

Ideological Motivation and Group Decision-Making

Florian Engl

Impressum:

CESifo Working Papers

ISSN 2364-1428 (electronic version)

Publisher and distributor: Munich Society for the Promotion of Economic Research - CESifo GmbH

The international platform of Ludwigs-Maximilians University's Center for Economic Studies and the ifo Institute

Poschingerstr. 5, 81679 Munich, Germany

Telephone +49 (0)89 2180-2740, Telefax +49 (0)89 2180-17845, email office@cesifo.de

Editor: Clemens Fuest

<https://www.cesifo.org/en/wp>

An electronic version of the paper may be downloaded

- from the SSRN website: www.SSRN.com
- from the RePEc website: www.RePEc.org
- from the CESifo website: <https://www.cesifo.org/en/wp>

Ideological Motivation and Group Decision-Making

Abstract

Ideological considerations are becoming increasingly relevant in many economic, managerial, and political decisions. In this paper, we study experimentally when and how ideological motives shape group decision-making. Groups repeatedly decide between a monetarily beneficial outcome that generates a high payoff but also an ideologically undesirable externality, or an ideologically beneficial outcome that generates a low payoff and no externality. Groups that disagree forgo all payoffs. An independent part of the experiment serves to classify subjects as ideologically or payoff motivated individuals. We find that ideologically motivated group members are, after disagreement, significantly less likely to give in than payoff motivated subjects. As a consequence, groups which disagree initially are later more likely to agree on the ideologically beneficial outcome. Thus, we document how ideologically motivated people can steer groups towards ideological commitments held by only a minority of group members. Furthermore, our treatments show that increasing the group size has no impact on the decisions of ideologically motivated group members, but significantly increases the rate with which payoff motivated group members agree on the ideologically beneficial outcome. These results are theoretically predicted by fixed but not by malleable ideological preferences. Additional treatments show that social image concerns, peer pressure or reputation effects are unlikely to explain the group size effect, and that individual ideological commitment and its influence on group outcomes is much weaker when the externality is ideologically desirable.

JEL-Codes: C920, D010, D700, D910.

Keywords: ideology, group decision-making, coordination, heterogeneous types.

Florian Engl
Department of Economics
University of Regensburg
Universitätsstrasse 31
Germany – 93053 Regensburg
florian.engl@ur.de

January 2022

We thank Agne Kajackaite for valuable contributions to an earlier draft, and Lea Cassar, Gönül Dogan, Uri Gneezy, Bernd Irlenbusch, Michael Kosfeld, Axel Ockenfels, Bettina Rockenbach, Dirk Sliwka, and Roberto Weber for helpful suggestions. We are grateful to conference and seminar participants at the ESA European Meeting, the Thurgau Experimental Economics Meeting, the TIBER Symposium, the CESifo Area Conference on Behavioural Economics, the University of Bern, and the University of Cologne for helpful comments.

1 Introduction

Recent decades have witnessed a substantial increase in ideological and affective polarization in the US and worldwide (McCarty et al., 2006, Abramowitz, 2010, Iyengar and Westwood, 2015, Iyengar et al., 2019, Boxell et al., 2021, Draca and Schwarz, 2021), implying a rising fraction of people whose beliefs are based on ideology. This matters as peoples' ideological beliefs on, e.g., political or ethical issues, are not only privately held, inconsequential opinions, but play an important role for individual decision-making (Bénabou and Tirole, 2016, Golman et al., 2016).¹ Moreover, also groups often have to decide over outcomes that contain an ideological element. Thus, the question arises when and how ideological motives affect group decision-making and how differently motivated individuals within a group find agreements.

For example, an executive team might face the decision whether to maximize profit at the expense of the environment or to sacrifice profits in order to pursue a more social and environmentally-friendly agenda. Such teams often consist of both, purely financially-driven members, who are mostly interested in maximizing their monetary earnings, and ideologically motivated members, who are mostly interested in pursuing their social and environmental mission.² Similarly, couples, when planning their joint financial future, have to agree whether the space of their potential investments includes the stocks of tobacco, oil, and arms-manufacturing companies, or excludes them at a potential cost of return. Furthermore, political parties, which are often split between pragmatic, moderate members, who are mostly interested in winning office and see compromises as a necessary way to govern, and ideologically motivated members, who are mostly interested in advancing their ideological goals without compromises, nevertheless have to find agreements on political positions. Improving our knowledge of how differently motivated types interact and find agreements in such situations is therefore crucial for understanding managerial, economic, and political processes, their outcomes, and, more generally, for understanding when and how ideological motives affect group decision-making.³

In this paper, we study group decision-making when groups face a trade-off between implementing a monetarily or an ideologically beneficial outcome. We focus on groups that lean towards one ideological view and, thus, disagreement arises between group members that are ideologically motivated and those that are more focussed on financial rewards.⁴ Our primary

¹Ideological beliefs can influence, for example, the voting decisions of legislators and the public (Kalt and Zupan, 1990, Levitt, 1996, Poole and Rosenthal, 1997, Jenkins, 2000, Merlo and De Paula, 2017), the decisions of judges (Sunstein et al., 2007, Gennaioli and Shleifer, 2007, Berdejó and Chen, 2017), investment choices (Meeuwis et al., 2021), brand and media consumption choices (Gentzkow and Shapiro, 2011, Khan et al., 2013), and even compliance with restrictions during the COVID-19 pandemic (Allcott et al., 2020, Grossman et al., 2020).

²A growing empirical literature in management shows that different types of ideologically motivated actors, such as ideologically driven CEOs or activist investors, can influence corporate decision-making from the inside and the outside (Chin et al., 2013, Briscoe and Gupta, 2016, Gupta et al., 2017, Gangopadhyay and Homroy, 2021, Gupta et al., 2021, Hambrick and Wowak, 2021).

³Studies across many domains show that, compared to individuals, groups make decision that are more in line with standard game-theoretic predictions, and that this is because group decisions are less likely to be influenced by biases, cognitive limitations, or social considerations (for overviews, see Charness and Sutter (2012) and Kugler et al. (2012). Other studies have focussed on how groups aggregate the individual preferences of their members to reach a collective decision (see, e.g., Goeree and Yariv (2011) and Ambrus et al. (2015)). If, when, and how ideological considerations affect group decision-making is, however, a largely open question.

⁴This approach is consistent with the earlier examples of executive teams: in this case, there exists no opposite ideological view to the environmentally-friendly mission. Additionally, ideologically aligned groups often arise when groups are formed endogenously. For example, recent evidence suggests that executive teams, boards

interest lies in understanding how these different types of group members interact and find agreements. Furthermore, we study how other key characteristics of the environment, such as the group size and the type of externality, foster or deter the influence of ideologically motivated people on group decisions.

To address our research questions, we employ a laboratory experiment. As a proxy for an ideologically charged outcome, we use a donation to an organization that a part of our subjects ideologically opposes.⁵ The experiment consists of two parts: Part I uses an individual donation choice to elicit the subjects' views about the organization independent of any strategic considerations. This elicitation method allows us to classify subjects into *ideologically motivated* types, i.e., those who are willing to incur costs to donate nothing, and *payoff motivated* types, i.e., those who are willing to accept a donation if it increases their own payoff.⁶

In Part II, subjects play a coordination game that is repeated for 20 periods in fixed groups. Each period, group members choose between two options: an *ideologically motivated* option and a *payoff motivated* option. If all group members choose the *payoff motivated* option, a monetarily beneficial outcome that generates a high payoff for each group member but comes with an ideologically undesirable externality—again a donation to the organization—is implemented. If all group members choose the *ideologically motivated* option, an ideologically beneficial outcome that generates a low payoff for each group member but avoids the externality is implemented. Finally, if groups disagree, no externality is generated and group members receive no payoffs. This basic setup in combination with the independent type-elicitation of Part I allows us to study how different types of individuals interact and find agreements over time.⁷

Our treatments vary whether the groups in Part II are small (two members) or larger (four members). We are interested in group size effects for two reasons. First, from an applied perspective, because group size is typically one of the key features of real decision-making groups, such as committees, that can be chosen when designing them. Second, because there are important theoretical considerations that suggest that the group size could have an influence on the

of directors, and whole companies are becoming ideologically homogeneous due to ideological sorting and hiring decisions (Colonnelli et al., 2020, Fos et al., 2021, Hoang et al., 2021). Other examples include journalists who join newspapers, people who choose friends, and politicians who choose parties according to whether the group aligns with their own ideology. Of course, some groups entail members with opposing ideological views, especially those that are exogenously determined, like panels of judges and certain committees. For example, Chen et al. (2016) study the voting behavior of randomly composed and ideologically heterogeneous panels of judges and find that the level of ideological disagreement predicts dissent against the panel's decision. Robbett and Matthews (2021) study how ideologically mixed groups fare in public goods games and find that heterogeneous groups are less cooperative and efficient compared to homogeneous groups. Relatedly, Dimant (2021), using one-shot dictator and public good games, shows that beliefs and behaviors are affected by whether co-players are in ideological agreement or disagreement.

⁵In the context of our previous examples, the donation to an ideologically opposed organization is the equivalent of the destruction of the environment or the investment in “sin stocks”.

⁶Note that we take our subjects' ideological beliefs as given and don't ask how they arise, or whether they are of political, moral, or religious nature (c.f., Haidt, 2021). Bénabou (2008) shows theoretically how ideologically distorted beliefs regarding the proper scope of government intervention can exist in equilibrium. Recent empirical evidence shows that a person's ideological positions correlate with, e.g., that person's moral views (Enke et al., 2020) and exposure to economic pressure (Autor et al., 2020).

⁷Active communication and deliberation are features that can help groups dissolve disagreements in many real-world examples. However, we decided to let subjects only “communicate” through their choices in each period, which are shown to each group member, as this affords us to observe a tractable history of the evolution of each subject's opinion and the dissolution of disagreement over time. While we believe that active communication would mostly speed up the process of finding an agreement, it is an interesting question for future research if it also changes the agreement outcomes.

group members' decisions and the group agreement outcomes. Specifically, if all subjects have standard preferences of pure monetary self-interest, each stage game of Part II is a coordination game with two Pareto-ranked Nash equilibria: agreement of all group members on the monetarily beneficial or the ideologically beneficial outcome. Which equilibrium groups coordinate on is, in this case, independent of the group size.

However, if there exist types with strong and fixed ideological preferences, i.e., participants who prefer to disagree and earn nothing than to implement the monetarily beneficial outcome and the associated undesirable externality, then the group size could matter. That is, because whenever a group contains at least one such type, agreement on the ideologically beneficial outcome is the unique Nash equilibrium—the rest of the group, which tries to maximize payoffs, prefers to agree on the ideologically beneficial outcome and earn little than to disagree and earn nothing. In randomly formed groups such as ours, the likelihood that a group entails an *ideologically motivated* type increases with the group size. Hence, *payoff motivated* types should more frequently agree on the ideologically beneficial outcome in larger groups while the choices of *ideologically motivated* types should be independent of the group size. Overall, these choices should lead to more ideologically beneficial agreements in larger groups.

The matter is complicated by the fact that ideological preferences themselves could be malleable and react to the group size. For example, a large literature suggests that preferences in the moral domain are malleable and context-dependent (cf. Dana et al., 2007, Shalvi et al., 2011) and that groups implement payoff-maximizing but immoral outcomes more frequently than individuals.⁸ Many of the suggested explanations also predict that members of large groups act less morally than those of small groups. In our specific setting, in larger groups i) the efficiency gain of implementing the monetarily beneficial outcome is larger, ii) one can help more other group members by choosing the monetarily beneficial option, iii) responsibility is potentially diffused among more group members, and iv) it is more likely to observe a payoff motivated choice by others. Thus, if the same malleability also holds for ideological preferences, then *ideologically motivated* group members should be less likely to insist on the ideologically beneficial agreement in larger groups. Whether group size, in this case, has a positive or negative effect on the frequency with which *payoff motivated* types agree on the ideologically beneficial outcome, now depends on two countervailing effects: the decrease in motivation of *ideologically motivated* types on the one hand, and the fact that large groups are still more likely to entail an *ideologically motivated* type on the other hand.

Our results show that, in both treatments, *ideologically motivated* types are initially significantly more likely to choose the *ideologically motivated* option than *payoff motivated* types. Over time, however, the fraction of *ideologically motivated* types who choose the *ideologically motivated* option remains constant, while the corresponding fraction of *payoff motivated* types increases significantly. The mechanism behind these findings is that, after disagreement, *pay-*

⁸To explain this finding, it has been suggested that groups allow people to exploit moral wiggle room and diffuse responsibility (Dana et al., 2007, Hamman et al., 2010, Bartling and Fischbacher, 2012, Conrads et al., 2013, Behnk et al., 2020, Falk et al., 2020), to apply higher levels of reasoning (Sutter, 2009), to satisfy a preference for collaboration (Weisel and Shalvi, 2015), or to help others with their immoral actions (Gino et al., 2013, Danilov et al., 2013). In addition, group members can convince others of the acceptability of immoral behavior through communication (Luhan et al., 2009, Kocher et al., 2018), or simply by letting others observe their own behavior (Gino et al., 2009, Soraperra et al., 2017).

off motivated types are significantly more likely to give in, while *ideologically motivated* types are steadfast. *Ideologically motivated* types therefore have a greater influence on the group agreement outcome than *payoff motivated* types. Thus, our results document and provide a mechanism for the effect that ideologically motivated people can have an outsized influence on group decisions and can even steer groups towards ideological commitments held by only a minority of group members.⁹

In terms of treatment differences, we find that the groups size has no significant effect on the choices of *ideologically motivated* types, but that *payoff motivated* types are about 80% and significantly more likely to accept the ideologically beneficial outcome in the larger groups. As a consequence, conditional on agreeing, groups of four are about 22%—albeit not significantly—more likely to agree on the ideologically beneficial outcome compared to groups of two. We thus document that a key characteristic of many decision-making groups, i.e., the group size, fosters the influence of ideologically motivated group members. Furthermore, these findings contribute to our understanding of ideological preferences as they are only consistent with the predictions of fixed and not with malleable ideological preferences.

We also conducted two additional treatments to further gain insights into the factors that influence the effect of ideological considerations in group decision-making. First, while our preferred interpretation for the documented treatment effect is that larger groups are more likely to entail an *ideologically motivated* type and *payoff motivated* types simply maximize their payoff, it could also be that social image concerns, peer pressure or reputation effects are higher in larger groups and drive *payoff motivated* types to accept the ideologically beneficial outcome more often.¹⁰ To study this alternative explanation, we report the results of an additional treatment in which we remove the feedback information about the group members' choices in each period, but keep all other features identical to the treatment with large groups. In each period, group members in this “partial info” treatment can only infer each other's choices in case of an agreement. In case of disagreement, they don't know how many group members disagreed with them, or whether one group member repeatedly insisted on an outcome. Furthermore, they also know that others cannot observe their own choices. Hence, social image concerns, peer pressure and reputation effect should be much reduced in this treatment, if active at all.

The results of the partial information treatment closely resemble those of the treatment

⁹A related idea exists in social psychology which recognizes that, after deliberation and discussion, individuals within groups often hold more extreme views than when alone (an effect called *group polarization*). As a result, groups often make more extreme choices than individuals (an effect called *choice shift*) (see, e.g., Myers and Lamm, 1976, Isenberg, 1986, Zuber et al., 1992). These phenomena have henceforth attracted attention in law and economics (see, e.g., Sunstein, 1999) and sociology (see, e.g., Friedkin, 1999). Most relatedly, Kaplan and Miller (1987) find that group polarization and choice shifts are largest for judgmental issues, such as deciding on moral positions, under unanimity rule. They speculate that this is due to individuals who hold extreme positions and who are able to persuade others when unanimity rule gives them the power to hold out. We contribute to this literature by providing direct evidence for which types of individuals are more steadfast and how their steadfastness can lead to choice shifts. Moreover, we demonstrate that such phenomena also occur even absent communication and under the presence of sizeable monetary opportunity costs. Social psychologists have also argued that disagreement in groups fosters cognitive dissonance (Festinger, 1957), and that finding an agreement by changing one's own or others' opinion can alleviate cognitive dissonance and the related emotional discomfort (Matz and Wood, 2005). However, cognitive dissonance alone cannot predict why *payoff motivated* types should be more, and *ideologically motivated* types less willing to change their opinion.

¹⁰For example, Cason and Mui (1997) argue that social image concerns are a reason why team decisions after face-to-face discussions can be more altruistic and other-regarding than individual decisions.

with full information. There are no significant differences in the levels and the dynamics of the behavior of the two types between the two treatments: *ideologically motivated* types are again steadfast in their choices, while *payoff motivated* types, over time, become willing to accept the ideologically beneficial outcome. Compared to the treatment with small groups, *payoff motivated* types are again significantly more likely to accept the ideologically beneficial outcome, while the decisions of *ideologically motivated* types are again not significantly different. The main difference in terms of agreement outcomes is that significantly more disagreements ensue in the partial info treatment as it reduces the speed with which groups find an agreement. Conditional on agreeing, there is no significant difference in agreement outcomes between large groups with full or partial information. As before, compared to small groups, large groups with partial info are about 30% more likely to agree on the ideologically beneficial outcome and the effect is of somewhat stronger statistical significance. Thus, the results of this additional treatment lend further support to our initial results and their interpretation.

In a second additional treatment, we test whether individual decisions and group outcomes differ when the ideologically beneficial agreement does not prevent an ideologically opposed externality, but generates an ideologically desirable externality in the same domain. This additional treatment differs from the treatment with groups of four only insofar as the subjects' choices in Part I and Part II potentially generate a donation to an "ideologically aligned" organization. In Part II, the ideologically desirable externality is generated whenever all group members agree on the ideologically beneficial outcome, which again grants a low payoff to themselves. Thus, there again exists a trade-off between a monetarily beneficial outcome and an ideologically beneficial outcome.

We find that the type of externality indeed matters strongly for subjects' choices and group outcomes. Compared to the previous treatments, significantly fewer subjects are willing to sacrifice own money to increase the donation to the ideologically aligned organization in Part I and, thus, fewer are classified as *ideologically motivated* types. In Part II, both types choose the *ideologically motivated* option significantly less frequently and significantly fewer ideologically beneficial agreements occur, even conditional on reaching an agreement. Two mechanisms can jointly explain these effects: First, they are partly explained by the fact the group compositions differ across treatments—there are simply fewer *ideologically motivated* types who are committed to implement the ideologically beneficial outcome when the externality is ideologically aligned. After controlling for the fraction of *ideologically motivated* types in a group, the treatment effects on individual decisions and group outcomes conditional on agreement are about half in size and statistically weaker than without the control. The remaining treatment effect could be explained with the strategic reasoning that, with an ideologically aligned externality, implementing the monetarily beneficial outcome is a Nash equilibrium even in the presence of *ideologically motivated* types in a group. That is, because *ideologically motivated* types are not deterred from implementing the monetarily beneficial outcome as it does not generate an ideologically opposed externality. Thus, even in heterogeneous groups, two Nash equilibria exist. These results show that the choice of externality is of crucial importance and should be considered seriously when studying related research questions. Furthermore, these findings are consistent with survey evidence on political motivation which shows that people are more moti-

vated to prevent harm from the opposing party’s policies than to support policies of their own party (Pew Research Center, 2016).

The paper proceeds as follows: Section 2 develops hypotheses regarding treatment effects depending on different preference specifications. Section 3 summarizes the experimental design. The results are presented in Section 4. Section 5 summarizes the designs and the results of the two additional treatments. Section 6 discusses the results and concludes.

2 Predictions of different preference theories

Before presenting the experimental design, we first discuss the game-theoretic predictions of different preference specifications to gain an understanding of what motivated our experimental setup and our choice of treatments. We discuss the predictions in a simple yet general theoretical framework. For simplicity, we focus on strict Nash equilibria in pure strategies. There is a finite set I of n players. Each player simultaneously chooses an action a_i which can either be the ideologically motivated option, e , or the payoff motivated option, u . Together with the strategy space, the game is defined by the following payoff function for each of the n players and a third party c (which represents the payoff for the organization):

$$\pi_i(a_i, a_{-i}) = \begin{cases} \pi^h & \text{if } a_i = a_{-i} = u \\ \pi^l & \text{if } a_i = a_{-i} = e \\ 0 & \text{if otherwise} \end{cases}, \quad \pi_c(a_i, a_{-i}) = \begin{cases} \pi^c & \text{if } a_i = a_{-i} = u \\ 0 & \text{if } a_i = a_{-i} = e \\ 0 & \text{if otherwise} \end{cases}$$

where $\pi^h > \pi^l > 0$, $\pi^c > 0$, and $a_{-i} = (a_1, \dots, a_{i-1}, a_{i+1}, \dots, a_n)$. In the following, we speak of “disagreement” if players choose different actions, of “agreement on the ideologically beneficial outcome” if all players choose e , and of “agreement on the monetarily beneficial outcome” if all players choose u and the externality is implemented.

Standard Preferences. To develop a first benchmark prediction, we start by assuming that the players solely act to maximize their own monetary payoff. In this case, our game is a coordination game with two strict Nash equilibria: One equilibrium in which all players choose the ideologically motivated option and another one in which all players choose the payoff motivated option. Several equilibrium-selection criteria have been proposed to predict which equilibrium will be selected in coordination games. In our case, the equilibria can be Pareto-ranked and *payoff-dominance* selects agreement on the monetarily beneficial outcome (Schelling, 1980). The same holds for *risk-dominance*, as choosing the monetarily beneficial option provides a higher expected payoff when a player is uncertain about the other players’ behavior (Harsanyi and Selten, 1988). Importantly, the set of strict Nash equilibria and the results of the selection criteria are independent of the number of players.¹¹ Hence, standard preferences yield the following

¹¹There exists an experimental literature showing that, in minimum-effort coordination games, large groups implement the least efficient equilibrium more often than small groups (see, e.g., Van Huyck et al., 1990, Knez and Camerer, 2000, Weber, 2006). The theoretical argument provided as an explanation for this finding is based on *strategic uncertainty* (Van Huyck et al., 1990, Crawford, 1995, Heinemann et al., 2009). *Strategic uncertainty* arises when, in a coordination game with multiple equilibria, different equilibrium-selection criteria give conflicting predictions and a player is uncertain about which criterion the other players will apply. However, the same argument does not apply to our setup, as all selection criteria select the monetarily beneficial outcome. Hence, strategic uncertainty doesn’t exist in our setup and can therefore not predict a group size effect.

prediction regarding treatment effects for the subjects' choices in our experiment:

Prediction 1 (Standard preferences). *The fraction of players who choose the ideologically motivated option does not depend on the group size.*

Fixed ideological preferences. Next, we consider that some people care about avoiding the potential externality for ideological reasons and pay psychological costs, $c(\pi_c(a_i, a_{-i}))$, if it is implemented. Such preferences can be represented by the following utility function:

$$u_i(a_i, a_{-i}) = \pi_i(a_i, a_{-i}) - \rho_i c(\pi_c(a_i, a_{-i})) \quad (1)$$

with $c(0) = 0$ and $c(\pi^c) > 0$. The individual-specific preference parameter $\rho_i \geq 0$ describes how much player i cares about the externality. In the following, we say that a player is of *ideologically motivated* type if she prefers to disagree and receive no payoff over the implementation of the monetarily beneficial outcome (i.e., it holds that $\rho_i > \frac{\pi^h}{c(\pi^c)} = \bar{\rho}$). For an *ideologically motivated* player, action e is dominant and she will choose it independent of her beliefs about the other players' choices. On the other hand, we say a person is of *payoff motivated* type, if the monetary benefits from implementing the monetarily beneficial outcome outweigh any concerns about the externality (i.e., $\rho_i \leq \bar{\rho}$). A *payoff motivated* player's choice depends on his belief about the other players' choices. He will choose action u or e depending on whether he believes the other players do the same.

With the potential presence of *ideologically motivated* types in a group, the group composition matters for the equilibrium predictions: If a group only consists of *payoff motivated* types, the equilibrium predictions are the same as in the standard case, and we expect those groups to mostly coordinate on the monetarily beneficial outcome.¹² However, if there is at least one *ideologically motivated* type in a group, an agreement on the monetarily beneficial outcome is no Nash equilibrium, as the *ideologically motivated* type would deviate. Hence, in this case, there exists a unique strict Nash equilibrium in which all agree on the ideologically beneficial outcome.

If groups are formed randomly, the group size impacts the group composition and thus the equilibria of the game. Let F be the distribution of ρ_i in the population, and let's assume that there exists a fraction of *ideologically motivated* types in the population (i.e., $0 < F(\bar{\rho}) < 1$). If this is the case, then randomly formed larger groups are more likely to entail an *ideologically motivated* type ($1 - F(\bar{\rho})^n < 1 - F(\bar{\rho})^{n+1}$) and therefore also more likely to agree on the ideologically beneficial outcome. Note that *payoff motivated* types' choices depend on the group composition, but committed *ideologically motivated* types' choices do not. Hence, we obtain the following predictions for treatment effects on the two types' choices:

Prediction 2 (Fixed ideological preferences). *The choices of ideologically motivated players are independent of the group size. However, the fraction of payoff motivated players who choose*

¹²Note that there can also exist *payoff motivated* types for whom the ideologically beneficial outcome is payoff-dominant (this is the case, if $\frac{\pi^h - \pi^l}{c(\pi^c)} < \rho_i < \frac{\pi^h}{c(\pi^c)}$). Thus, a group consisting of only these cases could coordinate on the ideologically beneficial outcome. In the following, we will not discuss this case for two reasons: First, because the experimental parameters are chosen such that the actual frequency of these types should be very small ($\pi^h = 8$ and $\pi^l = 2$). And second, because including it increases complexity without changing the direction of the predictions.

the ideologically motivated option increases with the group size.

Malleable ideological preferences. While the notion of fixed psychological costs is appealing and makes clear predictions, many experimental results discussed in the introduction suggest that, for several reasons, group size could decrease the *ideologically motivated* types' commitment. Since our research question is not to study each of the potential mechanisms separately, we simply assume that psychological costs decrease with group size. We capture such malleable ideological preferences with the following utility function:

$$u_i(a_i, a_{-i}, n) = \pi_i(a_i, a_{-i}) - \rho_i c(\pi_c(a_i, a_{-i}), n) \quad (2)$$

where $\frac{\partial c(\pi_c(a_i, a_{-i}), n)}{\partial n} < 0$.

Due to the decrease in psychological costs with rising group size, the threshold value of ρ_i that determines whether an ideologically motivated type prefers disagreement over the implementation of the monetarily beneficial outcome increases with the group size ($\bar{\rho}_n < \bar{\rho}_{n+1}$). Hence, there exists a fraction of players, with $\bar{\rho}_n < \rho_i < \bar{\rho}_{n+1}$, who are categorized as *ideologically motivated* types in groups of size n , but will not act like *ideologically motivated* types in groups of size $n + 1$.

Whether larger groups are more likely to entail an *ideologically motivated* type who is still committed—and thus only allows the ideologically beneficial outcome as a strict Nash equilibrium—now depends on which of two counteracting forces dominates ($1 - F(\bar{\rho}_n)^n \gtrless 1 - F(\bar{\rho}_{n+1})^{n+1}$). On the one hand, as before, randomly formed larger groups make it more likely to entail a committed *ideologically motivated* type because a larger sample is drawn. On the other hand, however, that larger sample is drawn from a distribution in which each drawn individual is less likely to still be committed ideologically. Hence, whether larger groups are more or less likely to agree on the ideologically beneficial outcome and whether *payoff motivated* types are more or less likely to choose the ideologically beneficial option, depends on the strength of the shift in types. This yields the following prediction:¹³

Prediction 3 (Malleable ideological preferences). *The fraction of ideologically motivated players who choose the ideologically motivated option decreases with the group size. Whether the fraction of payoff motivated players who choose the ideologically motivated option decreases or increases with group size depends on the strength of the shift in choices of the ideologically motivated types.*

To sum up, group size can influence the agreement outcome directly, through an increase of ideologically motivated types in a group, and indirectly, through an effect on ideological preferences. In the next section, we present our experimental design, which allows us to study these channels.

¹³To get a clear ceteris paribus predictions for *ideologically motivated* types, we predict how the choices of those who are classified as *ideologically motivated* types at a fixed group size react to changes in the group size.

3 Experimental design

The experiment consists of two parts. Part I uses an incentivized individual decision to study how the participants perceive our proxy for an ideologically charged outcome absent any strategic considerations and allows us to classify subjects into different types. Part II, our main part, administers the two treatment variations via a coordination game.

3.1 Proxy for an ideologically charged outcome

In the experiment, subjects repeatedly face trade-offs between own money and the implementation of an ideologically charged outcome. Our proxy for this outcome should fulfil three main requirements: First, it should impose high ideological costs on at least some of our subjects. Second, the variance in ideological costs should be large enough to allow us to study disagreements in groups. Third, subjects should ideologically lean in one direction to mirror situations in which group members self-selected according to their ideology. We fulfil these requirements by letting subjects generate donations to the National Rifle Association (NRA), which is a U.S. nonprofit organization that advocates for gun ownership rights.¹⁴ As of February 2018, the NRA had approximately 5 million members in the U.S. and, in 2016, generated \$163.5 million in membership dues and \$203.4 million in other revenues such as donations (Ingraham, 2018).

Gun control and ownership is a divisive and ideologically charged topic (Shalhope, 1982). For example, in 2017, 47% of respondents in a nationally representative survey in the U.S. state that protecting the right to own guns is more important than to control gun ownership, and 42% state that they live in a household which owns at least one gun (Pew Research Center, 2017). Regarding the NRA, 44% of respondents say it has too much influence over gun legislation, 40% say it has the right amount of influence, and 15% say it has too little influence. However, among students, the NRA is often viewed more critically than among the general population. Therefore, donations to the NRA were previously used as a proxy for “bad” outcomes by Ariely et al. (2009). Similarly, Kajackaite (2015) used donations to the NRA in the same subject pool as ours and also conducted a survey among potential subject pool members. Ninety-three out of 100 respondents stated negative views regarding the NRA.

Importantly, in all individual and group decisions involving a potential donation, each participant had the power to prevent the respective donation from being implemented. Hence, we ensured that all donations have the explicit consent of all concerned participants. Participants received a short description of the NRA and its goals before making their decisions.¹⁵

¹⁴Letting subjects generate donations to organizations to induce them to care about an outcome independent of its monetary consequences is a standard approach in experimental economics (see, e.g., Eckel and Grossman, 1996, Imas, 2014, Bartling and Özdemir, 2017, DellaVigna and Pope, 2018, Cassar, 2019, Sutter et al., 2020). However, in order to avoid the impression that research funds were used to support political organizations, we self-financed all donations that were generated for the NRA. Moreover, the additional “ideologically aligned” treatment generates donations to an opposing organization.

¹⁵English translations as well as the original German instructions for Part I and Part II of the “large groups” treatment, together with screenshots of the decision relevant stages of Part I and Part II, can be found in Appendix B.

3.2 Part I – Individual choice

In Part I, all subjects make an individual choice that determines the subject’s own payoff and the size of a donation to the organization. We included Part I, because we cannot classify subjects as *ideologically motivated* or *payoff motivated* types based on whether they choose the ideologically beneficial or monetarily beneficial option in Part II, which closely resembles the theoretical setup, as those choices could be influenced by strategic reasoning, e.g., the subjects’ beliefs about the other subjects’ behavior. Therefore, we use the independent individual choice in Part I to classify subjects into *ideologically motivated* and *payoff motivated* types.

Specifically, in Part I, each subject chooses one of eleven options. Subjects can donate any integer amount between 0 euro and 10 euro. A subject who chooses a donation of 0 euro earns 1 euro. With each donated euro, the individual payoff increases in increments of 25 cent and reaches a maximum of 2.25 euro for donations of 5 euro. For each donated euro above 5 euro, a subject’s own payoff decreases, again in increments of 25 cent, and reaches a minimum of 1 euro for the greatest possible donation of 10 euro.¹⁶ Thus, subjects face a tradeoff between maximizing their own payoff and decreasing/increasing the donation. Table 1 summarizes all possible choices and their payoff consequences in Part I.

Table 1: Choice options and payoff consequences in Part I

Option	0	1	2	3	4	5	6	7	8	9	10
Own payoff (in €)	1	1.25	1.50	1.75	2	2.25	2	1.75	1.50	1.25	1
Donation (in €)	0	1	2	3	4	5	6	7	8	9	10

A subject’s choice is informative about his or her views regarding the organization. Subjects who choose Option 5 maximize their own payoff and signal that they do not care enough about increasing or decreasing the donation to the organization to forgo own money. Subjects who choose Options 0-4 sacrifice own payoff to decrease the donation and thus signal a distaste of the organization. Similarly, subjects who choose Options 6-10 forego own payoff to increase the donation and thus signal that they like the organization. We included an array of choices in Part I as it allows us to observe a detailed distribution of types. If we would have restricted Part I to a binary choice between an ideologically beneficial and monetarily beneficial outcome, as Part II does, we could not be sure if those that choose the monetarily beneficial outcome are really only payoff-maximizing, or are mostly subjects who actually like the organization.

3.3 Part II – Coordination game

Part II introduces the setup that we analyzed theoretically beforehand. At the beginning of Part II, subjects are randomly assigned to groups. Subjects then play a coordination game for twenty periods with fixed groups.¹⁷ In each period, all group members face the identical choice

¹⁶We chose relatively small own-payoff differences across choices to minimize the chance that payoff differences in Part I lead to income effects in Part II.

¹⁷While our theoretical analysis is based on a single stage game, we let subjects play repeatedly in the experiment to give them the opportunity to converge towards an equilibrium over time. However, we paid only one randomly chosen period to eliminate wealth effects and hedging opportunities (c.f. Charness et al., 2016). Note that playing the Nash equilibrium of a stage game repeatedly is also a subgame-perfect Nash equilibrium of the repeated game. Moreover, if the stage-game has a *unique* Nash equilibrium, as in our groups with at least one *ideologically motivated* type, playing that equilibrium repeatedly is the *unique* subgame-perfect Nash equilibrium

between a monetarily beneficial and an ideologically beneficial option.¹⁸ If all group members choose the monetarily beneficial option, 8 euro are donated to the organization and each group member receives a payoff of 8 euro. If all the group members choose the ideologically beneficial option, no donation is implemented and each group member receives 2 euro. Finally, if the group members choose different options and thus disagree on which outcome should be implemented, no donation is made and each group member receives 0 euro. Hence, the following three group outcomes are possible: disagreement, agreement on the monetarily beneficial outcome, and agreement on the ideologically beneficial outcome.

After subjects make their choice, we elicit their beliefs about the choices of the other group members in the current period. Subjects are asked to guess how many of their fellow group members chose the two options. If their guess coincides with the actual frequency of choices, subjects earn 50 cent. Otherwise they earn 0 euro. At the end of each period, subjects are informed about the individual choice of each of their fellow group members and the implemented outcome.¹⁹

At the end of the experiment, the results of the coordination game, i.e., the participants' payoffs and the resulting donation, of one randomly selected period, are implemented. To avoid hedging, an independently and randomly selected period implements the payoffs from the belief elicitation.

3.4 Treatments

We employ a between-subjects design to administer our two treatments. The treatments solely vary whether, in Part II, the subjects are assigned to groups of two or to groups of four members. In the following, we label the two treatments the “small groups” treatment and the “large groups” treatment. While we would have liked to study even larger groups, the size of the subject pool and economic considerations put a natural constraint on our ability to do so. We believe, however, that if we find results using a rather small change in the group size, these results should extend to even larger changes of the group size.

3.5 Procedures

Before the subjects entered the lab, they randomly drew a place card that specified at which computer terminal to sit. Subjects were informed that the experiment consists of two parts, but received instructions about the content of Part II only at the beginning of that part. The instructions for each part were read aloud to ensure common knowledge. Subjects had to correctly answer comprehension questions before each part could start. We conducted a total of 10 sessions in 2016 and 2017. All sessions were conducted at the Cologne Laboratory for Economic Research (CLER) of the University of Cologne. We ran the experiments with the software “z-Tree” (Fischbacher, 2007) and recruited participants from the student subject pool via ORSEE (Greiner, 2015). None of them participated in more than one session. Overall, 278

of the repeated game.

¹⁸In the instructions and on the computer screens, the two options were neutrally labelled as “Option 1” and “Option 2”.

¹⁹This is straightforward in groups of two. In groups of four, each group member is assigned a letter, A, B, C, or D, which is then used to display the group member's individual choice on the feedback screen.

subjects participated in the experiment: 106 in the “small groups” treatment and 172 in the “large groups” treatment.

After the main parts of the experiment, participants filled out a questionnaire which asked for their age, gender, whether they were students, whether they were studying at the Bachelor’s or Master’s level, their major, the semester they were in, and whether they had any prior knowledge about the organization. In addition, we employed the preference panel developed by Falk et al. (2016) to elicit subjects’ self-reported risk, time, altruism, reciprocity, and trust preferences.

Subjects were paid out anonymously at the end of the experiment. The total payoff from the experiment equaled the sum of the payoffs in the two parts plus the payment of a show-up fee of 4 euro. Subjects earned, on average, 10.20 euro. After each session, we donated the amount that was generated in this session to the organization. To ensure credibility, participants could provide us with their email addresses to receive a receipt of the donation. We only provided receipts for the sum of donations made in a session and thus could not link subjects’ email addresses to their specific donation. Hence, we ensured anonymity, and the participants were aware of that.

4 Results

The results section is organized as follows: we first summarize subjects’ choices in Part I and Part II. Then, we explore the resulting group agreement outcomes in Part II.

4.1 Individual decisions

4.1.1 Part I – Type classification

We hypothesized that some subjects incur ideological costs when implementing a donation to the organization. Consistent with this, we find that, in Part I, a majority of subjects are willing to sacrifice own money to avoid a donation to the organization. Subjects’ choices are concentrated on two options: Overall, 52.9% of subjects choose Option 0 and thereby sacrifice the maximum amount of money to prevent any donation to the organization. Another 30.2% of subjects choose Option 5, which maximizes their own payoff and implements a donation of 5 euro, and 16.2% of subjects donate some amount between 0 and 5 euro (Options 1-4). Finally, only two subjects (<1%) sacrifice own money to donate an amount above 5 euro (Options 6-10). Figure 1 shows the fraction of subjects’ choices for each of the eleven options in Part I for both treatments separately. There are no significant treatment differences regarding the distribution and the mean of the donations to the organization between the “small groups” and the “large groups” treatments (Kolmogorov-Smirnov test, $p = 1.000$; Wilcoxon ranksum test, $p = 0.974$).²⁰ This is unsurprising, as our treatment differences were not introduced until Part II.

We classify subjects as *ideologically motivated* if they chose “Option 0” in Part I. Those subjects gave up the maximum amount of own payoff in order to avoid a donation to the

²⁰All reported statistical tests in the paper are two-sided.

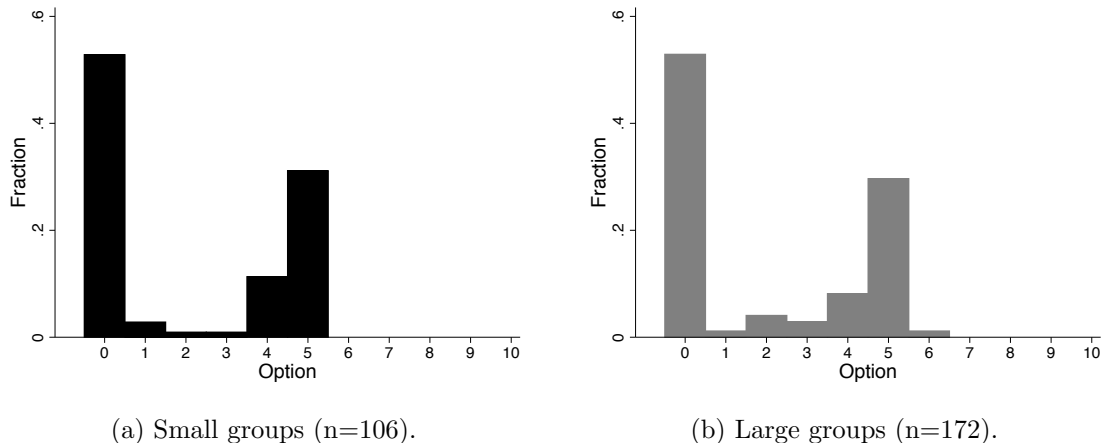


Figure 1: Distribution of choices in Part I.

ideologically opposed organization.²¹ The resulting fractions of *ideologically motivated* types are 52.8% and 52.9% in the “small groups” and the “large groups” treatment, respectively, and they do not differ significantly (Chi-squared test, $p = 0.990$). Consequently, we classify subjects as *payoff motivated* if they accept a positive donation to the organization in order to increase their own payoff.²²

4.1.2 Part II – Choices of all subjects

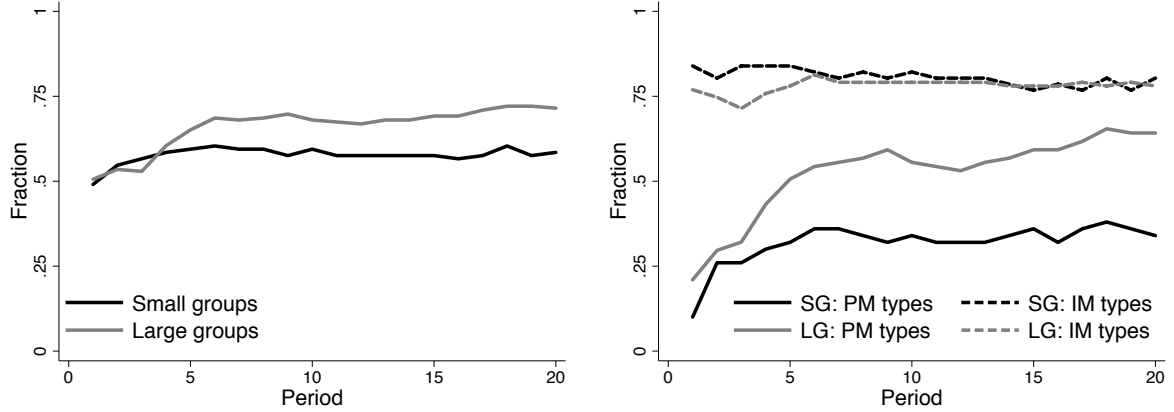
We start our analyses of Part II with a short summary of the overall behavior of the subjects. Figure 2(a) shows the fraction of subjects that choose the *ideologically motivated* option over the 20 periods of Part II.²³ In Period 1, about 50% of subjects in both treatments choose the *ideologically motivated* option without any significant difference across treatments (Pearson χ^2 test, $p = 0.805$). Over time, the fraction of *ideologically motivated* choices in the “large groups” treatment increases significantly, while it remains constant in the “small groups” treatment (Spearman’s rho, SG: $\rho = 0.017$, $p = 0.442$; LG: $\rho = 0.108$, $p < 0.001$). Due to this difference in the dynamics, in the last five periods, subjects in the “large groups” treatment are about 22% more likely to choose the *ideologically motivated* option than subjects in the “small groups” treatment. However, the difference does not reach statistical significance (71% vs 58%, Clustered Pearson χ^2 test, $p = 0.138$). Thus, while there is a suggestive directional effect, we, so far, cannot reject Prediction 1, which predicted no difference in choices between treatments.²⁴

²¹Table A.1 in Appendix A.1 reports correlations between subjects’ individual characteristics and their classification as an *ideologically motivated* type. Female subjects and those with higher self-reported altruism, trust, and positive reciprocity scores are significantly more likely to be classified as *ideologically motivated* types. All other correlations are insignificant. Interestingly, previous knowledge of the NRA is no significant predictor of the classification. This indicates that the information we provided to the subjects about the NRA in the instructions was enough to make an informed decision.

²²The following results are quantitatively and qualitatively robust to several other classifications. For example, we don’t find quantitative or qualitative differences when classifying those as *ideologically motivated* who choose Options 0-4 in Part I. Details of the robustness checks are provided in Appendix A.4.

²³For brevity, we sometimes use IM and PM for *ideologically motivated* and *payoff motivated*, respectively, IB and MB for ideologically and monetarily beneficial, respectively, and SG and LG for “small groups” and “large groups”, respectively.

²⁴The left part of Table A.2 in Appendix A.2 reports the average choices of all subjects for all periods and the four five-period bins, and presents p-values of nonparametric treatment comparisons. Parametric regressions



(a) All subjects.

(b) By type.

Figure 2: Fraction of *ideologically motivated* choices in Part II.

4.1.3 Part II – Behaviors of payoff and ideologically motivated types

Next, we use the classification from Part I to study, separately, the behavior of *payoff motivated* and *ideologically motivated* types in Part II. Figure 2(b) separates the subjects' choices by type.²⁵ We first describe type-based findings that are common to both treatments and then discuss treatment differences. Clearly, in the first period, *ideologically motivated* types are significantly more likely than *payoff motivated* types to choose the *ideologically motivated* option in both treatments (SG: 84% vs 10%; LG: 77% vs 21%, Pearson χ^2 tests, $p < 0.001$). Hence, our classification procedure makes sensible predictions for subjects' behavior at the beginning of Part II. Interestingly, the two types differ starkly in the dynamics of their choices over time. The fraction of *ideologically motivated* types who choose the *ideologically motivated* option remains constant and shows no significant trend in either direction (Spearman's rho, SG: $\rho = -0.045$, $p = 0.137$; LG: $\rho = 0.021$, $p = 0.372$). In contrast, the corresponding fraction of *payoff motivated* types increases significantly over time (Spearman's rho, SG: $\rho = 0.080$, $p = 0.012$; LG: $\rho = 0.197$, $p < 0.001$).

Across treatments, there is no significant difference in the choices of *ideologically motivated* types in the first period (Pearson χ^2 test, $p = 0.306$), and no significant difference emerges over time. Hence, in all five-period bins, there is no significant difference in the choices of *ideologically motivated* types across treatments (Clustered Pearson χ^2 test, $p \geq 0.248$). Table 2 uses parametric regression methods to corroborate these findings (see columns (1)-(4)).

In the first period, the choices of *payoff motivated* types do also not differ significantly

are displayed in Table A.4 in Appendix A.2. Throughout the paper, we use linear regression models. While our outcome variables are mostly binary, we decided against using nonlinear models, such as probit or logit, because we are often interested in interaction effects, and, as Ai and Norton (2003) point out, the magnitude, sign, and even statistical significance of the coefficients of interaction terms are not readily interpretable in nonlinear models. We present each regression with and without controls. Controls include individual characteristics (age, gender, study of economics or business, semester, prior knowledge of NRA), and individual preferences (risk aversion, altruism, trust, patience, positive and negative reciprocity). When the dependent variable is a group outcome, these controls are group averages.

²⁵The middle and right part of Table A.2 in Appendix A.2 reports the average choices of *payoff motivated* and *ideologically motivated* types for all periods and the four five-period bins, and presents p-values of the respective nonparametric treatment comparisons.

Table 2: Individual choices by type in Part II

Dependent variable: IM choice	IM types				PM types			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Small groups (constant)	0.806*** (0.055)	0.620* (0.317)	0.838*** (0.052)	0.652** (0.315)	0.319*** (0.068)	0.561* (0.317)	0.251*** (0.062)	0.493 (0.316)
Large groups	-0.026 (0.076)	-0.058 (0.066)	-0.074 (0.068)	-0.106* (0.057)	0.207** (0.094)	0.217** (0.093)	0.095 (0.082)	0.106 (0.082)
Period			-0.003* (0.002)	-0.003* (0.002)			0.006** (0.003)	0.006** (0.003)
Large groups × Period			0.005 (0.003)	0.005 (0.003)			0.011** (0.005)	0.011** (0.005)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Observations	2.940	2.940	2.940	2.940	2.620	2.620	2.620	2.620
Clusters	83	83	83	83	80	80	80	80
Overall R^2	0.001	0.120	0.002	0.121	0.041	0.077	0.067	0.104

Notes: Random-effects GLS regressions with individual random effects. Robust standard errors clustered on groups in parentheses. Controls include individual characteristics (age, gender, study of economics or business, semester, prior knowledge of NRA) and individual preferences (risk aversion, altruism, trust, patience, positive and negative reciprocity). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

across treatments (Pearson χ^2 test, $p = 0.102$). However, the increase in *ideologically motivated* choices over time is significantly stronger in the “large groups” treatment (see columns (7) and (8) of Table 2). Due to this difference in the trend, significantly more *payoff motivated* types choose the *ideologically motivated* option in the “large groups” treatment compared to the “small groups” treatment in all but the first of the five-period bins, and overall (Clustered Pearson χ^2 tests, $p \leq 0.041$). Columns (5) and (6) of Table 2 confirm parametrically that there is an overall difference in the choices of *payoff motivated* types across treatments. In fact, the increase in *ideologically motivated* choices in the “large groups” treatment is so strong that, in the last five periods, *payoff motivated* types in the “large groups” treatment are about 80% more likely to choose the *ideologically motivated* option compared to those in the “small groups” treatment and there is no longer any significant difference between the choices of *payoff motivated* and *ideologically motivated* types in the “large groups” treatment (Clustered Pearson χ^2 test, $p = 0.014$ and $p = 0.247$, respectively). We summarize these findings in Result 1:

Result 1. *The fraction of ideologically motivated types who choose the ideologically motivated option remains constant over time. In contrast, the fraction of payoff motivated types who choose the ideologically motivated option increases significantly in both treatments. Across treatments, there is no significant difference in choices for ideologically motivated types, but payoff motivated types choose the ideologically motivated option significantly more often in large groups compared to small groups.*

Result 1 directly relates to our predictions. Clearly, it is possible to identify, using an independent classification procedure, which subjects will be more likely to choose the *ideologically motivated* option in Part II. This speaks against the prediction of standard preferences and suggests that some subjects are motivated by ideological preferences. Regarding the question of whether these preferences are fixed or malleable in our context, the findings confirm the predictions of fixed ideological preferences (Prediction 2), but not those of malleable ideological preferences (Prediction 3)—*ideologically motivated* types are equally likely to choose the

ideologically motivated option in both treatments. Fixed ideological preferences also correctly predict that the fraction of *payoff motivated* types who choose the *ideologically motivated* option increases with group size.

4.1.4 Part II – Individual commitment

To better understand what generates the differences in choice dynamics between types, we next explore whether *ideologically motivated* types are systematically more committed to their choices than *payoff motivated* types. Specifically, we study whether the two types differ in their reaction to disagreements and to their beliefs.

Reaction to disagreement. First, we test whether subjects that are classified as *payoff motivated* types are more willing to give in after facing disagreements compared to *ideologically motivated* types. A subject is defined to “give in” when switching from a choice consistent with the subject’s type in the previous period—*payoff motivated* choice for *payoff motivated* types and *ideologically motivated* choice for *ideologically motivated* types—towards a choice inconsistent with the subject’s type in the current period. We find that, in all treatments, *payoff motivated* types are more likely to give in than *ideologically motivated* types and the difference is always statistically significant (SG: 47% vs. 17%, $p = 0.033$; LG: 29% vs. 15%, $p < 0.001$; Clustered Pearson χ^2 tests).²⁶ Switches after disagreement that constitute no such giving in do not show a significant difference (Clustered Pearson χ^2 tests, SG: $p = 0.133$, LG: $p = 0.474$). Unsurprisingly, switching rates after *agreement* are very low (below 2% in both treatments) and not significantly different between types in both treatments (Clustered Pearson χ^2 test, $p > 0.539$).

Reaction to beliefs. Next, we use the elicited incentivized beliefs to study whether *ideologically motivated* types could be more steadfast because their choices are influenced less by their beliefs about the choices of their group members. In each period, we asked subjects how many of their group members they think will choose each of the two option. Figure 3 shows, separately for each treatment, the fraction of subjects’ choices that are consistent with their type, depending on those subjects’ beliefs about how many of their group members will choose the action that is consistent with their type. Type-consistent means that *payoff motivated* (*ideologically motivated*) types choose the *payoff motivated* (*ideologically motivated*) option. For example, the lower left dot in Figure 3(a) represents the fraction of *ideologically motivated* types in the “small groups” treatment who choose the *ideologically motivated* option if they believe that the other group member chooses the *payoff motivated* option, and the upper right triangle in Figure 3(b) represents the fraction with which *payoff motivated* types choose the *payoff motivated* option if they believe that all three other group members also choose the *payoff motivated* option.

Overall, subjects’ choices are clearly correlated with their beliefs: In both treatments, subjects of both types are significantly more likely to choose the option that is consistent with their type, the greater the number of other group members that they believe will also take that option (Spearman’s rho, $\rho \geq 0.637$, $p < 0.001$). Additionally, both types almost always choose their type-consistent option when they believe that all of the other group members choose that option, and their choices in this case do not differ significantly (Clustered Pearson’s χ^2 tests,

²⁶Table A.5 in Appendix A.2 provides details about the calculations.

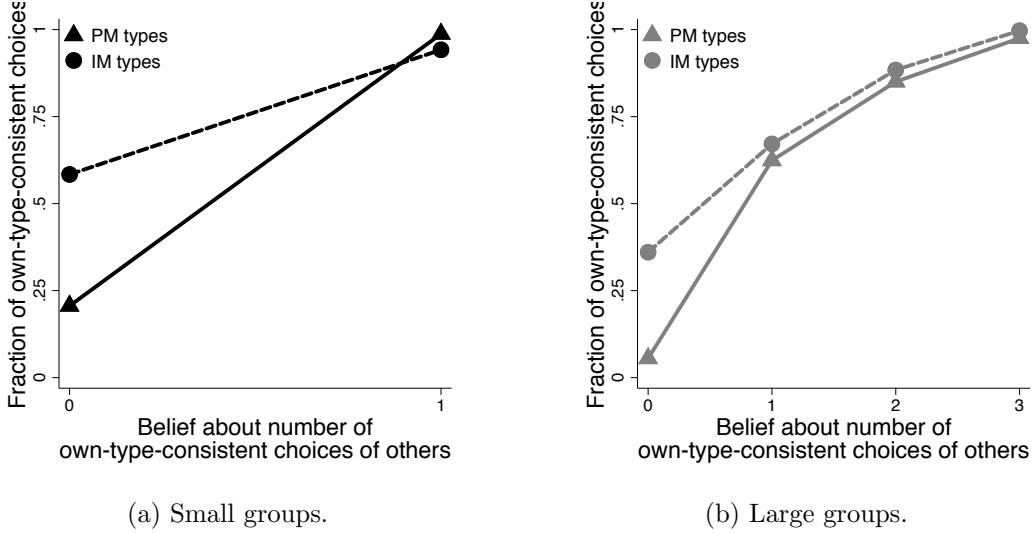


Figure 3: Relationship between beliefs and choices.

SG: $p = 0.451$, LG: $p = 0.105$). However, when subjects believe that *all other* group members choose the option that is inconsistent with their type, *ideologically motivated* types are more likely to still choose their type-consistent option compared to *payoff motivated* types (SG 58% vs 21%; LG: 36% vs 6%). The difference is statistically significant in the “large groups” treatment, but, despite a large effect size, not in the “small groups” treatment (Clustered Pearson’s χ^2 tests, SG: $p = 0.133$, LG: $p < 0.001$).²⁷ We summarize the findings from these analyses in the following result:

Result 2. *Compared to payoff motivated types, ideologically motivated types are more committed to their preferred choice i) after disagreement and ii) when they believe that all other group members will choose differently.*

The result provides an explanation for the difference in choice trends that we identified earlier. Disagreements induce *payoff motivated* types to give in whereas *ideologically motivated* types remain steadfast. In the following, we study how the individual decisions translate into group outcomes and whether group characteristics can, through their effect on disagreement rates, in turn, influence individual behavior.

4.2 Part II – Group-level outcomes

We start our analysis of group outcomes in Part II by describing their frequency—unconditionally and conditional on reaching an agreement. Later, we explore mechanisms by studying how initial disagreements and the group composition affect group outcomes.

4.2.1 Aggregate agreement outcomes

Figure 4 depicts the fractions of the three possible outcomes over the 20 periods of Part II, and Table A.3 in Appendix A.2 provides the corresponding averages over all periods and the four five-period bins including non-parametric tests of treatment differences.

²⁷Table A.6 in Appendix A.2 provides details.

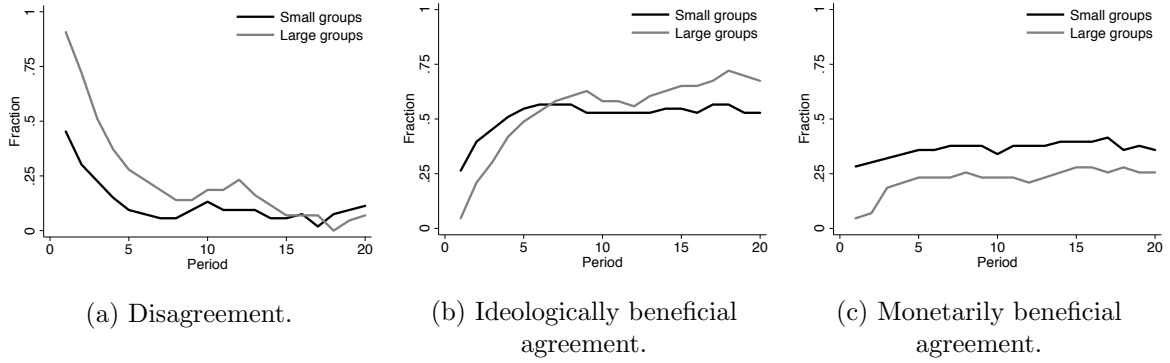


Figure 4: Agreement outcomes in Part II.

In both treatments, we observe several common patterns: First, while many groups disagree initially, disagreement rates fall quickly and significantly over time as more groups agree on an outcome (Spearman’s rho, SG: $\rho = -0.189$, $p < 0.001$; LG: $\rho = -0.438$; $p < 0.001$). Once reached, agreements are very stable, and the probability of a subsequent disagreement is below 3.4% in both treatments. Second, concurrent with the decrease in disagreement rates, we observe a strong and significant increase of ideologically beneficial agreements (Spearman’s rho, SG: $\rho = 0.078$, $p = 0.011$; LG: $\rho = 0.285$, $p < 0.001$). Third, despite starting at levels comparable to ideologically beneficial agreements, the increase in monetarily beneficial agreements over time is much weaker (Spearman’s rho, SG: $\rho = 0.047$, $p = 0.128$; LG: $\rho = 0.105$, $p = 0.002$). In fact, after a small initial increase in the first five periods, the fraction of monetarily beneficial agreements stabilizes at treatment-specific levels and does not change much until the end of Part II. Table 3 reports the corresponding parametric regression results and Result 3 summarizes these patterns.

Result 3. *Disagreement rates decrease over time. The decrease mostly stems from additional agreements on the ideologically beneficial outcome. Agreements on the monetarily beneficial outcome happen mostly immediately with no comparable subsequent increase.*

The panels of Figure 4 also reveal treatment differences in the initial rates and the dynamics of the outcomes. First, initial disagreement rates are significantly lower in small compared to large groups (45% vs 91%; Pearson χ^2 tests, $p < 0.001$). This is not surprising, as it is more likely that the one other group member in the “small groups” treatment initially agrees on which outcome to implement compared to three other group members in the “large groups” treatment. However, over time, disagreement rates fall significantly faster in large groups (see coefficient “Large groups \times Period” in columns (1) and (2) of Table 3) and, in the last five periods, large and small groups both reach insignificantly different disagreement rates below 8% (Wilcoxon ranksum test, $p = 0.641$). Corresponding to the difference in initial disagreement rates, monetarily beneficial and ideologically beneficial agreements are initially significantly less frequent in large groups (Pearson χ^2 tests, $p \leq 0.004$). Over time, the increase in ideologically beneficial agreements is significantly stronger in large compared to small groups (see coefficient “Large groups \times Period” in columns (3) and (4) of Table 3). Therefore, rates of ideologically beneficial agreements in the “large groups” treatment catch up with and overcome those in the “small groups” treatment by 14 percentage points in the last five periods. In stark contrast, the

Table 3: Group outcomes in Part II

Dependent variable:	Disagreement		IB agreement		MB agreement	
	(1)	(2)	(3)	(4)	(5)	(6)
Small groups	0.233***	-0.195	0.445***	0.686	0.322***	0.509
(constant)	(0.046)	(0.380)	(0.060)	(0.770)	(0.063)	(0.777)
Large groups	0.340***	0.343***	-0.162**	-0.152*	-0.178**	-0.191**
	(0.072)	(0.074)	(0.081)	(0.084)	(0.078)	(0.082)
Period	-0.011***	-0.011***	0.007***	0.007***	0.004**	0.004**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Large groups × Period	-0.022***	-0.022***	0.018***	0.018***	0.004	0.004
	(0.004)	(0.004)	(0.005)	(0.005)	(0.003)	(0.003)
Controls	NO	YES	NO	YES	NO	YES
Observations	1920	1920	1920	1920	1920	1920
Clusters	96	96	96	96	96	96
Overall R^2	0.146	0.163	0.040	0.248	0.028	0.264

Notes: Random-effects GLS regressions with group random effects. Robust standard errors clustered on groups in parentheses. Controls include individual characteristics (age, gender, study of economics or business, semester, prior knowledge of NRA) and individual preferences (risk aversion, altruism, trust, patience, positive and negative reciprocity). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

trend in monetarily beneficial agreement rates does not differ significantly across treatments and hence the rate in large groups never catches up with that in small groups (see coefficient “Large groups × Period” in columns (5) and (6) of Table 3).

Result 4. *Groups in the “large groups” treatment are significantly more likely to disagree initially than groups in the “small groups” treatment. The increase in ideologically beneficial agreements over time is significantly stronger in large groups, whereas there is no significant difference in the trend of monetarily beneficial agreements.*

The results suggest that the ratio of ideologically beneficial to monetarily beneficial agreements is higher in large groups. However, the interpretation of any treatment differences in absolute agreement outcomes is confounded by the underlying differences in disagreement rates. Therefore, we next discuss differences in agreement outcomes conditional on reaching an agreement. Conditional on reaching an agreement and averaged over all periods, we find that small groups agree on the ideologically beneficial outcome in 60% of their agreements, whereas large groups do so in 73% of their agreements.²⁸ Thus, the chance of an ideologically beneficial agreement is about 22% higher in large compared to small groups. However, the difference does not reach statistical significance (Wilcoxon ranksum tests, $p = 0.176$). Table 4 regresses treatment dummies on the occurrence of the ideologically beneficial outcome conditional on reaching an agreement and also shows no statistical significance (see columns (1) and (2)).²⁹

²⁸To calculate these averages, we first take, for each group, an average over all the periods in which that group agreed successfully. Then, we take treatment averages over the groups that agreed at least once. Thus, the overall averages reflect which outcomes groups agree on when they agree and are not biased by the frequency with which they agree.

²⁹Since we condition our analysis on reaching an agreement, the results in this section could be confounded by a selection effect if the groups that reach an agreement are different from those that never agree. However, in both treatments all groups at some point agree.

Table 4: Group outcome conditional on a successful agreement

Dependent variable:								
IB agreement	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Small groups	0.597***	0.529	0.483***	0.419	0.158**	0.521	0.051	0.428
(constant)	(0.067)	(0.837)	(0.088)	(0.798)	(0.078)	(0.660)	(0.076)	(0.617)
Large groups	0.128	0.134	0.014	0.018	0.128	0.092	0.018	-0.005
	(0.095)	(0.094)	(0.103)	(0.093)	(0.082)	(0.081)	(0.093)	(0.080)
Initial disagreement			0.251**	0.283***			0.242***	0.240***
			(0.115)	(0.099)			(0.088)	(0.072)
Fraction of IM types					0.831***	0.768***	0.826***	0.734***
					(0.101)	(0.129)	(0.099)	(0.125)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Observations	1.590	1.590	1.590	1.590	1.590	1.590	1.590	1.590
Clusters	96	96	96	96	96	96	96	96
Overall R^2	0.015	0.312	0.068	0.376	0.340	0.508	0.391	0.553

Notes: Random-effects GLS regressions with group random effects. Robust standard errors clustered on groups in parentheses. Controls include individual characteristics (age, gender, study of economics or business, semester, prior knowledge of NRA) and individual preferences (risk aversion, altruism, trust, patience, positive and negative reciprocity). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

4.2.2 The effects of initial disagreements and the group composition

To gain a better understanding of the factors that drive our results, we next explore mechanisms that are based on differences in initial disagreement rates and the group composition.

Initial disagreements. Results 3 and 4 directly relate to our findings on individual decisions. *Ideologically motivated* types tend to be committed and less likely to back down when facing disagreements compared to *payoff motivated* types. Larger groups are more likely to disagree initially and thus should allow *ideologically motivated* types to push groups towards more ideologically beneficial outcomes. In the following, we test whether initial disagreements indeed foster subsequent agreements on the ideologically beneficial outcome and whether this can explain the group size effect. We do so by controlling for whether a group disagreed initially in the regression (see coefficient “Initial disagreement” in columns (3) and (4) of Table 4). Groups that disagree initially indeed are significantly more likely to eventually agree on the ideologically beneficial outcome. Furthermore, when accounting for initial disagreements, the coefficients for the “large groups” treatment are almost zero and far from being statistically significant, which indicates that the difference in initial disagreements can explain the group size effect in agreement outcomes. This yields the next result:

Result 5. *Groups that disagree initially are significantly more likely to agree on the ideologically beneficial outcome compared to groups that agree initially. Large groups initially disagree more often than small groups and, therefore, agree more often on the ideologically beneficial outcome.*

Group composition. Next, we take a closer look at the effects of the group composition. As a measure of group composition, we use the fraction of *ideologically motivated* types in a group.³⁰ First, we study the influence of *ideologically motivated* types on the group outcome

³⁰Our random assignment of individuals to groups and our independent type-classification ensure that the group composition is exogenously and randomly determined and does not suffer from endogeneity problems like selection effects, etc. However, as some group compositions occur only rarely, any results have to be interpreted with caution (see Table A.7 in Appendix A.3).

conditional on agreeing. Clearly, the propensity of agreeing on the ideologically beneficial outcome significantly increases with a rising fraction of *ideologically motivated* types in a group (see coefficient “Fraction of IM types” in columns (5) and (6) of Table 4). Moreover, in heterogeneous groups, ideologically beneficial types seem to have a disproportionately large influence on the agreement outcome. If only one out of four group members in the “large groups” treatment is an *ideologically motivated* type, groups agree on the ideologically beneficial outcome in 57% of all agreements. On the other hand, if one out of four group members is a *payoff motivated* type, those groups agree on the monetarily beneficial outcome in only 8% of all agreements. When half of the group consists of *ideologically motivated* types, the ideologically beneficial outcome is implemented in 64% and 69% of the agreements in small and large groups, respectively. These fractions are significantly greater than 50% when pooling the data from both treatments (Wilcoxon signrank test, $p = 0.012$).³¹ Thus, we conclude:

Result 6. *Ideologically motivated types have a disproportionately large effect on the agreement outcome compared to payoff motivated types.*

Finally, group composition also influences agreement rates. Homogeneous groups, consisting of only one type of group member, are more likely to agree than heterogeneous groups.³² Since small groups are more often homogeneous, this treatment difference in the group composition could both explain differences in initial disagreements and treatment differences in agreement outcomes. Therefore columns (7) and (8) of Table 4 control for initial disagreement and the group composition simultaneously. Notably, both coefficients remain highly significant, which indicates that both factors have an independent influence on the agreement outcome. However, only initial disagreement seems to have a strong explanatory power for the treatment differences in agreement outcomes.

5 Ideological motivation: Robustness tests

The treatments studied thus far show that *ideologically motivated* group members can have a disproportionately large impact on group decision-making processes and that their impact increases in larger groups. Our preferred interpretation of the results is that *ideologically motivated* group members are committed to avoiding the externality, while *payoff motivated* group members are interested in maximizing their monetary payoff and therefore switch to the *ideologically motivated* option after realizing that the alternative is no payoff. However, although the data were collected anonymously, social image concerns, peer pressure, and reputation effects could be greater in larger groups as subjects’ were assigned a letter and their choices were displayed in the same order after each round. Thus, it is an open question whether the development of individual behavior and group outcomes is similar, when social image concerns, peer pressure, and reputation effects are not present.

Another open question concerns relates to the fact that, so far, we only studied situations in which the ideologically beneficial agreement prevents the implementation of an ideologically

³¹Figure A.1(b) and the right column of Table A.8 in Appendix A.2 present the fraction of ideologically beneficial agreements conditional on reaching an agreement depending on treatment and group composition.

³²Figure A.1(a) and the left column of Table A.8 in Appendix A.2 present the fraction of successful agreements depending on treatment and group composition.

undesirable externality. In many circumstances, however, an ideologically beneficial outcome is preferred because it creates an ideologically desirable externality. One may, therefore, ask if the observed effects on individual behavior and group outcomes exist also when the externality is ideologically desirable.

To answer these questions we next report the results of two additional treatments. We first introduce the treatment and report the results pertaining to image concerns and peer effects. Thereafter, we discuss the treatment and the results regarding whether similar effects obtain for ideologically desirable externalities.

5.1 Partial information

5.1.1 Design and procedures

The first additional treatment, which we call the “large groups–partial info” treatment, is identical to the original “large groups” treatment except for one change in the design of Part II. Specifically, while in the “large groups” treatment group members received feedback about all other group members’ choices in addition to the implemented outcome at the end of each period of Part II, in the “large groups–partial info” treatment group members are only informed about the implemented outcome.³³ Thus, subjects in the “large groups–partial info” treatment can only infer the exact choices of others in case of an agreement on an outcome. If group members disagree, subjects neither observe the exact sequence of choices of others, nor can others observe their own choices. Furthermore, subjects also cannot infer the number of group members who disagree with them. Thus, the effects of any channels that work through social image concerns, peer pressure, or reputation effects should be greatly reduced in this treatment. We conducted a total of 9 sessions in 2016 and 2017. All sessions were conducted at the Cologne Laboratory for Economic Research (CLER) of the University of Cologne. In total, 236 student subjects participated in the “large groups–partial info” treatment.³⁴

5.1.2 Results

In the following, we present the results of the “large groups–partial info” treatment in comparison to the “small groups” and the “large groups” treatments with full information.³⁵ If the treatment effects between the “large groups” and the “small groups” treatment were solely driven by the observability of choices, we would expect that the results of the new treatment are similar to those of the “small groups” treatment. If, on the other hand, those effects do not play a large role, then we would expect that the results of the new treatment are similar to those of the “large groups” treatment.

Part I – Type classification. We first note that, in Part I, the distribution and the mean

³³As the choices of each group member are always inferable from the implemented outcome in groups of two independent of whether the exact choices are displayed on the screen, the “small groups” treatment could not be used as a basis for the “partial info” treatment.

³⁴We recruited more subjects for the “large groups–partial info” treatment than for the “large groups” treatment because we expected higher ongoing disagreement rates than in the previous treatments and thus lower power to detect differences conditional on agreement.

³⁵For clarity, we use the abbreviations SG–FI, LG–FI, and LG–PI to denote the “small groups” , the “large groups” , and the “large groups–partial info” treatment, respectively.

of choices in the “large groups–partial info” treatment are highly similar and not significantly different from those in the original “small groups” and the “large groups” treatment (SG–FI vs LG–PI: Kolmogorov-Smirnov test, $p = 0.999$; Wilcoxon ranksum test, $p = 0.828$; LG–FI vs LG–PI: Kolmogorov-Smirnov test, $p = 1.000$; Wilcoxon ranksum test, $p = 0.813$).³⁶ Consequently, the proportion of *ideologically motivated* types is not significantly different compared to the previous treatments (Chi-squared tests, $p \geq 0.790$).

Part II – Individual decisions. Next, we analyze the level and the dynamics of the individual decisions in Part II. Panels 5(a) and 5(b) of Figure 5 show the fraction of subjects who choose the *ideologically motivated* option for all subjects and by type. As is visible from the figures, there exists very little difference in the level and the dynamics over time between the “large groups” and the “large groups–partial info” treatment. This holds for all subjects and both types separately and is confirmed by statistically insignificant differences in nonparametric tests and parametric regressions (see Table A.17 and the last two rows of Table A.18 in Appendix A.5).

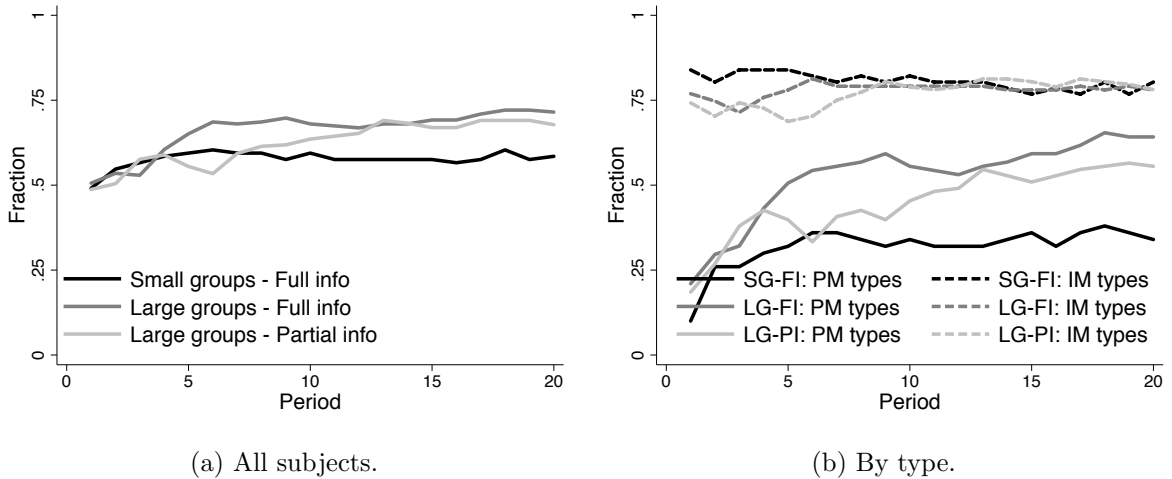


Figure 5: Partial Info: Fraction of *ideologically motivated* choices in Part II.

Furthermore, there does exist a difference in the level and dynamics of choices between the “small groups” and the “large groups–partial info” treatments. As before, *ideologically motivated* types show no statistically different choices in any of the four five-period bins. On the other hand, *payoff motivated* types choose the *payoff motivated* option significantly less often in treatment “large groups–partial info” compared to treatment “small groups” at the end of Part II (for nonparametric tests and parametric regressions, see Table A.17 and Table A.18 in Appendix A.5). We summarize these findings in the following result:

Result 7. *Individuals do not behave significantly differently depending on whether each group member receives information about the choices of all other group members or not.*

Moreover, we again identify the same pattern of reactions after disagreements and towards beliefs. Compared to *payoff motivated* types, *ideologically motivated* types are significantly less likely to “give in” after disagreements (Clustered Person χ^2 test, $p < 0.001$) and significantly

³⁶Figure A.5 in Appendix A.5 shows the full distribution of choices in Part I of the “large groups–partial info” treatment.

more likely to stick to their type-consistent choice if they believe that all other group members choose the opposing choice (Clustered Person χ^2 test, $p = 0.008$).³⁷

Part II – Group level outcomes. As before, we are also interested in potential differences in group outcomes. Panels 6(a)–6(c) of Figure 6 show the development of the three possible outcomes over time. The “large groups–partial info” treatment shares the same dynamic features as the initial treatments: disagreement rates start high and decrease over time, the frequency of ideologically beneficial agreements increases, and the frequency of monetarily beneficial agreements remains flat after a small initial increase. The main difference between the treatments is that providing only partial instead of full feedback information slows down the speed with which groups reach an agreement. Therefore, in all four five-period bins, the rate of disagreements in the “large groups–partial info” treatment is significantly higher compared to the “small groups” as well as the “large groups” treatment (Wilcoxon ranksum tests, $p \leq 0.003$), and, in the last five periods, still 34% of groups in the “large groups–partial info” treatment disagree.

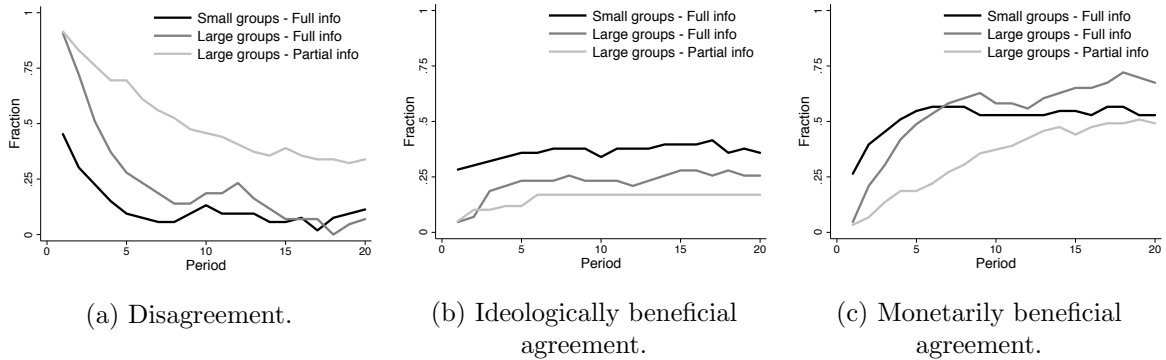


Figure 6: Partial info: Agreement outcomes in Part II.

In all four five-period bins, agreements on the monetarily beneficial outcome in the “large groups–partial info” treatment are significantly less frequent than in the “small groups” treatment (Wilcoxon ranksum tests, $p \leq 0.017$) and not significantly different from the “large groups” treatment (Wilcoxon ranksum tests, $p \geq 0.185$). On the other hand, agreements on the ideologically beneficial outcome catch up with those in the “small groups” treatment in the last five periods (Wilcoxon ranksum test, $p = 0.546$), but don’t reach the same frequency as in the “large groups” treatment (Wilcoxon ranksum test, $p = 0.033$). However, since, after period 6, all newly established agreements in the “large groups–partial info” treatment are on the ideologically beneficial outcome, one could expect that the agreements on the ideologically beneficial outcome eventually would have caught-up with those in the “large groups” treatment.³⁸

As the absolute frequencies of agreement outcomes are influenced by disagreement rates, it is again important to also compare the relative frequency of agreement outcomes conditional on reaching an agreement. Columns (1) and (2) of Table 5 show that groups that agree are (marginally) significantly more likely to agree on the ideologically beneficial outcome in the “large groups–partial info” compared to the “small groups” treatment. The difference between the “large groups–partial info” and the “large groups” treatment is not significant (see the last

³⁷See Table A.19 and Table A.20 in Appendix A.5 for details.

³⁸See Table A.21 in Appendix A.5 for averages and nonparametric tests and Table A.22 for parametric regressions.

Table 5: Partial info: Group outcome conditional on a successful agreement

Dependent variable: IB agreement	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SG-FI	0.597***	-0.028	0.467***	-0.135	0.199***	-0.102	0.078	-0.203
(constant)	(0.067)	(0.610)	(0.084)	(0.586)	(0.076)	(0.583)	(0.071)	(0.557)
LG-FI	0.128	0.158*	-0.002	0.043	0.128	0.138*	0.003	0.029
	(0.095)	(0.089)	(0.101)	(0.090)	(0.082)	(0.079)	(0.090)	(0.079)
LG-PI	0.176*	0.176**	0.051	0.064	0.175**	0.166**	0.056	0.059
	(0.092)	(0.080)	(0.098)	(0.081)	(0.080)	(0.076)	(0.085)	(0.074)
Initial disagreement			0.287***	0.267***			0.275***	0.254***
			(0.103)	(0.083)			(0.075)	(0.064)
Fraction of IM types					0.754***	0.570***	0.746***	0.557***
					(0.094)	(0.123)	(0.090)	(0.117)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Observations	2.169	2.169	2.169	2.169	2.169	2.169	2.169	2.169
Clusters	140	140	140	140	140	140	140	140
Overall R^2	0.012	0.313	0.070	0.362	0.292	0.430	0.346	0.474
LG-FI = LG-PI	0.611	0.831	0.555	0.801	0.587	0.741	0.530	0.712

Notes: Random-effects GLS regressions with group random effects. Robust standard errors clustered on groups in parentheses. Controls include individual characteristics (age, gender, study of economics or business, semester, prior knowledge of NRA) and individual preferences (risk aversion, altruism, trust, patience, positive and negative reciprocity). The last row reports p-values from Wald tests comparing the coefficients of treatments LG-FI and LG-PI. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

row of Table 5). The “large groups–partial info” treatment also replicates that the eventual agreement outcome strongly depends on whether a group disagreed initially (see columns (3) to (4) of Table 5). Again, the treatment effect disappears after controlling for initial disagreement. Furthermore, we again demonstrate that the fraction of *ideologically motivated* types in a group is a significant driver of agreement outcomes, but does not explain treatment differences or the effect of initial disagreements (see columns (5) to (8) of Table 5).

Result 8. *Groups without feedback about each group members choices are significantly slower in reaching an agreement than groups with such feedback. However, conditional on reaching an agreements, large groups without feedback agree on the ideologically beneficial outcome in similar frequencies as large groups with feedback and are significantly more likely to agree on the ideologically beneficial outcome than small groups with feedback.*

Overall, we conclude that we don’t find evidence that revealing the group members’ choices to each other after each period matters for the individual decisions and group agreement outcomes. It is therefore unlikely that peer effects, social image concerns, or reputation effects can explain the findings of Section 4.

5.2 Ideologically desirable externality

To answer the question whether the observed effects on individual behavior and group outcomes exist also when the externality is ideologically desirable, we conducted another treatment. In this treatment, while holding everything else constant as in the “large groups” treatment, implementing the monetarily beneficial outcome produces no externality, but implementing the ideologically beneficial outcome yields a donation to an organization that is ideologically sup-

ported by the *ideologically motivated* types. In the following, we describe the experimental design and the pertaining results.

5.2.1 Design, procedures, and predictions

The new “ideologically aligned” treatment mirrors the “large groups” treatment with four group members in Part II.³⁹ The subjects’ choice options in Part I and Part II, and those choices’ payoff consequences for the subjects, are identical to the “large groups” treatment. However, the “ideologically aligned” treatment differs in one respect. The donation that is generated goes not to the NRA but to the organization “Everytown For Gun Safety”. Everytown is an influential U.S. gun control advocacy organizations. It fights against the unrestricted right of all U.S. citizens to acquire, own, carry, share, and use firearms. As of 2019, Everytown had approximately 5 million members in the U.S.. In Part I, choosing Option 0 to 10 results in a donation of 0 to 10 euro to Everytown (cf. Table 1). In Part II, a donation of 8 euro is generated whenever a group agrees on the ideologically beneficial outcome. Otherwise, no donation is generated. Thus, there again exists a trade-off between a monetarily beneficial agreement and an ideologically beneficial agreement. For ease of exposition, we relabel the “large group” treatment as “ideologically opposed” and use OPP and ALI as the respective treatment abbreviations).⁴⁰

In total, 172 subjects across seven sessions participated in the “ideologically aligned” treatment in 2019. Participants were recruited in the same way and from the same subject pool as before. Subjects that participated in an earlier treatment were not invited. Again, donations were implemented after the sessions and participants could sign up to receive a confirmatory receipt.⁴¹

In terms of predictions, an important strategic difference compared to the previous treatments emerges. Namely, while in the “ideologically opposed” treatment *ideologically motivated* types prefer to disagree and receive a payoff of zero over the implementation of the monetarily beneficial outcome, the same does not hold in the “ideologically aligned” treatment. This is because, in the new treatment, implementing the monetarily beneficial outcome does not generate a negative externality and is thus preferred even by *ideologically motivated* types over disagreeing and receiving no payoff. Therefore, in the “ideologically aligned” treatment, implementing the monetarily beneficial outcome constitutes a second Nash equilibrium even in the presence of *ideologically motivated* types in a group, which could make *ideologically motivated* types more likely to accept the monetarily beneficial agreement, and *payoff motivated* types more likely to insist on it.⁴²

³⁹We choose the “large groups” treatment as a baseline for the new treatment because it generated a greater amount of disagreements in the initial period than the “small groups” treatment while, at the same time, showed that groups can resolve those disagreements over the course of 20 periods.

⁴⁰An English translation as well as the original German instructions for Part I can be found in Appendix B.7.

⁴¹At the time of the other treatments, the University of Cologne had no ethics committee and we could therefore not apply for IRB approval. At the time of the additional treatment, we applied for and received IRB-approval for the “ideologically aligned” as well as the “ideologically opposed” treatment from the ethics committee which was institutionalized by then at the Faculty of Management, Economics, and Social Sciences at the University of Cologne.

⁴²Standard preferences of pure monetary self-interest would predict no difference in choices between the “ideologically aligned” and the “ideologically opposed” treatment, as the generated externality does not matter for subjects’ choices in either case.

5.2.2 Results

In the following, we present the results of the “ideologically aligned” treatment in comparison to the “ideologically opposed” treatment.

Part I – Type classification. In Part I of the “ideologically aligned” treatment, 40.7% of subjects choose the payoff-maximizing option, 50.0% of subjects sacrifice money to increase the donation to Everytown, and 9.3% of subjects give up money to reduce the donation to Everytown.⁴³ The average choice and the distribution of choices in the “ideologically aligned” and the “ideologically opposed” treatment are significantly different (Wilcoxon ranksum test, $p < 0.001$; Kolmogorov-Smirnov test, $p < 0.001$). Specifically, significantly more subjects in the “ideologically aligned” treatment choose the payoff-maximizing option (40.7% vs 29.7%; Chi-squared test, $p = 0.032$). Furthermore, among those subjects that sacrifice money to increase the donation to Everytown in the “ideologically aligned” treatment, the average amount they sacrifice is smaller compared to the amount that subjects in the “ideologically opposed” treatment sacrifice to decrease the donation to the NRA (0.85 euro vs 1.32 euro). Thus, we observe in Part I that, for the same domain (i.e., gun control), subjects exhibit an important difference in behavior depending on whether donations are generated for an ideologically desirable versus an undesirable organization.

Result 9. *Individuals are, on average, significantly less willing to give up own money in order to support an organization that is positively aligned with their ideology than to prevent a donation to an organization in conflict with their ideology.*

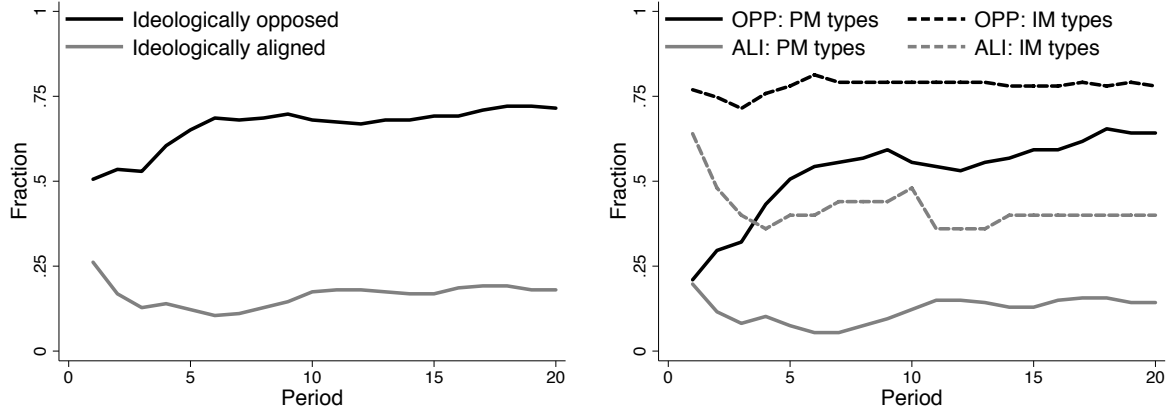
To confirm with the classification in previous treatments, we again classify subjects as *ideologically motivated* types if they are willing to sacrifice the *maximum* amount of money to further their *ideologically motivated* goals—in this case, a donation of 10 euro to Everytown. Since subjects in the “ideologically aligned” treatment are less likely to sacrifice the maximum amount (i.e., choose Option 10), only 14.53% (25 out of 172) of subjects are classified as *ideologically motivated*. The other 85.47% (147 out of 172) of subjects are classified as *payoff motivated*. The difference in proportion of *ideologically motivated* types between the “ideologically aligned” and the “ideologically opposed” treatments is statistically significant (Chi-squared test, $p < 0.001$). This difference in the proportion of the *ideologically motivated* types provides an obvious challenge for our interpretation of the results of Part II and we will therefore control for it.

Part II – Individual decisions. Figure 7 shows the fraction of subjects who choose the *ideologically motivated* option in Part II for all subjects and by type.⁴⁴ In the first period, subjects in the “ideologically aligned” treatment are significantly less likely to choose the *ideologically motivated* option compared to the “ideologically opposed” treatment (26% vs 51%, Pearson χ^2 tests, $p < 0.001$). This difference grows over time and, thus, subjects in the “ideologically aligned” treatment are significantly less likely to choose the *ideologically motivated* option in all four five-period bins (Clustered Pearson χ^2 tests, $p \leq 0.001$).⁴⁵

⁴³See Figure A.7 in Appendix A.6 for the full distribution of choices.

⁴⁴Table A.24 in Appendix A.6 reports the respective average choices in all periods and the four five-period bins, and presents p-values of the respective treatment comparisons.

⁴⁵Columns (1)-(4) of Table A.25 in Appendix A.6 provide parametric regression results.



(a) All subjects.

(b) By type.

Figure 7: Ideological alignment: Fraction of *ideologically motivated* choices in Part II.

When studying the behavior of *payoff motivated* and *ideologically motivated* types separately, we observe that, also in the “ideologically aligned” treatment, *ideologically motivated* types are initially more likely to choose the *ideologically motivated* option compared to *payoff motivated* types (Pearson χ^2 test, $p < 0.001$). However, we observe a different dynamic pattern across treatments. In both previous treatments, the fraction of *ideologically motivated* types who choose the *ideologically motivated* option remained constant, while the respective fraction of *payoff motivated* types increased strongly and significantly. In the “ideologically aligned” treatment, on the other hand, the *payoff motivated* types’ choice of the *ideologically motivated* option starts at similar levels but remains low ($< 20\%$) and constant over all periods, whereas the *ideologically motivated* types’ choice of the *ideologically motivated* option decreases initially and then also remains constant (between 40% and 50%). Statistically, there is no significant trend for both types in the “ideologically aligned” treatment (see row “Period + ALI \times Period=0” of Table A.25 in Appendix A.6). Therefore, compared to the “ideologically opposed” treatment, both types of subjects in the “ideologically aligned” treatment choose the *ideologically motivated* option significantly less often in all five-period bins (Clustered Pearson χ^2 tests, $p \leq 0.002$).⁴⁶

Result 10. *Both payoff motivated and ideologically motivated types are significantly less likely to choose the ideologically motivated option when the externality is ideologically aligned compared to when it is opposed. While the fraction of payoff motivated subjects who choose the ideologically motivated option increases over time in the “ideologically opposed” treatment, we don’t find a similar trend in the “ideologically aligned” treatment.*

One potential explanation for Result 10 is that, due to the significantly different proportions of *ideologically motivated* types in Part I, behavior in Part II could be driven by differences in the group composition between the “ideologically aligned” and the “ideologically opposed” treatment. Indeed, the average fraction of *ideologically motivated* types in a group is significantly smaller in the “ideologically aligned” treatment (Wilcoxon ranksum test, $p < 0.001$). Thus, *ideologically motivated* types are more often in a minority in the “ideologically aligned”

⁴⁶Columns (5)-(12) of Table A.25 in Appendix A.6 provide parametric regression results.

compared to the “ideologically opposed” treatment, which could explain at least part of the large difference in behavior in Part II.

To account for and to measure the strength of this effect, we next control for the fraction of *ideologically motivated* types in a group in our parametric regressions (see Table A.26 in Appendix A.6). The fraction of *ideologically motivated* types is indeed a strongly significant predictor of behavior of both types in Part II. Compared to the regressions without that control, the coefficients for the “ideologically aligned” treatment are about half the size and weaker in terms of statistical significance. Hence, we find clear evidence that the difference in judgment of an “ideologically aligned” compared to an “ideologically opposed” externality, which results in a difference in the fraction of *ideologically motivated* types, drives about half of the treatment effect. The remaining effect could be driven by the strategic difference between the two treatments as mentioned before.

Part II – Group level outcomes. Next, we study how group agreement outcomes evolve in the “ideologically aligned” treatment. Figure 8 depicts the fractions of the three outcomes over the 20 periods of Part II.⁴⁷ As in the other two treatments, disagreement rates in the “ideologically aligned” treatment start high and fall quickly over time. Regarding agreement outcomes, we observe a strong initial increase of monetarily beneficial agreements in the first five periods, but no significant trend thereafter (Spearman’s rho, $period \leq 5$: $\rho = 0.267$, $p < 0.001$; $period > 5$: $\rho = 0.029$, $p = 0.460$). On the other hand, ideologically beneficial agreements do not increase significantly in the first five periods, but do so (at a slow pace) thereafter (Spearman’s rho, $Period \leq 5$: $\rho = 0.103$, $p = 0.133$; $Period > 5$: $\rho = 0.125$, $p = 0.002$).

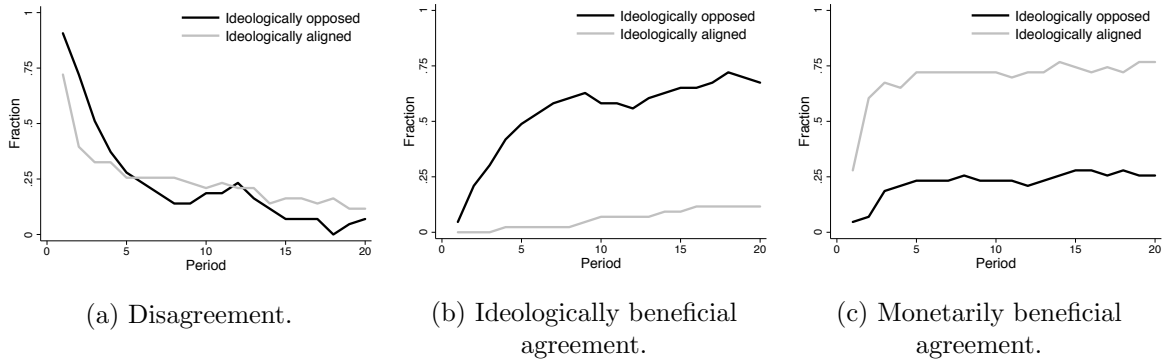


Figure 8: Additional treatment: Agreement outcomes in Part II.

Across treatments, disagreement rates are similar and not statistically significant after the first five periods (Wilcoxon ranksum tests, $p \geq 0.873$). However, the pattern of agreement outcomes is almost reversed in the two treatments. Over all periods, groups agree on the monetarily beneficial outcome significantly more often in the “ideologically aligned” treatment (70% vs 22%; Wilcoxon ranksum test, $p < 0.001$), while they agree on the ideologically beneficial outcome significantly less often (6% vs 54%; Wilcoxon ranksum test, $p < 0.001$).⁴⁸ The same pattern emerges when looking at agreement outcomes *conditional* on reaching an agreement. When they agree, groups in the “ideologically aligned” treatment agree on the ideologically

⁴⁷Table A.27 in Appendix A.6 provides the corresponding averages over all periods and the four five-period bins including non-parametric tests of treatment differences.

⁴⁸Table A.28 in Appendix A.6 presents the corresponding parametric regression results.

beneficial outcome in only 13% of their agreements, compared to 73% in the “ideologically opposed” treatment (Wilcoxon ranksum tests, $p < 0.001$).⁴⁹

Result 11. *Groups agree significantly less often on the ideologically beneficial outcome when it implements an ideologically aligned externality compared to when it prevents an ideologically opposed externality.*

This result could again be driven, first, by a difference in disagreements and, second, by a difference in the group composition between the two treatments. In Column (3) and (4) of Table A.29 in Appendix A.6, we control for the rate of initial disagreements in Part II. Initial disagreements indeed again have a significant positive effect on agreements on the *ideologically motivated* outcome. However, as opposed to the comparison between large and small groups, initial disagreements do not explain the treatment differences. Columns (5) to (8) of Table A.29 control for the fraction of *ideologically motivated* types in a group. The fraction has again a large and significant impact on the groups’ agreement outcomes and explains about half of the treatment difference.

We conclude that the type of externality has an important effect on individual decisions and group agreement outcomes. To a large degree, the effect is driven by the fact that individuals’ psychological costs from implementing an “ideologically opposed” externality seem much greater than their psychological benefits from implementing an equally-sized but “ideologically aligned” externality.

6 Discussion and conclusion

We study how groups of diversely motivated individuals reach agreements when there exists a trade-off between monetarily and ideologically beneficial outcomes. We find that, if groups disagree, *ideologically motivated* types are steadfast in their insistence on the ideologically beneficial outcome, whereas *payoff motivated* types, who would prefer the monetarily beneficial outcome, eventually back down. Since randomly formed larger groups more often entail a committed *ideologically motivated* type, *payoff motivated* types within larger groups are significantly more likely to agree on the ideologically beneficial outcome, whereas there is no group size effect for *ideologically motivated* types. These findings are consistent with fixed but not with malleable ideological preferences. An additional treatment replicates the initial findings and shows that social image concerns, peer pressure, or reputation effects are unlikely to explain the group size effect.

Our results suggest that, for decisions involving an ideological element, ideologically motivated group members can have an outsized influence on group decisions, and that their influence potentially increases with the group size. These results are important in a world in which more and more decisions are viewed through an ideological lens and offer practical lessons for designing decision-making groups. For example, when designing committees, one could manipulate the likelihood with which a given committee contains an ideologically motivated member depending on whether more or less ideologically beneficial outcomes are the goal. When types are

⁴⁹See Column (1) and (2) of Table A.29 in Appendix A.6 for the corresponding parametric regression results.

unobservable, this could be achieved by manipulating the group size, as we did. When types are observable, our results suggest that, if the ideologically beneficial outcome is favored, it is best to distribute the *ideologically motivated* types across many committees as the marginal impact of the first *ideologically motivated* type in a group is largest.

Moreover, our results advice caution for outside observers who attempt to draw conclusions about a group’s type-composition after observing a group decision outcome. In our setting, groups that agree on the monetarily beneficial outcome typically consist mostly of *payoff motivated* types. However, observing an agreement on the ideologically beneficial outcome is not necessarily informative about the group members’ motivation as the majority of group members might simply be *payoff motivated* members who act strategically. Similar strategic ideological behavior has recently been observed in CEOs, who publicly voice left-leaning and progressive opinions, potentially aiming to increase their company’s and their own profit, while privately holding right-leaning and conservative views (Gangopadhyay and Homroy, 2021).

In a final treatment, we find evidence that people care much more about the prevention of an ideologically opposed externality than about the implementation of an ideologically desired externality. Thus, already in Part I, much fewer participants are typed as ideologically motivated in the new treatment. This finding, which is independent of strategic reasoning, is evocative of outcome asymmetries in other domains, such as loss aversion (Kahneman and Tversky, 1979) and the omission bias (Spranca et al., 1991). From an applied perspective, the finding could explain why many people are willing to protest against coal and nuclear power plants, while much fewer protest for the erection of wind turbines. It is also in line with recent experimental evidence on responsible investment choices, which shows that investors react more when investments have negative compared to equally-sized but positive externalities (Humphrey et al., 2022), and it coincides with survey evidence on political motivation: For example, in Pew Research Center (2016) the authors conclude that “far more Republicans and Democrats strongly reject the other party’s label than enthusiastically embrace their own.” Furthermore, among independents, more than half of those that lean towards one party cite harm from the opposing party’s policies as a major reason for their tendency. On the other hand, only about one third of such leaners cite the positive effects from their preferred party’s policies as a major reason.

The finding is also informative for the experimental literature on moral behavior. Many of the studies in this literature use the prevention of a positive externality in the form of a donation to a positively perceived charity, such as in our “ideologically aligned” treatment, as a proxy for immoral or anti-social behavior, e.g., in the contexts of corruption (Lambsdorff and Frank, 2010, Abbink and Wu, 2017) or market externalities (Irlenbusch and Saxler, 2015, Kirchler et al., 2016, Bartling and Özdemir, 2017, Sutter et al., 2020, Falk et al., 2020). Our results show that individuals act decidedly differently in individual and group settings when the negative externality is the prevention of a “good” outcome compared to the implementation of a “bad” outcome. Therefore, whether the prevention of a good outcome is a good proxy for immoral behavior very much depends on the specific research question and the strategic setting of the experiment.

Our study presents a starting point for the investigation of the impact of ideological motives on group decision-making. Future research could investigate the role of communication, how

groups containing opposing ideological types reach decisions, and whether our findings differ for other types of externalities and decision rules.

References

- ABBINK, K. AND K. WU (2017): “Reward self-reporting to deter corruption: An experiment on mitigating collusive bribery,” *Journal of Economic Behavior & Organization*, 133, 256–272.
- ABRAMOWITZ, A. I. (2010): *The Disappearing Center*, New Haven, CT: Yale University Press.
- AI, C. AND E. C. NORTON (2003): “Interaction terms in logit and probit models,” *Economics Letters*, 80, 123–129.
- ALLCOTT, H., L. BOXELL, J. CONWAY, M. GENTZKOW, M. THALER, AND D. YANG (2020): “Polarization and public health: Partisan differences in social distancing during the coronavirus pandemic,” *Journal of Public Economics*, 191, 104254.
- AMBRUS, A., B. GREINER, AND P. A. PATHAK (2015): “How individual preferences are aggregated in groups: An experimental study,” *Journal of Public Economics*, 129, 1–13.
- ARIELY, D., A. BRACHA, AND S. MEIER (2009): “Doing Good or Doing Well? Image Motivation and Monetary Incentives in Behaving Prosocially,” *American Economic Review*, 99, 544–555.
- AUTOR, D., D. DORN, G. HANSON, AND K. MAJLESI (2020): “Importing political polarization? The electoral consequences of rising trade exposure,” *American Economic Review*, 110, 3139–3183.
- BARTLING, B. AND U. FISCHBACHER (2012): “Shifting the blame: on delegation and responsibility,” *Review of Economic Studies*, 79, 67–87.
- BARTLING, B. AND Y. ÖZDEMİR (2017): “The Limits to Moral Erosion in Markets: Social Norms and the Replacement Excuse,” *CESifo Working Paper*, 6696.
- BEHNK, S., L. HAO, AND E. REUBEN (2020): “Shifting normative views: On why groups behave more antisocially than individuals,” *NYU Abu Dhabi Working Paper*.
- BÉNABOU, R. (2008): “Ideology,” *Journal of the European Economic Association*, 6, 321–352.
- BÉNABOU, R. AND J. TIROLE (2016): “Mindful economics: The production, consumption, and value of beliefs,” *Journal of Economic Perspectives*, 30, 141–164.
- BERDEJÓ, C. AND D. L. CHEN (2017): “Electoral cycles among US courts of appeals judges,” *Journal of Law and Economics*, 60, 479–496.
- BOXELL, L., M. GENTZKOW, AND J. SHAPIRO (2021): “Cross-Country Trends in Affective Polarization,” *NBER Working Paper Series*, 26669.
- BRISCOE, F. AND A. GUPTA (2016): “Social Activism in and Around Organizations,” *Academy of Management Annals*, 10, 671–727.
- CASON, T. N. AND V.-L. MUI (1997): “A Laboratory Study of Group Polarisation in the Team Dictator Game,” *The Economic Journal*, 107, 1465–1483.

- CASSAR, L. (2019): “Job Mission as a Substitute for Monetary Incentives: Benefits and Limits,” *Management Science*, 65, 896–912.
- CHARNESS, G., U. GNEEZY, AND B. HALLADAY (2016): “Experimental methods: Pay one or pay all,” *Journal of Economic Behavior and Organization*, 131, 141–150.
- CHARNESS, G. AND M. SUTTER (2012): “Groups Make Better Self-Interested Decisions,” *Journal of Economic Perspectives*, 26, 157–176.
- CHEN, D. L., M. MICHAELI, AND D. SPIRO (2016): “Ideological Perfectionism,” *TSE Working Paper*.
- CHIN, M. K., D. C. HAMBRICK, AND L. K. TREVIÑO (2013): “Political Ideologies of CEOs: The Influence of Executives’ Values on Corporate Social Responsibility,” *Administrative Science Quarterly*, 58, 197–232.
- COLONNELLI, E., V. PINHO NETO, AND E. TESO (2020): “Politics At Work,” *Working Paper*.
- CONRADS, J., B. IRLBUSCH, R. M. RILKE, AND G. WALKOWITZ (2013): “Lying and team incentives,” *Journal of Economic Psychology*, 34, 1–7.
- CRAWFORD, V. P. (1995): “Adaptive Dynamics in Coordination Games,” *Econometrica*, 63, 103–143.
- DANA, J., R. A. WEBER, AND J. X. KUANG (2007): “Exploiting moral wiggle room: experiments demonstrating an illusory preference for fairness,” *Economic Theory*, 33, 67–80.
- DANILOV, A., T. BIEMANN, T. KRING, AND D. SLIWKA (2013): “The dark side of team incentives: Experimental evidence on advice quality from financial service professionals,” *Journal of Economic Behavior and Organization*, 93, 266–272.
- DELLAVIGNA, S. AND D. POPE (2018): “What Motivates Effort? Evidence and Expert Forecasts,” *The Review of Economic Studies*, 85, 1029–1069.
- DIMANT, E. (2021): “Hate Trumps Love: The Impact of Political Polarization on Social Preferences,” *CESifo Working Paper*, 9073.
- DRACA, M. AND C. SCHWARZ (2021): “How Polarized are Citizens? Measuring Ideology from the Ground-Up,” *Working Paper*.
- ECKEL, C. C. AND P. J. GROSSMAN (1996): “Altruism in anonymous dictator games,” *Games and Economic Behavior*, 16, 181–191.
- ENKE, B., R. RODRIGUEZ-PADILLA, AND F. ZIMMERMANN (2020): “Moral Universalism and the Structure of Ideology,” *NBER Working Paper Series*, 27511.
- FALK, A., A. BECKER, T. DOHMEN, D. HUFFMAN, AND U. SUNDE (2016): “The Preference Survey Module: A Validated Instrument for Measuring Risk, Time, and Social Preferences,” *IZA Discussion Paper Series*, 9674.

- FALK, A., T. NEUBER, AND N. SZECH (2020): “Diffusion of Being Pivotal and Immoral Outcomes,” *The Review of Economic Studies*, 87, 2205–2229.
- FESTINGER, L. (1957): *A Theory of Cognitive Dissonance*, Redwood City, CA: Stanford University Press.
- FISCHBACHER, U. (2007): “z-Tree: Zurich toolbox for ready-made economic experiments,” *Experimental Economics*, 10, 171–178.
- FOS, V., E. KEMPF, AND M. TSOUTSOURA (2021): “The Political Polarization of U.S. Firms,” *Working Paper*.
- FRIEDKIN, N. E. (1999): “Choice Shift and Group Polarization,” *American Sociological Review*, 64, 856–875.
- GANGOPADHYAY, S. AND S. HOMROY (2021): “Strategic CEO Activism in Polarized Markets,” *Working Paper*.
- GENNAIOLI, N. AND A. SHLEIFER (2007): “The evolution of common law,” *Journal of Political Economy*, 115, 43–68.
- GENTZKOW, M. AND J. M. SHAPIRO (2011): “Ideological segregation online and offline,” *Quarterly Journal of Economics*, 126, 1799–1839.
- GINO, F., S. AYAL, AND D. ARIELY (2009): “Contagion and Differentiation in Unethical Behavior,” *Psychological Science*, 20, 393–398.
- (2013): “Self-serving altruism? The lure of unethical actions that benefit others,” *Journal of Economic Behavior & Organization*, 93, 285–292.
- GOEREE, J. K. AND L. YARIV (2011): “An Experimental Study of Collective Deliberation,” *Econometrica*, 79, 893–921.
- GOLMAN, R., G. LOEWENSTEIN, K. O. MOENE, AND L. ZARRI (2016): “The preference for belief consonance,” *Journal of Economic Perspectives*, 30, 165–187.
- GREINER, B. (2015): “Subject pool recruitment procedures: organizing experiments with ORSEE,” *Journal of the Economic Science Association*, 1, 114–125.
- GROSSMAN, G., S. KIM, J. M. REXER, AND H. THIRUMURTHY (2020): “Political partisanship influences behavioral responses to governors’ recommendations for COVID-19 prevention in the United States,” *Proceedings of the National Academy of Sciences of the United States of America*, 117, 24144–24153.
- GUPTA, A., F. BRISCOE, AND D. C. HAMBRICK (2017): “Red, blue, and purple firms: Organizational political ideology and corporate social responsibility,” *Strategic Management Journal*, 38, 1018–1040.

- GUPTA, A., A. FUNG, AND C. MURPHY (2021): “Out of character: CEO political ideology, peer influence, and adoption of CSR executive position by Fortune 500 firms,” *Strategic Management Journal*, 42, 529–557.
- HADT, J. (2021): *The Righteous Mind: Why Good People are Divided by Politics and Religion*, Pantheon Books.
- HAMBRICK, D. C. AND A. J. WOWAK (2021): “CEO sociopolitical activism: A stakeholder alignment model,” *Academy of Management Review*, 46, 33–59.
- HAMMAN, J. R., G. LOEWENSTEIN, AND R. A. WEBER (2010): “Self-Interest through Delegation: An Additional Rationale for the Principal-Agent Relationship,” *American Economic Review*, 100, 1826–1846.
- HARSANYI, J. C. AND R. SELTEN (1988): *A General Theory of Equilibrium Selection in Game*, Cambridge, MA: MIT Press.
- HEINEMANN, F., R. NAGEL, AND P. OCKENFELS (2009): “Measuring Strategic Uncertainty in Coordination Games,” *Review of Economic Studies*, 76, 181–221.
- HOANG, T., P. T. H. NGO, AND L. ZHANG (2021): “Polarized Corporate Boards,” *Working Paper*.
- HUMPHREY, J., S. KOGAN, J. SAGI, AND L. STARKS (2022): “The Asymmetry in Responsible Investing Preferences,” *NBER Working Paper Series*, 29288.
- IMAS, A. (2014): “Working for the “warm glow”: On the benefits and limits of prosocial incentives,” *Journal of Public Economics*, 114, 14–18.
- INGRAHAM, C. (2018): “Nobody knows how many members the NRA has, but its tax returns offer some clues,” *Washington Post*.
- IRLENBUSCH, B. AND D. SAXLER (2015): “Social responsibility in market interaction,” *IZA Discussion Paper*, 9240.
- ISENBERG, D. J. (1986): “Group polarization: A critical review and meta-analysis,” *Journal of Personality and Social Psychology*, 50, 1141–1151.
- IYENGAR, S., Y. LELKES, M. LEVENDUSKY, N. MALHOTRA, AND S. J. WESTWOOD (2019): “The origins and consequences of affective polarization in the United States,” *Annual Review of Political Science*, 22, 129–146.
- IYENGAR, S. AND S. J. WESTWOOD (2015): “Fear and Loathing across Party Lines: New Evidence on Group Polarization,” *American Journal of Political Science*, 59, 690–707.
- JENKINS, J. A. (2000): “Examining the Robustness of Ideological Voting: Evidence from the Confederate House of Representatives,” *American Journal of Political Science*, 44, 811.
- KAHNEMAN, D. AND A. TVERSKY (1979): “Prospect Theory: An Analysis of Decision under Risk,” *Econometrica*, 47, 263–291.

- KAJACKAITE, A. (2015): “If I close my eyes, nobody will get hurt: The effect of ignorance on performance in a real-effort experiment,” *Journal of Economic Behavior and Organization*, 116, 518–524.
- KALT, J. P. AND M. A. ZUPAN (1990): “The Apparent Ideological Behavior of Legislators: Testing for Principal-Agent Slack in Political Institutions,” *The Journal of Law and Economics*, 33, 103–131.
- KAPLAN, M. F. AND C. E. MILLER (1987): “Group Decision Making and Normative Versus Informational Influence: Effects of Type of Issue and Assigned Decision Rule,” *Journal of Personality and Social Psychology*, 53, 306–313.
- KHAN, R., K. MISRA, AND V. SINGH (2013): “Ideology and Brand Consumption,” *Psychological Science*, 24, 326–333.
- KIRCHLER, M., J. HUBER, M. STEFAN, AND M. SUTTER (2016): “Market design and moral behavior,” *Management Science*, 62, 2615–2625.
- KNEZ, M. AND C. CAMERER (2000): “Increasing Cooperation in Prisoner’s Dilemmas by Establishing a Precedent of Efficiency in Coordination Games,” *Organizational Behavior and Human Decision Processes*, 82, 194–216.
- KOCHER, M. G., S. SCHUDY, AND L. SPANTIG (2018): “I Lie? We Lie! Why? Experimental Evidence on a Dishonesty Shift in Groups,” *Management Science*, 64, 3995–4008.
- KUGLER, T., E. E. KAUSEL, AND M. G. KOCHER (2012): “Are groups more rational than individuals? A review of interactive decision making in groups,” *Wiley Interdisciplinary Reviews: Cognitive Science*, 3, 471–482.
- LAMBSDORFF, J. G. AND B. FRANK (2010): “Bribing versus gift-giving—An experiment,” *Journal of Economic Psychology*, 31, 347–357.
- LEVITT, S. D. (1996): “How Do Senators Vote? Disentangling the Role of Voter Preferences, Party Affiliation, and Senator Ideology,” *American Economic Review*, 86, 425–441.
- LUHAN, W. J., M. G. KOCHER, AND M. SUTTER (2009): “Group polarization in the team dictator game reconsidered,” *Experimental Economics*, 12, 26–41.
- MATZ, D. C. AND W. WOOD (2005): “Cognitive dissonance in groups: The consequences of disagreement,” *Journal of Personality and Social Psychology*, 88, 22–37.
- MCCARTY, N., K. T. POOLE, AND H. ROSENTHAL (2006): *Polarized America: The Dance of Ideology and Unequal Riches*, Cambridge, MA: MIT Press.
- MEEUWIS, M., J. PARKER, A. SCHOAR, AND D. SIMESTER (2021): “Belief Disagreement and Portfolio Choice,” *NBER Working Paper Series*, 25108.
- MERLO, A. AND Á. DE PAULA (2017): “Identification and estimation of preference distributions when voters are ideological,” *Review of Economic Studies*, 84, 1238–1263.

- MYERS, D. G. AND H. LAMM (1976): “The group polarization phenomenon,” *Psychological Bulletin*, 83, 602–627.
- PEW RESEARCH CENTER (2016): “Partisanship and Political Anomosity in 2016,” .
- (2017): “America’s Complex Relationship With Guns,” .
- POOLE, K. T. AND H. ROSENTHAL (1997): *Congress: A Political-Economic History of Roll Call Voting*, New York: Oxford University Press.
- ROBBETT, A. AND P. H. MATTHEWS (2021): “Polarization and Group Cooperation,” *Working Paper*.
- SCHELLING, T. C. (1980): *The Strategy of Conflict*, Cambridge, MA: Harvard University Press.
- SHALHOPE, R. E. (1982): “The Ideological Origins of the Second Amendment,” *Journal of American History*, 69, 599–614.
- SHALVI, S., J. DANA, M. J. J. HANDGRAAF, AND C. K. W. DE DREU (2011): “Justified ethicality: Observing desired counterfactuals modifies ethical perceptions and behavior,” *Organizational Behavior and Human Decision Processes*, 115, 181–190.
- SORAPERRA, I., O. WEISEL, R. ZULTAN, S. KOCHAVI, M. LEIB, H. SHALEV, AND S. SHALVI (2017): “The bad consequences of teamwork,” *Economics Letters*, 160, 12–15.
- SPRANCA, M., E. MINSK, AND J. BARON (1991): “Omission and commission in judgment and choice,” *Journal of Experimental Social Psychology*, 27, 76–105.
- SUNSTEIN, C. R. (1999): “The law of group polarization,” 10, 175–195.
- SUNSTEIN, C. R., D. SCHKADE, L. M. ELLMAN, AND A. SAWICKI (2007): *Are judges political?: an empirical analysis of the federal judiciary*, Brookings Institution Press.
- SUTTER, M. (2009): “Deception through telling the truth?! Experimental evidence from individuals and teams,” *Economic Journal*, 119, 47–60.
- SUTTER, M., J. HUBER, M. KIRCHLER, M. STEFAN, AND M. WALZL (2020): “Where to Look for the Morals in Markets?” *Experimental Economics*, 23, 30–52.
- VAN HUYCK, J. B., R. C. BATTALIO, AND R. O. BEIL (1990): “Tacit Coordination Games, Strategic Uncertainty, and Coordination Failure,” *American Economic Review*, 80, 234–248.
- WEBER, R. (2006): “Managing Growth to Achieve Efficient Coordination in Large Groups,” *American Economic Review*, 96, 114–126.
- WEISEL, O. AND S. SHALVI (2015): “The collaborative roots of corruption,” *Proceedings of the National Academy of Sciences*, 112, 10651–10656.
- ZUBER, J. A., H. W. CROTT, AND J. WERNER (1992): “Choice Shift and Group Polarization: An Analysis of the Status of Arguments and Social Decision Schemes,” *Journal of Personality and Social Psychology*, 62, 50–61.

A Additional results [Online Appendix]

A.1 Additional results for Part I

Table A.1: Correlations of individual characteristics with the classification as *ideologically motivated* type

	ρ	p-value
Age	-0.038	(0.531)
Female	0.128	(0.034)
Master	-0.110	(0.069)
Semester	0.004	(0.951)
Business & economics	-0.088	(0.142)
Knowledge of NRA	0.012	(0.839)
Risk	0.074	(0.217)
Patience	0.020	(0.742)
Altruism	0.346	(0.000)
Avg. trust	0.144	(0.017)
Avg. pos. reciprocity	0.123	(0.040)
Avg. neg. reciprocity	-0.012	(0.842)

Notes: The table reports Spearman's rank correlation coefficients. P-values in parentheses.

A.2 Additional results from Part II

Table A.2: Fraction of *ideologically motivated* choices in Part II

Treatment / Periods	All subjects				<i>Ideologically motivated</i> types				<i>Payoff motivated</i> types						
	All	1-5	6-10	11-15	16-20	All	1-5	6-10	11-15	16-20	All	1-5	6-10	11-15	16-20
Small groups (n=106)	.58 (.04)	.56 (.04)	.59 (.05)	.58 (.05)	.58 (.05)	.81 (.05)	.83 (.04)	.81 (.05)	.79 (.05)	.79 (.05)	.32 (.06)	.25 (.05)	.34 (.07)	.33 (.06)	.35 (.06)
Large groups (n=172)	.66 (.03)	.57 (.03)	.69 (.03)	.68 (.03)	.71 (.03)	.78 (.04)	.75 (.04)	.80 (.04)	.79 (.04)	.78 (.04)	.53 (.04)	.35 (.04)	.56 (.05)	.56 (.05)	.63 (.05)
SG vs LG	0.286	0.902	0.270	0.232	0.138	0.742	0.248	0.826	0.945	0.990	0.031	0.209	0.041	0.040	0.014

Notes: The top shows averages over all periods and the respective five-period bins, and, in parentheses, standard errors. The last row presents p-values from Pearson χ^2 tests with adjustment for group clusters.

Table A.3: Fraction of outcomes

	Disagreement				Ideologically beneficial agreement				Monetarily beneficial agreement						
	All	1-5	6-10	11-15	16-20	All	1-5	6-10	11-15	16-20	All	1-5	6-10	11-15	16-20
Small groups (N=53)	.12 (.03)	.25 (.05)	.08 (.03)	.08 (.03)	.08 (.03)	.52 (.06)	.43 (.06)	.55 (.07)	.54 (.07)	.54 (.07)	.36 (.06)	.32 (.06)	.37 (.07)	.38 (.07)	.38 (.07)
Large groups (N=43)	.23 (.03)	.56 (.05)	.18 (.04)	.16 (.05)	.05 (.02)	.54 (.06)	.29 (.05)	.59 (.07)	.60 (.07)	.68 (.07)	.22 (.06)	.15 (.05)	.24 (.06)	.24 (.06)	.27 (.07)
SG vs LG	0.000	0.000	0.042	0.125	0.641	0.644	0.111	0.801	0.499	0.140	0.064	0.049	0.237	0.160	0.185

Notes: The top shows averages over all periods and the respective five-period bins, and, in parentheses, standard errors. The last row presents p-values from Wilcoxon ranksum tests. We use the fraction of periods in which a group reached the respective outcome as the independent unit of observation.

Table A.4: Individual choices in Part II

Dependent variable:	All subjects				
	IM choice	(1)	(2)	(3)	(4)
Small groups	0.576***	0.424*	0.561***	0.409	
(constant)	(0.061)	(0.249)	(0.057)	(0.252)	
Large groups	0.084	0.095	0.006	0.017	
	(0.084)	(0.077)	(0.075)	(0.068)	
Period			0.001	0.001	
			(0.002)	(0.002)	
Large groups \times Period			0.007**	0.007**	
			(0.003)	(0.003)	
Controls	NO	YES	NO	YES	
Observations	5.560	5.560	5.560	5.560	
Clusters	96	96	96	96	
Overall R^2	0.007	0.093	0.014	0.100	

Notes: Random-effects GLS regressions with individual random effects. Robust standard errors clustered on groups in parentheses. Controls include individual characteristics (age, gender, study of economics or business, semester, prior knowledge of NRA) and individual preferences (risk aversion, altruism, trust, patience, positive and negative reciprocity). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.5: Probability of “giving in” after disagreement by type

	Small groups	Large groups
PM type	.47	.29
	[21]	[66]
IM type	.17	.15
	[22]	[71]
p-value	.033	.000

Notes: Averages are calculated by first taking individual averages over all periods in which an individual faced disagreement and then taking type averages over all respective individual averages. In brackets is the number of individuals who faced the respective situation at least once. p-values are based on Pearson χ^2 tests on the underlying choice data with adjustment for group clusters.

Table A.6: Reaction to type-consistent beliefs

Belief / Type	Small groups		Large groups			
	0	1	0	1	2	3
PM type	.21	.99	.06	.62	.85	.98
	[25]	[44]	[59]	[50]	[50]	[67]
IM type	.58	.94	.36	.67	.88	1.00
	[32]	[52]	[52]	[54]	[53]	
p-value	0.133	0.452	0.000	0.472	0.439	0.105

Notes: Averages are calculated by first taking individual averages over all periods in which an individual stated the respective belief and then taking type averages over all individual averages. Thus, the overall averages reflect how individuals react to certain beliefs and are not biased by the frequency with which they stated a belief. In brackets is the number of individuals who inserted the respective belief at least once. p-values are based on Pearson χ^2 tests on the underlying choice data with adjustment for group clusters.

A.3 Group composition effects

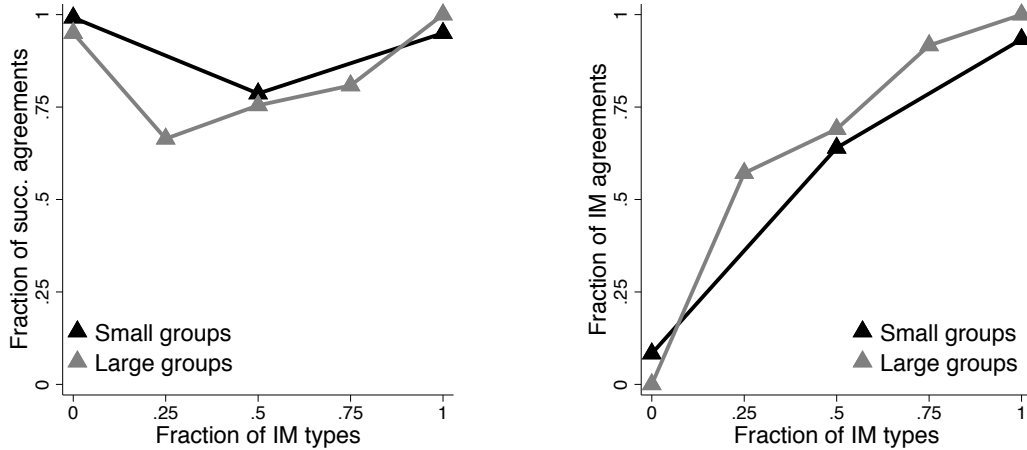
Table A.7: Frequency of different group compositions per treatment

	Fraction of IM type				
	0	0.25	0.5	0.75	1
Small groups	12	-	26	-	15
Large groups	1	7	22	12	1

Table A.8: Group composition effects on group outcomes

Fraction	Successful agreements					Cond. IB agreement				
	0	0.25	0.5	0.75	1	0	0.25	0.5	0.75	1
Small groups	.99	-	.79	-	.95	.08	-	.64	-	.93
Large groups	.95	.66	.76	.81	1	0	.57	.69	.92	1

Notes: Averages are calculated by first taking group averages over all periods with successful agreement and then taking treatment averages over all group averages. This ensures that the overall averages reflect what groups agreed on and are not biased by how many periods they agreed on it.



(a) Successful agreements.

(b) Conditional IM agreements.

Figure A.1: Group composition effects on group outcomes.

A.4 Weaker *ideologically motivated* type classification

In the following, we check whether our results are robust to a weaker classification of *ideologically motivated* types. *Ideologically motivated* type are now all those subjects that chose to donate 4 euro or less to the NRA in Part I (by choosing Option 0-4). Thus, *payoff motivated* types are all those that maximized their personal payoff in Part I by choosing Option 5 (and two subjects that chose Option 6). As in the main classification, there is no significant difference in the distribution of types between the two treatments (Chi-squared test, $p = 0.956$).

Table A.9: Weaker classification: Absolute and relative frequencies of types

	PM type	IM type
Small groups (n=106)	33 (31.1%)	73 (68.9%)
Large groups (n=172)	53 (30.8%)	119 (69.2%)
Total	86 (30.9%)	192 (69.1%)

Table A.10: Weaker classification: Correlations of individual characteristics with the classification as IM type

	ρ	p-value
Age	-0.073	(0.224)
Female	0.148	(0.014)
Master	-0.046	(0.449)
Semester	-0.071	(0.238)
Business & economics	-0.083	(0.166)
Knowledge of NRA	-0.011	(0.854)
Risk	0.010	(0.868)
Patience	-0.035	(0.560)
Altruism	0.256	(0.000)
Avg. trust	0.158	(0.008)
Avg. pos. reciprocity	0.072	(0.229)
Avg. neg. reciprocity	-0.079	(0.192)

Notes: The table reports Spearman's rank correlation coefficients. P-values in parentheses.

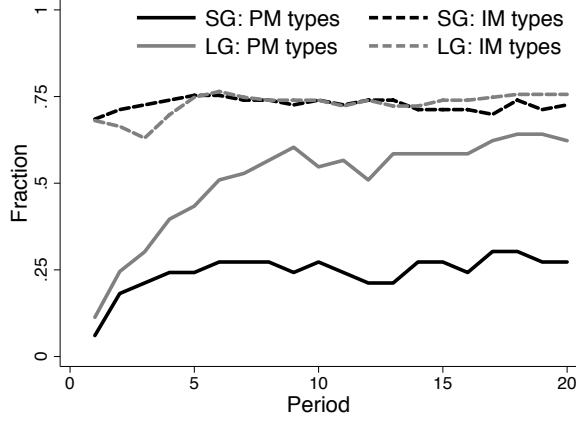


Figure A.2: Weaker classification: Fraction of *ideologically motivated* choices in Part II.

Table A.11: Weaker classification: Fraction of *ideologically motivated* choices in Part II

Treatment / Period	<i>Ideologically motivated</i> types					<i>Payoff motivated</i> types				
	All	1-5	6-10	11-15	16-20	All	1-5	6-10	11-15	16-20
Small groups (n=106)	.73 (.05)	.72 (.05)	.74 (.05)	.73 (.05)	.72 (.05)	.24 (.07)	.19 (.06)	.27 (.07)	.24 (.07)	.28 (.08)
Large groups (n=172)	.73 (.04)	.68 (.04)	.75 (.04)	.73 (.04)	.75 (.04)	.51 (.05)	.30 (.05)	.55 (.06)	.57 (.07)	.62 (.07)
SG vs LG	0.990	0.579	0.941	0.969	0.708	0.014	0.215	0.019	0.011	0.009

Notes: The top shows averages over all periods and the respective five-period bins, and, in parentheses, standard errors. The last row presents p-values from Pearson χ^2 tests with adjustment for group clusters.

Table A.12: Weaker classification: Individual choices in Part II

Dependent variable: IM choice	IM types				PM types			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Small groups (constant)	0.727*** (0.059)	0.617** (0.267)	0.731*** (0.056)	0.621** (0.267)	0.244*** (0.070)	0.091 (0.428)	0.186*** (0.064)	0.034 (0.429)
Large groups	0.001 (0.082)	-0.012 (0.073)	-0.042 (0.073)	-0.055 (0.064)	0.265*** (0.100)	0.300*** (0.102)	0.110 (0.084)	0.145 (0.091)
Period			-0.000 (0.002)	-0.000 (0.002)			0.005 (0.004)	0.005 (0.004)
Large groups × Period			0.004 (0.003)	0.004 (0.003)			0.015** (0.006)	0.015** (0.006)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Observations	3.840	3.840	3.840	3.840	1.720	1.720	1.720	1.720
Clusters	90	90	90	90	62	62	62	62
Overall R^2	0.000	0.120	0.001	0.122	0.069	0.103	0.106	0.140

Notes: Random-effects GLS regressions with individual random effects. Robust standard errors clustered on groups in parentheses. Controls include individual characteristics (age, gender, study of economics or business, semester, prior knowledge of NRA) and individual preferences (risk aversion, altruism, trust, patience, positive and negative reciprocity). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.13: Weaker classification: Probability of “giving in” after disagreement by type

	Small groups	Large groups
PM type	.43 [13]	.30 [48]
IM type	.26 [30]	.17 [89]
p-value	0.319	0.000

Notes: Averages are calculated by first taking individual averages over all periods in which an individual faced disagreement and then taking type averages over all respective individual averages. In brackets is the number of individuals who faced the respective situation at least once. p-values are based on Pearson χ^2 tests on the underlying choice data with adjustment for group clusters.

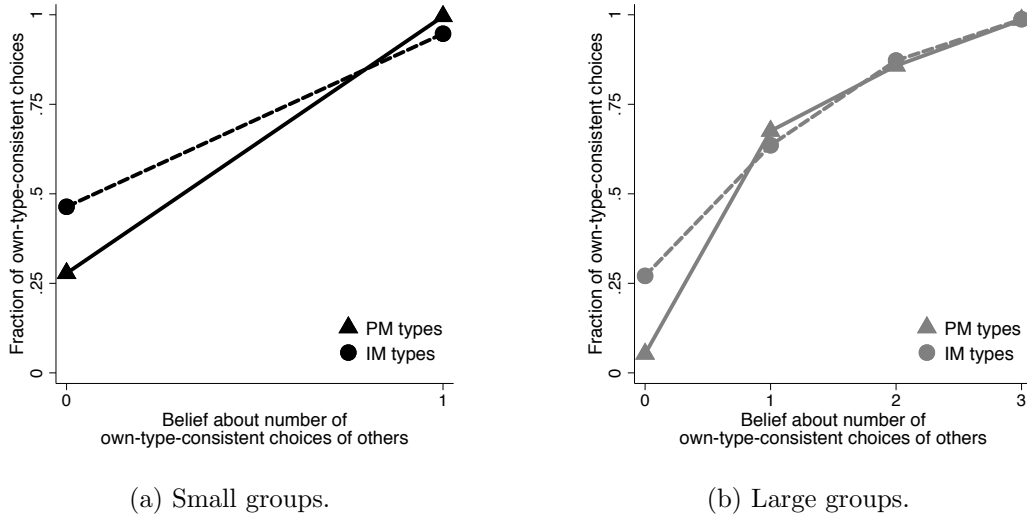


Figure A.3: Weaker classification: Relationship between beliefs and choices.

Table A.14: Weaker classification: Reaction to type-consistent beliefs

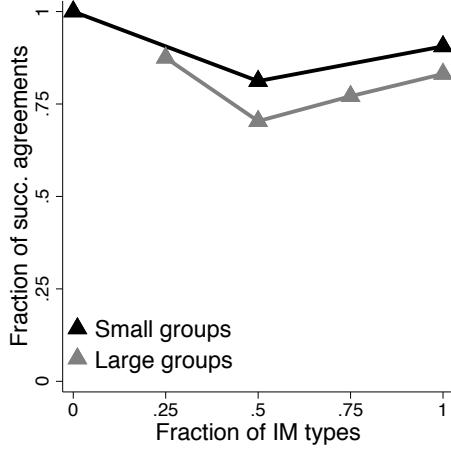
Belief / Type	Small groups		Large groups			
	0	1	0	1	2	3
PM type	.28 [14]	1 [31]	.05 [37]	.67 [34]	.86 [33]	.99 [47]
IM type	.46 [43]	.95 [65]	.27 [74]	.64 [70]	.87 [70]	.99 [99]
p-value	0.876	0.318	0.061	0.464	0.285	0.926

Notes: Averages are calculated by first taking individual averages over all periods in which an individual stated the respective belief and then taking type averages over all individual averages. Thus, the overall averages reflect how individuals react to certain beliefs and are not biased by the frequency with which they stated a belief. In brackets is the number of individuals who inserted the respective belief at least once. p-values are based on Pearson χ^2 tests on the underlying choice data with adjustment for group clusters.

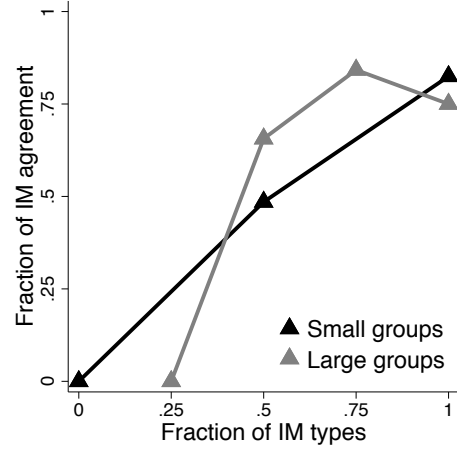
Table A.15: Weaker classification: Distribution of group composition

	Fraction of IM type				
	0	0.25	0.5	0.75	1
Small groups	6	-	21	-	26
Large groups	0	2	14	19	8

Notes: Numbers in brackets are number of groups that achieve successful coordination at least once.



(a) Successful agreements.



(b) Conditional IB agreements.

Figure A.4: Weaker classification: Group composition effects on group outcomes.

Table A.16: Weaker classification: Group composition effects on group outcomes

	Successful agreements					Cond. IB agreement				
	0	0.25	0.5	0.75	1	0	0.25	0.5	0.75	1
Small groups	1	-	.81	-	.91	0	-	.49	-	.22
Large groups	-	.88	.70	.77	.83	-	0	.66	.84	.75

Notes: Averages are calculated by first taking group averages over all periods with successful agreement and then taking treatment averages over all group averages. This ensures that the overall averages reflect what groups agreed on and are not biased by how many periods they agreed on it.

A.5 Additional results: “large groups - partial info” treatment

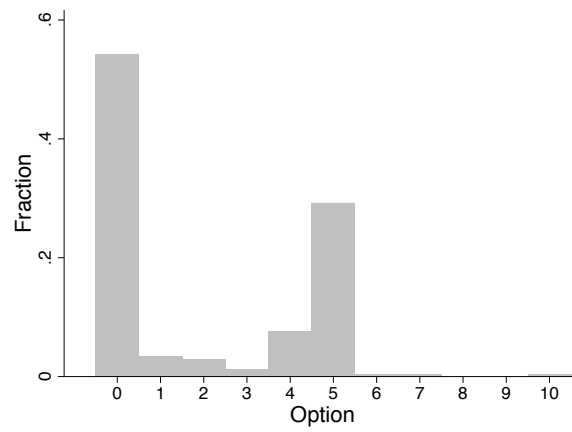


Figure A.5: Partial Info: Distribution of choices in Part I (n=236).

Table A.17: Partial info: Fraction of *ideologically motivated* choices in Part II

Treatment / Periods	All subjects				<i>Ideologically motivated</i> types				<i>Payoff motivated</i> types						
	All	1-5	6-10	11-15	16-20	All	1-5	6-10	11-15	16-20	All	1-5	6-10	11-15	16-20
SG-FI (n=106)	.58 (.04)	.56 (.04)	.59 (.05)	.58 (.05)	.58 (.05)	.81 (.05)	.83 (.04)	.81 (.05)	.79 (.05)	.79 (.05)	.32 (.06)	.25 (.05)	.34 (.07)	.33 (.06)	.35 (.06)
LG-FI (n=172)	.66 (.03)	.57 (.03)	.69 (.03)	.68 (.03)	.71 (.03)	.78 (.04)	.75 (.04)	.80 (.04)	.79 (.04)	.78 (.04)	.53 (.04)	.35 (.04)	.56 (.05)	.56 (.05)	.63 (.05)
LG-Partial info (n=236)	.62 (.02)	.54 (.02)	.60 (.03)	.67 (.03)	.68 (.03)	.77 (.03)	.72 (.03)	.76 (.03)	.80 (.03)	.80 (.03)	.45 (.03)	.33 (.03)	.40 (.04)	.51 (.04)	.55 (.04)
SG vs LG-PI	.466	.799	.923	.197	.158	.591	.067	.488	.923	.881	.107	.200	.492	.062	.045
LG-FI vs LG-PI	.586	.682	.246	.884	.728	.885	.561	.673	.863	.876	.335	.741	.072	.625	.421
SG vs LG-POOLED	.293	.928	.246	.145	.092	.613	.078	.587	.981	.932	.032	.146	.128	.026	.011

Notes: The top shows averages over all periods and the respective five-period bins, and, in parentheses, standard errors. The last row presents p-values from Pearson χ^2 tests with adjustment for group clusters.

Table A.18: Partial info: Individual choices in Part II

Dependent variable: IM choice	All subjects			IM types			PM types					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SG-FI	0.576*** (0.061)	0.490*** (0.175)	0.561*** (0.057)	0.475*** (0.176)	0.806*** (0.054)	0.587*** (0.235)	0.838*** (0.051)	0.619*** (0.234)	0.319*** (0.068)	0.592*** (0.238)	0.251*** (0.062)	0.524*** (0.236)
(constant)												
LG-FI	0.084 (0.084)	0.095 (0.077)	0.006 (0.075)	0.017 (0.068)	-0.026 (0.075)	-0.031 (0.069)	-0.074 (0.067)	-0.078 (0.060)	0.207*** (0.094)	0.208*** (0.091)	0.095 (0.082)	0.097 (0.079)
LG-PI	0.047 (0.073)	0.057 (0.064)	-0.044 (0.066)	-0.034 (0.058)	-0.036 (0.067)	-0.051 (0.061)	-0.123*** (0.063)	-0.139*** (0.056)	0.130 (0.084)	0.161** (0.076)	0.032 (0.074)	0.063 (0.066)
Period			0.001 (0.002)	0.001 (0.002)			-0.003* (0.002)	-0.003* (0.002)		0.006** (0.003)	0.006** (0.003)	0.006** (0.003)
LG-FI × Period			0.007** (0.003)	0.007** (0.003)			0.005 (0.003)	0.005 (0.003)		0.011** (0.005)	0.011** (0.005)	0.011** (0.005)
LG-PI × Period			0.009*** (0.003)	0.009*** (0.003)			0.008*** (0.002)	0.008*** (0.002)		0.009*** (0.004)	0.009*** (0.004)	0.009*** (0.004)
Controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Observations	10.280	10.280	10.280	10.280	5.500	5.500	5.500	5.500	4.780	4.780	4.780	4.780
Clusters	155	155	155	155	141	141	141	141	132	132	132	132
Overall R^2	0.004	0.099	0.014	0.110	0.001	0.094	0.004	0.097	0.022	0.073	0.052	0.102
LG-FI = LG-PI	0.597	0.563	0.392	0.352	0.880	0.735	0.377	0.268	0.348	0.567	0.344	0.625
LG-FI × Period = LG-PI × Period			0.726	0.726			0.251	0.251			0.807	0.807

Notes: Random-effects GLS regressions with individual random effects. Robust standard errors clustered on groups in parentheses. Controls include individual characteristics (age, gender, study of economics or business, semester, prior knowledge of NRA) and individual preferences (risk aversion, altruism, trust, patience, positive and negative reciprocity). The last two rows report p-values from Wald tests comparing the coefficients of treatments LG-FI and LG-PI. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.19: Partial info: Probability of “giving in” after disagreement by type

	Large groups – Partial info
PM type	.43 [95]
IM type	.27 [112]
p-value	.000

Notes: Averages are calculated by first taking individual averages over all periods in which an individual faced disagreement and then taking type averages over all respective individual averages. In brackets is the number of individuals who faced the respective situation at least once. p-values are based on Pearson χ^2 tests on the underlying choice data with adjustment for group clusters.

Table A.20: Partial info: Reaction to type-consistent beliefs

Belief / Type	Large groups – Partial info			
	0	1	2	3
PM type	.10 [79]	.45 [76]	.85 [80]	.97 [90]
IM type	.34 [91]	.69 [103]	.88 [102]	.97 [107]
p-value	0.008	0.002	0.056	0.360

Notes: Averages are calculated by first taking individual averages over all periods in which an individual stated the respective belief and then taking type averages over all individual averages. Thus, the overall averages reflect how individuals react to certain beliefs and are not biased by the frequency with which they stated a belief. In brackets is the number of individuals who inserted the respective belief at least once. p-values are based on Pearson χ^2 tests on the underlying choice data with adjustment for group clusters.

Table A.21: Partial info: Fraction of outcomes

	Disagreement					Ideologically beneficial agreement					Monetarily beneficial agreement				
	All	1-5	6-10	11-15	16-20	All	1-5	6-10	11-15	16-20	All	1-5	6-10	11-15	16-20
SG-Full info (N=53)	.12 (.03)	.25 (.05)	.08 (.03)	.08 (.03)	.08 (.03)	.52 (.06)	.43 (.06)	.55 (.07)	.54 (.07)	.54 (.07)	.36 (.06)	.32 (.06)	.37 (.07)	.38 (0.07)	.38 (.07)
LG-Full info (N=43)	.23 (.03)	.56 (.05)	.18 (.04)	.16 (.05)	.05 (.02)	.54 (.06)	.29 (.05)	.59 (.07)	.60 (.07)	.68 (.07)	.22 (.06)	.15 (.05)	.24 (.06)	.24 (.06)	.27 (.07)
LG-Partial info (N=59)	.51 (.05)	.78 (.05)	.53 (.06)	.39 (.06)	.34 (.06)	.34 (.05)	.12 (.04)	.31 (.06)	.44 (.06)	.49 (.06)	.15 (.04)	.10 (.04)	.17 (.05)	.17 (.05)	.17 (.05)
SG-FI vs LG-FI	.000	.000	.000	.000	.001	.022	.000	.007	.223	.546	.003	.001	.017	.009	.007
LG-FI vs LG-FI	.000	.001	.000	.003	.001	.007	.001	.002	.053	.033	.248	.185	.240	.240	.221

Notes: The top shows averages over all periods and the respective five-period bins, and, in parentheses, standard errors. The last row presents p-values from Wilcoxon ranksum tests. We use the fraction of periods in which a group reached the respective outcome as the independent unit of observation.

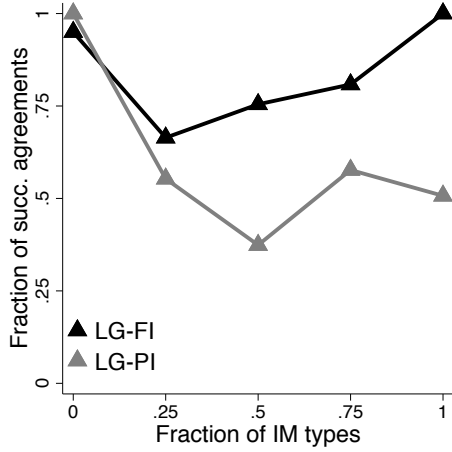
Table A.22: Partial info: Group outcomes in Part II

Dependent variable:	Disagreement		IB agreement		MB agreement	
	(1)	(2)	(3)	(4)	(5)	(6)
SG-FI	0.233***	-0.220	0.445***	0.594	0.322***	0.626
(constant)	(0.046)	(0.427)	(0.060)	(0.468)	(0.063)	(0.543)
LG-FI	0.340***	0.371***	-0.162**	-0.158**	-0.178**	-0.213***
	(0.072)	(0.074)	(0.081)	(0.078)	(0.078)	(0.075)
LG-PI	0.582***	0.597***	-0.367***	-0.363***	-0.215***	-0.235***
	(0.072)	(0.073)	(0.076)	(0.071)	(0.073)	(0.065)
Period	-0.011***	-0.011***	0.007***	0.007***	0.004**	0.004**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
LG-FI	-0.022***	-0.022***	0.018***	0.018***	0.004	0.004
× Period	(0.004)	(0.004)	(0.005)	(0.005)	(0.003)	(0.003)
LG-PI	-0.018***	-0.018***	0.018***	0.018***	0.000	0.000
× Period	(0.005)	(0.005)	(0.005)	(0.005)	(0.003)	(0.003)
Controls	NO	YES	NO	YES	NO	YES
Observations	3.100	3.100	3.100	3.100	3.100	3.100
Clusters	155	155	155	155	155	155
Overall R^2	0.240	0.265	0.090	0.274	0.050	0.253
LG-FI = LG-PI	0.002	0.004	0.004	0.005	0.526	0.722
LG-FI × Period	0.538	0.538	0.972	0.972	0.262	0.263
= LG-PI × Period						

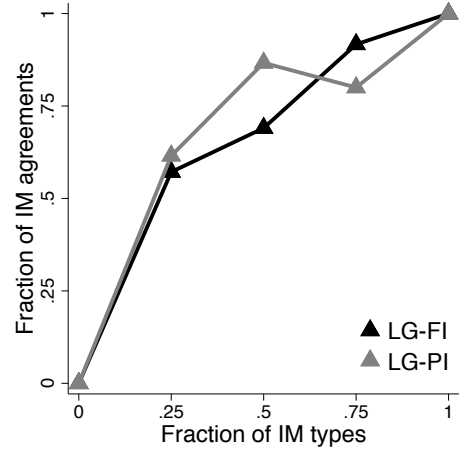
Notes: Random-effects GLS regressions with group random effects. Robust standard errors clustered on groups in parentheses. Controls include individual characteristics (age, gender, study of economics or business, semester, prior knowledge of NRA) and individual preferences (risk aversion, altruism, trust, patience, positive and negative reciprocity). The last two rows report p-values from Wald tests comparing the coefficients of treatments LG-FI and LG-PI. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.23: Partial info: Frequency of different group compositions per treatment

	Fraction of IM type				
	0	0.25	0.5	0.75	1
SG-FI	12	-	26	-	15
LG-FI	1	7	22	12	1
LG-PI	1	15	23	13	7



(a) Successful agreements.



(b) Conditional IB agreements.

Figure A.6: Partial info.: Group composition effects on group outcomes.

A.6 Additional results: “ideologically aligned” treatment

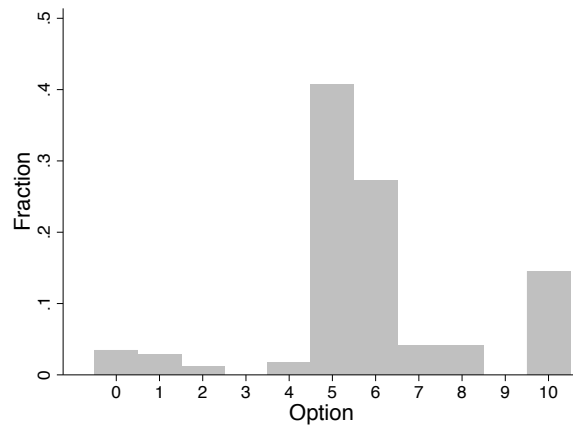


Figure A.7: Ideologically aligned: Distribution of choices in Part I (n=172).

Table A.24: Ideologically aligned: Fraction of *ideologically motivated* choices in Part II

	All subjects				<i>Ideologically motivated</i> types				<i>Payoff motivated</i> types						
	All	1-5	6-10	11-15	16-20	All	1-5	6-10	11-15	16-20	All	1-5	6-10	11-15	16-20
ALI	.16	.16	.13	.17	.19	.42	.46	.46	.38	.40	.12	.11	.08	.14	.15
(n=172)	(.02)	(.02)	(.02)	(.03)	(.03)	(.09)	(.09)	(.10)	(.10)	(.10)	(.02)	(.02)	(.02)	(.03)	(.03)
ALI vs OPP	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.000	0.002	0.000	0.000	0.000	0.000	0.000

Notes: The top shows averages over all periods and the respective five-period bins, and, in parentheses, standard errors. The last row presents p-values from Pearson χ^2 tests with adjustment for group clusters.

Table A.25: Ideologically aligned: Individual choices in Part II

Dependent variable:	All subjects				IM types				PM types			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
IM choice	0.660***	0.575***	0.568***	0.451***	0.780***	-0.075	0.764***	-0.105	0.526***	0.713***	0.347***	0.528***
(constant)	(0.058)	(0.169)	(0.048)	(0.167)	(0.052)	(0.367)	(0.043)	(0.349)	(0.065)	(0.184)	(0.054)	(0.181)
ALI	-0.496***	-0.462***	-0.422***	-0.385***	-0.362***	-0.381***	-0.296***	-0.300***	-0.405***	-0.404***	-0.256***	-0.253***
	(0.070)	(0.073)	(0.057)	(0.063)	(0.112)	(0.105)	(0.104)	(0.102)	(0.074)	(0.078)	(0.062)	(0.066)
Period			0.009***	0.009***			0.002	0.002			0.017***	0.017***
			(0.003)	(0.003)			(0.003)	(0.003)			(0.004)	(0.004)
ALI × Period			-0.007*	-0.007*			-0.006	-0.006			-0.014***	-0.014***
			(0.004)	(0.004)			(0.005)	(0.005)			(0.005)	(0.005)
Period +			0.519	0.520			0.184	0.185			0.339	0.340
ALI × Period = 0												
Controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Observations	6880	6880	6880	6880	2320	2320	2320	2320	4560	4560	4560	4560
Clusters	86	86	86	86	63	63	63	63	85	85	85	85
Overall R^2	0.254	0.303	0.260	0.307	0.106	0.222	0.107	0.215	0.193	0.224	0.211	0.243

Notes: Random-effects GLS regressions with individual random effects. Robust standard errors clustered on groups in parentheses. Controls include individual characteristics (age, gender, study of economics or business, semester, prior knowledge of the organization) and individual preferences (risk aversion, altruism, trust, patience, positive and negative reciprocity). The row “Period + ALI × Period = 0” reports p-values from Wald tests. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.26: Ideologically aligned: Individual choices in Part II controlling for fraction of *ideologically motivated* types

Dependent variable: IM choice	All subjects			IM types			PM types					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OPP	0.241** (0.108)	0.212 (0.204)	0.148 (0.098)	0.119 (0.201)	0.350** (0.164)	-0.525 (0.373)	0.334** (0.159)	-0.541 (0.367)	0.259** (0.105)	0.462** (0.211)	0.080 (0.092)	0.283 (0.207)
ALI	-0.192* (0.099)	-0.182* (0.098)	-0.117 (0.083)	-0.107 (0.085)	-0.168 (0.136)	-0.159 (0.131)	-0.101 (0.131)	-0.093 (0.126)	-0.206** (0.094)	-0.205** (0.099)	-0.057 (0.076)	-0.055 (0.083)
Period			0.009*** (0.003)	0.009*** (0.003)			0.002 (0.003)	0.002 (0.003)			0.017*** (0.004)	0.017*** (0.004)
ALI × Period			-0.007* (0.004)	-0.007* (0.004)			-0.006 (0.005)	-0.006 (0.005)			-0.014*** (0.005)	-0.014*** (0.005)
Fraction IM type	0.794*** (0.155)	0.759*** (0.148)	0.794*** (0.155)	0.759*** (0.148)	0.716*** (0.231)	0.748*** (0.204)	0.716*** (0.231)	0.748*** (0.204)	0.596*** (0.171)	0.628*** (0.167)	0.596*** (0.171)	0.628*** (0.167)
Controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Observations	6880	6880	6880	6880	2320	2320	2320	2320	4560	4560	4560	4560
Clusters	86	86	86	86	63	63	63	63	85	85	85	85
Overall R^2	0.339	0.376	0.344	0.382	0.171	0.287	0.172	0.288	0.242	0.276	0.260	0.295

Notes: Random-effects GLS regressions with individual random effects. Robust standard errors clustered on groups in parentheses. Controls include individual characteristics (age, gender, study of economics or business, semester, prior knowledge of organization) and individual preferences (risk aversion, altruism, trust, patience, positive and negative reciprocity). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.27: Ideologically aligned: Fraction of outcomes

	Disagreement				Ideologically beneficial agreement				Monetarily beneficial agreement						
	All	1-5	6-10	11-15	16-20	All	1-5	6-10	11-15	16-20	All	1-5	6-10	11-15	16-20
OPP (N=43)	.23 (.03)	.56 (.05)	.18 (.04)	.16 (.05)	.05 (.02)	.54 (.06)	.29 (.05)	.59 (.07)	.60 (.07)	.68 (.07)	.22 (.06)	.15 (.05)	.24 (.06)	.24 (.06)	.27 (.07)
ALI (N=43)	.24 (.05)	.40 (.06)	.24 (.06)	.19 (.06)	.14 (.05)	.06 (.03)	.01 (.01)	.04 (.03)	.08 (.04)	.12 (.05)	.70 (.06)	.59 (.06)	.72 (.07)	.73 (.07)	.74 (.06)
ALI vs OPP	0.111	0.037	0.873	0.697	0.432	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: The top shows averages over all periods and the respective five-period bins, and, in parentheses, standard errors. The last row presents p-values from Wilcoxon ranksum tests. We use the fraction of periods in which a group reached the respective outcome as the independent unit of observation.

Table A.28: Additional treatment: Group outcomes in Part II

Dependent variable:	Disagreement		IB agreement		MB agreement	
	(1)	(2)	(3)	(4)	(5)	(6)
OPP	0.573***	0.137	0.283***	0.371	0.144***	0.491
(constant)	(0.056)	(0.540)	(0.055)	(0.492)	(0.045)	(0.655)
ALI	-0.139	-0.028	-0.298***	-0.229**	0.437***	0.257*
	(0.088)	(0.125)	(0.058)	(0.100)	(0.078)	(0.133)
Period	-0.032***	-0.032***	0.025***	0.025***	0.008***	0.008***
	(0.003)	(0.003)	(0.004)	(0.004)	(0.002)	(0.002)
ALI × Period	0.014***	0.014***	-0.017***	-0.017***	0.003	0.003
	(0.005)	(0.005)	(0.005)	(0.005)	(0.003)	(0.003)
Controls	NO	YES	NO	YES	NO	YES
Observations	1720	1720	1720	1720	1720	1720
Clusters	86	86	86	86	86	86
Overall R^2	0.125	0.180	0.327	0.413	0.236	0.352

Notes: Random-effects GLS regressions with group random effects. Robust standard errors clustered on groups in parentheses. Controls include individual characteristics (age, gender, study of economics or business, semester, prior knowledge of the organization) and individual preferences (risk aversion, altruism, trust, patience, positive and negative reciprocity). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.29: Ideologically aligned: Group outcome conditional on a successful agreement

Dependent variable:								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
IB agreement								
OPP	0.725***	0.354	0.538***	0.221	0.310**	0.087	0.180	0.004
(constant)	(0.068)	(0.607)	(0.114)	(0.614)	(0.155)	(0.673)	(0.157)	(0.677)
ALI	-0.596***	-0.488***	-0.550***	-0.455***	-0.279*	-0.205	-0.259*	-0.198
	(0.087)	(0.134)	(0.096)	(0.135)	(0.149)	(0.162)	(0.146)	(0.158)
Initial disagreement			0.207**	0.196*			0.168**	0.148*
			(0.096)	(0.106)			(0.076)	(0.081)
Fraction of IM type					0.784***	0.785***	0.743***	0.735***
					(0.234)	(0.231)	(0.228)	(0.210)
Controls	NO	YES	NO	YES	NO	YES	NO	YES
Observations	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308
Clusters	81	81	81	81	81	81	81	81
Overall R^2	0.412	0.511	0.428	0.525	0.502	0.585	0.511	0.591

Notes: Random-effects GLS regressions with group random effects. Robust standard errors clustered on groups in parentheses. Controls include individual characteristics (age, gender, study of economics or business, semester, prior knowledge of the organization) and individual preferences (risk aversion, altruism, trust, patience, positive and negative reciprocity). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B Experimental instructions and decision screens [Online Appendix]

B.1 Instructions for Part I - English translation

General instructions

Welcome to this study.

Please read the first page of instructions with the general explanations on your own. The rest of the instructions will be read out aloud.

If you read the following explanations carefully, you can earn money – depending on your decisions and/or the decisions of the other participants – in addition to the **4 Euro** which you receive as a show-up fee. Therefore, it is very important that you read through these explanations carefully. If you have any questions, please raise your hand. We will then come to you and answer them.

During this study, you are not allowed to communicate with other participants or to use your mobile phone. Disregarding these rules will lead to your disqualification from the study and you won't be eligible for any payments.

At the end of today's study, you will receive from us your income earned during the study, plus 4 Euros for showing up, in **cash**.

Neither before nor after the study will you learn the identity of the other participants. Your identity will not be revealed to the other participants as well.

On the following pages, we will explain the detailed structure of the study.

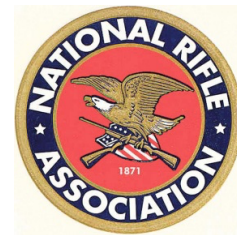
The study

This study consists of two parts. At the beginning of each part you will get instructions which explain the corresponding part to you.

Part 1

In Part 1 you decide about a donation to the National Rifle Association (NRA).

For your information: The NRA is an influential US gun lobby association, which fights for the right of all US citizens to acquire, own, carry, share and use firearms. Therefore, the NRA rejects almost any form of legal weapon control. The NRA has approximately 5 million members in the US.¹
The US is one of the world's leading countries for deaths by firearms.²



Your income and your donation to the NRA are determined by your choice of option 0 to 10. Depending on your choice, your income and your donation will be as follows:

Option	0	1	2	3	4	5	6	7	8	9	10
Your income (in €)	1	1,25	1,50	1,75	2	2,25	2	1,75	1,50	1,25	1
Donation to the NRA (in €)	0	1	2	3	4	5	6	7	8	9	10

After this experiment, all donations are going to be paid to the NRA. During your pay-out, you can submit your e-mail address to receive a payment confirmation.

Do you have any more questions? If so, please raise your hands. We will then come to your place. Otherwise, please answer the comprehension questions, which will soon show up on your screen.

¹ Source: https://de.wikipedia.org/wiki/National_Rifle_Association, accessed on 10/16/2016.

² Source: [http://www.amjmed.com/article/S0002-9343\(15\)01030-X/fulltext](http://www.amjmed.com/article/S0002-9343(15)01030-X/fulltext)

B.2 Instructions for Part I - German original

Allgemeine Erklärungen

Wir begrüßen Sie ganz herzlich zu dieser Studie.

Bitte lesen Sie sich die erste Seite der Instruktionen mit den allgemeinen Erklärungen alleine durch. Den Rest der Instruktionen werden wir laut vorlesen.

Wenn Sie die nachfolgenden Erklärungen genau lesen, dann können Sie - je nach Ihren Entscheidungen und/oder den Entscheidungen der anderen Teilnehmer - zusätzlich zu den **4 Euro**, die Sie als Startgeld für Ihre Teilnahme erhalten, Geld verdienen. Es ist daher sehr wichtig, dass Sie diese Erklärungen genau durchlesen. Wenn Sie Fragen haben, heben Sie bitte Ihre Hand. Wir werden dann zu Ihnen kommen und sie beantworten.

Während der Studie ist es Ihnen nicht erlaubt, mit den anderen Teilnehmern der Studie zu sprechen oder Ihr Mobiltelefon zu benutzen. Die Nichtbeachtung dieser Regel führt zum Ausschluss aus der Studie und allen Zahlungen.

Am Ende der heutigen Studie bekommen Sie von uns Ihr während der Studie verdientes Einkommen plus 4 Euro für das Erscheinen in **bar** ausbezahlt.

Weder vor noch nach der Studie erfahren Sie die Identität der anderen Teilnehmer. Ebenso erfahren diese Teilnehmer nichts über Ihre Identität.

Auf den folgenden Seiten erläutern wir Ihnen den genauen Ablauf der Studie.

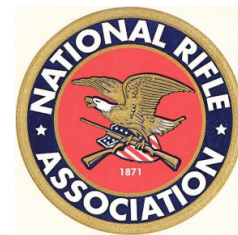
Die Studie

Diese Studie besteht aus zwei Teilen. Am Anfang jedes Teils erhalten Sie Instruktionen, die Ihnen den jeweiligen Teil erklären.

Teil 1

In Teil 1 treffen Sie eine Entscheidung über eine Spende an die National Rifle Association (NRA).

Zu Ihrer Information: Die NRA ist eine einflussreiche US-Waffen-Lobbyvereinigung, die für das Recht aller US-Bürger auf Erwerb, Besitz, Tragen, Weitergabe und Gebrauch von Schusswaffen kämpft. Daher lehnt die NRA fast jede Form gesetzlicher Waffenkontrolle ab. Die NRA hat ca. 5 Millionen Mitglieder in den USA.¹ Die USA ist eines der führenden Länder auf der Welt für Todesfälle durch Schusswaffen.²



Ihr Einkommen und die Spende an die NRA werden durch Ihre Wahl einer Option von 0 bis 10 festgelegt. Je nachdem, welche Option Sie wählen, ergibt sich Ihr Einkommen und Ihre Spende an die NRA wie folgt:

Option	0	1	2	3	4	5	6	7	8	9	10
Ihr Einkommen (in €)	1	1,25	1,50	1,75	2	2,25	2	1,75	1,50	1,25	1
Spende an die NRA (in €)	0	1	2	3	4	5	6	7	8	9	10

Im Anschluss an das Experiment werden alle getätigten Spenden an die NRA überwiesen. Sie können bei der Auszahlung Ihre Email-Adresse angeben, wenn Sie einen Nachweis über die Überweisung bekommen möchten.

Haben Sie noch Fragen? Falls ja, so melden Sie sich bitte. Wir kommen dann zu Ihnen an den Platz. Ansonsten bitten wir Sie die Verständnisfragen zu beantworten, die Sie gleich auf Ihrem Bildschirm sehen.

¹ Quelle: https://de.wikipedia.org/wiki/National_Rifle_Association, aufgerufen am 16.10.2016.

² Quelle: [http://www.amjmed.com/article/S0002-9343\(15\)01030-X/fulltext](http://www.amjmed.com/article/S0002-9343(15)01030-X/fulltext)

B.3 Decision screens for Part I

Part I

Please choose an option by clicking on it.

	Option 0	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9	Option 10
Your income (in Euro)	1.00	1.25	1.50	1.75	2.00	2.25	2.00	1.75	1.50	1.25	1.00
Donation to NRA (in Euro)	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
Your choice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

When you have made your choice, please click "Confirm".

Confirm

B.4 Instructions for Part II - “Large groups” treatment - English translation

Part 2

Group membership

At the beginning of this part, you are **randomly** assigned to a group consisting of **four participants**. The entire part consists of **20 rounds**. In all of the 20 rounds, you belong to the **same group**. Therefore, you will interact with the same three participants.

Decision

In each round, you and the other group members will have to make a decision. Both your own decision as well as the decision of the other participants are relevant for your income and the donation to the NRA in this round.

At the beginning of each round you choose between **option 1** and **option 2**. At the same time, all other group members also choose between **option 1** and **option 2**.

Income in one round

Whether a donation is made to the NRA and what income you earn in a round depends on which options you and the other group members have chosen. More detailed, the results in a round are determined as follows:

- If **all** group members choose **option 1**, **each** group member receives **8 Euro** and **8 Euro** are donated to the NRA.
- If **all** group members choose **option 2**, **each** group member receives **2 Euro** and **0 Euro** are donated to the NRA.
- If **not all** group members choose the **same option**, **each** group member receives **0 Euro** and **0 Euro** are donated to the NRA.

Example 1: Suppose a group consists of the participants A, B, C and D. Participants A and C choose option 1. Participants B and D choose option 2. In this case each group member will receive 0 Euro and 0 Euro are donated to the NRA.

Example 2: Suppose a group consists of the participants A, B, C and D. All participants choose option 1. In this case each group member will receive 8 Euro and 8 Euro are donated to the NRA.

Estimation of the behavior of the other group members

After you have made your decision in each round, we will ask you what you think about the decisions that were made by the other group members. You will see a screen with two input options – one for each option.

- For each of the two options, state how many of the other group members, you think, have chosen this option.
- So, you type in a 1, 2 or 3 if you think that this option was chosen by that many group members.
- You type in a 0 if you think that this option was not chosen by any group member.

If your estimation matches the actual decisions of the other group members you will receive 0,5 Euro in this round. Otherwise you will get 0 Euro.

At the end of each round you will be informed about your income and whether there was a donation to the NRA or not. Additionally, you will learn the decisions of all group members in this round. To this end, at the beginning of Part 2, each of the four group members will be randomly assigned a letter – A, B, C, or D. At the end of each round, the decisions of the group members are presented together with their assigned letter.

At the end of the study, you will be informed about your income from your estimation, right after all the decisions have been made.

Pay-out for Part 2

At the end of this study, two of the 20 rounds will be randomly and independent chosen. Your payout from part 2 and the donation to the NRA are determined by your decisions in the two chosen rounds. For one of these two rounds, your income and the donation will be implemented and paid. For the other round, your estimation will be implemented and paid. Therefore, your total payout from part 2 consists of the sum of both payouts.

Note that each of your decisions in each of the 20 rounds can be relevant. Therefore, it is important that you make your decision in each round as if this current round determines your payout.

At the end of the study, we will ask you to come forward and receive your payout including the show-up fee in cash. After the experiment, all donations will be paid to the NRA. During the payout, you can submit your e-mail address in order to receive a payment confirmation.

Do you have any more questions? If so please raise your hand. We will then come to you. Otherwise, we would ask you to answer these comprehension questions.

Comprehension questions

Part 2

1. Suppose you choose option 1.

What is your income when all the other group members also choose option 1?

What is your income when one of the other group members chooses option 2?

2. Suppose you choose option 2.

What is your income when all the other group members also choose option 2?

What is your income when one of the other group members chooses option 1?

3. What is the donation to the NRA when all the group members choose option 1?

4. What is the donation to the NRA when all the group members choose option 2?

5. What is the donation to the NRA when at least two group members decide differently?

6. Suppose you stated that you believe that three of the other group members have chosen option 1 and none have chosen option 2. In reality, one other group member chose option 2. What is your income from this estimation??

7. Are you in the same group in each round?

- YES
- NO

B.5 Instructions for Part II - “Large groups” treatment - German original

Teil 2

Gruppenzugehörigkeit

Zu Beginn dieses Teils werden Sie **zufällig** einer Gruppe zugeteilt, die aus **vier Teilnehmern** besteht. Der gesamte Teil besteht aus **20 Runden**. In allen 20 Runden gehören Sie zu **derselben Gruppe**. Sie werden also für 20 Runden mit denselben drei anderen Teilnehmern interagieren.

Entscheidung

In jeder Runde werden Sie und die anderen Gruppenmitglieder eine Entscheidung treffen. Sowohl Ihre eigene Entscheidung als auch die Entscheidung der anderen Gruppenmitglieder sind für Ihr Einkommen und eine Spende an die NRA in dieser Runde relevant.

Am Anfang jeder Runde entscheiden Sie sich zwischen **Option 1** und **Option 2**.

Gleichzeitig entscheiden alle anderen Gruppenmitglieder zwischen **Option 1** und **Option 2**.

Einkommen in einer Runde

Ob eine Spende an die NRA zustande kommt und welches Einkommen Sie in einer Runde haben, hängt davon ab, welche Option Sie und die anderen Gruppenmitglieder ausgewählt haben. Genauer bestimmt sich das Ergebnis in einer Runde wie folgt:

- Wenn **alle** Gruppenmitglieder **Option 1** wählen, bekommt **jedes** Gruppenmitglied **8 Euro** und es werden **8 Euro** an die NRA gespendet.
- Wenn **alle** Gruppenmitglieder **Option 2** wählen, bekommt **jedes** Gruppenmitglied **2 Euro** und es werden **0 Euro** an die NRA gespendet.
- Wenn **nicht alle** Gruppenmitglieder **dieselbe Option** wählen, bekommt **jedes** Gruppenmitglied **0 Euro** und es werden **0 Euro** an die NRA gespendet.

Beispiel 1: Nehmen Sie an, eine Gruppe besteht aus Teilnehmern A, B, C, und D. Teilnehmer A und C wählen Option 1. Teilnehmer B und D wählen Option 2. In diesem Fall bekommt jedes Gruppenmitglied 0 Euro und es werden 0 Euro an die NRA gespendet.

Beispiel 2: Nehmen Sie an, eine Gruppe besteht aus Teilnehmern A, B, C, und D. Alle Teilnehmer wählen Option 1. In diesem Fall bekommt jedes Gruppenmitglied 8 Euro und es werden 8 Euro an die NRA gespendet.

Schätzung des Verhaltens der anderen Gruppenmitglieder

Nachdem Sie Ihre Entscheidung in eine Runde getroffen haben, werden wir Sie fragen, was Sie glauben, welche Entscheidung die anderen drei Gruppenmitglieder getroffen haben. Sie werden dazu einen Bildschirm mit zwei Eingabemöglichkeiten sehen – eine für jede Option.

- Bei jeder der beiden Optionen geben Sie an, was Sie glauben, **wie viele der anderen Gruppenmitglieder diese Option gewählt haben**.
- Sie geben also bei einer Option eine **1**, eine **2**, oder eine **3** ein, wenn Sie glauben, dass diese Option von so vielen anderen Gruppenmitgliedern gewählt wurde.
- Sie geben eine **0** an, wenn Sie glauben, dass diese Option von **keinem** anderen Gruppenmitglied gewählt wurde.

Falls **Ihre Schätzung der tatsächlichen Entscheidungen der anderen Gruppenmitglieder in dieser Runde entspricht**, bekommen Sie **0.5 Euro**. Andernfalls bekommen Sie **0 Euro**.

Am Ende jeder Runde erfahren Sie, wie viel Euro sich in dieser Runde aus der Entscheidung für Sie ergeben und ob an die NRA gespendet wurde oder nicht. Außerdem erfahren Sie die Entscheidungen aller Gruppenmitglieder in dieser Runde. Dazu wird jedem der vier Gruppenmitglieder am Anfang von Teil 2 zufällig ein Buchstabe zugeteilt – A, B, C, oder D. Am Ende jeder Runde werden die Entscheidungen der Gruppenmitglieder zusammen mit dem zugeteilten Buchstaben mitgeteilt.

Ihren Verdienst aus der Schätzung erfahren Sie erst am Ende der Studie, nachdem alle Entscheidungen getroffen wurden.

Auszahlung aus Teil 2

Am Ende der Studie werden **zwei der 20 Runden zufällig und unabhängig voneinander ausgewählt**. Ihre **Auszahlung** aus Teil 2 und die Spende an die NRA bestimmt sich aus Ihren Entscheidungen in den zwei ausgewählten Runden. Für **eine** der ausgewählten Runden wird Ihr **Einkommen aus der Entscheidung und die Spende** implementiert und ausgezahlt. Für die **andere** der ausgewählten Runden wird Ihr **Einkommen aus der Schätzung** implementiert und ausgezahlt. Ihre gesamte Auszahlung aus Teil 2 ergibt sich aus der Summe dieser beiden Auszahlungen.

Beachten Sie, dass jede Ihrer Entscheidungen in jeder der 20 Runden für Ihre Auszahlung relevant sein kann. **Es ist daher wichtig, dass Sie Ihre Entscheidung in jeder Runde so treffen, als würde diese Runde Ihre Auszahlung bestimmen.**

Am Ende der Studie, werden wir Sie einzeln bitten nach vorne zu kommen und Ihre Auszahlung zusammen mit dem Startgeld in bar entgegenzunehmen. Im Anschluss an das Experiment werden alle getätigten Spenden an die NRA überwiesen. Sie können bei der Auszahlung Ihre Email Adresse angeben, wenn Sie einen Nachweis über die Überweisung bekommen möchten.

Haben Sie noch Fragen? Falls ja, so melden Sie sich bitte. Wir kommen dann zu Ihnen an den Platz. Ansonsten bitten wir Sie, die Verständnisfragen zu beantworten.

Verständnisfragen

Teil 2

1. Nehmen Sie an, Sie wählen Option 1.
Was ist Ihr Einkommen, wenn alle anderen Gruppenmitglieder auch Option 1 wählen?

- Was ist Ihr Einkommen, wenn eines der anderen Gruppenmitglieder Option 2 wählt?

2. Nehmen Sie an, Sie wählen Option 2.
Was ist Ihr Einkommen, wenn alle anderen Gruppenmitglieder auch Option 2 wählen?

- Was ist Ihr Einkommen, wenn zwei der anderen Gruppenmitglieder Option 1 wählen?

3. Was hoch ist die Spende an die NRA, wenn alle Gruppenmitglieder Option 1 wählen?

4. Was hoch ist die Spende an die NRA, wenn alle Gruppenmitglieder Option 2 wählen?

5. Was hoch ist die Spende an die NRA, wenn zwei Gruppenmitglieder unterschiedliche Optionen wählen?

6. Nehmen Sie an, Sie haben angegeben, dass Sie glauben, dass drei der anderen Gruppenmitglieder Option 1 haben und keines Option 2 gewählt hat. In Wirklichkeit hat ein anderes Gruppenmitglied Option 2 gewählt. Wie hoch ist Ihr Einkommen aus der Schätzung?

7. Sind Sie in jeder Runde in derselben Gruppe?
 - JA
 - NEIN

B.6 Decision and feedback screens for Part II

– “Large groups” treatment

Periode

1 von 1

Part II

As a reminder: Your choice and the choice of your group members will affect your income and the donation to the NRA.

	Your income (in Euro)	Donation to the NRA (in Euro)
Everyone chooses Option 1	8	8
Everyone chooses Option 2	2	0
Different choice	0	0

Please decide for an option

I choose: Option 1
 Option 2

When you have made your choice, please click "Confirm".

Part II

Please indicate in the table below, according to your estimate, how many of the other members of the group, chose the corresponding option.

If you do not fill in a cell, it will be rated as if you have entered a 0.

	Estimate
Option 1	<input type="text" value="2"/>
Option 2	<input type="text" value="1"/>

When you have made your choice, please click "Confirm".

Confirm

Help

If your estimate is correct, you will receive 0.5 Euro.

Part II

Result of this round

All group members have opted for the same option in this round.
Your income from the option choice in this round is (in Euro): 2
The donation to the NRA in this round is (in Euro): 0

You are group member A.

The group members decided in this round as follows :

Group member A has decided for: Option 2

Group member B has decided for: Option 2

Group member C has decided for: Option 2

Group member D has decided for: Option 2

Your income based on your estimate will only be revealed at the end of the study.

Please click on OK when you are ready.

If you do not press "OK" within 30 seconds, you will be forwarded automatically.

OK

B.7 “Ideologically aligned” treatment: Instructions for Part I - English translation

The study

This study consists of two parts. At the beginning of each part, you will get instructions which explain the corresponding part to you.

Part 1

In Part 1 you decide about a donation to „Everytown for Gun Safety“.

For your information: Everytown is an influential US anti-gun lobby association, which fights against the right of all US citizens to acquire, own, carry, share and use firearms. Therefore, Everytown supports legal weapons control.¹ Everytown has approximately 5 million members in the US.² The US is one of the world's leading countries for deaths by firearms.³



Your income and your donation to Everytown are determined by your choice of option 0 to 10. Depending on your choice, your income and your donation will be as follows:

Option	0	1	2	3	4	5	6	7	8	9	10
Your income (in €)	1	1,25	1,50	1,75	2	2,25	2	1,75	1,50	1,25	1
Donation to Everytown (in €)	10	9	8	7	6	5	4	3	2	1	0

After this experiment, all donations are going to be paid to the NRA. During your pay-out, you can submit your e-mail address to receive a payment confirmation.

Do you have any more questions? If so, please raise your hands. We will then come to your place. Otherwise, please answer the comprehension questions, which will soon show up on your screen.

¹ Source: https://de.wikipedia.org/wiki/Everytown_for_Gun_Safety, accessed on 04/25/19.

² Source: <https://everytown.org/who-we-are/>, accessed on 04/25/19.

³ Source: [http://www.amjmed.com/article/S0002-9343\(15\)01030-X/fulltext](http://www.amjmed.com/article/S0002-9343(15)01030-X/fulltext)

B.8 “Ideologically aligned” treatment: Instructions for Part I - German original

Die Studie

Diese Studie besteht aus zwei Teilen. Am Anfang jedes Teils erhalten Sie Instruktionen, die Ihnen den jeweiligen Teil erklären.

Teil 1

In Teil 1 treffen Sie eine Entscheidung über eine Spende an „Everytown for Gun Safety“.

Zu Ihrer Information: Everytown ist eine einflussreiche US-Anti-Waffen-Lobbyvereinigung, die gegen das Recht von US-Bürgern auf Erwerb, Besitz, Tragen, Weitergabe und Gebrauch von Schusswaffen kämpft. Daher setzt sich Everytown für gesetzliche Waffenkontrolle ein.¹



Everytown hat ca. 5 Millionen Mitglieder in den USA.²

Die USA ist eines der führenden Länder auf der Welt für Todesfälle durch Schusswaffen.³

Ihr Einkommen und die Spende an Everytown werden durch Ihre Wahl einer Option von 0 bis 10 festgelegt. Je nachdem, welche Option Sie wählen, ergibt sich Ihr Einkommen und Ihre Spende an Everytown wie folgt:

Option	0	1	2	3	4	5	6	7	8	9	10
Ihr Einkommen (in €)	1	1,25	1,50	1,75	2	2,25	2	1,75	1,50	1,25	1
Spende an Everytown (in €)	10	9	8	7	6	5	4	3	2	1	0

Im Anschluss an das Experiment werden alle getätigten Spenden an Everytown überwiesen. Sie können bei der Auszahlung Ihre Email-Adresse angeben, wenn Sie einen Nachweis über die Überweisung bekommen möchten.

Haben Sie noch Fragen? Falls ja, so melden Sie sich bitte. Wir kommen dann zu Ihnen an den Platz. Ansonsten bitten wir Sie die Verständnisfragen zu beantworten, die Sie gleich auf Ihrem Bildschirm sehen.

¹ Quelle: https://de.wikipedia.org/wiki/Everytown_for_Gun_Safety, aufgerufen am 25.04.2019.

² Quelle: <https://everytown.org/who-we-are/>, aufgerufen am 25.04.2019.

³ Quelle: [http://www.amjmed.com/article/S0002-9343\(15\)01030-X/fulltext](http://www.amjmed.com/article/S0002-9343(15)01030-X/fulltext)