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# Motivated Information Acquisition and Social Norm Formation

Eugen Dimant<sup>a</sup>      Fabio Galeotti<sup>b</sup>      Marie Claire Villeval<sup>c</sup>

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## Abstract

We examine the effect of self-selected peer information on individual behavior and social norm formation via two experiments (N=1,945; N=2,414) using a lying game and political identification. A self-serving bias emerges in *endogenous* information search, wherein lenient sources (*i.e.*, sources containing more tolerant empirical or normative information regarding dishonesty), especially those aligned with political identification, are preferred. Selecting lenient sources about peer *perception* of social norms boosts dishonesty, while peer *behavior* information chiefly influences expectations about dishonesty, with a minor impact on own behavior. Importantly, peer approval expectations stay largely unaltered by both information types. In a follow-up experiment with *exogenously* assigned sources, the influence of social information on behavior and expectations is diminished.

**Keywords:** Social Norms, Information Acquisition, Peer Effects, Group Identity, Dishonesty

**JEL Codes:** C91, D01, G41, M21

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# 1 Introduction

Norms serve as the foundation of our societies, guiding our selfish and cooperative decisions, enabling us to form social bonds, and are maintained through credible enforcement.<sup>1</sup> Crucially, norms are a property of an individual’s relevant reference groups—that is, the people who matter to the decision-maker in specific choice situations (Bicchieri, 2006). As such, the people to whom we turn when informing our decisions play a vital role. In the process of informing our decisions, we often observe and imitate our peers. This requires us to interpret the intentions of those around us, at times in self-serving ways.<sup>2</sup>

However, less explored are the mechanisms of how norms and compliance with them evolve, particularly in situations where individuals can choose whether and which norms to learn. Studying such *endogenous* norm formation is important in that it has the potential to contribute to and amplify polarization in society (Dixit and Weibull, 2007; Dimant, 2023). Think, for example, of online echo chambers, which we know are contributing to an increasingly polarizing society (Flaxman et al., 2016). An individual with moderate political views may become disillusioned with mainstream news sources or the political establishment. They might then decide to seek alternative sources of information, such as fringe websites or social media groups, that align with their growing dissatisfaction. In doing so, they expose themselves to more extreme viewpoints and may adopt norms that justify deviant political behavior, such as promoting conspiracy theories or engaging in acts of civil disobedience.

Therefore, rather than *exogenously* imposing norm information on individuals (in the tradition of, *e.g.*, Schultz et al., 2007; Goldstein et al., 2008; Bicchieri et al., 2022a), the primary focus of this paper is to explore the norm-related information that people actively seek and how this influences their norm-related expectations and behaviors. We examine this process in the realm of ethical decision-making and honesty, situated in the context of political identity. We chose political identity as our context because research highlights increasing political polarization within society, particularly in the U.S. (Bursztyrn et al., 2020a; Klein, 2020). This polarization, as the existing theoretical and empirical literature suggests, can be fueled by biased social learning among peers (*e.g.*, Centola, 2018; Golman et al., 2022; Charroin et al., 2022). Considering the social norms literature discussed earlier, we contend that this has a direct impact on the formation and influence of norms through the endogenous selection of reference peer groups. A novel contribution of our paper is to understand how social norms form endogenously and how this affects subsequent behavior.

Existing research has largely explored peer effects on moral behavior in contexts where individuals could not choose their source of information and where social information was

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<sup>1</sup>*E.g.*, Ostrom, 2000; Bicchieri, 2006; Krupka and Weber, 2013; Kimbrough and Vostroknutov, 2016; Fehr and Schurtenberger, 2018; Villeval, 2020; Bicchieri et al., 2021; Dimant and Gesche, 2023. For a recent methodological discussion, see Bicchieri and Dimant (2019, 2023) and Bicchieri et al. (2022c).

<sup>2</sup>*E.g.*, Kunda, 1990; Di Tella et al., 2015; Exley, 2015; Bénabou and Tirole, 2016; Gneezy et al., 2018; Schwardmann et al., 2019; Dimant, 2019; Dimant et al., 2020; Garcia et al., 2020; Bicchieri et al., 2023.

predominantly about peer *behavior* rather than prescriptions. We divert from this and instead address the following three primary research questions. Our first research question investigates the extent to which allowing individuals to choose their source of information about the prevailing social norm in the ethical domain leads to a biased and self-serving selection of information. Do people exhibit bias in their information search, favoring less ethical behavior or more lenient normative views of their peers, and is this bias stronger for individuals with weaker morality? To fully capture these dynamics, we follow the existing literature by distinguishing two dimensions of norm-related expectations (Cialdini, 2003; Bicchieri, 2006): an empirical component that indicates *what other people do* (often referred to as *descriptive norm*), and a normative component that indicates *what other people (dis)approve of* (often referred to as *injunctive norm*). Across various treatments, we randomized whether participants observed empirical or normative information, never both.

Our second research question investigates whether the endogenous acquisition of information is influenced by the group identity of the source of information. The literature demonstrates that one's behavior and expectations are influenced by group identity in various domains, such as cooperation, coordination, and social preferences.<sup>3</sup> However, we still know relatively little about how group identity influences the search for information. Individuals might assign different weights to the behavior and opinions of in-groups compared to out-groups. In certain situations, individuals may encounter congruent or incongruent information channels. We hypothesize that people tempted to exploit a cheating opportunity may exhibit even greater bias in their search for social information when peers displaying more leniency in their behavior or normative approval share the same group affiliation. On the other hand, if peers from the same group exhibit more ethical behavior or uphold stricter social norms, the search for information may be less biased towards lenient information. To explore whether group identity impacts the way people search for social information, we systematically varied the observability of peer identity and examined the resulting patterns.

Our third research question examines whether and how the endogenous acquisition of empirical and normative information from peers affects individuals' propensity to engage in unethical behavior themselves and alters their expectations about the frequency and social disapproval of such behavior from others. We seek to understand if empirical and normative social information equally influences individuals' behavior and their empirical and normative expectations. Furthermore, we explore whether behavior is more susceptible to influence than expectations and if empirical expectations are more malleable than normative expectations. These questions contribute to the literature on peer effects in the ethical domain. While existing literature primarily focuses on a single dimension (typically one's behavior), our study aims to compare the influence of social information across three dimensions: own behavior, expectations about one's peers' behavior (= empirical expectations),

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<sup>3</sup>*E.g.*, Akerlof and Kranton, 2000; Goette et al., 2006; Efferson et al., 2008; Chen and Li, 2009; Benabou and Tirole, 2011; Li, 2020; Romaniuc et al., 2022; Dimant, 2023; Dimant et al., 2023b.

and expectations about one’s peers’ normative standpoints (= normative expectations). We examine these dimensions both in the absence and presence of group identity. This allows us to provide novel insights into how different aspects of social information shape individuals’ (un)ethical decision-making.

To study the acquisition and the influence of social information on behavior and on empirical and normative expectations in the ethical domain, we designed two pre-registered large online experiments with participants in the U.S.: the first experiment (n=1,945) is one in which information acquisition was *endogenous*; that is, participants were able to choose freely their source of information. In the second experiment (n=2,414), norm information was *exogenous*, and allowed us to disentangle the mechanisms at play. We used a 2×2 between-subjects design, varying whether individuals could acquire empirical or normative information about peers (but never both).

In the first experiment, participants repeatedly played a variant of the *mind game* (see Jiang, 2013; Galeotti et al., 2020; for external validation of this game see Potters and Stoop, 2016), which contained a lying opportunity where they could overreport a winning number without the risk of sanction. Lying at the individual level could be identified indirectly by the experimenter on the basis of statistical inference. After playing the mind game, we elicited participants’ empirical and normative expectations. We manipulated the presence of group identity in terms of political identification with the Democratic or Republican parties in the United States. Information about peers was obtained from a preliminary “Seed” session, where participants played the mind game in isolation for two sets of 20 periods each and subsequently reported their social norm expectations regarding the inappropriateness of different levels of overreporting in this game, following Krupka and Weber (2013).

In the main treatments of this endogenous social information experiment, we manipulated the type of norm information that individuals could acquire while playing the lying game. Similarly to participants in the Seed session, a new set of participants played the same mind game in isolation for the first part and then, while accumulating norm-related information from past players, played the game again in the second part. Social information always provided one of two types of information: a peer’s reporting behavior (empirical information) in the second part of the main game, which signaled the peer’s dishonesty, or a peer’s perception of the social norm regarding the disapproval of dishonesty (normative information). Participants could not choose between receiving empirical or normative information but could sample peers associated with either above-median (more lenient) or below-median (stricter) information.

We manipulated the second dimension, the presence of group identity, by comparing two conditions. In the *Control* condition, the two sub-samples (more lenient vs. stricter sources of information) were only identified by one of two colors. In the *Group Identity* condition, each color was randomly and explicitly associated with a different political identity (Democrat or Republican). We randomized the associations so that sometimes sharing the same

group identity (in-group setting) would correspond to *more* lenient behavior or normative expectations than the median, with the opposite for the out-group setting. Other times, sharing the same group identity would correspond to *less* lenient behavior or normative expectations than the median, with the opposite for the out-group setting. This design allowed us to observe and compare the information acquisition process of individuals with in-groups characterized by more or less moral behavior or expectations. Additionally, by comparing with the Control condition, we could test whether and when the distortion in information acquisition was intensified or reduced by the presence of group identity.

Our main findings reveal that individuals significantly favored sampling the above-median (more lenient) source of information over the below-median source. This preference for leniency was observed for both cheaters and non-cheaters in isolation. Information acquisition was partially motivated by self-interest, with a stronger leniency bias among cheaters. The introduction of group identity affected the way people selected their source of information. Both cheaters and non-cheaters exhibited homophilious preferences in terms of political identification during their search behavior. Furthermore, the (in)congruence between behavioral or normative leniency and partisan preferences influenced information acquisition. Compared to the Control condition, individuals were more (less) likely to sample from the more lenient source of information when this source was associated with in-groups (out-groups) in terms of political affiliation.

Our results suggest that people place more weight on the identity-related origin of the information than on its very content, irrespective of the type of norm information (empirical or normative) being observed. Crucially, while information acquisition was biased towards both more lenient information and partisan information, we observed interesting heterogeneous effects on behavior and expectations. Consumption of more lenient information was correlated with increased cheating behavior, especially when the information was normative and sourced from in-groups. A similar pattern emerged regarding the influence of social information on empirical expectations, except for the absence of a group identity impact. Normative expectations remained sticky and did not respond to social information, which is consistent with existing literature (*e.g.*, [Dimant et al., 2020](#); [Bicchieri et al., 2022b](#)).

To better understand these results, we dove deeper into the underlying mechanisms. While a significant effect of social information on behavior could be interpreted as a preference for conformity, the non-systematic impact of social information may have several causes. One possibility is that people are aware of their distorted search for information and attempt to correct this bias when making decisions or reporting their expectations about norms. This effect could be further reinforced by a group reputation effect, where individuals may lie less when their own party is the source of more lenient information. Another mechanism could be that conformity effects require repeated exposure to the same type of peers. In our setting, participants needed to explore by sampling from the two sources of information to determine which sample was associated with above-median and

which one was associated with below-median information. Consequently, they were exposed to various types of information, which may have limited the influence of their preferred source of information. To further explore these mechanisms, we conducted a large follow-up experiment where individuals could no longer choose their source of information and were instead presented with a controlled set of observations at random.

In the new experiment, we exposed half of the participants to the same (in expectation) content of the information as in the Group Identity condition of the initial experiment, but we removed individuals' responsibility to sample information. For the remaining participants, the norm information content continued to be assigned exogenously, but we imposed a polarized source of information: 80% of the information came from in-groups with the same political identification. This adjustment was made to augment the amount of polarized information in the data and widen the potential for social learning. As in the main experiment, we also varied whether in-groups provided below or above-median information.

The results of this follow-up experiment qualitatively replicated those of the main experiment, with some notable exceptions that provide insight into the underlying behavioral mechanisms. In particular, more lenient normative information significantly influenced individuals' expectations about what their peers found to be normatively appropriate behavior. Consequently, these findings contextualize the original finding that normative expectations are sticky, suggesting that their persistence may be conditional on the environment, particularly the extent to which individuals can choose their source of information.

The rest of this paper is structured as follows: Section 2 provides a brief review of the related literature. In Section 3, we present the design and procedures of the main experiment. Our conjectures are discussed in Section 4, while the results of the main experiment are discussed in Section 5. Section 6 introduces the design of the follow-up experiment and presents its results. Finally, we discuss these results and offer concluding remarks in Section 7.

## 2 Literature Review

We build upon the existing literature by investigating individuals' motivated information acquisition to cope with uncertainty about social norms. Our study differs from previous research by examining individuals' selection of information sources, investigating self-serving biases in selecting both normative and empirical information, and comparing the influence of such information on behavior and expectation formation. In particular, our study contributes to three strands in the literature.

First, we contribute to the understanding of the formation of social norms and the role of social information in this process. The rapidly expanding economic literature on social norms has primarily focused on static frameworks where norms are common knowledge or



settings where individuals receive exogenous normative or empirical information. However, there is a growing interest in normative uncertainty (d’Adda et al., 2020; Merguei et al., 2020; Bicchieri et al., 2022a; Dimant and Gesche, 2023; Dimant et al., 2023a) and pluralistic ignorance, which refers to a lack of information and potential misperception about others’ preferences (Bursztyn et al., 2020b; Smerdon et al., 2020).

In many real-world settings, people must explore their environment to obtain information about prevailing norms or others’ preferences. Normative uncertainty, or uncertainty regarding which norm applies and to what extent a norm is preferred and followed, can arise from various factors, such as novel social or institutional environments, conflicts between opposing norms, or dissonance between empirical and normative information. In these contexts, individuals form context-specific empirical and normative expectations before making decisions (Chang and Sanfey, 2013; Acemoglu and Jackson, 2017; Bicchieri and Dimant, 2019). Amidst such uncertainty, conditional norm followers may self-servingly support the rule that is most favorable to them (Bicchieri and Xiao, 2009; Bicchieri et al., 2023). In the ethical domain, self-serving manipulation of beliefs can result from a biased selection of information or information avoidance (Dana et al., 2007; Spiekermann and Weiss, 2016; Grossman and van der Weele, 2017; Dimant et al., 2020; Soraperra et al., 2023), or from the fact that individuals stop searching as soon as they have found enough evidence supporting their positive moral self-views (Chen and Heese, 2021).

Secondly, our study contributes to the understanding of how group identity influences information search in the ethical domain and expectations formation. Group identity has been shown to affect behavior in social encounters, with impacts on cooperation, coordination, competition, social preferences, and punishment (Akerlof and Kranton, 2000; Goette et al., 2006; Charness et al., 2007; Efferson et al., 2008; Chen and Li, 2009; Benabou and Tirole, 2011; Chen and Chen, 2011; Li, 2020; Dimant, 2023). It also influences network formation, thus, selective exposure to information, as individuals prefer to create homophilous links (Currarini and Mengel, 2016), particularly in the domain of unethical and criminal activities (Flashman and Gambetta, 2014; Gavrilova, 2019; Charroin et al., 2022). By focusing on political group identity, our study relates to the literature on the relationships between political polarization and segregated information exposure in echo chambers on social media platforms (Levy, 2021).

Lastly, we contribute to the economic literature on endogenous social information and its influence on unethical behavior. While several studies have studied the impact of peers on individuals’ (un)ethical decisions (Fortin et al., 2007; Rauhut, 2013; Kroher and Wolbring, 2015; Bäker and Mechtel, 2019; Dimant, 2019; Benistant et al., 2022; Bicchieri et al., 2022a), few have considered the endogenous selection of the source of information and the subsequent content of social information. As one example, in an experiment where participants could choose to acquire information either about peers who were not able to cheat or about peers who were able to cheat, Charroin et al. (2022) showed evidence of homophily



and conformity in behavior among those who were already dishonest in isolation. Social information weighed the same on behavior, regardless of whether peers were selected or assigned exogenously. In contrast to this, our study varies the nature of information individuals can access (either normative or empirical information) and directly elicits empirical and normative expectations, allowing us to analyze the impact of endogenous information selection on normative belief formation and determine whether information about peers’ behavior is more influential in this process than information on peers’ perceived norms.

### 3 Design and Procedures

The experiment includes a Seed session without social information and four Endogenous Information treatments. Excluding the Seed session, it consists of a  $2 \times 2$  between-subject design. One dimension manipulates the nature of the social information, and the other dimension varies the presence of group identity. We first describe the Seed session, and then the Endogenous Information treatments. Finally, we present the general procedures of the experiment. We provide the timeline of the experiment in Figure 1. To ensure high-quality data collection, data for all experiments was collected via Cloudresearch (a company specialized in collecting high-quality data on Amazon Mechanical Turk) and followed all recommended guidelines by using both attention and comprehension checks as well as CAPTCHAs (Buhrmester et al., 2018; Douglas et al., 2023).

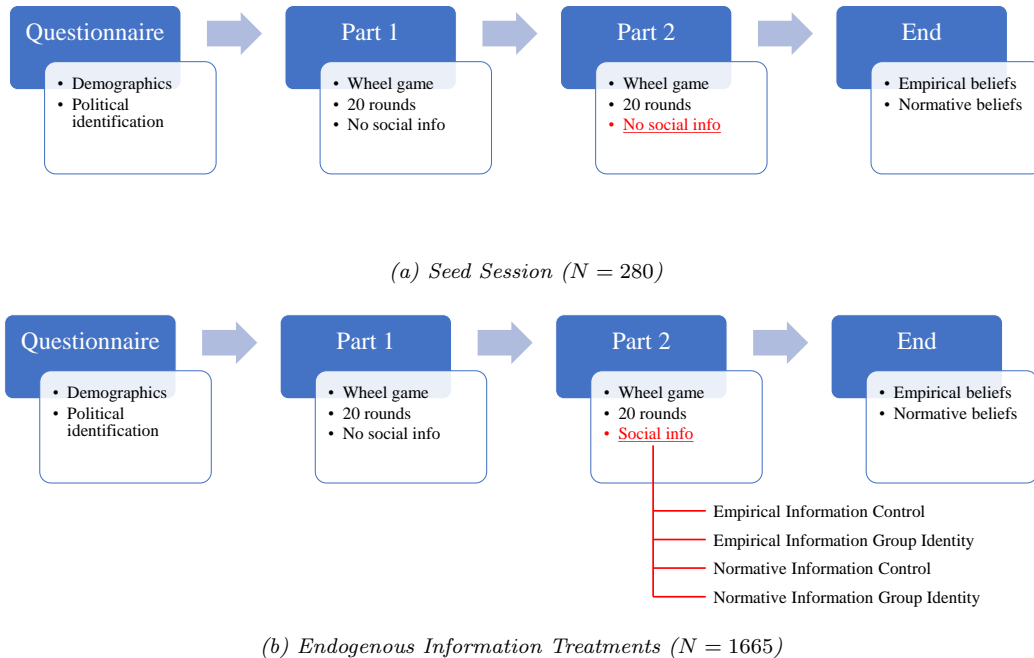


Figure 1: Timeline of the experiment

### 3.1 The Seed Session

We conducted the Seed session prior to the Endogenous Information treatments. The objective of the Seed session was to generate truthful normative and empirical information that is then used in the Endogenous Information treatments. The Seed session included: (i) a brief socio-demographic questionnaire; (ii) a first sequence of a mind game that subjects played in isolation (that is without receiving any feedback about the behavior of other participants) for 20 periods (we call this Part 1); (iii) a second sequence of the same mind game that subjects played in the same conditions for another 20 periods (we call this Part 2); (iv) a series of questions aimed at eliciting normative and empirical expectations. Parts 1 and 2 of the Seed session were identical. The need for these two parts will become evident later when we describe the Endogenous Information treatments. In each part, we let participants play the wheel game for 20 periods for comparison with previous work (see [Galeotti et al., 2020](#)), and to let participants adjust their behavior over time in response to different social information in the Endogenous Information treatments (see Section 3.2).

#### 3.1.1 Questionnaire

At the beginning of the experiment, participants completed a brief socio-demographic questionnaire. We collected information about age, gender, income, and political identification. To measure political identification, we asked subjects to report whether they consider themselves as Republican, Democrat, Independent or other. Only subjects who declared themselves as Democrats or Republicans were allowed to continue the experiment. All the others were thanked and rewarded with a fixed bonus of \$0.3 (answering only the questionnaire took about two minutes). To have a roughly equal share of Democrats and Republicans, the computer also dismissed some Democrats at random (about one every two).<sup>4</sup>

It is possible that some participants misreported their political identification. This in itself is not a problem because we are not interested in the political preferences of our participants per se. The purpose of collecting information about political identification was to manipulate the group identity of the participants in the Endogenous Information treatments. Also, if some participants misreported the information about their political identification, this should make subjects less attached to this information. Hence, any result in the direction of political homophily (as we found) would be even more striking. Finally, as a robustness check, we also asked participants to report what they thought were the three most relevant socioeconomic problems from a list of different alternatives (like in [Campos et al., 2017](#)). We expected the answers to this question to suffer less from misreporting compared to political identification. In the Online Appendix D, we show that the answers to this question were consistent with the self-reported political identification.<sup>5</sup>

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<sup>4</sup>Democrats are typically over-represented on MTurk ([Arechar and Rand, 2021](#)).

<sup>5</sup>In the questionnaire, we also asked participants to state how much they agree with the goals of the Re-

### 3.1.2 The Wheel Game (Part 1)

After the socio-demographic questionnaire, participants played a “wheel game” (Galeotti et al., 2020) for 20 periods. The wheel game is a variant of the mind game (Jiang, 2013), and it works as follows. A wheel with six empty squares was displayed on the participants’ screen. Participants were asked to select one square in their head without reporting it to the experimenter (see an example in Figure B1 in the Online Appendix B).<sup>6</sup> Once participants confirmed that they made their choice, the program randomly displayed an equal proportion of 1s and 0s in the six squares. Then, participants were instructed to report the number that appeared in the square they have previously chosen in their head. Reporting a 1 (the “winning number” or “success”) entitled the participant to receive \$1, while reporting a 0 paid nothing. The game allows to study cheating behavior in a setting where participants can misreport their actual outcomes at no direct risk of detection and sanction. The experimenter can only infer whether a participant is a cheater or not by comparing the number of times the individual reports success with the theoretical outcomes of a binomial process where the probability of success is 0.5.

Compared to conventional cheating paradigms (such as the die-rolling task of Fischbacher and Föllmi-Heusi, 2013), the wheel game removes concerns related to being observed by the experimenter. In addition, it can be easily implemented in online settings without the need for a physical device, like a die or a coin, that subjects might not have at their disposal.

### 3.1.3 The Wheel Game (Part 2)

Participants then played again the wheel game for another 20 periods in the same conditions as in Part 1. At the end of the experiment, the program randomly selected, for each participant, one wheel in each part. Participants’ earnings were determined by the sum of the two numbers that they reported in these two randomly selected wheels.<sup>7</sup>

### 3.1.4 Normative and Empirical Expectations

After the participants went through all the periods of the second wheel game, we elicited the participants’ normative and empirical expectations about the behavior in the second wheel game. To elicit the *normative expectations*, we used an incentivized coordination game à la Krupka and Weber (2013). Precisely, we described the case of an individual who

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publican National Party and the Democratic National Party, respectively. The answers were coherent with the self-reported political identification (see Online Appendix D).

<sup>6</sup>A difference with Galeotti et al. (2020) is that their wheels displayed numbers between 1 and 6, while, for the purpose of our investigation, our wheels only displayed 1s and 0s.

<sup>7</sup>Paying subjects for a randomly-selected subset of decisions is a common procedure in experimental economics. It is in line with suggestions made by Charness et al. (2016), and retains incentive compatibility as theoretically argued by Azrieli et al. (2018).

drew ten winning numbers out of 20 wheels in the wheel game. We proposed 11 statements describing the 11 possible reports of this individual. The possible reports were 10, 11, 12, and so on up to 20 winning numbers. We asked the participants to indicate for each statement whether they believed that, according to most participants, this report was or not considered as socially inappropriate (see Figure B2 in the Online Appendix B).<sup>8</sup> We used the switching point from *not inappropriate* to *inappropriate* to identify each participant’s perceived injunctive social norm about what one ought not to do in the wheel game. For each statement, participants earned \$0.03 each time they gave the same answer as that most frequently given by the other participants (in total up to \$0.33 for this task).

Following Bicchieri and Chavez (2010), we used the same 11 statements to also elicit the participant’s *personal normative expectations* (absent financial incentives), which provides an indication of what a participant personally thinks is the right thing to do (see also Bašić and Verrina, 2021, for a recent discussion of personal norms). This allowed us to measure any discrepancy between personal views and the perceived social norm. Finally, we elicited the *empirical expectations* of the participants by asking them to guess how many winning numbers the other participants reported, on average, in Part 2 of the wheel game. They could earn another \$0.2 if their guess was correct within a margin of plus or minus 1.

### 3.2 Endogenous Information Treatments

The Endogenous Information treatments differed from the Seed session only with respect to Part 2 of the wheel game. Instead of playing the game in isolation (like in Part 1 or in the Seed session), in Part 2 participants received information about the behaviors or the normative expectations of the participants from the Seed session. Since information flowed one-way from participants in the Seed session to participants in the other treatments, we avoided any reflection problem in measuring peer effects.

**Sampling of the source of information.** The information was not exogenously provided. Instead, participants sampled information in each period by clicking on one of two boxes on their screen, each one identified by a different color (yellow or purple). By clicking on one box, participants drew a past participant from the Seed session whose behavior or normative expectations, as explained below, were *equal to or above*<sup>9</sup> the median (less honest behavior or more lenient expectations). By clicking on the other box, they drew a past participant from the Seed session whose behavior or normative expectations were *below*

<sup>8</sup>As soon as they entered their first positive response (“inappropriate”), the boxes corresponding to the other statements were automatically filled in by the program; however, participants were informed that they could change any answer manually. This was done to limit multiple switching without imposing transitivity to the players. We used binary responses (inappropriate or not) for each statement instead of multiple degrees of (in)-appropriateness to build summary information about the threshold above which a report was thought to be inappropriate for the majority of people, according to this participant, and that could be easily transferred to future participants.

<sup>9</sup>In the remainder of the paper, we will simply refer to as above-median behavior or expectations.

the median (more honest behavior or stricter expectations). The participants drawn from the Seed session changed in each period. Consequently, participants slowly accumulated norm-related information for 20 periods.

Participants were informed that all information came from past participants in the Seed session and that the two equally sized sub-samples were built based on their reported number of successes or normative expectations. Crucially, for the purpose of our investigation, participants were initially unaware of which sub-sample corresponded to which box (and its color), which they could learn through sampling.<sup>10</sup> We randomized at the individual level which color was associated with the below- or above-median source of information, and which one was displayed on the left or on the right side of the screen, to prevent the results from being driven by the experimental setup. A history table was displayed on the participants' screens when they sampled information. To facilitate learning, after the participant sampled a peer in a given period, the table was immediately updated with the newly acquired information by adding one line to the table (see examples in Figure B3 in Online Appendix B).

**Experimental conditions.** The four Endogenous Information treatments are summarized in Table 1. Across treatments, we varied two dimensions: the nature of the social information (empirical vs. normative information) and the presence of political group identity (control vs. group identity).

In the *Empirical Information condition* (“Emp-Info”, hereafter), participants drew information about the total number of successes that peers from the Seed session reported in Part 2 of the wheel game (that is, with the same level of experience of the game). In the *Norm Information condition* (“Norm-Info”, hereafter), participants drew information about the perceived social norm of peers from the Seed session, that is, the threshold from which the number of successes reported by someone who actually got ten winning numbers was considered socially inappropriate.

The second dimension manipulated group identity in terms of political identification. In the *Control condition*, the two boxes used to sample individuals were only identified by a color (yellow or purple). In the *Group Identity condition*, each color was also associated with a political affiliation (Democrats *vs.* Republicans). The Group Identity condition was further divided into two between-subjects sub-conditions. In one sub-condition, participants could sample either from Democrat participants whose normative expectations (Norm-Info) or behavior (Emp-Info) was above the median or from Republican participants whose normative expectations or behavior was below the median. In the other sub-condition, they could sample either from Republican participants whose normative expectations or behav-

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<sup>10</sup>We decided not to give direct information on which color corresponded to the above- or below-median sub-sample to minimize the presence of an experimenter demand effect. We also thought it was more natural to let participants discover the information themselves.

ior was above the median or from Democrat participants whose normative expectations or behavior was below the median. This means that, depending on the condition, the political orientation of a given subject was associated with more lenient examples or, on the contrary, with stricter examples. Note that participants were informed of which political orientation was associated with which color, but they had to explore to identify which color was associated with above- or below-median information.<sup>11</sup>

Table 1: Treatments with Endogenous Information Acquisition

	Control ( $N = 549$ )	Group Identity (GI) ( $N = 1116$ )
Empirical Information ( $N = 846$ )	(1) Emp-Info Control ( $N = 285$ )	(2) Emp-Info GI (Democrats Above Median) ( $N = 276$ )
		(3) Emp-Info GI (Republicans Above Median) ( $N = 285$ )
Normative Information ( $N = 819$ )	(4) Norm-Info Control ( $N = 264$ )	(5) Norm-Info GI (Democrats Above Median) ( $N = 294$ )
		Norm-Info GI (Republicans Above Median) ( $N = 261$ )

### 3.3 Procedures

**Number of observations.** As per our pre-registration,<sup>12</sup> a statistical power analysis determined that we needed to collect data from about 150 Republicans and 150 Democrats in each condition to achieve a statistical power of 80% at an alpha level of 5%. We recruited participants located in the United States through Amazon Mechanical Turk for our online experiment, focusing on individuals who identified as Democrats or Republicans. To maintain equal party representation, we randomly dismissed some Democrat participants (see footnote 4). Despite the complex selection procedure, slightly imbalanced samples in certain conditions did not affect our conservative power analysis. In total, 1,945 participants completed the experiment (see Table C1 in Appendix C). The Seed session had 280 participants (51.79% Democrats; 52.86% males; 41.20 years), the Emp-Info treatment had 846 (54.02% Democrats; 44.33% males; average age: 41.73 years), and the Norm-Info treatment had 819 (50.43% Democrats; 47.13% males; average age: 41.84 years).

**Earnings.** All the participants earned \$0.3 for completing the initial questionnaire. Those who were allowed to continue after the questionnaire received an additional fixed bonus of \$0.5, plus a variable payment that depended on their decisions in the experiment. On average, subjects earned \$2.03 (SD = 0.728) for a duration of about 15 minutes, which

<sup>11</sup>This procedure was made transparent to the participants. In particular, we informed them that the two sub-samples were defined based on the median behavior or normative expectations, but that we selected only participants from a given political orientation in each category.

<sup>12</sup>We pre-registered this experiment with [AsPredicted \(#38103\)](#).

corresponds to an hourly wage of \$8.12, which is well above average hourly earnings on the Amazon Mechanical Turk platform (Hara et al., 2018).

## 4 Conjectures

We pre-registered five conjectures: the first two conjectures are related to the selection of information, while the last three concern the impact of social information on behavior, and on empirical and normative expectations.

We first conjectured that the selection of the source of information is biased. This conjecture builds on the idea that individuals are selective about what they want to observe and learn (Dana et al., 2007; Sharot and Sunstein, 2020), and they prefer to receive information from individuals who share similar preferences (Charroin et al., 2022). In particular, we anticipated that individuals are likely to select information self-servingly because observing others misbehaving or reporting a more lenient norm may reduce the moral costs of lying (Dimant, 2019; Bicchieri et al., 2023).

**Conjecture 1.** *Less honest individuals are more likely to sample information from peers who provide above-median (i.e., more lenient) empirical and normative information.*<sup>13</sup>

Research on homophily has revealed that individuals have a preference for being matched with in-groups who share the same group identity because they value the reduction of the distance with their reference group (Haynie, 2001; Charness et al., 2007; Currarini and Mengel, 2016; Dimant, 2023). Thus, we conjectured that when the political identification of peers is public, individuals are more likely to sample peers with the same political identification, showing homophilious preferences in the selection of the source of information, regardless of whether these peers deliver below- or above-median empirical or normative information. The resulting conjecture is as follows:

**Conjecture 2.** *Political identity associated with more lenient (less lenient) empirical or normative information reinforces (decreases) the selection effect described in Conjecture 1.*

The following conjectures relate to the impact of social information. A long-standing stream of literature in economics and psychology has highlighted the impact of norms on behavior (for an overview, see Bicchieri and Dimant, 2019). We deviated from the third pre-registered conjecture which stated that empirical and normative expectations would become

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<sup>13</sup>Note that we used different terminology in the pre-registration and in the paper to designate leniency. In the pre-registration, we wrote: “Less honest individuals are more likely to sample information from peers with a below-median perception of the norm or below-median moral behavior”. A “below-median perception of the norm or moral behavior” meant a more lenient perception or behavior, as it referred to morality. In this version of the paper, we preferred to refer instead to the reported number of winning numbers or the threshold above which a report is considered as socially inappropriate because they are objective measures. This is why a more lenient perception or behavior is defined in the rest of the paper as being “above-median”. We adjusted the terminology in all the conjectures accordingly. Note that this change in terminology does not affect the meaning of the pre-registered conjectures.



more lenient and behavior less moral after participants choose their source of information. Indeed, we realized that the right comparison is not between behavior and expectations in isolation and after participants received social information, but rather how behavior and expectations reacted to the content of the social information itself.<sup>14</sup> We anticipated that information from peers is a source of contagion in lying, especially when it is about peers' actual behavior (as suggested by [Bicchieri and Xiao, 2009](#), who showed that empirical information has a more significant impact on individual decisions in a dictator game, in contrast to normative information).

**Conjecture 3.** *Behavior, empirical and normative expectations adjust to the leniency of peers' empirical and normative information.*

**Conjecture 4.** *The impact of endogenous information is stronger when it is about behavior rather than about the perceived injunctive norm.*

However, if they select their source of information more on the basis of political identification than on empirical and normative orientation, the impact of peer effects on lying may be conditioned on whether in-groups are associated with above- or below-median information. When the political identification of peers is public, this effect is conditioned on whether in-groups are associated with above- or below-median information. It is indeed expected that more (less) lenient information from in-groups gives more (less) license to individuals to adjust their moral standing. This leads to our fifth conjecture:

**Conjecture 5.** *Political identity associated with more (less) lenient norm or behavior amplifies (decreases) the effect described in Conjecture 3.*

## 5 Results

In presenting our results, we first look at the Seed session and check that the information generated is balanced between Democrats and Republicans. We then examine how participants played the wheel game in Part 1 to get a sense of the extent of lying behavior in the absence of social information. We then turn to our main research questions, namely how participants endogenously selected norm-related information and how this affected their lying behavior and norm-related expectations (empirical and normative). Consistently with the structure of our experimental design, we break up the analysis by the presence of political group identity. Unless otherwise specified, the p-values correspond to two-sided tests throughout the paper. Each individual is treated as one independent observation.

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<sup>14</sup>Participants, on average, cheated more in the Seed session than in the other treatments (Part 1: 13.13 vs. 12.23, t-test,  $p < 0.001$ ; Part 2: 13.13 vs. 12.37, t-test,  $p = 0.002$ ). They also held more lenient empirical expectations (12.63 vs. 13.15, t-test,  $p = 0.024$ ). This means that the Seed session cannot provide appropriate control with no social information.

Table 2: Summary statistics about behavior and expectations in the Seed session

	All	Republicans	Democrats	Rank-sum	K-S
Behavior (Part 1)	13.13 (3.64) [13]	13.27 (3.29) [13]	13.01 (3.95) [12]	0.233	0.186
Behavior (Part 2)	13.13 (3.83) [13]	13.13 (3.59) [13]	13.13 (4.06) [13]	0.816	0.987
Empirical expectations	13.15 (3.30) [13]	13.06 (3.31) [13]	13.23 (3.31) [13]	0.563	0.756
Normative expectations	14.94 (3.63) [15]	14.86 (3.55) [15]	15.01 (3.71) [15]	0.734	0.883
Personal beliefs	14.88 (3.76) [15]	14.81 (3.54) [15]	14.94 (3.96) [15]	0.955	0.525

*Notes.* The first three columns report mean values, standard deviations (in round brackets), and median values (in squared brackets). The last two columns report the p-values of Mann-Whitney and Kolmogorov-Smirnov tests, respectively, comparing Republicans vs. Democrats.

## 5.1 Democrats vs. Republicans in the Seed Session

Table 2 reports summary statistics about the behavior and the expectations of participants from the Seed session, distinguishing between Democrats and Republicans. We find no statistically significant difference in behavior and expectations between Democrats and Republicans (see last two columns of Table 2). This implies that, in the Endogenous Information treatments, we exposed Democrats and Republicans to information that came from comparable populations. In the rest of the analysis, we pool the data of Democrats and Republicans. We refer to social information that comes from peers with the opposite (same) political orientation as out-group (in-group) information.

The aggregate figures of Table 2 show that participants cheated both in Part 1 and Part 2. In particular, the average number of successes reported by the participants significantly exceeded the expected value of 10 both in Part 1 and Part 2 (Wilcoxon signed-rank tests, WS hereafter,  $p < 0.001$ ). Participants’ empirical expectations, on average, matched quite well with the actual mean behavior. If we compare participants’ guesses with the average reported number of successes in Part 2 (13.13), the difference is not statistically significant (WS,  $p = 0.352$ ). While empirical expectations were on average accurate, there was substantial dispersion, with the majority of the participants (55.71%) underestimating the extent of cheating behavior.

Turning to normative expectations, we find that, on average, reporting 15 or more successes (when the actual number is 10) was considered socially inappropriate. There is also some evidence that normative expectations were slightly stricter than personal normative views (WS,  $p = 0.057$ ).

## 5.2 Lying Behavior in Isolation (Part 1)

In Part 1, participants on average reported a success in 61.81% of the cases, which is significantly above chance (Wilcoxon signed-rank test,  $p < 0.001$ ). This indicates that participants tended to misreport the numbers in the wheels to their advantage but not to the full extent. A graphical illustration of this result is provided in Figure 2, which displays

the theoretical and the empirical distributions of reported successes in Part 1, pooling the data from the Seed session and the Endogenous Information treatments together since there was no social information in any treatment in Part 1. The figure shows that the empirical distribution is shifted to the right of the theoretical distribution. We can also compute the overall rate of misreporting by assuming that participants never lied to their disadvantage (i.e., reporting a 0 when the actual number was 1). This is equal to 23.61%.<sup>15</sup> This result is consistent with the existing literature on lying in mind games (*e.g.*, Jiang, 2013; Kajackaite and Gneezy, 2017; Dimant et al., 2020; Galeotti et al., 2020).

At the individual level, we follow previous literature (Jiang, 2013) and classify individuals as “cheaters” if they reported 14 or more winning numbers in the 20 wheels of Part 1. This threshold is computed based on a binomial test.<sup>16</sup> With this cut-off point, the share of cheaters is 30.59%.<sup>17</sup>

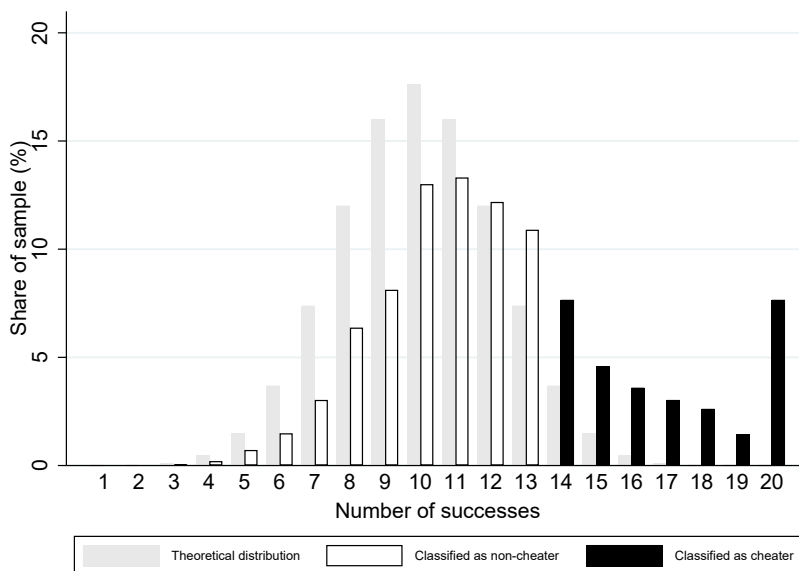


Figure 2: Distribution of successes in Part 1

*Notes.* The figure displays the theoretical distribution of a binomial process with 20 independent draws and a theoretical success probability of 0.5 in each draw and the empirical distribution of reported winning numbers. The empirical distribution pools the data from the Seed session and the Endogenous Information treatments. Participants are classified as cheaters if they reported at least 14 winning.

<sup>15</sup>This is obtained by solving  $s = 0.5 \cdot (1 - m) + 1 \cdot m$  for  $m$ , where  $s$  is the fraction of reported successes and  $m$  the fraction of misreports (see Cohn et al., 2014).

<sup>16</sup>According to a binomial test, it is only when one reports 14 winning numbers (or more) that the reported proportion is significantly different from the expected report of an honest individual.

<sup>17</sup>Throughout the paper we use this cut-off point. Using a cut-off point at 13 winning numbers, the share of cheaters is 41.49%; using a cut-off point at 15, the share of cheaters is 22.93%. Our results are robust to these alternative specifications.

## 5.3 Endogenous Information Acquisition (Part 2)

### 5.3.1 Control Condition

First, we focus on the Control condition to examine information acquisition in the absence of group identity. Figure 3 displays the average share of above-median (more lenient) information consumed by the participants. We break down our analyses by information condition (Emp-Info vs. Norm-Info) and participants' classification (cheaters vs. non-cheaters). In the Emp-Info condition, the average share of above-median information consumed was 54.61% (non-cheaters: 53.52%; cheaters: 56.77%). In the Norm-Info condition, it was 54.53% (non-cheaters: 52.62%; cheaters: 58.83%). In both conditions, individuals selected more frequently the source of information (*i.e.*, the color) that was associated with more lenient information than more strict information (WS tests; Emp-Info:  $p < 0.001$  overall;  $p = 0.049$ , non-cheaters;  $p = 0.002$ , cheaters; Norm-Info:  $p < 0.001$  overall;  $p = 0.012$ , non-cheaters;  $p < 0.001$ , cheaters). As a result, both cheaters and non-cheaters consumed a share of lenient information higher than 50%, regardless of its nature (empirical or injunctive).

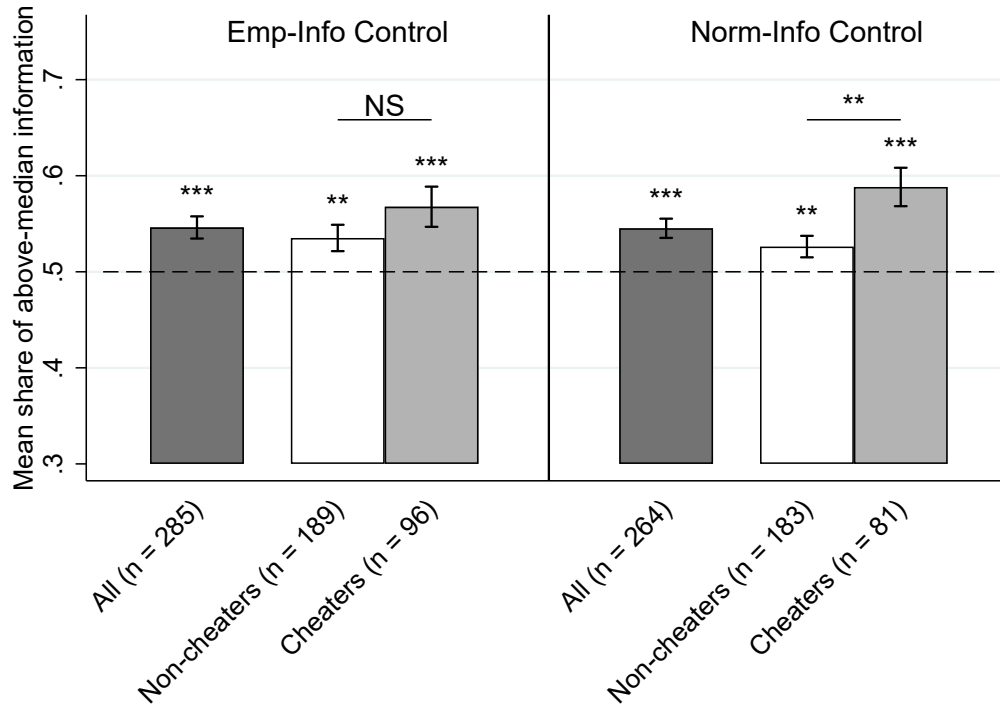


Figure 3: Share of above-median (lenient) information consumed in the Control condition

*Notes.* The figure displays the mean share of above-median information consumed by the participants. The data are from the Control condition. The left panel is for Emp-Info and the right panel for Norm-Info. Participants are classified as cheaters if they reported 14 winning numbers or more in Part 1. Error bars denote standard errors of the mean. Significance of the mean (relative to a threshold of 0.5) is based on Wilcoxon signed-rank tests. Significance between cheaters and non-cheaters is based on Mann-Whitney rank-sum tests. NS: non-significant, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Moreover, individuals classified as cheaters consumed, on average, more lenient information than non-cheaters. In the Norm-Info condition, the difference in the consumption of more lenient information between cheaters and non-cheaters is always statistically significant, both if we pool all periods together (Mann-Whitney rank-sum test, MW hereafter:  $p = 0.001$ ) or if we split the analysis in blocks of five periods, as is shown in Figure 4 (periods 1-5:  $p = 0.073$ ; 6-10:  $p = 0.015$ ; 11-15:  $p = 0.065$ ; 16-20:  $p = 0.045$ ). In the Emp-Info condition, the difference is statistically significant only in the last periods (overall:  $p = 0.130$ ; periods 1-5:  $p = 0.245$ ; 6-10:  $p = 0.776$ ; 11-15:  $p = 0.082$ ; 16-20:  $p = 0.024$ ).

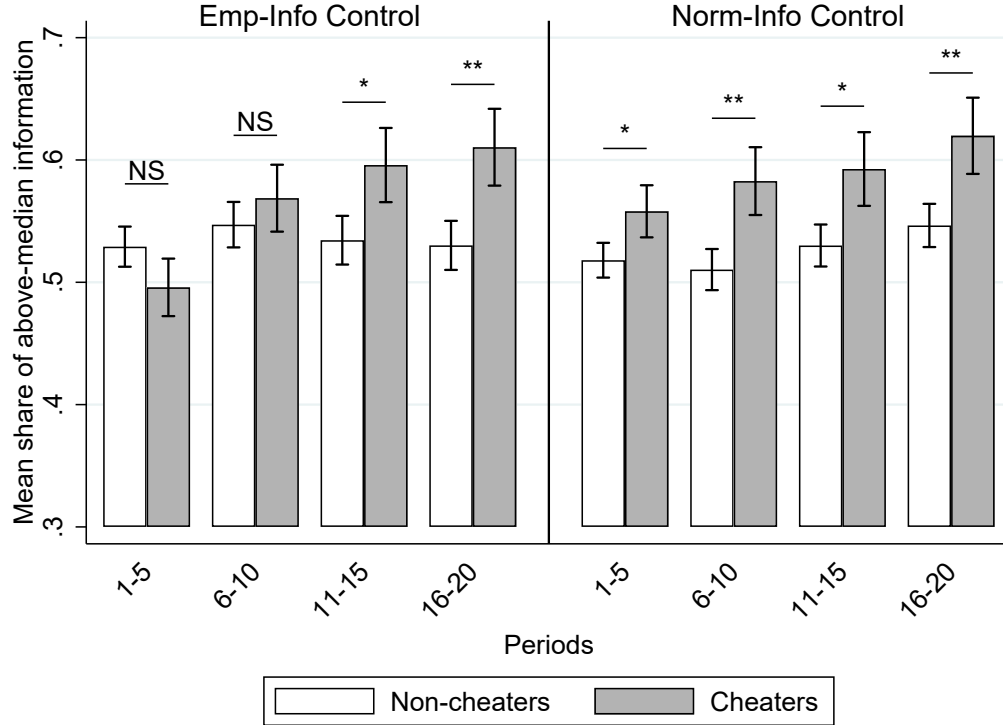


Figure 4: Share of above-median information consumed in the Control condition over time

*Notes.* The figure displays the mean share of above-median information consumed by the participants across blocks of 5 periods. The data are from the Control condition. The left panel is for Emp-Info and the right panel is for Norm-Info. Participants are classified as cheaters if they reported 14 winning numbers or more in Part 1. Error bars denote standard errors of the mean. The significance between cheaters and non-cheaters is based on Mann-Whitney rank-sum tests. NS: non-significant, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Figure 4 also shows that cheaters increased their consumption of more lenient information over time (Page's trend tests:  $p < 0.001$  in Emp-Info;  $p = 0.045$  in Norm-Info).<sup>18</sup> In the beginning, participants did not know which source of information contained more lenient examples. Hence, participants drew examples from both sources. In the following periods, participants could realize that one source of information provided more lenient examples

<sup>18</sup>For non-cheaters, there is no clear trend in Emp-Info ( $p = 0.435$ ) and only a small positive trend in Norm-Info ( $p = 0.046$ ).

than the other. Only cheaters strongly reacted to this knowledge by drawing an increasing number of examples from this source of information. Overall, this analysis supports Conjecture 1 and leads to the following result.

**Result 1. (*Leniency Bias*)** *Cheaters and non-cheaters selected more lenient sources of empirical and normative information. This bias is stronger for cheaters than non-cheaters.*

### 5.3.2 Group Identity Condition

Next, we examine the extent to which group identity affected the acquisition of information. We conjectured that individuals sample more frequently information from peers who share the same political identification as them (in-group peers). Thus, we expected homophily to increase (reduce) the individuals' consumption of more lenient information compared with the Control condition if peers with the same affiliation were associated with above- (below) median information. To test this conjecture, we contrast the Group Identity condition with the Control condition under Emp-Info and Norm-Info, respectively.

Figure 5 displays the average share of above-median information consumed by participants in the Control and Group Identity conditions, respectively. For the Group Identity condition, we distinguish whether the in-group information was associated with below or above-median information. Panel (a) reports the data from all participants. Panel (b) considers only non-cheaters, while Panel (c) considers only cheaters.

The figure confirms the existence of homophilious preferences. Compared to the Control condition, participants in the Group Identity condition consumed significantly more (less) above-median information when this came from in-group (out-group) peers (MW tests,  $p < 0.001$ ). This is true for both Emp-Info and Norm-Info, and for participants classified as cheaters and non-cheaters, respectively. On average, the increase (decrease) in the consumption of more lenient information was between 11% and 19% (21% and 28%) across conditions and participants' classification.<sup>19</sup> This reveals that homophily and leniency bias mutually reinforced each other when in-group information was more lenient—participants consumed increasingly lenient information. Conversely, when in-group information was less lenient, homophily decreased the leniency bias—participants mainly consumed in-group information, with less regard for its leniency. This finding supports Conjecture 2.

Another way to study the impact of homophily in the information search is to look at the share of in-group information that participants consumed in each condition. Both in Emp-Info and Norm-Info, the consumption of in-group information was always significantly above 50%. This was true for both cheaters and non-cheaters, irrespective of whether the

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<sup>19</sup>In Appendix E, we also looked at how the consumption of above-median information evolved over time in the Group Identity condition. We found that non-cheaters increased the consumption of above-median information in both Emp-Info and Norm-Info only when the in-group information was below the median. For cheaters, we found a significant increase in the consumption of above-median information only in the Norm-Info condition when the in-group information was above the median.

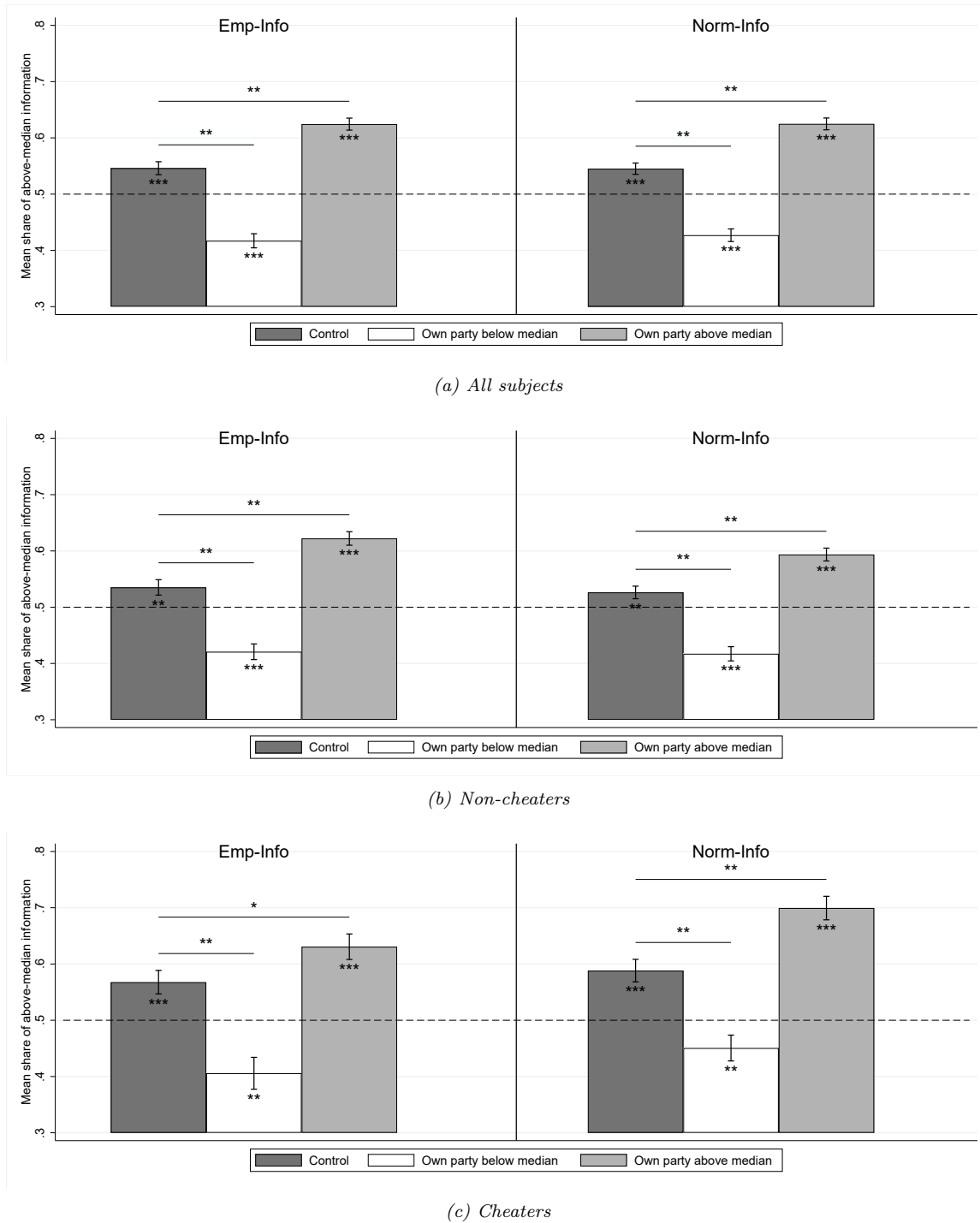


Figure 5: Share of above-median information consumed in Control and Group Identity

*Notes.* The figure displays the average share of above-median information consumed by participants in Control and Group Identity, respectively, and depending on whether the in-group information was associated with above-median (light grey bars) or below-median (white bars) information. Panel (a) considers all participants, Panel (b) considers only the non-cheaters, and Panel (c) considers only the cheaters. Participants are classified as cheaters if they reported 14 winning numbers or more in Part 1. In each panel, the left side is for Emp-Info, and the right side is for Norm-Info. Error bars denote standard errors of the mean. Significance of the mean (relative to a threshold of 0.5) is based on Wilcoxon signed-rank tests. Significance between conditions is based on Mann-Whitney rank-sum tests. NS: non-significant, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .



in-group information was associated with stricter or more lenient information (WS tests,  $p < 0.05$  for each comparison). In Emp-Info, participants selected in-group information 62.44% of the times when this was associated with more lenient behavior (non-cheaters: 62.22%; cheaters: 63.07%), and 58.29% of the times when it was associated with stricter behavior (non-cheaters: 57.92%; cheaters: 59.43%). In Norm-Info, the selection of in-group information occurred 62.48% of the times when it was associated with more lenient expectations (non-cheaters: 59.36%; cheaters: 69.94%) and 57.30% of the times when it was associated with stricter expectations (non-cheaters: 58.28%; cheaters: 54.94%).<sup>20</sup> We also observe that participants chose more often in-group information when this was associated with more lenient information than when it was associated with stricter information (MW tests:  $p < 0.001$  in both Emp-Info and Norm-Info). This is an effect of the leniency bias.

Finally, cheaters consumed more in-group information than non-cheaters but only in Norm-Info (MW tests:  $p = 0.003$ , Norm-Info;  $p = 0.973$ , Emp-Info). The effect is driven by the setting in which in-group information was above the median ( $p < 0.001$ , in-group above median;  $p = 0.397$ , in-group below median). This does not necessarily mean that cheaters exhibited more homophilous preferences than non-cheaters. It may actually indicate that cheaters preferred to consume more lenient information than non-cheaters (as we have seen in the Control condition) but they expressed this preference only when the information was injunctive and the leniency came from in-group peers. These results can be summarized as:

**Result 2. (*Homophily*)** *Both cheaters and non-cheaters exhibited homophilous preferences in the selection of empirical and normative information. Homophily and the leniency bias reinforced each other when the in-group information was associated with more lenient information. Homophily reduced the leniency bias when the in-group information was associated with less lenient information.*

### 5.3.3 Regression Analysis

We now report a regression analysis to study how homophily affected the leniency bias, controlling for individual heterogeneity. Table 3 displays the results of several OLS regressions. In Models (1)-(3), we pooled the data from the Control and the Group Identity conditions. The dependent variable is the fraction of above-median information consumed by a participant in Part 2 of the wheel game. Models (4)-(6) are estimated only on the data from the Group Identity condition. Here, the dependent variable is the fraction of in-group information consumed by a participant in Part 2. Models (1) and (4) are estimated on the pooled data of Emp-Info and Norm-Info. Models (2) and (5) are estimated on the data from the Emp-Info condition and Models (3) and (6) on the data from the Norm-Info condition.

All models contain treatment dummies as explanatory variables. In Models (1)-(3),

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<sup>20</sup>The consumption of in-group information was similar between Emp-Info and Norm-info (MW tests;  $p = 0.706$ , overall;  $p = 0.486$ , non-cheaters;  $p = 0.175$ , cheaters).

Table 3: Treatment effects on the selection of information

Dep. variable:	Share of Above-Median Information			Share of In-Group Information		
	Pooled (1)	Emp-Info (2)	Norm-Info (3)	Pooled (4)	Emp-Info (5)	Norm-Info (6)
<i>Control</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>	-	-	-
In-group below median	-0.107*** (0.016)	-0.115*** (0.020)	-0.108*** (0.017)	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
In-group above median	0.079*** (0.015)	0.085*** (0.018)	0.068*** (0.016)	0.033** (0.016)	0.043** (0.018)	0.014 (0.017)
Cheater	0.046*** (0.017)	0.031 (0.025)	0.061*** (0.023)	-0.004 (0.020)	0.024 (0.033)	-0.026 (0.026)
In-group below median × Cheater	-0.034 (0.027)	-0.043 (0.040)	-0.030 (0.035)	-	-	-
In-group above median × Cheater	0.011 (0.025)	-0.021 (0.036)	0.044 (0.033)	0.065** (0.027)	-0.007 (0.041)	0.131*** (0.035)
Emp-Info	0.001 (0.015)	-	-	0.009 (0.017)	-	-
In-group below median × Emp-Info	-0.009 (0.023)	-	-	-	-	-
In-group above median × Emp-Info	-0.001 (0.021)	-	-	-0.010 (0.022)	-	-
Constant	0.543*** (0.025)	0.539*** (0.034)	0.550*** (0.031)	0.476*** (0.029)	0.470*** (0.042)	0.497*** (0.036)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	1665	846	819	1116	561	555
R2	0.18	0.16	0.21	0.049	0.04	0.078
Prob > F	0.000	0.000	0.000	0.000	0.010	0.000

*Notes:* OLS regressions. Robust standard errors are in parentheses. Models (1) and (4) pool the data of the Control and Group Identity conditions. Models (4)-(6) consider only the data from the Group Identity condition. Models (2) and (5) are estimated on the data from the Emp-Info condition, while Models (3) and (6) on the data from the Norm-Info condition. There is one observation per individual. In Models (1)-(3), the dependent variable is the fraction of above-median information consumed by a subject. In Models (4)-(6), it is the fraction of in-group information consumed by a subject. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

we use the Control condition as the baseline category and add two dummies for the Group Identity condition. One dummy indicates whether the in-group information is above-median. The other dummy indicates whether the in-group information is below-median. In Models (4)-(6), we only have one dummy for in-group information above the median (the reference category is in-group information below the median). In all models, we also include a dummy variable equal to 1 if the participant was classified as a cheater (based on his/her behavior in Part 1), and interaction terms between this dummy and the treatment dummies. In Models (1) and (4), we also include a dummy variable for the Emp-Info condition, and interaction terms between this variable and the other treatment variables. Finally, we include controls for individual socio-economic characteristics (age, gender, educational attainment, annual pre-tax income, and political orientation) and design procedures (which color was associated with above-median information and its position on the screen).

The regression analysis confirms our previous results. It shows that participants preferred to sample from the more lenient source of information. This was especially true for participants classified as cheaters, as is shown by the positive and significant coefficient of the *Cheater*

dummy in Model (1). Models (2) and (3) reveal that the effect was mainly driven by the Norm-Info condition (in Emp-Info, the *Cheater* dummy is not significant). Cheaters seemed to care more than non-cheaters about a more lenient perceived social norm, which supports Conjecture 1. Consistent with Conjecture 2 and Result 2, Models (1)-(3) also show that the introduction of group identity significantly increased the consumption of more lenient information when this was associated with in-group peers, while it decreased it significantly when it was associated with out-group peers. The effect was the same for cheaters and non-cheaters, as is shown by the insignificant interaction terms between Cheater and the dummies for the Group Identity conditions.<sup>21</sup>

If we turn to Models (4)-(6), we find that individuals consumed more in-group information when it delivered more above-median rather than below-median information. This effect was stronger among cheaters as indicated by the significant coefficient of *In-group above median*  $\times$  *Cheater* in Model (4). Model (5) indicates that in Emp-Info, the cheating status had no significant effect on leniency bias. Model (6) reveals that in Norm-Info, only cheaters were affected by the leniency bias (the coefficient of the dummy *In-group above median* is no longer significant while its interaction with the *Cheater* dummy is). Overall, this analysis confirms that moral information acquisition is motivated.

## 5.4 Effect of Endogenous Social Information on Behavior & Expectations

### 5.4.1 Econometric Specification

We now explore the extent to which social information influenced behavior, empirical expectations (*i.e.*, participants' guess about other participants' behavior in the wheel game), and normative expectations (*i.e.*, participants' guess about other participants' perception of social approval of misreporting behavior in the wheel game). We focus on Part 2<sup>22</sup> and examine this at the individual level using a regression analysis to account for the variation in the information received by the participants. For both behavior and expectations, we use the following regression model:

$$y_i = \beta_0 + \beta_1 Avg-Info_i + \gamma X_i + \varepsilon_i \quad (1)$$

<sup>21</sup>In the Online Appendix F, we also analyze how the consumption of more lenient information evolved over time using linear probability and probit models. Besides confirming the results of Table 3, we also show that, in line with the non-parametric tests reported earlier, the consumption of more lenient information increased over time, especially for cheaters.

<sup>22</sup>Indeed, as mentioned in the Conjectures section, the Seed session does not provide an appropriate benchmark without social information because participants cheated more in this condition than in the main treatments. Moreover, a difference-in-difference analysis between Part 1 and Part 2 is less informative than an econometric analysis of the effect of the precise content of social information on behavior. If we consider the difference in behavior between Part 1 and Part 2, there is no difference between the Seed session and the Control condition ( $p = 0.980$ ) or with the Group Identity conditions ( $p = 0.459$ ). Finally, since we did not elicit expectations in Part 1 we cannot measure the impact of the information received on the evolution of expectations between Part 1 and Part 2.

where  $y_i$  is either the proportion of winning numbers reported in Part 2 (behavior), the belief regarding the average number of winning numbers reported by others in Part 2 (empirical expectations), or the inappropriateness switching point (normative expectations) of participant  $i$ .  $Avg-Info_i$  is the average information that the participant  $i$  received from other players. Since we run separate regressions for Emp-Info and Norm-Info,<sup>23</sup>  $Avg-Info_i$  can be represented by the average number of winning numbers reported by the 20 peers drawn by the participant  $i$  or the average perceived social norm (measured by the average switching point in the norm elicitation task) of the 20 peers drawn by participant  $i$ .  $X_i$  is a vector of control variables.

To analyze the effect of group identity, we extend the model as follows:

$$y_i = \beta_0 + \beta_1 Avg-Info_i + \beta_2 (Avg-Info_i \times In-group_i) + \beta_3 (Avg-Info_i \times Control_i) + \gamma X_i + \varepsilon_i \quad (2)$$

where  $In-group_i$  measures the share of in-group information consumed by participant  $i$ , while  $Control_i$  is a binary indicator for the Control condition. Therefore,  $\beta_1$  captures the marginal effect of consuming more lenient information when this comes only from out-groups.  $\beta_2$  measures the additional effect when information comes from in-groups. Finally,  $\beta_3$  captures the additional effect when information is not associated with political identity.

In Table 4, 5 and 6, we report the estimates of Tobit regressions for behavior, empirical expectations, and normative expectations, respectively.<sup>24</sup> In each Table, the regressions reported in Panel A are estimated based on the data from the Emp-Info condition, while those reported in Panel B are based on the data from the Norm-Info condition. Models (1) and (3) use specification (1), while Models (2) and (4) are based on specification (2).<sup>25</sup>

#### 5.4.2 Effect on Behavior

Table 4 shows that the effects of peers on behavior were present in both Emp-Info and Norm-Info. In both Models (1) and (3), the coefficient for  $Avg-Info_i$  is positive and statistically significant. This indicates that the participants reported more successes as they consumed more lenient information. This supports Conjecture 3. However, the effect appears to be more pronounced when the information was injunctive, as it was statistically significant

<sup>23</sup>We consider the two conditions separately because empirical and normative information is not directly comparable. For example, moving from 12 to 13 the number of successes may not have the same meaning as moving from 12 to 13 the norm about over-reported successes. In the Online Appendix G, we report an analysis where we pool the two conditions after standardizing the social information.

<sup>24</sup>We used Tobit instead of OLS regressions because the data are left and/or right-censored. OLS regressions yield qualitatively identical results and are available upon request. For consistency with the analysis of expectations (for which we do not have period-level data), we do not analyze the behavior on a period-by-period basis (as initially pre-registered). Note also that such analysis would be noisier because it would be sensitive to the period-by-period fluctuations due to luck, and modeling the relationship between social information and behavior would be more challenging due to potential lagging effects.

<sup>25</sup>In the Online Appendix H, we also report a separate regression analysis for cheaters and non-cheaters.

Table 4: Effects of Social Information on Reporting Behavior, Main Experiment

	Panel A: Emp-Info		Panel B: Norm-Info	
	(1)	(2)	(3)	(4)
Avg-Info	0.164*	0.040	0.578***	0.415***
	(0.093)	(0.107)	(0.113)	(0.126)
Avg-Info $\times$ In-Group	-	0.135**	-	0.186***
		(0.060)		(0.064)
Avg-Info $\times$ Control	-	0.087**	-	0.109**
		(0.042)		(0.044)
Constant	11.844***	12.525***	5.576***	6.503***
	(1.457)	(1.484)	(1.783)	(1.802)
Controls	Yes	Yes	Yes	Yes
Observations	846	846	819	819
Wald $\chi^2$	29.23	34.30	61.30	69.82
Log-likelihood	-2256.647	-2254.112	-2188.223	-2183.965

Notes: Tobit regressions. Standard errors are in parentheses. The regressions reported in Panel A (B) are based on the data from the Emp-Info (Norm-Info) condition. Models (1) and (3) use specification 1, while Models (2) and (4) are based on specification 2. There is one observation per individual. In all Models, the dependent variable is the proportion of winning numbers reported in Part 2 by a subject. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

even when the information originated from out-groups, in contrast to when the information was empirical. This is shown in Model (4) of Panel B, where the coefficient for  $Avg-Info_i$  is positive and statistically significant. In contrast, the coefficient for  $Avg-Info_i$  is close to zero and insignificant in Model (2). This goes against Conjecture 4. In the Online Appendix G, we provide additional evidence against Conjecture 4 by jointly analyzing the Emp-Info and Norm-Info conditions after standardization.

Interestingly, the effect of consuming more lenient information was enhanced when the information came from in-groups rather than out-groups. This is highlighted by the positive and significant coefficient of the interaction term between  $Avg-Info_i$  and  $In-Group_i$  in Models (2) and (4). This tends to support Conjecture 5. A similar but slightly weaker effect is observed when the information was not associated to any political identification (the coefficient of  $Avg-Info_i \times Control$  is slightly smaller but significant in both Models).<sup>26</sup> We can thus report the following main result:

**Result 3. (*Effects of Social Information on Behavior*)** *Individuals who consumed more lenient information exhibited more cheating behavior, particularly when the information was normative and sourced from in-group peers.*

<sup>26</sup>A comparison between the coefficients of the two interaction terms yield a significant result in Model (4) ( $p = 0.017$ ) but not in Model (2) ( $p = 0.121$ ).

### 5.4.3 Effect on Norm-Related Expectations

Table 5 reports the estimates of our empirical analysis for empirical expectations. As for the previous behavior analysis, the coefficient for  $Avg-Info_i$  in Models (1) and (3) is positive and statistically significant. This means that the selection of both more lenient empirical and normative information moved empirical expectations upward, again supporting Conjecture 3. The effect was the same regardless of where the more lenient information came from (none of the interaction terms in Models (2) and (4) turns out to be statistically significant). This does not support Conjecture 5.

Table 5: Effects of Social Information on Empirical Expectations, Main Experiment

	Panel A: Emp-Info		Panel B: Norm-Info	
	(1)	(2)	(3)	(4)
Avg-Info	0.246*** (0.084)	0.307*** (0.098)	0.433*** (0.104)	0.479*** (0.116)
Avg-Info $\times$ In-Group	-	-0.085 (0.055)	-	-0.050 (0.059)
Avg-Info $\times$ Control	-	-0.018 (0.038)	-	-0.035 (0.040)
Constant	10.343*** (1.327)	9.921*** (1.350)	6.943*** (1.643)	6.682*** (1.669)
Controls	Yes	Yes	Yes	Yes
Observations	846	846	819	819
Wald $\chi^2$	19.71	25.59	31.36	32.14
Log-likelihood	-2228.307	-2225.369	-2193.230	-2192.838

Notes: Tobit regressions. Standard errors are in parentheses. The regressions reported in Panel A (B) are based on the data from the Emp-Info (Norm-Info) condition. Models (1) and (3) use specification 1, while Models (2) and (4) are based on specification 2. There is one observation per individual. In all Models, the dependent variable is the belief of a participant on the average number of winning numbers reported by others in Part 2. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*\*\*  $p < 0.01$ .

In contrast, as illustrated in Table 6, our analysis of normative expectations reveals that neither empirical nor normative information had any effect on them (none of the coefficients reported in the table is statistically significant). This is true irrespective of whether the information came from in-groups, out-groups, or individuals whose political identity was unknown. This rejects Conjectures 3, 4, and 5. We report the following result:

**Result 4. (*Effects of Social Information on Norm-Related Expectations*)** *Individuals who consumed more lenient empirical or normative information exhibited higher empirical expectations, regardless of the identity of the peers from which this information was sourced; by contrast, normative expectations never responded to the social information received under any circumstances.*

Overall, our results suggest that normative expectations are stickier, while behavior and

Table 6: Effects of Social Information on Normative Expectations, Main Experiment

	Panel A: Emp-Info		Panel B: Norm-Info	
	(1)	(2)	(3)	(4)
Avg-Info	0.102 (0.133)	0.125 (0.155)	-0.247 (0.154)	-0.193 (0.172)
Avg-Info $\times$ In-Group	-	-0.047 (0.087)	-	-0.057 (0.087)
Avg-Info $\times$ Control	-	0.015 (0.060)	-	-0.047 (0.059)
Constant	14.846*** (2.088)	14.607*** (2.134)	18.966*** (2.435)	18.668*** (2.472)
Controls	Yes	Yes	Yes	Yes
Observations	846	846	819	819
Wald $\chi^2$	6.13	8.86	15.28	15.93
Log-likelihood	-2029.965	-2028.604	-1935.355	-1935.028

Notes: Tobit regressions. Standard errors are in parentheses. The regressions reported in Panel A (B) are based on the data from the Emp-Info (Norm-Info) condition. Models (1) and (3) use specification 1, while Models (2) and (4) are based on specification 2. There is one observation per individual. In all Models, the dependent variable is the inappropriateness switching point of a participant. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*\*\*  $p < 0.01$ .

descriptive expectations appear to be more malleable.

## 6 Follow-up Experiment

Up to this point, we have established how participants select empirical and normative information. We have also documented how this endogenous information acquisition affects behavior and norm-related expectations. However, if participants select information from those who are more similar to them, this could lead to a self-selection bias that could potentially distort the assessment of the influence of information on behavior and expectations (see a discussion in Charroin et al., 2022). This risk is mitigated if individuals are aware of this selection bias and adjust their decisions and expectations accordingly. However, to entirely remove the bias, one should provide the information exogenously. Furthermore, since we did not inform participants about the meaning of each color, they had to sample information from each group (at least in the first periods) to learn which color was associated with more or less lenient information. Had they been fully informed, some might have sampled a much higher proportion of in-group information (even from the very beginning), which could have resulted in stronger peer effects.

To further investigate the influence of social information on behavior and expectations,



we thus decided to conduct a follow-up experiment.<sup>27</sup> The aim was to assess whether exogenous exposure to social information led to different behaviors and expectations compared to when participants were allowed to select the information endogenously. This follow-up experiment also allowed us to expose participants to more polarized information.

## 6.1 Experimental Design

The follow-up experiment had exactly the same structure as the first experiment (a brief questionnaire, Part 1 of the wheel game without social information, Part 2 of the wheel game with social information, and the elicitation of the empirical and normative expectations). We again varied the nature of the social information (empirical vs. normative).<sup>28</sup> However, this time subjects were not given the choice to select the source of the information themselves. The information was exogenously imposed on them. On average, we exposed roughly half of the participants to the same proportion of in-group information as the participants in the Emp-Info and Norm-Info conditions of the first experiment, respectively.<sup>29</sup> For the remaining participants, we artificially increased the share of empirical or normative information coming from in-group peers to 80% (on average)—meaning that, in each period, the probability of receiving in-group (out-group) information was 80% (20%).<sup>30</sup> Depending on whether the in-group information received was associated with above-median or below-median data, we then had two sub-conditions, like in the main experiment: one where information from Democrats was above the median and one where information from Republicans was above the median.

During the experiment, participants viewed the same colored buttons indicating peers' political identification as in the main experiment. However, they were not required to click any button; instead, they were informed about the source of information. For half the participants, the program randomly selected information based on the probabilities observed in the main experiment's corresponding condition. For instance, the chance of a Democrat participant receiving empirical information from an above-median Democrat peer matched the actual percentage of Democrats choosing in-group information in the Emp-Info condition when Democrats were linked to above-median information. The difference between the main experiment and this one lies in the participant's role in information acquisition, *not* the expected content of information. For the remaining participants, the program selected in-group information with 80% probability. Note that we did not tell participants how the information was drawn from the two sources. We only told them that the computer program

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<sup>27</sup>We pre-registered the follow-up experiment with [AsPredicted \(#48859\)](#).

<sup>28</sup>We again used the data from the Seed treatment of the main experiment to generate social information.

<sup>29</sup>In the follow-up experiment, we chose to focus solely on the Group Identity condition, rather than running the Control condition as well. Running both conditions would have required too many additional subjects.

<sup>30</sup>This was done to increase the polarization of information in the data. Although we pre-registered the experiment with a 75% proportion of in-group information ([AsPredicted#48859](#)), we mistakenly implemented an 80% proportion in the program. No experiment was ever conducted with the 75% condition. Excluding the data from the 80% condition did not alter our results. We report this analysis in Online Appendix I.

could draw a different number of participants from one sample than from the other sample.

**Procedures.** We recruited 2,414 new U.S. MTurk participants, maintaining the same proportion of Republicans and Democrats as in the main study (see Table C2 in Online Appendix C). Individuals with another political identification were excluded. In the Emp-Info condition ( $n=1,229$ ), 50.61% were Democrats, 44.18% were males, and the mean age was 39.77 years. In the Norm-Info condition ( $n=1,185$ ), 50.72% were Democrats, 48.44% were males, and the mean age was 39.81 years. Earnings were computed exactly as in the main experiment. Participants earned on average \$2.04 ( $SD = 0.727$ ). The average duration of the experiment was about 15 minutes, which corresponds to an hourly wage of \$8.16.

## 6.2 Results

In the follow-up experiment, subjects reported slightly more successes in Part 1 of the wheel game (M-W test: 12.43 vs. 12.23,  $p = 0.014$ ) compared to the subjects in the main experiment. This discrepancy in behavior could be explained by the differences in the profiles of the participants, as we conducted the follow-up experiment a few months after the main experiment, using a new pool of subjects from MTurk. While behavior in Part 2 of the wheel game was similar in the two experiments (12.39 vs. 12.37,  $p = 0.530$ ), subjects in the follow-up experiment displayed slightly stricter normative expectations (14.37 vs. 14.61,  $p = 0.034$ ) and empirical expectations (11.79 vs. 12.63,  $p < 0.001$ ). We investigate below whether these differences are driven by observable characteristics of the participants, a different degree of exposure to social information or a different reaction of the participants to social information.

If we classify subjects into cheaters and non-cheaters, as we did for the main experiment, we find that cheaters reported a higher share of winning numbers both in Part 1 (M-W test: 16.60 vs. 10.37,  $p < 0.001$ ), and Part 2 than non-cheaters (15.41 vs. 10.90,  $p < 0.001$ ). They also held more lenient normative (12.76 vs. 11.31) and empirical expectations (14.56 v. 14.27), although the difference is statistically significant only for the latter ( $p < 0.001$  for empirical;  $p = 0.101$  for normative).

To assess whether exogenous exposure to social information led to different behaviors and expectations compared to when participants were allowed to select their source of information, we ran a regression analysis by pooling the data from the two experiments. Here, we do not assess the effect of group identity but will address it later in the analysis. The regression model is identical to specification (1) in the analysis of the main experiment, except that we included two additional regressors: a dummy variable that takes the value 1 if the observation comes from the follow-up experiment and 0 otherwise (to control for possible differences in sample selection), and its interaction term with the average information received by participant  $i$  from their peers. We estimated the following model:

$$y_i = \beta_0 + \beta_1 \text{Avg-Info}_i + \beta_2 (\text{Avg-Info}_i \times \text{Exo}) + \beta_3 \text{Exo} + \gamma X_i + \varepsilon_i \quad (3)$$

We ran separate regressions for each outcome of interest (behavior, empirical expectations, and normative expectations), and for Emp-Info and Norm-Info. The results are displayed in Table 7.<sup>31</sup>

The results concerning the impact of endogenous social information on behavior and expectations align with our findings from the main experiment analysis. The only notable discrepancy is found in the regression coefficient of *Avg-Info* for normative expectations in Norm-Info. It is weakly significant when we combine the data from both experiments. Concerning the comparison between the two experiments, the coefficient of the interaction term *Avg-Info*  $\times$  *Exo* is never significant in Emp-Info, suggesting that the consumption of more lenient empirical information in the follow-up experiment had the same effect on behavior and expectations as in the main experiment (i.e., a positive effect on behavior and empirical expectations and no effect on normative expectations). However, this is not the case in Norm-Info. In this condition, the interaction term is negative and statistically significant in the regressions for behavior and empirical expectations, indicating that normative information had a lower influence on behavior and empirical expectations in the follow-up experiment compared to the main experiment. A test of  $\beta_1 + \beta_2 = 0$  yields a significant result in the regression for behavior ( $p = 0.013$ ) but a non-significant result in the regression for empirical expectations ( $p = 0.630$ ). This indicates that normative information had a smaller but still significant effect on behavior and no effect on empirical expectations in the follow-up experiment. In contrast, the interaction term is positive and statistically significant in the regression for normative expectations. A test of  $\beta_1 + \beta_2 = 0$  yields a significant result ( $p = 0.025$ ). Hence, contrary to what we found in the main experiment, the consumption of more lenient normative information induced subjects to correct their normative expectations upward. The regression analysis also reveals that, once we control for socio-demographics, design procedures and the degree of exposure to lenient information, subjects in the follow-up experiment reported more successes, held more lenient empirical expectations, and stricter normative expectations.

To analyze the impact of in-group exogenous information on behavior and expectations, we follow the same empirical strategy of Section 5.4 but this time focusing on the data from the follow-up experiment. In particular, we run separate regressions for each outcome of interest (behavior, empirical expectations, and normative expectations) using specifications 1 and 2.<sup>32</sup> The results of this analysis are reported in Tables 8, 9 and 10. In each table,

<sup>31</sup>As a robustness check, we also ran the same regressions (i) without the data from the 80% condition, and (ii) without the data from the control condition of the main experiment (to preserve as much as possible parallelism between the main and follow-up experiments). The results are qualitatively similar and are available in Online Appendix I.

<sup>32</sup>Since we did not have a Control condition in the follow-up experiment, we do not include the interaction *Avg-Info*<sub>*i*</sub>  $\times$  *Control*<sub>*i*</sub> in specification 2.

Table 7: Effects of Exogenous vs. Endogenous Social Information

	Behavior		Empirical exp.		Normative exp.	
	Emp-Info	Norm-Info	Emp-Info	Norm-Info	Emp-Info	Norm-Info
Avg-Info	0.171* (0.097)	0.585*** (0.113)	0.246** (0.107)	0.438*** (0.128)	0.119 (0.138)	-0.245* (0.148)
Avg-Info $\times$ Exo	-0.101 (0.118)	-0.404*** (0.134)	-0.063 (0.131)	-0.398*** (0.152)	-0.117 (0.169)	0.459*** (0.176)
Exo	1.434 (1.667)	5.558*** (1.994)	0.163 (1.846)	5.080** (2.271)	1.479 (2.373)	-7.454*** (2.623)
Constant	10.948*** (1.439)	5.324*** (1.710)	10.596*** (1.593)	7.290*** (1.944)	14.377*** (2.051)	18.896*** (2.249)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2075	2004	2075	2004	2075	2004
Wald $\chi^2$	34.20	96.61	64.74	56.68	27.32	30.75
Log-likelihood	-5608.466	-5372.257	-5879.802	-5707.392	-4928.022	-4703.216

Notes: Tobit regressions. Standard errors are in parentheses. One observation per individual. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Panel A focuses on the data from the Emp-Info condition, while Panel B on the data from the Norm-Info condition. Models (1) and (3) are based on specification 1, while Models (2) and (4) on specification 2.

Table 8 confirms the results from the main experiment regarding the effect of normative information on behavior. The coefficients for  $Avg-Info_i$  in Panel B are positive and statistically significant, indicating that participants behaved more dishonestly as their exposure to more lenient information increased. In line with the results of Table 7, the effect is, however, less pronounced (the size of the coefficient of  $Avg-Info$  is much smaller in Table 8 than Table 3). In contrast to the main experiment, we do not find an augmented effect from information that came from in-group peers (the interaction  $Avg-Info_i \times In-Group_i$  is not statistically significant). Hence, increasing the exposure to more lenient normative information from in-group peers did not strengthen the peer effects on behavior.

Turning to Panel A of Table 8, we find that the coefficient for  $Avg-Info$  is not statistically different from zero. We can thus conclude that, just as in the main experiment, normative information was more powerful than empirical information in influencing behavior.

Table 9 reports the results for empirical expectations. In Panel A, we observe that exposure to more lenient empirical information increased empirical expectations.<sup>33</sup> This is in line with the results from the main experiment. However, in contrast with the latter and in line with the results of Table 7, we find no effect of normative information on empirical expectations

<sup>33</sup>The effect is mainly driven by in-group information. In Model (2), the coefficient of  $Avg-Info$  is not significant. However, a test on the sum of the coefficients for  $Avg-Info$  and  $Avg-Info \times In-Group$  yields a significant result ( $p = 0.024$ ).

Table 8: Effects of Social Information on Reporting Behavior, Follow-Up Experiment

	Panel A: Emp-Info		Panel B: Norm-Info	
	(1)	(2)	(3)	(4)
Avg-Info	0.074 (0.070)	0.097 (0.088)	0.186** (0.073)	0.178** (0.083)
Avg-Info $\times$ In-Group	-	-0.025 (0.060)	-	0.011 (0.051)
Constant	11.672*** (1.158)	11.594*** (1.173)	10.691*** (1.273)	10.710*** (1.276)
Controls	Yes	Yes	Yes	Yes
Observations	1229	1229	1185	1185
Wald $\chi^2$	15.23	15.40	40.36	40.41
Log-likelihood	-3344.774	-3344.687	-3181.263	-3181.241

Notes: Tobit regressions. Standard errors are in parentheses. The regressions reported in Panel A (B) are based on the data from the Emp-Info (Norm-Info) condition. Models (1) and (3) use specification 1, while Models (2) and (4) are based on specification 2. There is one observation per individual. In all models, the dependent variable is the proportion of winning numbers reported in Part 2 by a participant. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

(see Panel B of Table 9). The nature of the information (in-group vs. out-group) does not affect this result.

Table 9: Effects of Social Information on Empirical Expectations, Follow-Up Experiment

	Panel A: Emp-Info		Panel B: Norm-Info	
	(1)	(2)	(3)	(4)
Avg-Info	0.180** (0.085)	0.087 (0.107)	0.037 (0.093)	-0.045 (0.107)
Avg-Info $\times$ In-Group	-	0.106 (0.073)	-	0.102 (0.066)
Constant	10.966*** (1.411)	11.291*** (1.427)	12.762*** (1.632)	12.934*** (1.634)
Observations	1229	1229	1185	1185
Wald $\chi^2$	33.01	35.10	21.05	23.47
Log-likelihood	-3590.426	-3589.380	-3467.860	-3466.649

Notes: Tobit regressions. Standard errors are in parentheses. The regressions reported in Panel A (B) are based on the data from the Emp-Info (Norm-Info) condition. Models (1) and (3) use specification 1, while Models (2) and (4) are based on specification 2. There is one observation per individual. In all models, the dependent variable is a participant's belief regarding the average winning number reported by others in Part 2. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Next, we consider the effect of information on normative expectations (see Table 10). In stark contrast to the main experiment and in line with the results of Table 7, we find that the exposure to more lenient information yielded a significant upward correction of

one’s normative expectations but only when the information was normative (the coefficient of  $Avg-Info_i$  is positive and significant only in Panel B). This effect was the same for in-group and out-group information, as demonstrated by the insignificant interaction term in Model (4). These results suggest that normative expectations are not always sticky and individuals may still learn from others when forming their expectations. They are sensitive to the leniency of the normative information received.

Table 10: Effects of Social Information on Normative Expectations, Follow-Up Experiment

	Panel A: Emp-Info		Panel B: Norm-Info	
	(1)	(2)	(3)	(4)
Avg-Info	0.001 (0.099)	0.098 (0.125)	0.198** (0.093)	0.245** (0.107)
Avg-Info $\times$ In-Group	-	-0.109 (0.085)	-	-0.058 (0.065)
Constant	15.716*** (1.647)	15.372*** (1.669)	11.659*** (1.631)	11.556*** (1.635)
Observations	1229	1229	1185	1185
Wald $\chi^2$	27.57	29.21	18.43	19.22
Log-likelihood	-2893.101	-2892.283	-2761.976	-2761.581

Notes: Tobit regressions. Standard errors are in parentheses. The regressions reported in Panel A (B) are based on the data from the Emp-Info (Norm-Info) condition. Models (1) and (3) use specification 1, while Models (2) and (4) are based on specification 2. There is one observation per individual. In all models, the dependent variable is the inappropriateness switching point of a participant. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

A possible interpretation of the findings from the follow-up experiment is that individuals paid less attention to information that was exogenously provided to them. As a result, they only updated empirical expectations when information was about other subjects’ behavior and they only updated their normative expectations when social information was normative. Overall, this analysis does not support Conjecture 5. We summarize all the findings from this analysis in the following result.

**Result 5. (*Effects of Exogenous Social Information*)** *With few exceptions, these results are qualitatively similar to those in the main experiment. The exceptions are that participants who were exogenously exposed to more lenient normative information (a) adjusted their behavior less, (b) did not hold higher empirical expectations, and (b) exhibited more lenient normative expectations.*

Result 5 suggests that the effects of social information could be stronger or weaker depending on whether individuals can choose or not the source of their information.

## 7 Discussion and Conclusion

Previous literature has explored peer effects on moral behavior in contexts where individuals could not choose their source of information and where social information was predominantly about peer *behavior* rather than prescriptions. Here, we examined experimentally the complex relationship between peer effects and individual moral behavior when individuals can choose their source of information in the context of social norms formation.

Our contribution is studying how information search is motivated by one’s moral standing, and how political identity shapes the search for empirical and normative information. Our design allowed us to explore whether people favor information coming from individuals sharing the same political affiliation. A novelty of our setting is manipulating exogenously whether political identity is congruent or incongruent with the leniency of the behavioral or normative information available. We could observe how individuals solve the possible discrepancy between their group affiliation and their moral aspirations, that is, their search for self-serving lenient information or, on the opposite, for stricter empirical and normative information. This allowed us to study whether individuals put more weight on the source of information in terms of political affiliation or in terms of behavior or normative views when they search for information. Furthermore, we inform on how group identity influences the impact of information on behavior and normative beliefs in the ethical domain. We compared different environments where individuals could or could not select their sources of information and manipulated the polarization of these sources.

Our first key finding is that when given a choice, individuals lean towards more lenient information sources. This tendency is more pronounced for those with weaker moral values (as identified from behavior in isolation), regardless of whether the information is empirical or normative. This result highlights the importance of understanding the nuances between information acquisition and its usage when designing policies and interventions. Our second finding highlights the significant role of group identity in shaping the selection of information sources, which in turn affects the formation of social norms. We also observed that normative expectations are quite resistant to change and remain largely unaffected by endogenous social information, thus highlighting the stickiness of norms that might require more forceful interventions to change behavior (for a discussion, see [Dimant and Shalvi, 2022](#)). Thus, the limited effects of social information in endogenous settings are not due to individuals consciously correcting for their information acquisition bias.

Our research offers some policy implications, underscoring the importance of understanding the nuances between information acquisition and its usage when designing policies and interventions. To encourage ethical behavior, policymakers should focus on increasing transparency and diversity in information sources, mitigating self-serving biases ([Gelfand et al., 2022](#); [Bicchieri and Dimant, 2023](#)). This would help address self-serving biases and create a more level playing field for diverse information sources. Considering the influence



of group identity on information-seeking behavior and moral decision-making, policy initiatives should aim to foster social cohesion and discourage polarizing behavior. This could be achieved through educational programs that emphasize shared values, common goals, and the importance of empathy and understanding among diverse groups (Paluck et al., 2016).

Despite its various contributions, our study also has limitations that are worth acknowledging. Although a strong link between norms, lying, and real-world behavior has been established (including cross-culturally, e.g., Gächter and Schulz, 2016; Potters and Stoop, 2016; Cohn et al., 2019; Aycinena et al., 2022), our virtual lying game may not capture the full spectrum of real-world ethical dilemmas that affect how people seek out norm-related information to inform their own behavior and world-view. And because we focused on the U.S. context, the use of political affiliation as a proxy for group identity may not generalize to other contexts (Bonomi et al., 2021; Boxell et al., 2022; Dorrough et al., 2023), which is a natural limitation of both lab and field experiments (List, 2020).

Building on our findings, future research could explore the diversity of forms that motivated information acquisition can take in the moral domain. It could also investigate more nuanced aspects of the relationship between information acquisition, group identities, and moral decision-making. For instance, studies could investigate how the content, framing, and presentation of social information affect individual responses in various ethical dilemmas (see, e.g., Dimant et al., 2020), extending beyond our virtual lying game to capture a broader spectrum of real-life situations. Furthermore, researchers could examine the effectiveness of different intervention strategies, such as providing counter-normative information, in altering sticky normative beliefs and inducing more ethical behavior.



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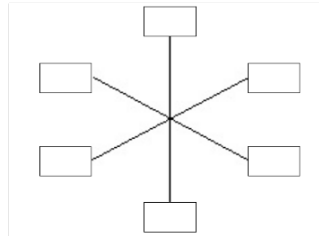
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## A Instructions

### A.1 Instructions for the Seed Session

#### First Task

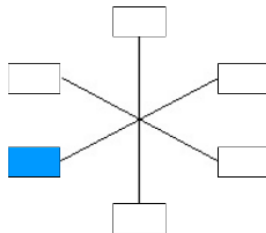
You will see a wheel with six empty squares. The wheel will look like the one below:



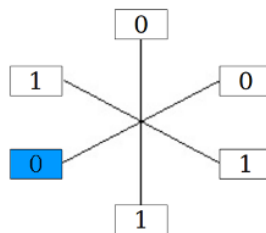
Your job will be to choose **in your mind** one square in the wheel. Once you have chosen a square, you will have to press the button 'I made my choice'.

The program will then display a number in each square of the wheel. This number is either 0 or 1. In each wheel, there are as many 1s as 0s. Your job will be to report the number displayed in the square that you have previously chosen in your mind.

Suppose that before seeing the numbers in the wheel, you have chosen in your mind the square located at the bottom left of the wheel (highlighted in blue in the wheel below for illustration).



You then discover that the numbers are displayed in the wheel as follows:



Your job will be to report '0'.

You will see 20 different wheels one after the other. Before seeing the numbers in each wheel, you will choose a square in your mind. After seeing the numbers in the wheel, you will be **asked to report the number displayed in this square**.

At the end of the study, one wheel will be selected at random among the 20. The money that you will earn in this task will depend on the number that you have reported for that wheel. You will earn:

- \$1 if you have reported '1'
- \$0 if you have reported '0'

We would like you not to take any breaks while completing the 20 wheels. When you are ready, please press 'Next' to start the task.

### Second Task

This task is exactly the same as the first task. You will see 20 different wheels one after the other, with as many 1s as 0s in each wheel. Before seeing the numbers in each wheel, you will choose a square in your mind. After seeing the numbers in the wheel, you will be **asked to report the number displayed in this square**. At the end of the study, one wheel will be selected at random among the 20. The money that you will earn in this task will depend on the number that you have reported for that wheel:

- \$1 if you have reported '1'
- \$0 if you have reported '0'

We would like you not to take any breaks while completing the 20 wheels. When you are ready, please press 'Next' to start the task.

### Third Task

**To earn more, make a guess:** Consider a participant who, in the second task, drew **ten winning numbers** (1s) and ten 0s in the 20 wheels.

In what follows, several statements describe how this participant might have behaved. This participant may have reported the winning number "1" ten times or more than 10 times (from 11 to 20) in order to increase his or her earnings.



You should indicate whether the described behaviors are “socially inappropriate” and “inconsistent with moral or proper social behavior”. By socially inappropriate we mean behavior that **most people** would agree is the “incorrect” or “unethical” thing to do in this situation.

**You will earn an additional \$0.03 each time you give the same answer as that most frequently given by the other participants today.**

For consistency in your answers, you cannot switch from "N" to "Y" more than one time. If you select a "Y" for a statement, the program automatically fills in the remaining answers with a "Y". Note that you can modify your answers as many times as you wish.

- The participant reported **ten** 1s. Is this socially inappropriate?  N  Y
- The participant reported **eleven** 1s. Is this socially inappropriate?  N  Y
- The participant reported **twelve** 1s. Is this socially inappropriate?  N  Y
- The participant reported **thirteen** 1s. Is this socially inappropriate?  N  Y
- The participant reported **fourteen** 1s. Is this socially inappropriate?  N  Y
- The participant reported **fifteen** 1s. Is this socially inappropriate?  N  Y
- The participant reported **sixteen** 1s. Is this socially inappropriate?  N  Y
- The participant reported **seventeen** 1s. Is this socially inappropriate?  N  Y
- The participant reported **eighteen** 1s. Is this socially inappropriate?  N  Y
- The participant reported **nineteen** 1s. Is this socially inappropriate?  N  Y
- The participant reported **twenty** 1s. Is this socially inappropriate?  N  Y

**Validate**

And yourself, how do you **personally** feel about each possible report of a person who actually drew **ten winning number '1's** out of 20 wheels in the second task:

- The participant reported **ten** 1s. Is this socially inappropriate?  N  Y
- The participant reported **eleven** 1s. Is this socially inappropriate?  N  Y
- The participant reported **twelve** 1s. Is this socially inappropriate?  N  Y
- The participant reported **thirteen** 1s. Is this socially inappropriate?  N  Y
- The participant reported **fourteen** 1s. Is this socially inappropriate?  N  Y
- The participant reported **fifteen** 1s. Is this socially inappropriate?  N  Y
- The participant reported **sixteen** 1s. Is this socially inappropriate?  N  Y
- The participant reported **seventeen** 1s. Is this socially inappropriate?  N  Y
- The participant reported **eighteen** 1s. Is this socially inappropriate?  N  Y
- The participant reported **nineteen** 1s. Is this socially inappropriate?  N  Y
- The participant reported **twenty** 1s. Is this socially inappropriate?  N  Y

**Validate**

**To earn more, make another guess:** In your opinion, how many winning number '1's

(between 0 and 20) did the other participants today report, on average, in the second task? If your prediction is correct (by plus or minus 1), you earn \$0.2.

## A.2 Instructions for the other treatments - Main Experiment

### A.2.1 Emp-Info Treatment - Control Condition

*The instructions for the first and third tasks are omitted because they are similar to those in the Seed treatment.*

#### Second Task

This task is exactly the same as the first task. You will see 20 different wheels one after the other, with as many 1s as 0s in each wheel. Before seeing the numbers in each wheel, you will choose a square in your mind. After seeing the numbers in the wheel, you will be **asked to report the number displayed in this square**. At the end of the study, one wheel will be selected at random among the 20. The money that you will earn in this task will depend on the number that you have reported for that wheel:

- \$1 if you have reported '1'
- \$0 if you have reported '0'

Before seeing each of the 20 wheels, you will be informed **about how many winning numbers ('1's) were reported by a past participant in the second task**. Thus, in total you will see information about 20 different past participants, one before each wheel. These participants performed the wheel task 20 times like you in the first task and in the second task (except that they did not receive information about other participants).

Depending on how many winning number '1's they reported of the 20 wheels in the second task, we divided these past participants into two groups of equal size: **the "YELLOW" group and the "PURPLE" group**. Before seeing each wheel yourself, you will draw one past participant from two samples:

- One sample includes only participants from the Yellow group.
- The other sample includes only participants from the Purple group.

Then, you will observe how many **winning number '1's** were reported by this past participant.

Before starting the wheel task, we will show you how the screens will look like.

To draw a participant from one sample or the other, you will have to click on one of the two buttons below.



For each drawn participant, one line is then added to the table below.

Drawn participant	Number of winning number '1's reported																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The table describes how many winning number '1's the drawn participant reported out of 20 wheels.

Suppose that you drew a participant by clicking on one of the two buttons. One line is then added to the table:

Drawn participant	Number of winning number '1's reported																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1																				

This is just an example and the numbers in the table are only for illustration. How to interpret the information in the table? The line in the table tells you that the participant you have drawn reported 10 winning number '1's.

When you perform the wheel task, the first column on the left of the table will also indicate the color of the drawn participant.

Suppose that you drew a second participant by clicking on one of the two buttons. One line is then added to the table:

Drawn participant	Number of winning number '1's reported																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2																				
1																				

This is just an example and the numbers in the table are only for illustration. How to interpret the information in the table? The line in the table tells you that the second participant you have drawn has reported 14 winning number '1's.

When you perform the wheel task, the first column on the left of the table will also indicate the color of the drawn participant.

When you are ready, please press 'Next' to start the task.

## A.2.2 Emp-Info Treatment - Group Identity Condition

*The instructions for the first and third tasks are omitted because they are similar to those in the Seed treatment. The following instructions correspond to the condition in which Republicans are associated with the Yellow group and Democrats with the Purple group. The instructions for the condition in which Republicans are associated with the Purple group and Democrats with the Yellow group are similar, except for the colors.*

### Second Task

This task is exactly the same as the first task. You will see 20 different wheels one after the other, with as many 1s as 0s in each wheel. Before seeing the numbers in each wheel, you will choose a square in your mind. After seeing the numbers in the wheel, you will be **asked to report the number displayed in this square**. At the end of the study, one wheel will be selected at random among the 20. The money that you will earn in this task will depend on the number that you have reported for that wheel:

- \$1 if you have reported '1'
- \$0 if you have reported '0'

Before seeing each of the 20 wheels, you will be informed **about how many winning numbers ('1's) were reported by a past participant in the second task**. Thus, in total you will see information about 20 different past participants, one before each wheel. These participants performed the wheel task 20 times like you in the first task and in the second task (except that they did not receive information about other participants).

Depending on how many winning number '1's they reported of the 20 wheels in the second task, we divided these past participants into two groups of equal size: **the "YELLOW" group and the "PURPLE" group**. These participants also reported whether they consider themselves as **DEMOCRATS or REPUBLICANS**. Before seeing each wheel yourself, you will draw one past participant from two samples:

- One sample includes only Republicans from the Yellow group.
- The other sample includes only Democrats from the Purple group.

Then, you will observe how many **winning number '1's** were reported by this past participant.

Before starting the wheel task, we will show you how the screens will look like.

To draw a participant from one sample or the other, you will have to click on one of the two buttons below.

**DEMOCRAT - PURPLE**

**REPUBLICAN - YELLOW**

For each drawn participant, one line is then added to the table below.

Drawn participant	Number of winning number '1's reported																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The table describes how many winning number '1's the drawn participant reported out of 20 wheels.

Suppose that you drew a participant by clicking on one of the two buttons. One line is then added to the table:

Drawn participant	Number of winning number '1's reported																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1																				

This is just an example and the numbers in the table are only for illustration. How to interpret the information in the table? The line in the table tells you that the participant you have drawn reported 10 winning number '1's.

When you perform the wheel task, the first column on the left of the table will also indicate the political affiliation and the color of the drawn participant.

Suppose that you drew a second participant by clicking on one of the two buttons. One line is then added to the table:

Drawn participant	Number of winning number '1's reported																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2																				
1																				

This is just an example and the numbers in the table are only for illustration. How to interpret the information in the table? The line in the table tells you that the second participant you have drawn has reported 14 winning number '1's.

When you perform the wheel task, the first column on the left of the table will also indicate the political affiliation and the color of the drawn participant.

When you are ready, please press 'Next' to start the task.

### A.2.3 Norm-Info Treatment - Control Condition

*The instructions for the first and third tasks are omitted because they are similar to those in the Seed treatment.*

#### Second Task

This task is exactly the same as the first task. You will see 20 different wheels one after the other, with as many 1s as 0s in each wheel. Before seeing the numbers in each wheel, you will choose a square in your mind. After seeing the numbers in the wheel, you will be **asked to report the number displayed in this square**. At the end of the study, one wheel will be selected at random among the 20. The money that you will earn in this task will depend on the number that you have reported for that wheel:

- \$1 if you have reported '1'
- \$0 if you have reported '0'

Before seeing each of the 20 wheels, you will be informed **about what a past participant thinks it is “socially inappropriate” to do in this second task**. Thus, in total you will see information about 20 different past participants, one before each wheel. These participants performed the wheel task 20 times like you in the first task and in the second task (except that they did not receive information about other participants).

After they performed the second task, we asked these participants to consider the case of a person who drew exactly ten winning numbers (1s) and ten 0s in the 20 wheels in the second task. Then, we described how this person might have behaved. He or she could have reported 10, 11, 12, . . . up to 20 winning numbers '1's to achieve a higher payoff.

For each possible report of this person, we asked the participants to indicate whether this report is “socially inappropriate” and “inconsistent with moral or proper social behavior”. By socially inappropriate we mean behavior that **most people** agree is the “incorrect” or “unethical” thing to do in that situation. They earned money if they **gave the same answers that have been given the most often by the other participants** the same day.

Depending on what they believe most people think it is **socially inappropriate** to do in the 20 wheels of the second task, we divided these past participants into two groups of equal size: **the “YELLOW” group and the “PURPLE” group**. Before seeing each wheel yourself, you will draw one past participant from two samples:

- One sample includes only participants from the Yellow group.

- The other sample includes only participants from the Purple group.

Then, you will observe what the drawn participant believes most people think it is “**socially inappropriate**” to do in this task.

Before starting the wheel task, we will show you how the screens will look like.

To draw a participant from one sample or the other, you will have to click on one of the two buttons below.



For each drawn participant, one line is then added to the table below.

Drawn participant	Number of winning number '1's reported:										
	10	11	12	13	14	15	16	17	18	19	20

The table describes what each drawn participant believes most people think it is **inappropriate** (in red) and **appropriate** (in green) to report when one gets **ten winning number '1's** and **ten '0's**.

Suppose that you drew a participant by clicking on one of the two buttons. One line is then added to the table:

Drawn participant	Number of winning number '1's reported:										
	10	11	12	13	14	15	16	17	18	19	20
1	Ap.				Inap.						

This is just an example and the numbers in the table are only for illustration. How to interpret the information in the table? The line in the table tells you that the participant you have drawn believes most people think it is inappropriate (in red) to report 14 or more winning numbers (1s), while it is appropriate (in green) to report up to 13 winning numbers (1s).

When you perform the wheel task, the first column on the left of the table will also indicate the color of the drawn participant.

Suppose that you drew a second participant by clicking on one of the two buttons. One line is then added to the table:

Drawn participant	Number of winning number '1's reported:										
	10	11	12	13	14	15	16	17	18	19	20
2	Ap.				Inap.						
1	Ap.				Inap.						

This is just an example and the numbers in the table are only for illustration. How to

interpret the information in the table? The new line in the table tells you that the second participant you have drawn believes that most people think it is inappropriate (in red) to report 13 or more winning numbers (1s), while it is appropriate (in green) to report up to 12 winning numbers (1s).

When you perform the wheel task, the first column on the left of the table will also indicate the color of the drawn participant.

When you are ready, please press 'Next' to start the task.



#### A.2.4 Norm-Info Treatment - Group Identity Condition

*The instructions for the first and third tasks are omitted because they are similar to those in the Seed treatment. The following instructions correspond to the condition in which Republicans are associated with the Yellow group and Democrats with the Purple group. The instructions for the condition in which Republicans are associated with the Purple group and Democrats with the Yellow group are similar, except for the colors.*

#### Second Task

This task is exactly the same as the first task. You will see 20 different wheels one after the other, with as many 1s as 0s in each wheel. Before seeing the numbers in each wheel, you will choose a square in your mind. After seeing the numbers in the wheel, you will be **asked to report the number displayed in this square**. At the end of the study, one wheel will be selected at random among the 20. The money that you will earn in this task will depend on the number that you have reported for that wheel:

- \$1 if you have reported '1'
- \$0 if you have reported '0'

Before seeing each of the 20 wheels, you will be informed **about what a past participant thinks it is “socially inappropriate” to do in this second task**. Thus, in total you will see information about 20 different past participants, one before each wheel. These participants performed the wheel task 20 times like you in the first task and in the second task (except that they did not receive information about other participants).

After they performed the second task, we asked these participants to consider the case of a person who drew exactly ten winning numbers (1s) and ten 0s in the 20 wheels in the second task. Then, we described how this person might have behaved. He or she could have reported 10, 11, 12, . . . up to 20 winning numbers '1's to achieve a higher payoff.

For each possible report of this person, we asked the participants to indicate whether this report is “socially inappropriate” and “inconsistent with moral or proper social behavior”. By socially inappropriate we mean behavior that **most people** agree is the “incorrect” or “unethical” thing to do in that situation. They earned money if they **gave the same answers that have been given the most often by the other participants** the same day.

Depending on what they believe most people think it is **socially inappropriate** to do in the 20 wheels of the second task, we divided these past participants into two groups of equal size: **the “YELLOW” group and the “PURPLE” group**. These participants

also reported whether they consider themselves as **DEMOCRATS** or **REPUBLICANS**.

Before seeing each wheel yourself, you will draw one past participant from two samples:

- One sample includes only Republicans from the Yellow group.
- The other sample includes only Democrats from the Purple group.

Then, you will observe what the drawn participant believes most people think it is “**socially inappropriate**” to do in this task.

Before starting the wheel task, we will show you how the screens will look like.

To draw a participant from one sample or the other, you will have to click on one of the two buttons below.



For each drawn participant, one line is then added to the table below.

Drawn participant	Number of winning number '1's reported:										
	10	11	12	13	14	15	16	17	18	19	20

The table describes what each drawn participant believes most people think it is **inappropriate** (in red) and **appropriate** (in green) to report when one gets **ten winning number '1's** and **ten '0's**.

Suppose that you drew a participant by clicking on one of the two buttons. One line is then added to the table:

Drawn participant	Number of winning number '1's reported:										
	10	11	12	13	14	15	16	17	18	19	20
1	Ap.				Inap.						

This is just an example and the numbers in the table are only for illustration. How to interpret the information in the table? The line in the table tells you that the participant you have drawn believes most people think it is **inappropriate** (in red) to report 14 or more winning numbers (1s), while it is **appropriate** (in green) to report up to 13 winning numbers (1s).

When you perform the wheel task, the first column on the left of the table will also indicate the political affiliation and the color of the drawn participant.

Suppose that you drew a second participant by clicking on one of the two buttons. One line is then added to the table:

Drawn participant	Number of winning number '1's reported:										
	10	11	12	13	14	15	16	17	18	19	20
2	Ap.			Inap.							
1	Ap.				Inap.						

This is just an example and the numbers in the table are only for illustration. How to interpret the information in the table? The new line in the table tells you that the second participant you have drawn believes that most people think it is inappropriate (in red) to report 13 or more winning numbers (1s), while it is appropriate (in green) to report up to 12 winning numbers (1s).

When you perform the wheel task, the first column on the left of the table will also indicate the political affiliation and the color of the drawn participant.

When you are ready, please press 'Next' to start the task.

### A.2.5 Emp-Info - Exo Treatment and Emp-Info-Exo80 Treatment

*The instructions for the first and third tasks are omitted because they are similar to those in the Seed treatment. The following instructions correspond to the condition in which Republicans are associated with the Yellow group and Democrats with the Purple group. The instructions for the condition in which Republicans are associated with the Purple group and Democrats with the Yellow group are similar, except for the colors.*

#### Second Task

This task is exactly the same as the first task. You will see 20 different wheels one after the other, with as many 1s as 0s in each wheel. Before seeing the numbers in each wheel, you will choose a square in your mind. After seeing the numbers in the wheel, you will be **asked to report the number displayed in this square**. At the end of the study, one wheel will be selected at random among the 20. The money that you will earn in this task will depend on the number that you have reported for that wheel:

- \$1 if you have reported '1'
- \$0 if you have reported '0'

Before seeing each of the 20 wheels, you will be informed **about how many winning numbers ('1's) were reported by a past participant in the second task**. Thus, in total you will see information about 20 different past participants, one before each wheel. These participants performed the wheel task 20 times like you in the first task and in the second task (except that they did not receive information about other participants).

Depending on how many winning number '1's they reported of the 20 wheels in the second task, we divided these past participants into two groups of equal size: **the “YELLOW” group and the “PURPLE” group**. These participants also reported whether they consider themselves as **DEMOCRATS or REPUBLICANS**. Before seeing each wheel yourself, the computer program will draw one past participant from two samples:

- One sample includes only Republicans from the Yellow group.
- The other sample includes only Democrats from the Purple group.

Then, you will observe how many **winning number '1's** were reported by this past participant.

Note that the computer program may draw a different number of participants from one sample than from the other sample.

Before starting the wheel task, we will show you how the screens will look like.

The computer program draws a participant from one sample or the other.



For each drawn participant, one line is then added to the table below.

Drawn participant	Number of winning number '1's reported																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The table describes how many winning number '1's the drawn participant reported out of 20 wheels.

Suppose that the computer program drew a participant from one of these two samples. One line is then added to the table:

Drawn participant	Number of winning number '1's reported																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1																				

This is just an example and the numbers in the table are only for illustration. How to interpret the information in the table? The line in the table tells you that the participant drawn by the computer program reported 10 winning number '1's.

When you perform the wheel task, the first column on the left of the table will also indicate the political affiliation and the color of the drawn participant.

Suppose that the computer program drew a second participant from one of the two samples. One line is then added to the table:

Drawn participant	Number of winning number '1's reported																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2																				
1																				

This is just an example and the numbers in the table are only for illustration. How to interpret the information in the table? The line in the table tells you that the second participant drawn by the computer program has reported 14 winning number '1's.

When you perform the wheel task, the first column on the left of the table will also indicate the political affiliation and the color of the drawn participant.

When you are ready, please press 'Next' to start the task.

### A.2.6 Norm-Info-Exo Treatment and Norm-Info-Exo80 Treatment

*The instructions for the first and third tasks are omitted because they are similar to those in the Seed treatment. The following instructions correspond to the condition in which Republicans are associated with the Yellow group and Democrats with the Purple group. The instructions for the condition in which Republicans are associated with the Purple group and Democrats with the Yellow group are similar, except for the colors.*

### Second Task

This task is exactly the same as the first task. You will see 20 different wheels one after the other, with as many 1s as 0s in each wheel. Before seeing the numbers in each wheel, you will choose a square in your mind. After seeing the numbers in the wheel, you will be **asked to report the number displayed in this square**. At the end of the study, one wheel will be selected at random among the 20. The money that you will earn in this task will depend on the number that you have reported for that wheel:

- \$1 if you have reported '1'
- \$0 if you have reported '0'

Before seeing each of the 20 wheels, you will be informed **about what a past participant thinks it is “socially inappropriate” to do in this second task**. Thus, in total you will see information about 20 different past participants, one before each wheel. These participants performed the wheel task 20 times like you in the first task and in the second task

(except that they did not receive information about other participants).

After they performed the second task, we asked these participants to consider the case of a person who drew exactly ten winning numbers (1s) and ten 0s in the 20 wheels in the second task. Then, we described how this person might have behaved. He or she could have reported 10, 11, 12, . . . up to 20 winning numbers '1's to achieve a higher payoff.

For each possible report of this person, we asked the participants to indicate whether this report is “socially inappropriate” and “inconsistent with moral or proper social behavior”. By socially inappropriate we mean behavior that **most people** agree is the “incorrect” or “unethical” thing to do in that situation. They earned money if they **gave the same answers that have been given the most often by the other participants** the same day.

Depending on what they believe most people think it is **socially inappropriate** to do in the 20 wheels of the second task, we divided these past participants into two groups of equal size: **the “YELLOW” group and the “PURPLE” group**. These participants also reported whether they consider themselves as **DEMOCRATS or REPUBLICANS**.

Before seeing each wheel yourself, the computer program will draw one past participant from two samples:

- One sample includes only Republicans from the Yellow group.
- The other sample includes only Democrats from the Purple group.

Then, you will observe what the drawn participant believes most people think it is “**socially inappropriate**” to do in this task.

Note that the computer program may draw a different number of participants from one sample than from the other sample.

Before starting the wheel task, we will show you how the screens will look like.

The computer program draws a participant from one sample or the other.

DEMOCRAT - PURPLE

REPUBLICAN - YELLOW

For each drawn participant, one line is then added to the table below.

Drawn participant	Number of winning number '1's reported:										
	10	11	12	13	14	15	16	17	18	19	20

The table describes what each drawn participant believes most people think it is **inappropriate** (in red) and **appropriate** (in green) to report when one gets **ten winning number '1's** and **ten '0's**.

Suppose that the computer program drew a participant from one of the two samples. One line is then added to the table:

Drawn participant	Number of winning number '1's reported:										
	10	11	12	13	14	15	16	17	18	19	20
1	Ap.				Inap.						

This is just an example and the numbers in the table are only for illustration. How to interpret the information in the table? The line in the table tells you that the participant drawn by the computer program believes most people think it is inappropriate (in red) to report 14 or more winning numbers (1s), while it is appropriate (in green) to report up to 13 winning numbers (1s).

When you perform the wheel task, the first column on the left of the table will also indicate the political affiliation and the color of the drawn participant.

Suppose that the computer program drew a second participant from one of the two samples. One line is then added to the table:

Drawn participant	Number of winning number '1's reported:										
	10	11	12	13	14	15	16	17	18	19	20
2	Ap.			Inap.							
1	Ap.				Inap.						

This is just an example and the numbers in the table are only for illustration. How to interpret the information in the table? The new line in the table tells you that the second participant drawn by the computer program believes that most people think it is inappropriate (in red) to report 13 or more winning numbers (1s), while it is appropriate (in green) to report up to 12 winning numbers (1s).

When you perform the wheel task, the first column on the left of the table will also indicate the political affiliation and the color of the drawn participant.

When you are ready, please press 'Next' to start the task.

## B Additional Figures

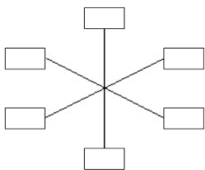
Figure B1 displays examples of the wheel task. Panel a) represents the participants' screen when they have to choose a square in their mind. Panel b) represents the reporting screen after numbers have been displayed on the wheel.

Figure B1: Example of the Wheel Task

**a**

**Wheel 1 of 20**

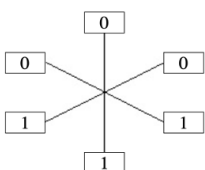
Please choose a square in your mind and then click the button "I made my choice".



---

**b**

**Wheel 1 of 20**



Reminder  
 • Reporting "0" pays \$0  
 • Reporting "1" pays \$1

Please report the number displayed in the square that you have chosen in your mind in the previous screen:

Figure B2 represents the participants' screen when they have to report their normative belief at the end of the experiment about several possible reports by a participant who actually drew ten winning numbers.

Figure B2: Elicitation of Normative Beliefs

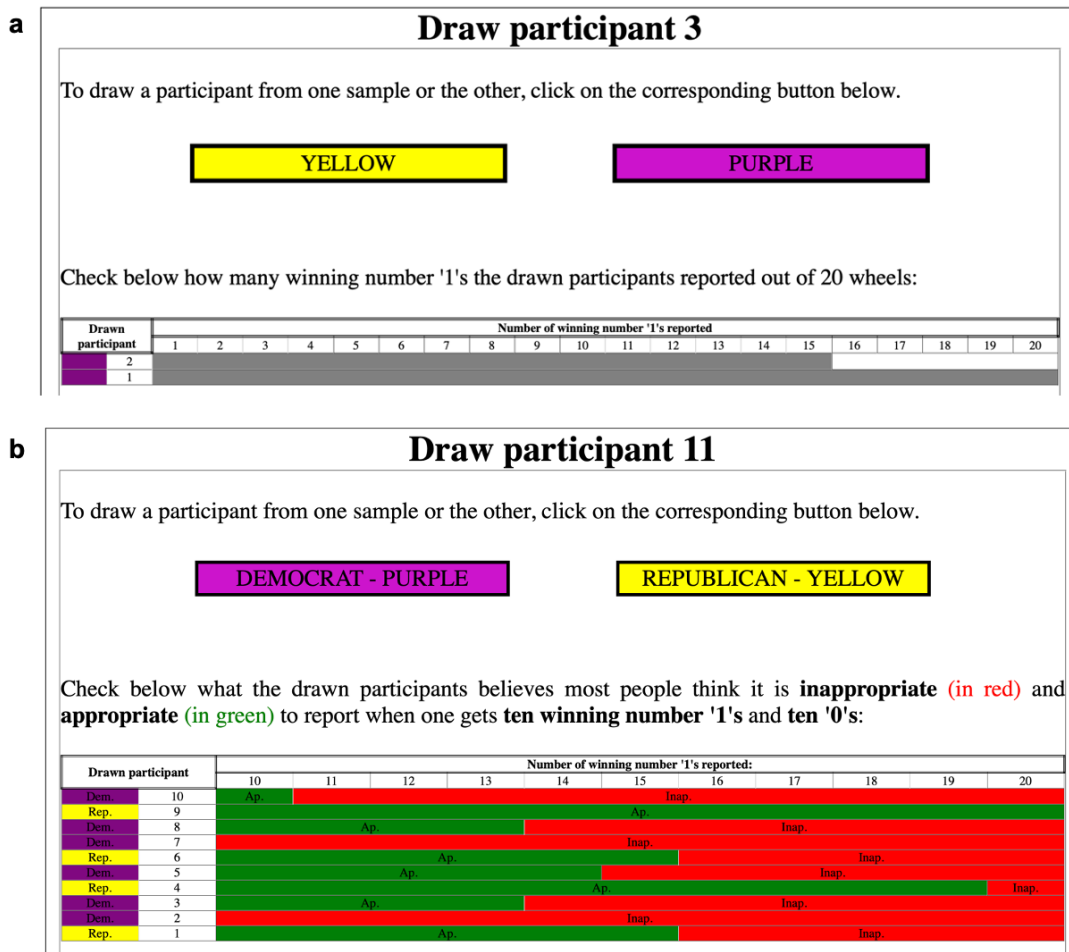
The participant reported <b>ten</b> 1s. Is this socially inappropriate?	<input type="radio"/>	N	<input type="radio"/>	Y
The participant reported <b>eleven</b> 1s. Is this socially inappropriate?	<input type="radio"/>	N	<input type="radio"/>	Y
The participant reported <b>twelve</b> 1s. Is this socially inappropriate?	<input type="radio"/>	N	<input type="radio"/>	Y
The participant reported <b>thirteen</b> 1s. Is this socially inappropriate?	<input type="radio"/>	N	<input type="radio"/>	Y
The participant reported <b>fourteen</b> 1s. Is this socially inappropriate?	<input type="radio"/>	N	<input type="radio"/>	Y
The participant reported <b>fifteen</b> 1s. Is this socially inappropriate?	<input type="radio"/>	N	<input type="radio"/>	Y
The participant reported <b>sixteen</b> 1s. Is this socially inappropriate?	<input type="radio"/>	N	<input type="radio"/>	Y
The participant reported <b>seventeen</b> 1s. Is this socially inappropriate?	<input type="radio"/>	N	<input type="radio"/>	Y
The participant reported <b>eighteen</b> 1s. Is this socially inappropriate?	<input type="radio"/>	N	<input type="radio"/>	Y
The participant reported <b>nineteen</b> 1s. Is this socially inappropriate?	<input type="radio"/>	N	<input type="radio"/>	Y
The participant reported <b>twenty</b> 1s. Is this socially inappropriate?	<input type="radio"/>	N	<input type="radio"/>	Y



Figure B3 displays information selection screens in part 2. Panel a) represents the screen of a participant who has to draw a peer in period 3 by clicking on the yellow or purple box in the Emp-Info treatment and Control condition. The horizontal bars in the table are graduated from 10 to 20. The length of the two grey horizontal bars indicates the number of winning numbers reported by each of the two previously selected peers. In this example, both previous peers were drawn from the purple box (as visible in the left column of the table) that is associated with above-median reports (more likely dishonest ones).

Panel b) represents the screen of a participant in period 11 in the Norm-Info treatment and Group Identity condition. The horizontal bars are graduated from 10 to 20. The length of the green horizontal bars in the Table indicates the numbers of reported winning numbers that are considered as appropriate (when one has actually drawn ten winning numbers), and the length of the red bars indicates the numbers of reported winning numbers that are considered as inappropriate. In this example, Democrat peers can be drawn from the purple box and Republican peers from the yellow box; the purple box contains examples from peers with below-median normative beliefs (stricter ones) and the yellow box contains examples from peers with above-median normative beliefs (more lenient ones).

Figure B3: Examples of Tables with Social Information



## C Demographics

Table C1: Summary Statistics - Seed Treatment and Main Experiment (Endogenous Information)

	Seed	Emp-Info Control	Emp-Info Dems Above	Emp-Info Reps Above	Norm-Info Control	Norm-Info Dems Above	Norm-Info Reps Above	Total
Mean age	41.20 (12.45)	40.73 (12.55)	41.70 (13.51)	42.78 (13.73)	42.56 (13.33)	41.72 (12.72)	41.28 (13.38)	41.71 (13.09)
% Males	52.86%	42.76%	41.30%	49.12%	45.28%	46.94%	49.43%	46.81%
% Undergraduate and above	68.57%	73.14%	69.56%	74.73%	74.34%	74.15%	72.42%	72.42%
% Annual Pre-Tax Income < 50K	43.21%	38.87%	40.58%	37.54%	38.11%	36.05%	36.40%	38.68%
Democrats	145	160	163	133	126	157	130	1014
%	51.79%	56.54%	59.06%	46.67%	47.55%	53.40%	49.81%	52.16%
Republicans	135	123	113	152	139	137	131	930
%	48.21%	43.46%	40.94%	53.33%	52.45%	46.60%	50.19%	47.84%
<i>Nobservations</i>	280	283	276	285	265	294	261	1944

*Notes:* The table displays summary statistics for the participants' characteristics by treatment and condition. Standard errors are in parentheses.

Table C2: Summary Statistics - Follow-Up Experiment (Exogenous Information)

	Emp-Info		Emp-Info		Emp-Info		Emp-Info		Norm-Info		Norm-Info		Norm-Info		Total
	Exo-Dems	Exo-Reps	Exo80-Dems	Exo80-Reps	Exo-Dems	Exo-Reps	Exo-Dems	Exo-Reps	Exo80-Dems	Exo80-Reps	Exo80-Dems	Exo80-Reps	Exo80-Dems	Exo80-Reps	
	Above	Above	Above	Above	Above	Above	Above	Above	Above	Above	Above	Above	Above	Above	
Mean Age	40.11	39.65	39.36	40.25	38.45	40.09	40.31	40.29	40.31	40.29	40.31	40.29	40.31	40.29	39.82
	(11.77)	(11.45)	(11.62)	(11.82)	(11.17)	(10.52)	(12.26)	(11.81)	(12.26)	(11.81)	(12.26)	(11.81)	(12.26)	(11.81)	(11.57)
% Males	46.49%	43.32%	42.48%	45.78%	45.36%	52.39%	48.39%	48.16%	48.39%	48.16%	48.39%	48.16%	48.39%	48.16%	46.53%
% Undergraduate and above	75.59%	72.64%	80.06%	81.82%	78.22%	77.21%	77.42%	80.60%	77.42%	80.60%	77.42%	80.60%	77.42%	80.60%	77.94%
% Annual Pre-Tax Income < 50K	45.15%	50.16%	41.18%	44.48%	46.07%	41.50%	45.48%	45.15%	45.48%	45.15%	45.48%	45.15%	45.48%	45.15%	44.90%
Democrats	162	153	160	139	135	152	149	162	149	162	149	162	149	162	1212
%	54.18%	49.84%	52.29%	45.13%	48.21%	51.70%	48.06%	54.18%	48.06%	54.18%	48.06%	54.18%	48.06%	54.18%	50.44%
Republicans	137	154	146	169	145	142	161	137	161	137	161	137	161	137	1191
%	45.82%	50.16%	47.71%	54.87%	51.79%	48.30%	51.94%	45.82%	51.94%	45.82%	51.94%	45.82%	51.94%	45.82%	49.56%
<i>Nobservations</i>	299	307	306	308	280	294	310	299	310	299	310	299	310	299	2403

Notes: The table displays summary statistics for the participants' characteristics by treatment and condition. Standard errors are in parentheses.

## D Political Identification

In the initial questionnaire, we asked subjects to report what they thought were the three most relevant socioeconomic problems from a list of different alternatives (like in Campos et al., 2017). In this section, we test whether the answers to this question are consistent with the self-reported political identification of the participants. Following Campos et al. (2013), we construct, for each subject, two revealed ideology indexes, a left-wing and a right-wing index, based on the answers to the question above. The formula of each index is the following:

$$Index_i^w = \frac{\sum_{p=1}^{20} \left( Choice_{i,p} \cdot \frac{\sum_{j=1}^{N_w} Choice_{j,p}}{N_w} \right)}{3}$$

where  $w$  is an indicator for left or right-wing orientation,  $Choice_{i,p}$  is a dummy variable taking a value of 1 if subject  $i$  chose problem  $p$  and 0 otherwise,  $N_w$  is the total number of subjects with orientation  $w$ , and  $\frac{\sum_{j=1}^{N_w} Choice_{j,p}}{N_w}$  is the fraction of subjects with political orientation  $w$  who chose problem  $p$ . Each index can vary between 0 and 1. The higher the index, the more in tune a subject is with the concerns of left or right-wing subjects.

We can then test whether the self-reported political identification predicts subjects' ideology indexes by regressing each index on the self-reported political identification.<sup>34</sup> The results of these regressions (see Regressions 1-2 in Table D1) confirm that Democrats have a significantly higher left-wing index and a lower right-wing index compared to Republicans.

In the questionnaire, we also asked subjects to state how much they agree with the goals of the Republican National Party and the Democratic National Party, respectively, on a scale from  $-5$  (Completely Disagree) to  $5$  (Completely Agree). If we regress the level of agreement with either the Republican or the Democratic Party on the self-reported political identification (see Regressions 3-4 in Table D1), we find that self-reported Democrats (Republicans) tend to agree (disagree) with the goals of the Democratic Party, and disagree (agree) with the goals of the Republican Party. This indicates that the answers of the subjects on their political preferences are coherent across questions.

Table D1: OLS regressions on ideology indexes and agreement with political parties

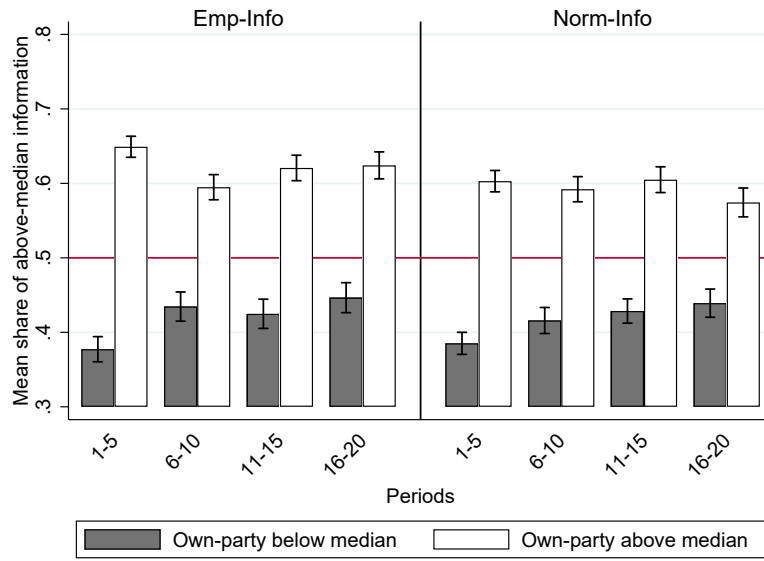
	Left-wing index	Right-wing index	Agreement with Dem	Agreement with Rep
Democrat	0.08*** (0.00)	-0.01*** (0.00)	-5.93*** (0.07)	4.25*** (0.08)
Constant	0.21*** (0.00)	0.22*** (0.00)	3.35*** (0.05)	-1.11*** (0.06)
Observations	4359	4359	4359	4359
Adj. R-squared	0.130	0.005	0.645	0.404
Log-likelihood	3913.635	5622.861	-9616.562	-1.03e+04

*Notes:* The table reports the coefficients from OLS regressions by pooling the data from all the experiments together. The dependent variable is the left-wing ideology index (Column 1), the right-wing ideology index (Column 2), the level of agreement with the goals of the Democratic Party (Column 3), and the level of agreement with the goals of the Republican Party (Column 4), respectively. The level of agreement with the goals of a party is measured on a scale from  $-5$  (Completely Disagree) to  $5$  (Completely Agree). \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

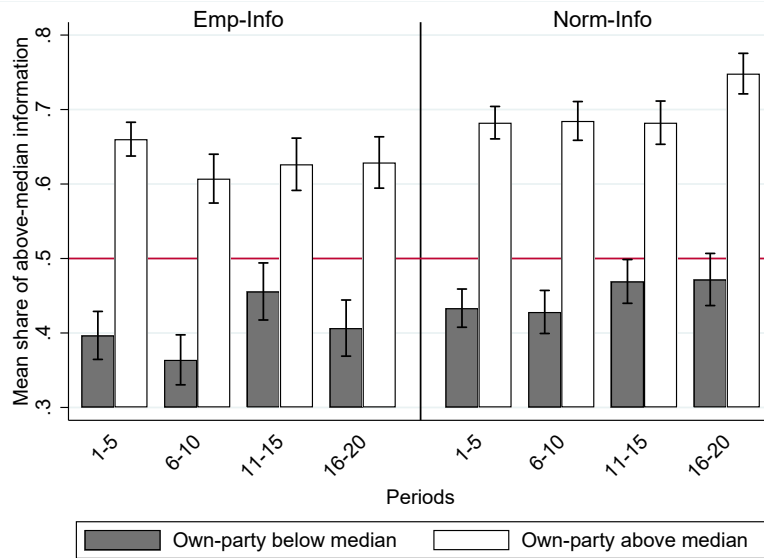
<sup>34</sup>To get more precise indexes, we pool all the data from all the experiments together.

## E Evolution of Information Acquisition in the Group Identity Condition

Figure E1 displays how the consumption of above-median information evolved over time in the Group Identity condition. We conduct a Page's trend test for each combination of information condition (Emp-Info vs. Norm-Info) and participants' classification (cheaters vs. non-cheaters) to study whether the consumption of more lenient information tended to increase or decrease over time. We find that non-cheaters increased the consumption of above-median information over time both in Emp-Info and Norm-Info but only when the in-group information was below the median ( $p = 0.024$  and  $0.004$ , respectively). For cheaters, we find a significant increasing trend in the consumption of above-median information only in the Norm-Info condition when the in-group information was above the median ( $p = 0.018$ ). These results reveal that group identity altered the way subjects consumed above-median information over time.



(a) Non-cheaters



(b) Cheaters

Figure E1: Share of above-median information consumed in the Group Identity condition over time

*Notes.* The figure displays the mean share of above-median information consumed by the participants across blocks of 5 periods. The data are from the Group Identity condition. The top (bottom) panel is non-cheaters (cheaters). In each panel, the data from the Emp-Info (Norm-Info) are reported on the left (right). Participants are classified as cheaters if they reported 14 winning numbers or more in Part 1. Error bars denote standard errors of the mean. Significance between cheaters and non-cheaters is based on Mann-Whitney rank-sum tests. NS: non-significant, \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

## F Dynamics of Information Acquisition

Table F1 displays the coefficients of random-effects linear probability models.<sup>35</sup> In order to comply with the pre-registered analysis, we also estimate random-effects probit models. The results are reported in Table F2. While probit models are more appropriate for analyzing binary choices than linear probability models, the interpretation of the results is more difficult in the presence of interaction terms. Hence, we rely on the results from the random-effects linear probability models for our main analysis.

In all models, we pool the data from the Control and the Group Identity conditions. The dependent variable is an indicator variable that takes value 1 if an individual consumed above-median information in a given period of Part 2. Model (1) is estimated on the pooled data of Emp-Info and Norm-Info. Model (2) is estimated on the data from the Emp-Info condition. Model (3) focuses on the data from the Norm-Info condition.

All models contain treatment dummies as explanatory variables, using the Control condition as the baseline category and adding two dummies for the Group Identity condition. One dummy indicates whether the in-group information is above-median. The other dummy indicates whether the in-group information is below-median. In all models, we also include a dummy variable equal to 1 if the participant was classified as a cheater (based on their behavior in Part 1), and interaction terms between this dummy and the treatment dummies. In Model (1), we also include a dummy variable for the Emp-Info condition, and interaction terms between this variable and the other treatment variables.

To analyze how the consumption of more lenient information evolved over time, we include a time variable and its interaction with the Cheater dummy. Finally, we include controls for individual socio-economic characteristics (age, gender, educational attainment, annual pre-tax income and political orientation) and design procedures (which color was associated to above-median information and its position on the screen).

The regression analysis shows that the consumption of more lenient information increased over time. The increase was larger for subjects classified as cheaters. The other results are consistent with the analysis reported in the main paper.

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<sup>35</sup>We also conducted pooled linear probability models with standard errors clustered at the individual level. The results, available upon request, are very similar.



Table F1: Selection of information over time (linear probability models)

Dep. variable:	Share of Above-Median Information		
	Pooled (1)	Emp-Info (2)	Norm-Info (3)
<i>Control</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
In-group below median	-0.107*** (0.018)	-0.115*** (0.020)	-0.108*** (0.018)
In-group above median	0.079*** (0.017)	0.085*** (0.019)	0.068*** (0.018)
Cheater	0.020 (0.020)	0.007 (0.028)	0.034 (0.027)
Period	0.001** (0.001)	0.001 (0.001)	0.001 (0.001)
Period × Cheater	0.002** (0.001)	0.002* (0.001)	0.003* (0.001)
In-group below median × Cheater	-0.034 (0.025)	-0.043 (0.038)	-0.030 (0.033)
In-group above median × Cheater	0.011 (0.024)	-0.021 (0.035)	0.044 (0.032)
Emp-Info	0.001 (0.016)		
In-group below median × Emp-Info	-0.009 (0.023)		
In-group above median × Emp-Info	-0.001 (0.022)		
Constant	0.532*** (0.025)	0.529*** (0.035)	0.537*** (0.032)
Controls	Yes	Yes	Yes
N	33300	16920	16380
R2	.03	.03	.033
Prob > F	0.000	0.000	0.000

*Notes:* Random-effects linear probability regressions. Model (1) is estimated on the pooled data of Emp-Info and Norm-Info. Model (2) is estimated on the data from the Emp-Info condition, while Model (3) on the data from the Norm-Info condition. There are 20 observations per individual. The dependent variable is an indicator variable that takes value 1 if an individual consumed above-median information in a given period of Part 2. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table F2: Selection of information over time (probit models)

Dep. variable:	Share of Above-Median Information		
	Pooled (1)	Emp-Info (2)	Norm-Info (3)
<i>Control</i>	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
In-group below median	-0.314*** (0.054)	-0.358*** (0.064)	-0.312*** (0.053)
In-group above median	0.231*** (0.053)	0.257*** (0.060)	0.193*** (0.052)
Cheater	0.046 (0.059)	0.012 (0.087)	0.080 (0.079)
Period	0.003** (0.001)	0.003 (0.002)	0.003* (0.002)
Period × Cheater	0.008*** (0.003)	0.007* (0.004)	0.008** (0.004)
In-group below median × Cheater	-0.094 (0.077)	-0.130 (0.120)	-0.076 (0.097)
In-group above median × Cheater	0.048 (0.073)	-0.053 (0.110)	0.154 (0.096)
Emp-Info	0.007 (0.048)		
In-group below median × Emp-Info	-0.041 (0.070)		
In-group above median × Emp-Info	-0.002 (0.067)		
Constant	0.084 (0.078)	0.082 (0.109)	0.100 (0.096)
Controls	Yes	Yes	Yes
N	33300	16920	16380
Prob > F	0.000	0.000	0.000

*Notes:* Random-effects probit regressions. Model (1) is estimated on the pooled data of Emp-Info and Norm-Info. Model (2) is estimated on the data from the Emp-Info condition, while Model (3) on the data from the Norm-Info condition. There are 20 observations per individual. The dependent variable is an indicator variable that takes value 1 if an individual consumed above-median information in a given period of Part 2. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. The table reports regression coefficients. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

## G Effect of Empirical vs. Normative Information on behavior and Expectations

In the main paper, we consider the Emp-Info and Norm-Info conditions separately because empirical and normative information is not directly comparable. In this section, we standardize the empirical and normative information to allow for a comparison between the two types of information. We do so by standardizing  $Avg-Info_i$  in each condition (i.e., we subtract the mean and divide by the standard deviation).

We then conduct the same analysis of Section 5.4 (only for specification 1) with the Emp-Info and Norm-Info pooled together and the inclusion of an interaction term between the standardized value of  $Avg-Info_i$  and a dummy for the Norm-Info condition. The results are reported in Table G1, and indicate that injunctive information had a stronger effect on behavior than empirical information.

Table G1: Effects of Standardized Social Information

	Behavior	Empirical Expectations	Normative Expectations
Avg-Info	0.266* (0.150)	0.397*** (0.138)	0.171 (0.211)
Norm-Info	0.244 (0.199)	-0.033 (0.182)	-0.522* (0.278)
Avg-Info $\times$ Norm-Info	0.609*** (0.225)	0.257 (0.206)	-0.554* (0.315)
Constant	14.081*** (0.464)	13.647*** (0.426)	16.028*** (0.646)
Controls	Yes	Yes	Yes
Observations	1665	1665	1665
Right-cens obs.	124	46	216
Left-cens obs.	0	5	359
Wald $\chi^2$	90.26	52.70	19.60
Log-likelihood	-4446.124	-4423.134	-3967.493

Notes: Tobit regressions. Standard errors are in parentheses. There is one observation per individual. In Model (1), the dependent variable is the proportion of winning numbers reported by a subject in Part 2. In Model (2), the dependent variable is the belief of a subject on the average number of winning numbers reported by others in Part 2. In Model (3), the dependent variable is the inappropriateness switching point of a subject. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*  $p < 0.10$ , \*\*\*  $p < 0.01$ .

## H Effect of Endogenous Social Information on Behavior and Expectations for Cheaters and Non-Cheaters

Table H1: Effects of Social Information on Reporting Behavior, Main Experiment (Non-Cheaters)

	Panel A: Emp-Info		Panel B: Norm-Info	
	(1)	(2)	(3)	(4)
Avg-Info	0.122 (0.079)	0.057 (0.094)	0.145 (0.092)	0.040 (0.101)
Avg-Info $\times$ In-Group		0.073 (0.052)		0.138** (0.054)
Avg-Info $\times$ Control		0.032 (0.036)		0.078** (0.036)
Constant	10.202*** (1.246)	10.684*** (1.288)	9.363*** (1.436)	9.856*** (1.442)
Controls	Yes	Yes	Yes	Yes
Observations	606	606	575	575
Right-cens obs.	1	1	2	2
Left-cens obs.	0	0	0	0
Wald $\chi^2$	8.69	11.17	15.43	22.04
Log-likelihood	-1457.590	-1456.351	-1356.529	-1353.224

Notes: Tobit regressions. Standard errors are in parentheses. The regressions reported in Panel A (B) are based on the data from the Emp-Info (Norm-Info) condition. Models (1) and (3) use specification 1, while Models (2) and (4) are based on specification 2. There is one observation per individual. In all Models, the dependent variable is the proportion of winning numbers reported in Part 2 by a subject. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*  $p < 0.10$ , \*\*\*  $p < 0.01$ .

Table H2: Effects of Social Information on Empirical Expectations, Main Experiment (Non-Cheaters)

	Panel A: Emp-Info		Panel B: Norm-Info	
	(1)	(2)	(3)	(4)
Avg-Info	0.148 (0.097)	0.311*** (0.114)	0.203* (0.114)	0.238* (0.125)
Avg-Info $\times$ In-Group		-0.187*** (0.063)		-0.049 (0.067)
Avg-Info $\times$ Control		-0.071* (0.043)		-0.021 (0.044)
Constant	10.695*** (1.527)	9.453*** (1.564)	9.571*** (1.770)	9.402*** (1.785)
Controls	Yes	Yes	Yes	Yes
Observations	606	606	575	575
Right-cens obs.	8	8	5	5
Left-cens obs.	3	3	1	1
Wald $\chi^2$	10.48	23.45	11.92	12.62
Log-likelihood	-1569.824	-1563.340	-1471.487	-1471.136

Notes: Tobit regressions. Standard errors are in parentheses. The regressions reported in Panel A (B) are based on the data from the Emp-Info (Norm-Info) condition. Models (1) and (3) use specification 1, while Models (2) and (4) are based on specification 2. There is one observation per individual. In all Models, the dependent variable is the belief of a subject on the average number of winning numbers reported by others in Part 2. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*  $p < 0.10$ , \*\*\*  $p < 0.01$ .

Table H3: Effects of Social Information on Normative Expectations, Main Experiment (Non-Cheaters)

	Panel A: Emp-Info		Panel B: Norm-Info	
	(1)	(2)	(3)	(4)
Avg-Info	-0.001 (0.152)	-0.014 (0.180)	-0.257 (0.178)	-0.217 (0.195)
Avg-Info $\times$ In-Group		0.000 (0.099)		-0.059 (0.105)
Avg-Info $\times$ Control		0.034 (0.068)		-0.022 (0.069)
Constant	15.826*** (2.383)	15.805*** (2.468)	19.021*** (2.770)	18.836*** (2.793)
Controls	Yes	Yes	Yes	Yes
Observations	606	606	575	575
Right-cens obs.	80	80	65	65
Left-cens obs.	109	109	116	116
Wald $\chi^2$	4.27	5.37	15.66	16.15
Log-likelihood	-1467.074	-1466.524	-1370.275	-1370.032

Notes: Tobit regressions. Standard errors are in parentheses. The regressions reported in Panel A (B) are based on the data from the Emp-Info (Norm-Info) condition. Models (1) and (3) use specification 1, while Models (2) and (4) are based on specification 2. There is one observation per individual. In all Models, the dependent variable is the inappropriateness switching point of a subject. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*  $p < 0.10$ , \*\*\*  $p < 0.01$ .

Table H4: Effects of Social Information on Reporting Behavior, Main Experiment (Cheaters)

	Panel A: Emp-Info		Panel B: Norm-Info	
	(1)	(2)	(3)	(4)
Avg-Info	0.193 (0.193)	0.131 (0.219)	0.609*** (0.219)	0.612** (0.251)
Avg-Info $\times$ In-Group		0.106 (0.132)		0.002 (0.119)
Avg-Info $\times$ Control		0.028 (0.093)		-0.012 (0.087)
Constant	16.184*** (3.062)	16.366*** (3.066)	9.452*** (3.554)	9.435** (3.645)
Observations	240	240	244	244
Right-cens obs.	55	55	66	66
Left-cens obs.	0	0	0	0
Wald $\chi^2$	24.37	25.83	21.72	21.82
Log-likelihood	-591.038	-590.311	-579.607	-579.555

Notes: Tobit regressions. Standard errors are in parentheses. The regressions reported in Panel A (B) are based on the data from the Emp-Info (Norm-Info) condition. Models (1) and (3) use specification 1, while Models (2) and (4) are based on specification 2. There is one observation per individual. In all Models, the dependent variable is the proportion of winning numbers reported in Part 2 by a subject. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*  $p < 0.10$ , \*\*\*  $p < 0.01$ .

Table H5: Effects of Social Information on Empirical Expectations, Main Experiment (Cheaters)

	Panel A: Emp-Info		Panel B: Norm-Info	
	(1)	(2)	(3)	(4)
Avg-Info	0.408*** (0.151)	0.393** (0.172)	0.508** (0.205)	0.674*** (0.233)
Avg-Info $\times$ In-Group		0.036 (0.102)		-0.147 (0.109)
Avg-Info $\times$ Control		-0.001 (0.072)		-0.133* (0.080)
Constant	10.416*** (2.388)	10.484*** (2.393)	6.890** (3.334)	5.740* (3.405)
Controls	Yes	Yes	Yes	Yes
Observations	240	240	244	244
Right-cens obs.	14	14	19	19
Left-cens obs.	0	0	1	1
Wald $\chi^2$	18.58	19.20	22.06	24.83
Log-likelihood	-624.810	-624.501	-670.336	-668.947

Notes: Tobit regressions. Standard errors are in parentheses. The regressions reported in Panel A (B) are based on the data from the Emp-Info (Norm-Info) condition. Models (1) and (3) use specification 1, while Models (2) and (4) are based on specification 2. There is one observation per individual. In all Models, the dependent variable is the belief of a subject on the average number of winning numbers reported by others in Part 2. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*  $p < 0.10$ , \*\*\*  $p < 0.01$ .



Table H6: Effects of Social Information on Normative Expectations, Main Experiment (Cheaters)

	Panel A: Emp-Info		Panel B: Norm-Info	
	(1)	(2)	(3)	(4)
Avg-Info	0.321 (0.273)	0.422 (0.314)	-0.330 (0.319)	-0.198 (0.359)
Avg-Info $\times$ In-Group		-0.163 (0.184)		-0.096 (0.167)
Avg-Info $\times$ Control		-0.033 (0.130)		-0.153 (0.122)
Constant	13.541*** (4.323)	13.105*** (4.329)	20.060*** (5.182)	19.127*** (5.284)
Controls	Yes	Yes	Yes	Yes
Observations	240	240	244	244
Right-cens obs.	37	37	34	34
Left-cens obs.	62	62	72	72
Wald $\chi^2$	8.47	10.57	5.46	8.03
Log-likelihood	-554.680	-553.632	-555.123	-553.838

Notes: Tobit regressions. Standard errors are in parentheses. The regressions reported in Panel A (B) are based on the data from the Emp-Info (Norm-Info) condition. Models (1) and (3) use specification 1, while Models (2) and (4) are based on specification 2. There is one observation per individual. In all Models, the dependent variable is the inappropriateness switching point of a subject. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*  $p < 0.10$ , \*\*\*  $p < 0.01$ .

# I Effect of Exogenous Social Information on Behavior and Expectations (robustness checks)

Table I1: Effects of Exogenous vs. Endogenous Social Information (excluding polarized cases)

	Behavior		Empirical exp.		Normative exp.	
	Emp-Info	Norm-Info	Emp-Info	Norm-Info	Emp-Info	Norm-Info
Avg-Info	0.166*	0.588***	0.241**	0.439***	0.112	-0.247*
	(0.097)	(0.114)	(0.101)	(0.119)	(0.138)	(0.149)
Avg-Info × Exo	-0.035	-0.215	-0.046	-0.540**	-0.081	0.753***
	(0.170)	(0.200)	(0.178)	(0.210)	(0.243)	(0.262)
Exo	0.554	2.582	-0.197	7.100**	1.264	-11.838***
	(2.392)	(3.051)	(2.499)	(3.206)	(3.406)	(4.001)
Constant	11.101***	5.227***	10.463***	7.068***	14.599***	18.828***
	(1.461)	(1.750)	(1.525)	(1.836)	(2.078)	(2.292)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1458	1396	1458	1396	1458	1396
Wald $\chi^2$	29.96	73.74	44.81	52.35	11.64	18.40
Log-likelihood	-3937.369	-3744.859	-4063.629	-3904.802	-3487.195	-3296.549

Notes: Tobit regressions. Standard errors are in parentheses. One observation per individual. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table I2: Effects of Exogenous vs. Endogenous Social Information (excluding Control)

	Behavior		Empirical exp.		Normative exp.	
	Emp-Info	Norm-Info	Emp-Info	Norm-Info	Emp-Info	Norm-Info
Avg-Info	0.079	0.556***	0.157	0.510***	0.079	-0.193
	(0.116)	(0.129)	(0.131)	(0.151)	(0.164)	(0.170)
Avg-Info × Exo	-0.008	-0.371**	0.025	-0.472***	-0.076	0.402**
	(0.134)	(0.148)	(0.152)	(0.173)	(0.190)	(0.195)
Exo	0.166	5.034**	-0.930	6.137**	1.135	-6.660**
	(1.884)	(2.196)	(2.141)	(2.572)	(2.663)	(2.887)
Constant	12.180***	5.803***	11.778***	6.437***	14.610***	18.198***
	(1.694)	(1.938)	(1.924)	(2.268)	(2.396)	(2.550)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1790	1740	1790	1740	1790	1740
Wald $\chi^2$	28.64	73.54	53.56	49.39	27.54	24.63
Log-likelihood	-4838.589	-4663.793	-5113.138	-4982.330	-4241.931	-4081.202

Notes: Tobit regressions. Standard errors are in parentheses. One observation per individual. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table I3: Effects of Social Information on Reporting Behavior (excluding polarized cases)

	Panel A: Emp-Info		Panel B: Norm-Info	
	(1)	(2)	(3)	(4)
Avg-Info	0.121 (0.148)	0.082 (0.178)	0.377** (0.166)	0.257 (0.184)
Avg-Info $\times$ In-Group		0.042 (0.105)		0.138 (0.094)
Constant	10.551*** (2.266)	10.769*** (2.330)	7.338*** (2.712)	7.966*** (2.740)
Controls	Yes	Yes	Yes	Yes
Observations	612	612	577	577
Right-cens obs.	46	46	46	46
Left-cens obs.	1	1	1	1
Wald $\chi^2$	11.53	11.69	23.92	26.06
Log-likelihood	-1672.941	-1672.861	-1550.856	-1549.785

Notes: Tobit regressions. Standard errors are in parentheses. The regressions reported in Panel A (B) are based on the data from the Emp-Info (Norm-Info) condition. Models (1) and (3) use specification 1, while Models (2) and (4) are based on specification 2. There is one observation per individual. In all Models, the dependent variable is the proportion of winning numbers reported in Part 2 by a subject. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*  $p < 0.10$ , \*\*\*  $p < 0.01$ .

Table I4: Effects of Social Information on Empirical Expectations (excluding polarized cases)

	Panel A: Emp-Info		Panel B: Norm-Info	
	(1)	(2)	(3)	(4)
Avg-Info	0.187 (0.176)	-0.114 (0.211)	-0.078 (0.202)	-0.117 (0.225)
Avg-Info $\times$ In-Group		0.320** (0.124)		0.045 (0.115)
Constant	10.378*** (2.695)	12.032*** (2.756)	14.189*** (3.309)	14.398*** (3.351)
Observations	612	612	577	577
Right-cens obs.	33	33	31	31
Left-cens obs.	4	4	1	1
Wald $\chi^2$	15.64	22.24	12.35	12.50
Log-likelihood	-1788.816	-1785.512	-1682.267	-1682.190

Notes: Tobit regressions. Standard errors are in parentheses. The regressions reported in Panel A (B) are based on the data from the Emp-Info (Norm-Info) condition. Models (1) and (3) use specification 1, while Models (2) and (4) are based on specification 2. There is one observation per individual. In all Models, the dependent variable is the belief of a subject on the average number of winning numbers reported by others in Part 2. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*  $p < 0.10$ , \*\*\*  $p < 0.01$ .

Table I5: Effects of Social Information on Normative Expectations (excluding polarized cases)

	Panel A: Emp-Info		Panel B: Norm-Info	
	(1)	(2)	(3)	(4)
Avg-Info	0.034 (0.211)	0.009 (0.254)	0.491** (0.205)	0.540** (0.230)
Avg-Info $\times$ In-Group		0.026 (0.150)		-0.056 (0.116)
Constant	15.727*** (3.230)	15.861*** (3.322)	6.776** (3.363)	6.508* (3.411)
Observations	612	612	577	577
Right-cens obs.	94	94	49	49
Left-cens obs.	133	133	141	141
Wald $\chi^2$	7.94	7.97	8.70	8.93
Log-likelihood	-1454.693	-1454.678	-1356.198	-1356.084

Notes: Tobit regressions. Standard errors are in parentheses. The regressions reported in Panel A (B) are based on the data from the Emp-Info (Norm-Info) condition. Models (1) and (3) use specification 1, while Models (2) and (4) are based on specification 2. There is one observation per individual. In all Models, the dependent variable is the inappropriateness switching point of a subject. Controls: age, gender, educational attainment, annual pre-tax income, political orientation, left button above the median, yellow button above the median. \*  $p < 0.10$ , \*\*\*  $p < 0.01$ .