
| Observations | 612 | 612 | 1911 | 1911 | 1971 | 1971 |
| Subjects | 204 | 204 | 637 | 637 | 657 | 657 |
| Left-censored | 16 | 16 | 283 | 283 | 280 | 280 |
| Right-censored | 15 | 15 | 190 | 190 | 218 | 218 |
| Prob > χ^2 | 0.004 | 0.044 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |

Notes: *Recipients' (Adjusted) Final Earnings* are regressed on an indicator variable for the group status (in-group, close out-group, and far out-group) with in-group as the reference category, a dummy variable indicating the *LOSS* treatment, and the respective interactions. Additional control variables in Models 2, 4, and 6 include participant age, gender, education, and household income. Models 4 and 6 also include participants' degrees of altruism and inequality aversion, political orientation, and belief about others' degree of in-group favoritism. Standard errors are indicated in parentheses. *p<0.1, **p<0.05, and ***p<0.01.

To investigate in-group favoritism in the gain and loss domains more formally, Table 3 reports the results of random-effects Tobit regression models, with recipients' (adjusted) final earnings as the dependent variable. The latter model was chosen to account for the fact that each decision-maker has three data points and that their allocations must lie within the interval [0,20].¹³ The independent variables of interest are two dummy variables for group status, *Close Out-Group* and *Far Out-Group* (with in-group as the reference category), a dummy variable for *LOSS*, and the interactions between these variables. We run separate regressions for Study 1 (Models 1, 2), the *EQUAL* treatment of Study 2 (Models 3, 4), and the *UNEQUAL* treatment

¹³ We use a random-effects model because decision-makers make their allocation decisions to the three recipients simultaneously. Moreover, since a given decision-maker's allocations must sum to |30|, we also ran regressions using generalized structural equations models, which account for the interdependence among the three allocations. The results qualitatively confirm our main findings.

of Study 2 (Models 5, 6). Models 1, 3, and 5 are estimated without control variables, while Models 2, 4, and 5 include controls.

The negative and statistically significant coefficients for *Close Out-group* and *Far Out-group* in all models show that, in **GAIN**, both out-group recipients receive less money than in-group recipients (i.e., there is in-group favoritism in the **GAIN** domain). As the positive and significant coefficients of *Close Out-Group* \times *LOSS* and *Far Out-Group* \times *LOSS* show, out-groups earn more in **LOSS**, which simultaneously results in a substantial decrease in the earnings of the in-groups. Hence, the in-group favoritism towards both out-groups documented in **GAIN** decreases in **LOSS**.¹⁴

Result 1: Across both studies and irrespective of the equal or unequal distribution of recipient endowments, recipients' final (adjusted) earnings, on average, reflect in-group favoritism towards both out-groups in the gain domain, which is reduced in the loss domain.

The fact that in-group favoritism decreases in **LOSS** suggests that, compared to the gain domain, losses lead decision-makers to converge toward treating in-groups and out-groups more equally. To further explore this conjecture, we visualize the full distribution of decisions using ternary diagrams (see Figure 3). These diagrams reveal the presence and clustering of distinct allocation strategies as well as their dispersion within each treatment.

¹⁴ In Study 1, there is no statistically significant difference between the earnings of close and far out-groups in either **GAIN** or **LOSS** (Wald test: $\chi^2 \leq 0.07$, $p \geq 0.786$ in Models 1 and 2). Moreover, in **LOSS**, in-group recipients do not earn statistically significantly more than either out-group (Wald test: $\chi^2 \leq 0.65$, $p \geq 0.420$ in both models). In Study 2, however, in-group favoritism persists in **LOSS**. While the difference between in-group and close out-group earnings is not significant in the **EQUAL** treatment ($\chi^2 = 1.37$, $p \geq 0.242$ in Models 3-4), it is marginally significant in the **UNEQUAL** treatment ($\chi^2 \geq 3.87$, $p \leq 0.049$ in Models 5-6). In-group vs. far out-group differences remain highly significant across all conditions in Models 3-6 ($\chi^2 \geq 68.83$, $p < 0.001$). Lastly, we also observe a statistically significant difference between close and far out-group earnings in **GAIN** in Study 2 ($\chi^2 \geq 144.10$, $p < 0.001$ in Models 3-6).

Figure 3: Distribution of Recipients' (Adjusted) Final Earnings

(a) Study 1 (China)



(b) Study 2 (USA) – *EQUAL*



(c) Study 2 (USA) – *UNEQUAL*



Notes: The figure displays the distribution of recipients' (adjusted) final earnings in *GAIN* and *LOSS*. Panel (a) depicts the data from Study 1 (*GAIN*: n=107; *LOSS*: n=97); Panel (b) depicts the data from the *EQUAL* treatment of Study 2 (*GAIN*: n=335; *LOSS*: n=302); Panel (c) depicts the data from the *UNEQUAL* treatment of Study 2 (*GAIN*: n=327; *LOSS*: n=330). Each dot represents a unique allocation pattern, and the size of the dot indicates the frequency of that allocation. Dots located closer to the top indicate higher transfers to the in-group recipient relative to the other two. Dots near the bottom left corner reflect higher transfers to the close out-group recipient, while dots near the bottom right indicate higher transfers to the far out-group recipient. Dots at the center correspond to egalitarian allocations (i.e., equal transfers to all three recipients).

The most notable pattern in all treatments is the strong clustering of decisions around the central point, indicating a preference for egalitarian allocations. Beyond this central cluster, both treatments show additional clusters and some isolated decisions. Notably, the dispersion of decisions is greater in the loss than in the gain domain. As shown in Table 4, a larger proportion

of participants displayed a unique decision pattern¹⁵ in the loss domain than in the gain domain. This indicates that decision-making is more dispersed in losses. To formally assess this difference in variability, we calculate the Mahalanobis Distance (MD), which quantifies the overall dispersion of recipients' (adjusted) final earnings within each group.¹⁶

Table 4: Unique Decision Patterns

| | Study 1 (China) | Study 2 – <i>EQUAL</i> (USA) | Study 2 – <i>UNEQUAL</i> (USA) |
|-------------|-----------------|------------------------------|--------------------------------|
| <i>GAIN</i> | 25.23% | 8.96% | 10.70% |
| <i>LOSS</i> | 36.08% | 11.92% | 13.94% |

Notes: The table presents the percentage of participants with unique decision patterns in *GAIN* and *LOSS* for Study 1 (*GAIN*: $n=107$; *LOSS*: $n=97$), the *EQUAL* treatment of Study 2 (*GAIN*: $n=335$; *LOSS*: $n=302$), and the *UNEQUAL* treatment of Study 2 (*GAIN*: $n=327$; *LOSS*: $n=330$).

Table 5 presents OLS regression results with robust standard errors, where MD is regressed on the loss treatment indicator. We run separate regressions for Study 1 (Models 1, 2), the *EQUAL* treatment of Study 2 (Models 3, 4), and the *UNEQUAL* treatment of Study 2 (Models 5, 6). Models 1, 3, and 5 do not include controls, while Models 2, 4, and 6 include controls. In all models, the difference in dispersion between treatments is statistically significant, indicating that the loss domain is associated with greater dispersion in decisions compared to the gain domain.

Result 2: Across both studies and irrespective of the equal or unequal distribution of recipient endowments, recipients' final (adjusted) earnings are more dispersed in the loss domain compared to the gain domain.

¹⁵ We define a unique decision pattern as a distinct combination of allocations across the three recipients.

¹⁶ The most intuitive way to measure dispersion is the Euclidean distance, which is the mean squared distance of each observation from the sample mean. Yet this metric assumes the variables are uncorrelated and equally scaled, assumptions violated by the fixed-sum constraint (each allocation must sum to 30), which generates strong negative correlations and unequal variances. Mahalanobis distance (MD) rescales each dimension by the sample variance–covariance matrix, so distances are expressed in standardized units along the principal axes of the data cloud and provide a more appropriate gauge of deviation from the mean. Like all center-based measures, however, MD can understate dispersion when choices are tightly clustered and overstate it in the presence of extreme outliers (Wilcox, 2012). As a robustness check, we also computed the mean pairwise distance (MPD), which averages the distance between all pairs of observations and is less sensitive to clustering or single extreme values. Using MPD yields the same qualitative results, and the resulting models exhibit stronger statistical fit (available upon request).

Table 5: OLS Regression Models with *Mahalanobis Distance of Participant's (Adjusted) Final Earnings* as the Dependent Variable

| | Study 1 (China) | | Study 2 – <i>EQUAL</i> (USA) | | Study 2 – <i>UNEQUAL</i> (USA) | |
|--------------|-----------------|---------|------------------------------|----------|--------------------------------|----------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| <i>LOSS</i> | 0.024** | 0.021** | 0.006** | 0.006*** | 0.007*** | 0.007*** |
| | (0.010) | (0.010) | (0.002) | (0.002) | (0.002) | (0.002) |
| Controls | No | Yes | No | Yes | No | Yes |
| Constant | 0.056*** | 0.011 | 0.046*** | 0.029*** | 0.045*** | 0.042*** |
| | (0.006) | (0.032) | (0.001) | (0.008) | (0.001) | (0.008) |
| Observations | 204 | 204 | 637 | 637 | 657 | 657 |
| R-squared | 0.026 | 0.045 | 0.011 | 0.062 | 0.014 | 0.014 |
| Prob > F | 0.023 | 0.136 | 0.010 | < 0.001 | 0.002 | 0.002 |

Notes: The *Mahalanobis Distance of Participant's (Adjusted) Final Earnings* is regressed on an indicator variable for the *LOSS* treatment with *GAIN* as the reference category. Additional control variables in Models 2, 4, and 6 include participants' age, gender, education, and household income. Models 4 and 6 also include participants' degrees of altruism and inequality aversion, political orientation, and belief about others' degree of in-group favoritism. Robust standard errors are shown in parentheses. *p<0.1, **p<0.05, ***p<0.01.

Beyond overall dispersion in *LOSS*, Figure 3 also suggests a shift towards higher transfers to the out-groups (reflected by the dots further to the bottom). To systematically investigate different decision patterns, we classify decision-makers from Study 1 into distinct allocation types:

- *Egalitarian*: Participants in this category split the money equally.
- *In-group favoring*: Participants in this category favor the in-group recipient more than both out-group recipients.
- *Out-group favoring*: Participants in this category favor both out-group recipients more than the in-group recipient.
- *Others*: Participants who do not fall into any of the previous three categories are assigned to this category.¹⁷

However, when using the same four-category classification for Study 2 the category *Others* makes up 22.33% of the decision-makers. Therefore, for the data of Study 2, we further break down this category by identifying an additional allocation type, *Far out-group discriminating*, which was absent in Study 1 and accounts for 16.46% of decision-makers in Study 2. This

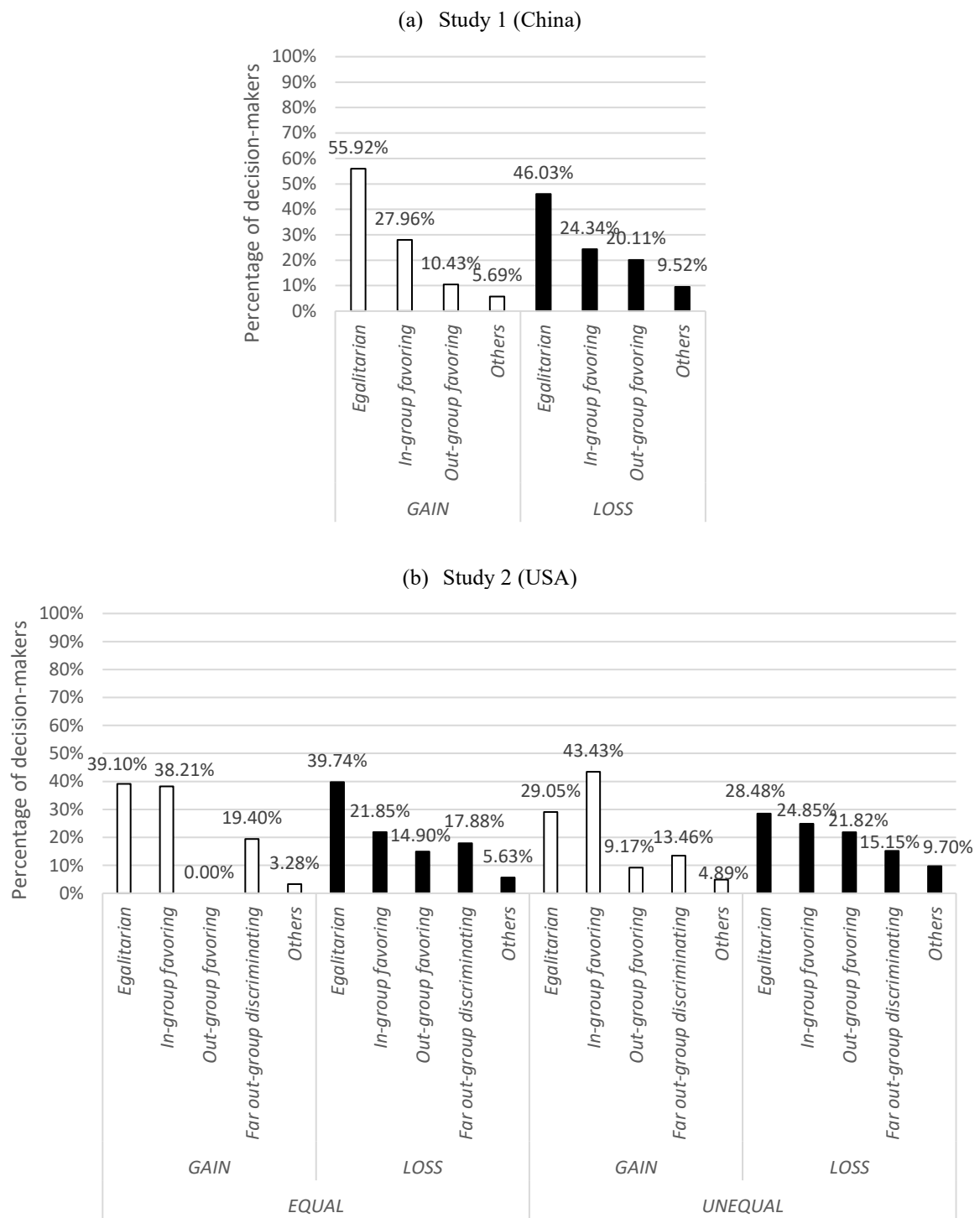
¹⁷ Because 92.35% of participants fall into the first three categories, we subsume all remaining allocation types into a single category (*Others*). Our main allocation types have also been documented in previous studies on in-group favoritism (see, e.g., Lane, 2016; Hewstone et al., 2002).

allocation type treats in-group and close out-group recipients equally, favoring them at the expense of the far out-group recipient.¹⁸

Figure 4 depicts the frequency of decision-makers across the previously defined categories by treatment. The share of *Out-group favoring* participants in fact increases by about 10–15 percentage points. In contrast, the share of *Egalitarians* in **LOSS** does not increase in any of the conditions compared to **GAIN**. While Study 2 shows almost no change in the share of *Egalitarians*, this category even decreases by about 10 percentage points in Study 1. Additionally, the share of *In-group favoring* participants decreases by about 4–16 percentage points between domains. Lastly, in Study 2 *Far out-group discriminating* participants bear small changes in both **EQUAL** and **UNEQUAL** treatments. Hence, across both studies, the mitigation of in-group favoritism in the loss domain seems not to be driven by more egalitarian decision-makers but by more decision-makers who favor the out-groups.

¹⁸ We also perform our manipulation check (i.e., examining the perceived social distance to the three recipient groups) separately for each allocation type. Most importantly, this allows us to rule out the possibility that decision-makers classified as *Out-group favoring* may have perceived the out-groups as socially closer than the in-group. In all models, these participants perceive the in-group as closer than the far out-group ($|z| \geq 2.26$, $p \leq 0.024$) and, except in Study 1, also closer than the close out-group (Study 1: $|z| \geq 0.82$, $p \leq 0.411$; Study 2: $|z| \geq 4.71$, $p < 0.001$).

Figure 4: Frequency of Allocation Types



Notes: The figure indicates the decision-makers' types in **GAIN** and **LOSS**. Panel (a) depicts the data from Study 1 (**GAIN**: $n=107$; **LOSS**: $n=97$); Panel (b) depicts the data from the **EQUAL** treatment of Study 2 (**GAIN**: $n=335$; **LOSS**: $n=302$) and from the **UNEQUAL** treatment of Study 2 (**GAIN**: $n=327$; **LOSS**: $n=330$). Egalitarian participants are those who split the money equally; *In-group favoring* participants are those who favor in-group members more than both out-group members; *Out-group favoring* participants are those who favor both out-group members more than the in-group member; *Others* are participants who do not fall into any of the previous categories. In Study 2, we further differentiate a subset of the "Other" group by introducing "Far out-group discriminating" participants who treat the in-group and close out-group the same and favor them more than the far out-group.

Table 6: Marginal Effects of *LOSS* from Multinomial Logit Regressions with *Allocation Type* as the Dependent Variable

| | Study 1 (China) | | Study 2 – <i>EQUAL</i> (USA) | | Study 2 – <i>UNEQUAL</i> (USA) | |
|------------------------------|-------------------|-------------------|------------------------------|----------------------|--------------------------------|----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Egalitarian | -0.097 (0.070) | -0.076 (0.070) | 0.006 (0.039) | -0.004 (0.036) | -0.006 (0.035) | -0.015 (0.034) |
| In-group favoring | -0.033 (0.062) | -0.035 (0.062) | -0.164*** (0.036) | -0.156*** (0.034) | -0.186*** (0.036) | -0.183*** (0.035) |
| Out-group favoring | 0.093* (0.050) | 0.084* (0.049) | 0.149*** (0.020) | 0.149*** (0.020) | 0.126*** (0.028) | 0.126*** (0.028) |
| Far out-group discriminating | | | -0.015 (0.031) | -0.013 (0.031) | 0.017 (0.027) | 0.025 (0.027) |
| Others | 0.037 (0.037) | 0.027 (0.038) | 0.023 (0.016) | 0.024 (0.016) | 0.048** (0.020) | 0.048** (0.020) |
| Controls | No | Yes | No | Yes | No | Yes |
| Observations | 204 | 204 | 637 | 637 | 637 | 637 |
| Prob > χ^2 | 0.165 | 0.281 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |

Notes: The recipients' allocation type are regressed on a dummy variable indicating the *LOSS* treatment, with *Egalitarian* being the reference category. Additional control variables in Models 2, 4, and 6 include participants' age, gender, education, and household income. Models 4 and 6 also include participants' degrees of altruism and inequality aversion, political orientation, and belief about others' degree of in-group favoritism. Standard errors are indicated in parentheses. The table presents the respective marginal effects of *LOSS* for Models 1-2, respectively. *p<0.1, **p<0.05, and ***p<0.01.

Table 6 reports the marginal effects from multinomial logistic regression models. The dependent variable in the regressions is the allocation type (with *Egalitarians* as the reference category), and the main independent variable is *LOSS*. Accordingly, the marginal effects show the effect of *LOSS* on each of the allocation types. We run separate regressions for Study 1 (Models 1, 2), the *EQUAL* treatment of Study 2 (Models 3, 4), and the *UNEQUAL* treatment of Study 2 (Models 5, 6). Models 1, 3, and 5 are estimated without control variables, while Models 2, 4, and 6 include these controls. According to Table 6, the share of *Out-group favoring* decision-makers statistically significantly increases in the loss domain compared to the gain domain in both studies. In Study 2, this is accompanied by a statistically significant decrease in the share of *In-group favoring* decision-makers. Meanwhile, the share of

Egalitarians, *Far out-group discriminating*, and *Others* do not statistically differ between the two domains.^{19, 20}

Result 3: Across both studies and irrespective of the equal or unequal distribution of recipient endowments, allocation types across the gain and loss domains are distributed as follows: a) there remains a substantial share of in-group favoring decision-makers; b) the share of egalitarians does not increase; c) the share of out-group favoring decision-makers increases.

Overall, the attenuation of in-group favoritism in **LOSS** compared to **GAIN** (Result 1) is not due to a greater tendency to treat in-group and out-group recipients equally. Instead, Result 2 portrays a more complex picture, revealing that allocation decisions in the loss domain become more dispersed. This dispersion translates into in-group favoritism being attenuated not by an increase in egalitarian decision-makers, but by an increase in out-group favoring decision-makers (Result 3).

4. Conclusion

This paper experimentally investigates in-group favoritism in the domains of gains and losses, reflecting periods of economic upturns and downturns, using participants from China (Study 1) and the US (Study 2). Across both studies, decision-makers, on average, exhibit in-group favoritism in the gain domain, which decreases in the loss domain. While this might suggest that, in the loss domain, they exhibit a greater tendency to treat recipients equally (i.e., to no longer distinguish between in-groups and out-groups), the allocation decisions of both Chinese and US participants are in fact more dispersed. Across both studies, the greater dispersion translates into a higher share of participants favoring out-group recipients. Among US participants, this shift is clearly accompanied by a corresponding drop in the share of in-group favoring individuals. Among Chinese participants, the share of both in-group favoring and egalitarian individuals seems to decrease descriptively, though not statistically significantly. Overall, we conclude that the reduction in in-group favoritism is not driven by a stronger tendency to treat different social groups equally. Instead, it is counteracted by more dispersed allocation decisions and an increase in out-group favoring participants.

¹⁹ Only in the **UNEQUAL** treatment in Study 2 the share of *Others* weakly statistically significant increases in **LOSS**.

²⁰ We attribute the marginal significance for *Out-group favoring* decision-makers and some of the null results for Study 1 to limited statistical power, which we addressed in Study 2 through power analysis based on the data from Study 1.

Our findings provide valuable insights for managers, particularly in the context of organizational decision-making during periods of economic downturns. In periods of economic loss, rather than fostering equality, the shift toward favoring out-groups might suggest that more employees feel a heightened sense of solidarity with those perceived as disadvantaged, or those outside the immediate organizational or social circle. For example, in a downsizing scenario, managers might face situations where employees are more likely to advocate for the fair treatment of out-group colleagues (e.g., those from different departments, backgrounds, or levels within the organization) even at the cost of in-group members. Understanding this dynamic can help managers address internal politics and perceptions during restructuring or cost-cutting measures, where resource allocation decisions (e.g., bonus distribution, promotions, or layoffs) could lead to conflict and reduced organizational morale if not managed thoughtfully. Additionally, organizations aiming to improve diversity and inclusion efforts should recognize that employees' responses to such initiatives may vary depending on the broader economic context. This shift in behavior could complicate existing strategies that rely on stable patterns of group-based support or engagement. Managers may therefore need to refine communication and decision-making processes to ensure that how decisions are framed aligns with both organizational goals and employees' evolving concerns and values.

While our study provides important insights into in-group favoritism across different economic domains, some limitations should be noted. First, while we believe that the inclusion of two distinct participant pools (China and the US) significantly enhances the external validity of our findings, the group identities used in the study were tailored to these countries. Hence, our results may not fully capture the development of in-group favoritism for other group identities or in other sociocultural contexts. Second, we consciously abstracted from many organizational factors that are often present in real-world settings to ensure high internal validity. For instance, we did not account for the role of organizational culture, hierarchy, job roles, or other context-specific dynamics that could influence how group members are perceived and treated and interact with the loss or gain framing in unpredictable ways. Building on our findings, future research could integrate such organizational factors to gain deeper insight into how in-group favoritism unfolds across favorable and unfavorable economic conditions within complex workplace settings.

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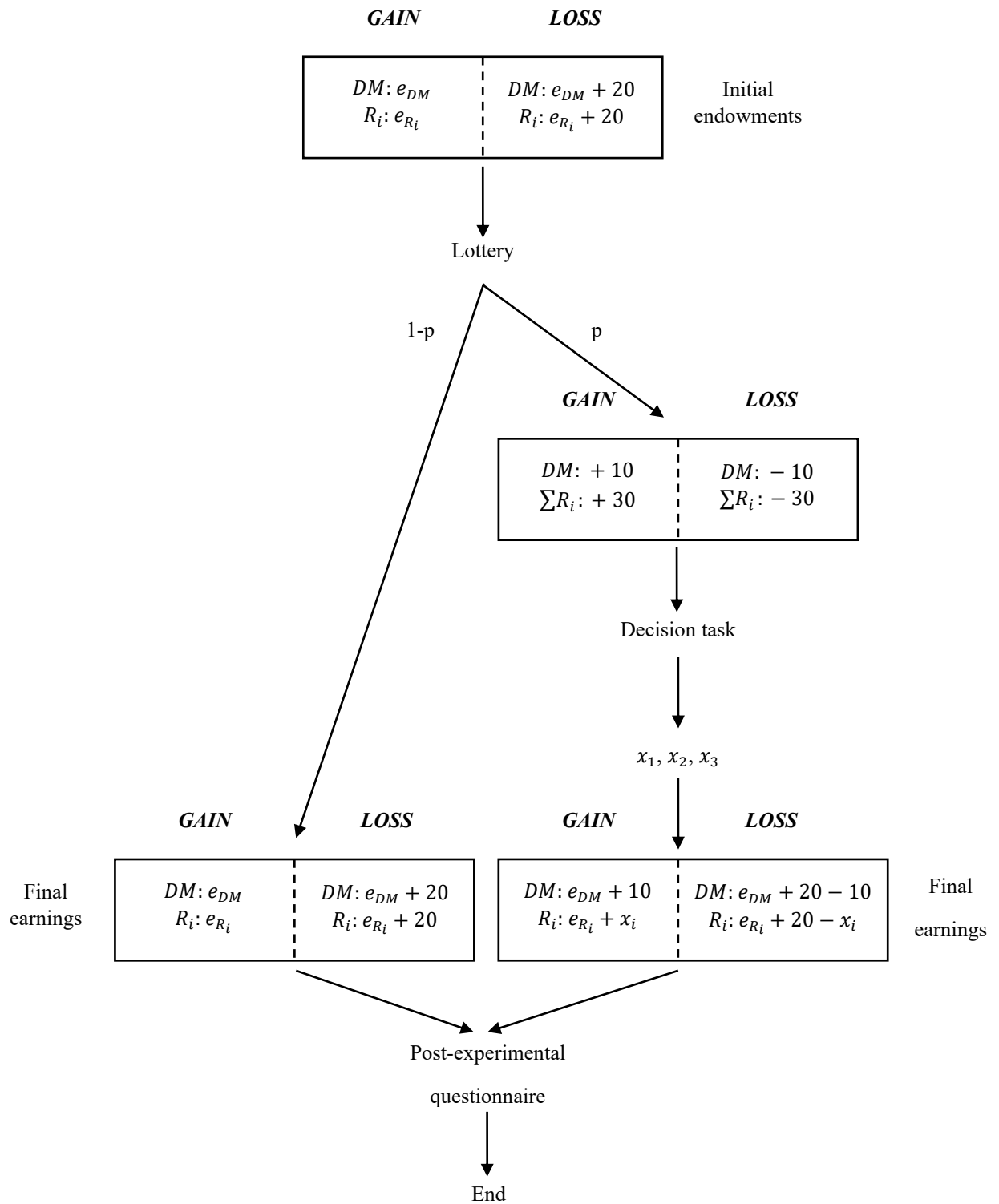
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Appendix A. Overview of Experimental Design, Descriptive Statistics, and Robustness Checks

A.1. Experimental Design

Figure A.5: Overview of Experimental Design



A.2 Descriptives

The following Table A.1 summarizes the decision-makers' descriptives for Study 1 in Panel (a) and for Study 2 in Panel (b).

Table A.7: Descriptive Statistics of the Participant Pool

(a) Study 1 (China)

| | Frequency (%) | Mean (std. dev.) |
|-------------------------------|---------------|------------------|
| Age | | 32.79 (9.21) |
| Female | 84 (58.82%) | |
| Employed | 173 (84.80%) | |
| Married | 131 (64.22%) | |
| Education | | |
| Never attended school | 0 (0.00%) | |
| High school and below | 9 (4.41%) | |
| University College | 28 (13.73%) | |
| Undergraduate degree | 147 (72.06%) | |
| Master's degree | 17 (8.33%) | |
| PhD | 3 (1.47 %) | |
| Household Income | | |
| 1.001 – 2.000 RMB | 2 (0.98%) | |
| 2.001 – 5.000 RMB | 2 (0.98%) | |
| 5.001 – 10.000 RMB | 13 (6.37%) | |
| 10.001 – 20.000 RMB | 61 (29.90%) | |
| 20.001 – 30.000 RMB | 38 (18.63%) | |
| 30.001 – 50.000 RMB | 16 (7.84%) | |
| 50.001 – 100.000 RMB | 15 (7.35%) | |
| 100.001 – 200.000 RMB | 28 (13.73%) | |
| 200.001 – 500.000 RMB | 20 (9.08%) | |
| Above 500.001 RMB | 7 (3.43%) | |
| Don't know / refuse to answer | 2 (0.98%) | |

(b) Study 2 (USA)

| | Frequency (%) | Mean (std. dev.) |
|----------------------------|---------------|------------------|
| Age | | 41.62 (13.41) |
| Female | 641 (48.69%) | |
| Employed | 947 (73.18%) | |
| Married | 530 (40.96%) | |
| Republican | 440 (34.00%) | |
| Education | | |
| Never attended school | 1 (0.08%) | |
| High school and below | 164 (12.67%) | |
| University College | 239 (18.47%) | |
| Associate degree | 138 (10.66%) | |
| Bachelor's degree | 508 (39.26%) | |
| Master's degree | 196 (15.15%) | |
| PhD or professional degree | 48 (3.71%) | |
| Household Income | | |
| 0 – 500 USD | 39 (3.01%) | |
| 501 – 1.500 USD | 92 (7.11%) | |
| 1501 – 2.500 USD | 112 (8.66%) | |
| 2.501 – 3.500 USD | 132 (10.20%) | |
| 3.501 – 4.500 USD | 150 (11.59%) | |
| 4.501 – 5.500 USD | 172 (13.29%) | |
| 5.501 – 6.500 USD | 106 (8.19%) | |
| 6.501 – 7.500 USD | 103 (7.96%) | |
| 7.501 – 8.500 USD | 91 (7.03%) | |
| 8.501 – 9.500 USD | 74 (5.72%) | |
| 9.501 – 10.500 USD | 49 (3.79%) | |
| 10.501 – 11.500 USD | 44 (3.40%) | |
| 11.501 – 12.500 USD | 45 (3.48%) | |
| 12.501 – 13.500 USD | 16 (1.24%) | |
| 13.501 – 14.500 USD | 28 (2.16%) | |
| 14.501 – 15.500 USD | 18 (1.39%) | |
| Above 15.500 USD | 23 (1.78%) | |
| Altruism | | 2.52 (0.63) |
| Inequality aversion | | 4.04 (1.16) |
| Belief | | 48.91 (21.76) |

Notes: For both studies, *Age* is an integer variable representing participants' age in years; *Female* encodes the gender of the participants; *Employed* and *Married* are binary variables indicating whether the participant is employed or married; *Education* and *Household income* are categorical variables as detailed above. For Study 2, *Republican* is a binary variable indicating whether a participant identifies with the Republican party; *Altruism* and *Inequality aversion* are integer variables ranging from 0-3 and 0-8, respectively; *Belief* is a continuous variable ranging from 0 to 100 and captures participants' beliefs on others' degree of in-group favoritism.

A.3. Manipulation Check

To test for statistically significant differences in the decision-makers' perception of social distance toward the recipients, Table A.2 reports results of random-effects GLS regressions, accounting for the fact that we have three data points per decision-maker. The dependent variable is a decision-maker's perceived social distance to the respective groups. The independent variables are an indicator variable for the group status, i.e., in-group, close out-group, and far out-group, with in-group being the reference category, a dummy variable for the treatment **LOSS**, and the interaction of those variables. Models 2, 4, and 6 also include control variables. The positive and highly statistically significant coefficients for *Close out-group* and *Far out-group* in all models confirm that, in **GAIN**, the decision-makers' perceived social distance is larger toward both out-group than toward in-group members. Hence, our priming was successful. Wald tests also reveal statistically significant differences between the coefficients for the close and far out-groups in both **GAIN** and **LOSS** for all models ($\chi^2 \geq 15.38$, $p < 0.001$). Finally, because the interaction effects are statistically insignificant, we do not find evidence that our treatment assignment affected decision-makers' perceived social distance.

Table A.8: Random-Effects GLS Regressions with *Social Distance* as the Dependent Variable

| | Study 1 (China) | | Study 2 (USA) – EQUAL | | Study 2 (USA) – UNEQUAL | |
|----------------------------------|---------------------|---------------------|------------------------------|---------------------|--------------------------------|---------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Close Out-group | 0.841*** (0.113) | 0.841*** (0.113) | 1.072*** (0.060) | 1.072*** (0.060) | 1.104*** (0.057) | 1.104*** (0.057) |
| Far Out-group | 1.393*** (0.113) | 1.393*** (0.113) | 1.821*** (0.060) | 1.821*** (0.060) | 1.887*** (0.057) | 1.887*** (0.057) |
| LOSS | 0.046 (0.143) | 0.034 (0.143) | 0.043 (0.070) | 0.047 (0.069) | -0.036 (0.065) | -0.036 (0.065) |
| Close Out-group X LOSS | -0.016 (0.163) | -0.016 (0.163) | -0.019 (0.087) | -0.019 (0.087) | 0.008 (0.081) | 0.008 (0.081) |
| Far Out-group X LOSS | -0.104 (0.163) | -0.104 (0.163) | 0.020 (0.087) | 0.020 (0.087) | 0.016 (0.081) | 0.016 (0.081) |
| Controls | No | Yes | No | Yes | No | Yes |
| Constant | 1.645*** (0.099) | 0.902** (0.388) | 1.331*** (0.048) | 1.383*** (0.179) | 1.346*** (0.046) | 1.478*** (0.165) |
| Observations | 612 | 612 | 1911 | 1911 | 1971 | 1971 |
| Subjects | 204 | 204 | 637 | 637 | 657 | 657 |
| Prob > χ^2 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |

Notes: The *Social Distance* measure is regressed on an indicator variable for the group status (in-group, close out-group, and far out-group) with in-group as the reference category, a dummy variable indicating the **LOSS** treatment, and the respective interactions. Additional control variables in Models 2, 4, and 6 include participant age, gender, education and household income. Models 4 and 6 also include participants' degrees of altruism and inequality aversion, political orientation, and belief about others' degree of in-group favoritism. Standard errors are indicated in parentheses. * $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

A.4. Non-Parametric Tests

A.4.1. Manipulation Check

To affirm the robustness of our results, we perform several non-parametric analyses. We start with the manipulation check for decision-makers' perceived social distance toward the in-group and out-group members. All binary comparisons between recipient groups are statistically significant at the 1%-level (Wilcoxon signed-rank tests: $|z| \geq 4.546$, $p < 0.001$ for all comparisons), confirming the regression results in Section A.4.1. Finally, we also compare the social distance score between **GAIN** and **LOSS** for each recipient group. There is again no evidence that the assignment to the experimental treatments altered the decision-makers' perception of the social distance (Wilcoxon rank-sum tests: $|z| \leq 1.168$, $p \geq 0.243$ for all comparisons).²¹

A.4.2. In-Group Favoritism

We now non-parametrically test our first main result that there exists in-group favoritism in **GAIN**, which decreases in **LOSS**. To this end, we test for a correlation between the average final earnings and decision-makers' social distance to the three recipients.

For Study 1, the average final earnings of in-group recipients in **GAIN** are statistically significantly lower the higher the social distance (Spearman's $\rho = -0.249$, $p < 0.001$), while there is no such statistically significant correlation in **LOSS** (Spearman's $\rho = -0.038$, $p = 0.516$).

For Study 2, in **GAIN** as well as in **LOSS**, we find that the average adjusted final earnings of recipients are statistically significantly lower the higher the decision-maker's social distance to them is. This pattern is observed consistently across both the **EQUAL** and **UNEQUAL** treatments. Moreover, the absolute value of the correlation coefficients is higher in **GAIN** compared to **LOSS** (**GAIN**: $|\text{Spearman's } \rho| \geq 0.571$, $p < 0.001$; **LOSS**: $|\text{Spearman's } \rho| \geq 0.196$, $p < 0.001$).²² Overall, the results corroborate our regression results in that they show in-group favoritism towards both out-groups in **GAIN**, which decreases in **LOSS** (Result 1).

²¹ To prevent false positives when testing multiple hypothesis, we also employed the procedure suggested by List et al. (2019), yielding similar results.

²² We use a generic social distance measure with the values "1" for in-group, "2" for close out-group, and "3" for far out-group. When we instead use the perceived social distance (subjects' indications on the Bogardus scale), the results are qualitatively the same for both studies (**GAIN**: $|\text{Spearman's } \rho| \geq 0.199$, $p < 0.001$; **LOSS**: $|\text{Spearman's } \rho| \geq 0.056$, $p < 0.001$).

A.4.3. Dispersion

Next, we non-parametrically test the dispersion of decision-makers' allocations using Wilcoxon rank-sum tests. We find that Mahalanobis Distance is again more dispersed in **LOSS** than in **GAIN** ($|z| \geq 1.959$, $p \leq 0.050$ for Study 1 as well as the **EQUAL** and **UNEQUAL** treatments of Study 2). This confirms Result 2.

A.4.4. Allocation Types

Finally, we non-parametrically test the distribution of the different allocation types by running Fisher's exact tests. For Study 1, we find that, even though the share of *Egalitarians* in **LOSS** reduces by over 10 percentage points compared to **GAIN**, the difference is not statistically significant on conventional levels ($p = 0.207$), which is in line with the regression results reported in the main text. Similarly, the share of *In-group favoring* participants does not differ between the two treatments ($p = 0.636$). However, we do find that the difference in the share of *Out-group favoring* participants is statistically significant ($p = 0.075$).

For Study 2, we find that the share of *Egalitarian* and *Far out-group discriminating* participants do not differ between **GAIN** and **LOSS** across both treatments (*Egalitarian*: $p \geq 0.871$; *Far out-group discriminating*: $p \geq 0.578$). In contrast, the share of *In-group favoring* participants decreases significantly while the share of *Out-group favoring* participants increases from **GAIN** to **LOSS** (*In-group favoring* and *Out-group favoring*: $p < 0.001$). Overall, this confirms Result 3.

Appendix B. Experimental Instructions

B.1. Study 1

This is the experimenter's copy of the instructions for Study 1 translated from Chinese. Note that the decision-makers only see the instructions for their respective treatment (without the headers *GAIN* and *LOSS* and without the correct answers to the control questions being underlined), and that only one of the possible orders in which the recipients could be displayed is shown here. Text within one frame is displayed on one screen.

Brief background

Welcome to our scientific study!

We are conducting academic research to understand how individuals make decisions in various contexts. We highly appreciate your participation in this study.

- This study consists of a task and a brief questionnaire.
- You and other participants can earn real money based on the choices you make in the task.
- Your identity is anonymous for other study participants. In the same way, the identity of other study participants is not known to you.
- You will get the money earned in the task, if you complete the task and answer to the questionnaire. If you complete the task, but do not answer the questionnaire, you will be paid 0 RMB.
- The study is expected to take approximately 15 minutes to complete.
- Your participation is completely voluntary.
- Your data will remain confidential and will be treated anonymously.
- You must be 18 years or older to participate.
- You will get paid through Alipay. Therefore, we need you to provide your mobile phone number associated with your Alipay.
- If you have any questions, please contact us via email, email address:

[button] Agree and continue

[button] Leave the study (you will not get the payment we provide)

Do you have a Shanghai hukou? [yes/no]

Are you born in Shanghai? [yes/no]

[*GAIN*]

Instructions: Task

You are matched with three other study participants:

[random order]

- Participant 1 is a local Shanghai resident
- Participant 2 is an immigrant from a rural area around Shanghai
- Participant 3 is an immigrant from a rural area around Urumqi

Study Description:

- **You start the study with 20 RMBs, while each of the three participants starts the study with 0 RMBs.**
- In the beginning of the study, you and the three participants will take part in a lottery which has two outcomes.
- In the lottery you and the three participants cannot lose money, but you and the three participants can win money.
- **Lottery Outcome 1: Nobody wins.**
- The initial amount of money you have does not change. As a result, you get 20 RMBs, while the other three participants get 0 RMBs each.
- The study is over.
- **Lottery Outcome 2: Everyone wins.**
- As a result, you win additional 10 RMBs (thus, you have 30 RMBs) and the other three participants win additional 30 RMBs in total.
- You are asked to decide how much of the 30 RMB gain to allocate to each of the three participants.

[*LOSS*]

Instructions: Task

You are matched with three other study participants:

[random order]

- Participant 1 is a local Shanghai resident
- Participant 2 is an immigrant from a rural area around Shanghai
- Participant 3 is an immigrant from a rural area around Urumqi

Study Description:

- **You start the study with 40 RMBs, while each of the three participants starts the study with 20 RMBs.**
- In the beginning of the study, you and the three participants will take part in a lottery which has two outcomes.
- In the lottery you and the three participants cannot win money, but you and the three participants can lose money.
- **Lottery Outcome 1: Nobody loses.**
- The initial amount of money you have does not change. As a result, you get 40 RMBs, while the other three participants get 20 RMBs each.
- The study is over.
- **Lottery Outcome 2: Everyone loses.**
- As a result, you lose 10 RMBs (thus, you are left with 30 RMBs) and the other three participants lose 30 RMBs in total.
- You are asked to decide how much of the 30 RMB loss to allocate to each of the three participants.

| | |
|--|---|
| <ul style="list-style-type: none"> ○ You can allocate as much gain to a participant as you would like to. The only three restrictions are: <ul style="list-style-type: none"> a) After your decision, no other participant can have less than 0 RMBs. b) After your decision, no other participant can have more than 20 RMBs. c) The sum of allocated gain to the three participants should be equal to the money they gained, i.e., 30 RMBs. ○ Note that for each of the three other participants the final payoff <u>after your allocation decision</u> is calculated in the following way: <u>Another participant's final payoff = 0 + the gain that you allocated to the participant.</u> ○ Your final payoff <u>after your allocation decision</u> (irrespective of which allocation decision you take) is calculated in the following way: <u>Your final payoff = 20 + 10 = 30</u> | <ul style="list-style-type: none"> ○ You can allocate as much loss to a participant as you would like to. The only three restrictions are: <ul style="list-style-type: none"> a) After your decision, no other participant can have less than 0 RMBs. b) After your decision, no other participant can have more than 20 RMBs. c) The sum of allocated loss to the three participants should be equal to the money they lost, i.e., 30 RMBs. ○ Note that for each of the three other participants the final payoff <u>after your allocation decision</u> is calculated in the following way: <u>Another participant's final payoff = 20 - the loss that you allocated to the participant.</u> ○ Your final payoff <u>after your allocation decision</u> (irrespective of which allocation decision you take) is calculated in the following way: <u>Your final payoff = 40 - 10 = 30</u> |
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| <p>Control Questions</p> <ul style="list-style-type: none"> ○ Before starting the task, we will ask you several questions to make sure you understood the instructions. ○ As soon as you have answered all control questions correctly, you can begin the task. ○ If you are not sure that you understood the instructions, please feel encouraged to read the instructions again. You can scroll up to do that. <p>[In case of a wrong answer to a question, a message pops-up inviting the participant to read the instructions once more]</p> | <p>Control Questions</p> <ul style="list-style-type: none"> ○ Before starting the task, we will ask you several questions to make sure you understood the instructions. ○ As soon as you have answered all control questions correctly, you can begin the task. ○ If you are not sure that you understood the instructions, please feel encouraged to read the instructions again. You can scroll up to do that. <p>[In case of a wrong answer to a question, a message pops-up inviting the participant to read the instructions once more]</p> |
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Imagine the lottery does not result in a gain. Does your initial endowment and the other three participants' endowments change?

- ☐ Yes
- ☐ No

Imagine the lottery results in a gain. How many RMBs will you receive as a result of completing the task?

- ☐ 10 RMB
- ☐ 20 RMB
- ☐ 30 RMB
- ☐ 40 RMB

Imagine the lottery results in a gain. How much is the total monetary amount of the gain that you need to allocate to the three participants?

- ☐ 20 RMB
- ☐ 30 RMB
- ☐ 60 RMB
- ☐ 90 RMB

Imagine the lottery results in a gain. Furthermore, imagine you allocate 20 RMBs gain to one of the three participants. How much money does he or she earn in the study?

- ☐ 0 RMB
- ☐ 7 RMB
- ☐ 20 RMB
- ☐ 39 RMB

Imagine the lottery results in a gain. Furthermore, imagine you allocate 0 RMBs gain to one of the three participants. How much money does he or she earn in the study?

Imagine the lottery does not result in a loss. Does your initial endowment and the other three participants' endowments change?

- ☐ Yes
- ☐ No

Imagine the lottery results in a loss. How many RMBs will you receive as a result of completing the task?

- ☐ 10 RMB
- ☐ 20 RMB
- ☐ 30 RMB
- ☐ 40 RMB

Imagine the lottery results in a loss. How much is the total monetary amount of the loss that you need to allocate to the three participants?

- ☐ 20 RMB
- ☐ 30 RMB
- ☐ 60 RMB
- ☐ 90 RMB

Imagine the lottery results in a loss. Furthermore, imagine you allocate 0 RMBs loss to one of the three participants. How much money does he or she earn in the study?

- ☐ 0 RMB
- ☐ 7 RMB
- ☐ 20 RMB
- ☐ 39 RMB

Imagine the lottery results in a loss. Furthermore, imagine you allocate 20 RMBs loss to one of the three participants. How much money does he or she earn in the study?

- 0 RMB
- 7 RMB
- 20 RMB
- 39 RMB

Imagine the lottery results in a gain. Is the following decision possible according to the rules of the study?

- You allocate to participant 1 a gain of: 7 RMB
 - You allocate to participant 2 a gain of: 3 RMB
 - You allocate to participant 3 a gain of: 22 RMB
- Yes
 - No

Imagine the lottery results in a gain. Is the following decision possible according to the rules of the study?

- You allocate to participant 1 a gain of: 18 RMB
 - You allocate to participant 2 a gain of: 2 RMB
 - You allocate to participant 3 a gain of: 10 RMB
- Yes
 - No

Imagine the lottery results in a gain. Is the following decision possible according to the rules of the study?

- 0 RMB
- 7 RMB
- 20 RMB
- 39 RMB

Imagine the lottery results in a loss. Is the following decision possible according to the rules of the study?

- You allocate to participant 1 a loss of: 7 RMB
 - You allocate to participant 2 a loss of: 3 RMB
 - You allocate to participant 3 a loss of: 22 RMB
- Yes
 - No

Imagine the lottery results in a loss. Is the following decision possible according to the rules of the study?

- You allocate to participant 1 a loss of: 18 RMB
 - You allocate to participant 2 a loss of: 2 RMB
 - You allocate to participant 3 a loss of: 10 RMB
- Yes
 - No

Imagine the lottery results in a loss. Is the following decision possible according to the rules of the study?

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| <ul style="list-style-type: none"> • You allocate to participant 1 a gain of: 8 RMB • You allocate to participant 2 a gain of: 14 RMB • You allocate to participant 3 a gain of: 8 RMB <ul style="list-style-type: none"> ○ <u>Yes</u> ○ No <p>Note: If you click ‘Next’, the Task will start immediately, and you will not be able to return to these instructions.</p> | <ul style="list-style-type: none"> • You allocate to participant 1 a loss of: 8 RMB • You allocate to participant 2 a loss of: 14 RMB • You allocate to participant 3 a loss of: 8 RMB <ul style="list-style-type: none"> ○ <u>Yes</u> ○ No <p>Note: If you click ‘Next’, the Task will start immediately, and you will not be able to return to these instructions.</p> |
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| <p>Lottery</p> <p>Now, we proceed with the task. Please click the „Participate in the Lottery”-Button to participate in the lottery.</p> <p>[button] Participate in the Lottery</p> | <p>Lottery</p> <p>Now, we proceed with the task. Please click the „Participate in the Lottery”-Button to participate in the lottery.</p> <p>[button] Participate in the Lottery</p> |
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| <p>Thank you for participating in this study.</p> <p>Unfortunately, nobody won.</p> <p>The initial amount of money you have does not change. As a result, you get 20 RMBs, while the other three participants get 0 RMBs each.</p> <p>You have completed the study.</p> | <p>Thank you for participating in this study.</p> <p>Fortunately, nobody lost.</p> <p>The initial amount of money you have does not change. As a result, you get 40 RMBs, while the other three participants get 20 RMBs each.</p> <p>You have completed the study.</p> |
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| <p>Everyone won.</p> <p>As a result, you won additional 10 RMBs (thus, you have 30 RMBs) and the other three participants won additional 30 RMBs in total.</p> <p>Reminder:</p> <ul style="list-style-type: none"> ○ You are asked to decide how much of the 30 RMB gain to allocate to each of the three participants. ○ You can allocate as much gain to a participant as you would like to. The only three restrictions are: <ul style="list-style-type: none"> a) After your decision, no other participant can end up with less than 0 RMBs. b) After your decision, no other participant can end up with more than 20 RMBs. c) The sum of allocated gain to the three participants should be equal to the money they gained, i.e., 30 RMBs. ○ Note that for each of the three other participants the final payoff <u>after your allocation decision</u> is calculated in the following way: <u>Another participant's final payoff = 0 + the gain that you allocated to the participant</u> ○ Your final payoff <u>after your allocation decision</u> (irrespective of which allocation decision you take) is calculated in the following way: <u>Your final payoff = 20 + 10 = 30</u> | <p>Everyone lost.</p> <p>As a result, you lost 10 RMBs (thus, you are left with 30 RMBs) and the other three participants lost 30 RMBs in total.</p> <p>Reminder:</p> <ul style="list-style-type: none"> ○ You are asked to decide how much of the 30 RMB loss to allocate to each of the three participants. ○ You can allocate as much loss to a participant as you would like to. The only three restrictions are: <ul style="list-style-type: none"> a) After your decision, no other participant can end up with less than 0 RMBs. b) After your decision, no other participant can end up with more than 20 RMBs. c) The sum of allocated loss to the three participants should be equal to the money they lost, i.e., 30 RMBs. ○ Note that for each of the three other participants the final payoff <u>after your allocation decision</u> is calculated in the following way: <u>Another participant's final payoff = 20 - the loss that you allocated to the participant</u> ○ Your final payoff <u>after your allocation decision</u> (irrespective of which allocation decision you take) is calculated in the following way: <u>Your final payoff = 40 - 10 = 30</u> |
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In the boxes below, please indicate how much gain (in RMBs) out of 30 RMBs you would like to allocate to each participant.

Participant 1: „Local Shanghai resident”

Participant 2: „Immigrant from a rural region around Shanghai”

Participant 3: “Immigrant from a rural region around Urumqi”

In the boxes below, please indicate how much loss (in RMBs) out of 30 RMBs you would like to allocate to each participant.

Participant 1: „Local Shanghai resident”

Participant 2: „Immigrant from a rural region around Shanghai”

Participant 3: “Immigrant from a rural region around Urumqi”

Questionnaire

Please click ‘Next’ to begin the questionnaire.

The answers you provide in the questionnaire do not influence your payment. The answers are important to us for scientific reasons. Once you have finished answering the questions, you will be redirected to Ancademy to receive your payment.

Questionnaire (Part 1/2)

Select the option that best describes your feeling towards the mentioned group of people on the basis of the following statements.

Selecting (agreeing with) a statement means agreeing also to statements which follow the selected statement.

„Local Shanghai residents”

- Would you be willing to marry a member of this group?
- Would you be willing to have a member of this group as your close personal friend?
- Would you be willing to have a member of this group as your neighbour?
- Would you be willing to have a member of this group as your colleague at work?

“Immigrants from a rural area around Shanghai”

[same questions]

“Immigrants from a rural area around Urumqi”

[same questions]

Questionnaire (Part 2/2)

What is your gender?

- ☐ Male
- ☐ Female

What is the year of your birth?

In which province were you born?

In which town/city/village were you born?

What is the highest level of schooling you have completed? If currently enrolled, mark the highest degree received.

- ☐ High school and below (including vocational high school, junior college, middle school technology, etc.)
- ☐ University specialization
- ☐ Undergraduate
- ☐ Master's degree
- ☐ Doctoral degree
- ☐ No schooling

What is your employment status? (multiple answers possible)

- ☐ Full-Time
- ☐ Part-Time
- ☐ Not in paid work (e.g. homemaker, retired, or disabled)
- ☐ Student
- ☐ Unemployed (and job seeking)
- ☐ Other

What is your household monthly income after taxes? Please consider all sources of income your household has.

- ☐ More than 500 001 RMB
- ☐ 200 001 - 500 000 RMB
- ☐ 100 001 - 200 000 RMB
- ☐ 50 001 - 100 000 RMB
- ☐ 30 001 - 50 000 RMB
- ☐ 20 001 - 30 000 RMB
- ☐ 10 001 - 20 000 RMB
- ☐ 5 001 - 10 000 RMB
- ☐ 2 001 - 5 000 RMB
- ☐ 1 001 - 2 000 RMB
- ☐ Up to 1 000 RMB
- ☐ Do not know/Refuse to Answer

How many adults live in your household?

What is your marital status?

- ☐ Never married

- Married
- Divorced
- Widow/Widower
- Other

Thank you for participating in this study.

You have completed the study.

Your payment from the experiment is: 30 RMB

You will get paid through Alipay.

Please enter your phone number that is associated with Alipay.

Please repeat the phone number

B.2. Study 2

This is a copy of the instructions for the treatments *UNEQUAL-GAIN* and *UNEQUAL-LOSS* of Republican participants in Study 2. The instructions for treatment *EQUAL* only differ in the initial endowments for the three recipients (see Table 4 in the main text). The instructions for Democratic participants only differ in the descriptions of the three recipient groups (see Section 3.1.1 in the main paper). Note that the decision-makers only see the instructions for their respective treatment (without the headers *GAIN* and *LOSS* and without the correct answers to the control questions being underlined), and that only one of the possible orders in which the recipients could be displayed is shown here. Text within one frame is displayed on one screen.

Brief background

Welcome to our scientific study!

We are conducting academic research to understand how individuals make decisions in a variety of settings. We highly appreciate your participation.

- This study consists of a task and a short questionnaire. It is expected to take approximately 10 minutes to complete.
- You will be paid 1.50£ for sure for completing the study and additional money for the task.
- The choices you make in the task will determine the payout of other participants.
- Your identity and the identity of the other participants will remain anonymous.
- Your participation is completely voluntary.
- Your data will be kept confidential and anonymized.

- You must be at least 18 years old to participate.

Please enter your Prolific-ID here: _____

Please chose one of the following options.

- ☐ Agree and continue
- ☐ Leave the study without payment

[*GAIN*]

Instructions: Task

Information about the other three Participants

You were matched with three other participants in this study:

[random order]

- Participant 1 is a Republican who opposes abortion.
- Participant 2 is a Democrat who opposes abortion.
- Participant 3 is a Democrat who supports abortion.

Study Description:

In addition to the fixed payment for completing the study, you have an initial amount of 60p, and the other three participants have the following initial amounts:

- Republican who opposes abortion: 25
- Democrat who opposes abortion: 20
- Democrat who supports abortion: 15

You and the other three participants will take part in a lottery with two possible outcomes.

[*LOSS*]

Instructions: Task

Information about the other three Participants

You were matched with three other participants in this study:

[random order]

- Participant 1 is a Republican who opposes abortion.
- Participant 2 is a Democrat who opposes abortion.
- Participant 3 is a Democrat who supports abortion.

Study Description:

In addition to the fixed payment for completing the study, you have an initial amount of 80p, and the other three participants have the following initial amounts:

- Republican who opposes abortion: 45
- Democrat who opposes abortion: 40
- Democrat who supports abortion: 35

You and the other three participants will take part in a lottery with two possible outcomes.

| | |
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| <ul style="list-style-type: none"> ○ 1st possible outcome: <ul style="list-style-type: none"> ○ No one wins money. ○ The initial amount of money you and the other participants have does not change. ○ There is no task for you in this study. ○ The study is finished. ○ 2nd possible outcome: <ul style="list-style-type: none"> ○ Everyone wins money. ○ As a result, you win 10p (thus, you receive a total of 70p), while the other three participants in total win 30p. ○ Your task is to decide how to distribute the total winnings of 30p to the other three participants. ○ There are only two restrictions on your distribution: <ul style="list-style-type: none"> 1) You must allocate the entire winnings of 30p. 2) One single participant can only be allocated a maximum of 20p of the entire winnings. ○ Please note: <ul style="list-style-type: none"> ○ The final compensation for each of the other three participants will be calculated as follows: <u>The other participant's final payoff = their initial amount + the winnings you allocated to that participant</u> <ul style="list-style-type: none"> ○ Regardless of your allocation decision, your final payoff will be calculated as follows: <u>Your Final Payoff = 60 + 10 = 70</u> | <ul style="list-style-type: none"> ○ 1st possible outcome: <ul style="list-style-type: none"> ○ No one loses money. ○ The initial amount of money you and the other participants have does not change. ○ There is no task for you in this study. ○ The study is finished. ○ 2nd possible outcome: <ul style="list-style-type: none"> ○ Everyone loses money. ○ As a result, you lose 10p (thus, you receive a total of 70p), while the other three participants in total lose 30p. ○ Your task is to decide how to distribute the total losses of 30p to the other three participants. ○ There are only two restrictions on your distribution: <ul style="list-style-type: none"> 1) You must allocate the entire losses of 30p. 2) One single participant can only be allocated a maximum of 20p of the entire losses. ○ Please note: <ul style="list-style-type: none"> ○ The final compensation for each of the other three participants will be calculated as follows: <u>The other participant's final payoff = their initial amount - the losses you allocated to that participant</u> <ul style="list-style-type: none"> ○ Regardless of your allocation decision, your final payoff will be calculated as follows: <u>Your Final Payoff = 80 – 10 = 70</u> |
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Control Questions

- o Before the lottery starts, we will ask you a set of questions to check whether our instructions were clear.
- o Your payment does not depend on how long you take to answer these questions.
- o When you go back and forth between the instructions and the questions, the answers you have already provided will be saved.
- o After you answered all questions correctly, you will no longer be able to go back and forth.

Imagine the lottery does not result in winnings. Does your initial amount of money and the amount of money of the other three participants change?

- o Yes
- o No

Imagine the lottery results in winnings. How many pence will you receive in total for completing the task?

- o 50p
- o 60p
- o 70p
- o 80p

Imagine the lottery results in winnings.

Control Questions

- o Before the lottery starts, we will ask you a set of questions to check whether our instructions were clear.
- o Your payment does not depend on how long you take to answer these questions.
- o When you go back and forth between the instructions and the questions, the answers you have already provided will be saved.
- o After you answered all questions correctly, you will no longer be able to go back and forth.

Imagine the lottery does not result in losses. Does your initial amount of money and the amount of money of the other three participants change?

- o Yes
- o No

Imagine the lottery results in a losses. How many pence will you receive in total for completing the task?

- o 50p
- o 60p
- o 70p
- o 80p

Imagine the lottery results in a losses.

What is the total amount of winnings that you need to distribute to the other three participants?

- ☐ 20p
- ☐ 30p
- ☐ 60p
- ☐ 90p

Suppose the lottery results in winnings and you assign the participant with an initial amount of 20p winnings of 20p. How much will this participant earn in total?

- ☐ 0p
- ☐ 10p
- ☐ 20p
- ☐ 30p
- ☐ 40p
- ☐ 50p

Suppose the lottery results in winnings and you assign the participant with an initial amount of 20p winnings of 0p. How much will this participant earn in total?

- ☐ 0p
- ☐ 10p
- ☐ 20p
- ☐ 30p
- ☐ 40p
- ☐ 50p

Imagine the lottery results in winnings. Will you be able to make the following allocation decision?

What is the total amount of losses that you need to distribute to the other three participants?

- ☐ 20p
- ☐ 30p
- ☐ 60p
- ☐ 90p

Suppose the lottery results in losses and you assign the participant with an initial amount of 40p losses of 20p. How much will this participant earn in total?

- ☐ 0p
- ☐ 10p
- ☐ 20p
- ☐ 30p
- ☐ 40p
- ☐ 50p

Suppose the lottery results in losses and you assign the participant with an initial amount of 40p losses of 0p. How much will this participant earn in total?

- ☐ 0p
- ☐ 10p
- ☐ 20p
- ☐ 30p
- ☐ 40p
- ☐ 50p

Imagine the lottery results in losses. Will you be able to make the following allocation decision?

- The winnings allocated to Participant 1: 5p;
- The winnings allocated to Participant 2: 3p;
- The winnings allocated to Participant 3: 22p.

- ☐ Yes
- ☐ No

Imagine the lottery results in winnings. Will you be able to make the following allocation decision?

- The winnings allocated to Participant 1: 18p;
- The winnings allocated to Participant 2: 2p;
- The winnings allocated to Participant 3: 10p.

- ☐ Yes
- ☐ No

Imagine that the lottery results in winnings. Will you be able to make the following allocation decision?

- The losses allocated to Participant 1: 5p;
- The losses allocated to Participant 2: 3p;
- The losses allocated to Participant 3: 22p.

- ☐ Yes
- ☐ No

Imagine the lottery results in a losses. Will you be able to make the following allocation decision?

- The losses allocated to Participant 1: 18p;
- The losses allocated to Participant 2: 2p;
- The losses allocated to Participant 3: 10p.

- ☐ Yes
- ☐ No

Imagine that the lottery results in losses. Will you be able to make the following allocation decision?

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| <ul style="list-style-type: none"> • The winnings allocated to Participant 1: 8p; • The winnings allocated to Participant 2: 14p; • The winnings allocated to Participant 3: 8p. <p> <input type="radio"/> <u>Yes</u> <input type="radio"/> No </p> | <ul style="list-style-type: none"> • The losses allocated to Participant 1: 8p; • The losses allocated to Participant 2: 14p; • The losses allocated to Participant 3: 8p. <p> <input type="radio"/> <u>Yes</u> <input type="radio"/> No </p> |
| <p>End of Control Questions</p> <p>You have now answered all of the control questions correctly. Please go to the next screen to start the lottery. Please note that once you start the lottery, you will no longer have the option to use the “Back” button.</p> | <p>End of Control Questions</p> <p>You have now answered all of the control questions correctly. Please go to the next screen to start the lottery. Please note that once you start the lottery, you will no longer have the option to use the “Back” button.</p> |

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| <p>Starting the Lottery</p> <p>Please click on the “Participate in the Lottery” button to participate in the Lottery.</p> <p><i>[button] Participate in the Lottery</i></p> | <p>Starting the Lottery</p> <p>Please click on the “Participate in the Lottery” button to participate in the Lottery.</p> <p><i>[button] Participate in the Lottery</i></p> |
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| <p>Result of the Lottery</p> <p>Thank you for your participation in this study. No one won money.</p> <p>The initial money you and the other three participants had remains unchanged. As a result, you receive 60p, and the other three participants each receive the following amounts:</p> <ul style="list-style-type: none"> • Republican who opposes abortion: 25 • Democrat who opposes abortion: 20 • Democrat who supports abortion: 15 | <p>Result of the Lottery</p> <p>Thank you for your participation in this study. No one lost money.</p> <p>The initial money you and the other three participants had remains unchanged. As a result, you receive 80p, and the other three participants each receive the following amounts:</p> <ul style="list-style-type: none"> • Republican who opposes abortion: 45 • Democrat who opposes abortion: 40 • Democrat who supports abortion: 35 |
|---|--|

Please proceed to the next screen.

Please proceed to the next screen.

Result of Lottery

Everyone won money.

As result, you won 10p (thus, you receive a total of 70p), while the other three participants in total won 30p.

Reminder

- o You now need to decide how to distribute the total winnings of 30p to the other three participants.
- o There are only two restrictions on your distribution:
 - 1) You must allocate the entire winnings of 30p.
 - 2) One single participant can only be allocated a maximum of 20p of the entire winnings.
- o Please note:
 - o The final compensation for each of the other three participants will be calculated as follows:

The other participant's final payoff = their initial amount + the winnings you allocated to that participant

- o Regardless of your allocation decision, your final payoff will be calculated as follows:

Your Final Payoff = $60 + 10 = 70$

Please indicate how much of the total winnings of 30p you would like to allocate to each of the other three participants:

Result of Lottery

Everyone lost money.

As result, you lost 10p (thus, you receive a total of 70p), while the other three participants in total lost 30p.

Reminder

- o You now need to decide how to distribute the total losses of 30p to the other three participants.
- o There are only two restrictions on your distribution:
 - 1) You must allocate the entire losses of 30p.
 - 2) One single participant can only be allocated a maximum of 20p of the entire losses.
- o Please note:
 - o The final compensation for each of the other three participants will be calculated as follows:

The other participant's final payoff = their initial amount - the losses you allocated to that participant

- o Regardless of your allocation decision, your final payoff will be calculated as follows:

Your Final Payoff = $80 - 10 = 70$

Please indicate how much of the total losses of 30p you would like to allocate to each of the other three participants:

Republican who opposes abortion
(current amount: 25): _____

Democrat who opposes abortion
(current amount: 20): _____

Democrat who supports abortion
(current amount: 15): _____

Republican who opposes abortion
(current amount: 45): _____

Democrat who opposes abortion
(current amount: 40): _____

Democrat who supports abortion
(current amount: 35): _____

One Additional Question

You now finished the task.

Before we come to the final questionnaire, we would like to ask you to answer a question about the task you have just finished.

We will randomly select 100 participants who receive the same instructions and information as you did.

Of those 100 participants, how many do you think allocated less losses to the one Republican than to either Democrat?

Please indicate your best guess to this question. If your guess is less than 5 away from the true number, you will get a bonus payment of £0.05.

Questionnaire

Please click the button below to start the final questionnaire.

The answers you provide in the questionnaire will not influence your payment.

However, they are of great scientific importance to us.

Once you finished the questionnaire, you will be redirected to Prolific to receive your payment.

Questionnaire (Part 1/2)

Please select the option that best describes your feeling towards the mentioned group of people living in the US on the basis of the following statements.

Selecting (agreeing with) a statement means agreeing also to statements which follow the selected statement.

Republicans opposing abortion

- ☐ Would you be willing to marry a member of this group?
- ☐ Would you be willing to have a member of this group as your close personal friend?
- ☐ Would you be willing to have a member of this group as your neighbor?
- ☐ Would you be willing to have a member of this group as your colleague at work?

Democrats opposing abortion

- ☐ Would you be willing to marry a member of this group?
- ☐ Would you be willing to have a member of this group as your close personal friend?
- ☐ Would you be willing to have a member of this group as your neighbor?
- ☐ Would you be willing to have a member of this group as your colleague at work?

Democrats supporting abortion

- ☐ Would you be willing to marry a member of this group?
- ☐ Would you be willing to have a member of this group as your close personal friend?
- ☐ Would you be willing to have a member of this group as your neighbor?
- ☐ Would you be willing to have a member of this group as your colleague at work?

Questionnaire (Part 2/2)

Please tick a box on the scale to answer the following question.

How important is it currently for you to be there for others?

- ☐ not at all important
- ☐ somewhat unimportant
- ☐ somewhat important
- ☐ very important

Consider yourself comparing your income situation with that of another person, such as a neighbor or a coworker.

How do you feel if...

...**you are better off** than the other person?

- ☐ bad ☐ slightly bad ☐ don't care ☐ slightly good ☐ good

... the **other person** is **better off** than you?

☐ bad ☐ slightly bad ☐ don't care ☐ slightly good ☐ good

What is your gender?

- ☐ Male
- ☐ Female
- ☐ Other

What is your marital status?

- ☐ Single
- ☐ In a relationship
- ☐ Engaged
- ☐ Widowed
- ☐ Divorced
- ☐ Separated
- ☐ Never married
- ☐ Rather Not Say
- ☐ In a civil partnership/civil union or similar

What is your year of birth?

▼ 1900 (1) ... 2019 (120)

In which country do you currently reside?

▼ Afghanistan (1) ... Zimbabwe (196)

If you reside currently in the US, in which state do you currently reside?

Alabama (1) ... Wyoming (50)

Do you speak English fluently?

- ☐ Yes
- ☐ No

Please specify your race.

▼ White (1) ... No answer (7)

What is the highest level of schooling you have completed? If currently enrolled, mark the previous grade or highest degree received.

- ☐ High school graduate
- ☐ Some college
- ☐ Associate degree (e.g. finished community college)
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Doctorate or professional degree
- ☐ No schooling

What is your employment status?

▼ Full- Time (1) ... Other (-99)

What is your household monthly income after taxes?

▼ below 500 US\$ (0) ... above 15500 US\$ (1500)

How much of the household monthly income after taxes do you contribute? (Answer from 0 to 100 in %)

Please type in a number.

0 = "I do not contribute any money to the household income (e.g. because I am a homemaker)"

100 = "I am the only person in the household who earns any money" _____

How many adults live in your household? _____

How many adults live in your household? _____

How many children live in your household? _____

Do you consider yourself a Republican or Democrat?

- ☐ Republican
- ☐ Democrat

Do you support or oppose abortion?

- ☐ Support
- ☐ Oppose

| | |
|--|--|
| <p>Thank you for participating in this study</p> <p>You have now completed the study.</p> <p>Your fixed payment is 1.50£</p> <p>Your payment after the lottery is 0.60£</p> <p>Your total payment is: 2.10£</p> <p>Please proceed to the next screen to be directed to Prolific.</p> | <p>Thank you for participating in this study</p> <p>You have now completed the study.</p> <p>Your fixed payment is 1.50£</p> <p>Your payment after the lottery is 0.80£</p> <p>Your total payment is: 2.30£</p> <p>Please proceed to the next screen to be directed to Prolific.</p> |
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