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Are mandatory oaths effective in groups?

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Abstract

Previous studies have shown that an oath can reduce lying in individual settings. Can it reduce lying in groups, a context where lying is more prevalent? Results from a lab experiment reveal that the impact depends on the incentive structures and procedures. A mandatory oath reduces lying when group members' payoffs are independent, but only has a marginal effect when payoffs are dependent. Voluntary oath-taking enhances the effectiveness under both incentive structures by fostering intrinsic motivation to keep promises. The findings highlight the importance of peer effects and oath-taking procedures on the effectiveness of an oath in group settings.

Keywords: Honesty oath; lying; group incentive; intrinsic motivation; peer effects; lab experiment

JEL Codes: C91; C92; D71; D91

1. Introduction

Dishonest behavior is commonplace in societies – from misreporting on an income tax form to committing frauds in professional settings. Recent studies in behavioral economics suggest that individuals experience non-pecuniary costs of lying arising from an intrinsic preference to be honest and a desire to be seen as honest (Gneezy et al., 2018, Dufwenberg & Dufwenberg, 2018, Abeler et al., 2019, Schudy et al., 2024). However, even with these preferences for truth-telling, individuals may feel tempted to cheat in certain situations. Therefore, interventions aimed at increasing the costs of lying can be effective in reducing dishonest behavior. One such intervention is an oath – a moral commitment where individuals promise to be honest.

Previous studies have shown an oath to be effective in individual settings (e.g., Jacquemet et al., 2019, Beck, 2021). Yet, little is known about its effectiveness in groups. In an individual setting, an oath-taker relies primarily on own preferences and beliefs to guide behavior. A group context introduces heterogeneity in preferences and diverse perceptions of social norms, which can influence the oath's effectiveness. If an individual feels morally engaged by the oath, but their peers do not share this sentiment, how would that affect their behavior? Does peer influence erode the honesty norm, or conversely reinforce it and thus the oath's impact? Addressing these questions is relevant if one's goal is to understand the mechanisms of an oath in a more general setting where social interactions are inherent, such as that of an organization.

The goal of this study is to assess the impact of an oath in a group setting with social interactions. The study focuses on two peer effects, namely contagion and pressure – both of which can moderate the impact of an oath. Contagion refers to how an individual can be influenced by what their peers think or do. The literature (reviewed in the next section) have shown that in the absence of an oath, individuals condition their behavior on that of their peers and are more susceptible to others' norm violation than norm compliance. Such asymmetric behavioral contagion can be explained by an erosion of norms. Since an oath should increase the non-pecuniary costs of lying and make the injunctive norm ('what one ought to do') more salient, one can expect the oath to put a moral constraint on individuals, thereby reducing dishonesty and limiting its contagion.

Besides complying with peers, an individual in a group may face peer pressure, which arises when their actions have collective consequences for the group. In such cases, they may feel compelled to act in line with peers' expectations to avoid social costs.[1] Unlike contagion, this type of group conformism is not driven by internalizing peers' normative views, but by the desire to meet their expectation and avoid actions that the group deems suboptimal or contradictory to the 'group norm.' If the honesty norm becomes salient but fails to emerge as a group norm, peer pressure can crowd-out the impact of the oath in group settings by encouraging individuals to lie to live up to peers' expectation. However, if honesty becomes the predominant norm, peer pressure can reinforce the impact of the oath.

As social interactions can potentially undermine or promote the norm of honesty in group settings, the success of oath interventions in fostering honesty may depend not only on their presence but also on how they are administered – whether they are mandatory or voluntary. Mandating an oath ensures universal participation but may diminish its intrinsic meaning by depriving individuals of autonomy. In contrast, a voluntary oath preserves autonomy, potentially enhancing the intrinsic motivation to be honest among those who take it. These different perceptions of an oath can influence the social interactions within groups, thereby shaping the emergence of the honesty norm and consequently the oath's effectiveness. This understanding can provide informative insights for policymakers on how to design oath interventions in a context where peer effects naturally exist.[2]

A laboratory experiment, conducted with 712 participants, uses a variant of the observed cheating game developed by Gneezy et al. (2018). In this game, participants observe a video of a die roll via the computer, are asked to memorize the outcome and to report it later. Since the payoff depends on the reported number, participants have the opportunity to misreport to earn additional payoffs. This setup allows the experimenter to infer lying at an individual level (ex-post). The experiment uses a mixed experimental design, varying the settings (individual or group) as a within-subjects dimension, and the incentive structure, the presence of the oath, its procedure as a between-subjects dimension.

The within-subjects dimension consists of three successive parts. In part 1, participants play the game in an individual setting without the possibility to interact with other participants. The decision in part 1 is used as a proxy for individual type (honest or dishonest). In part 2, participants play the same game but in a group setting. They are randomly matched to form a group of three. All the three members first observe the same video of a die roll, after which they can use an anonymous computerized free-form chat for five minutes. The chat enables group members to interact and thus peer effects to occur. After the chat, group members report the number individually. The decision in part 2 is the main outcome of interest in this study. Finally, in part 3, participants play the game in an individual setting as in part 1.

[1] This notion aligns with that of Kandel and Lazear (1992) who conceptualizes peer pressure as non-pecuniary social costs that deter agents from shirking in partnerships and teams.

[2] A real-world example is the bankers' oath, which aims to morally engage financial advisors. The Netherlands made this professional oath compulsory for all bankers since 2015, while Australia recently implemented a similar oath but made it voluntary. For information about the bankers' oath, see https://www.tuchtrechtbanken.nl/en/about-the-bankers-oath/ for the Netherlands and https://www.bfso.org/the-oath/mission-and-objectives for Australia (accessed on 20th December 2024).

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The between-subjects dimension is introduced at the beginning of part 2 in a 2x3 design. Peer effects are introduced by varying the incentive structures, which differ in whether group members are subject to the payoff commonality rule (Kocher et al., 2018). In **No Payoff Commonality (NPC)** treatment, monetary incentives mirror those in the individual setting; the number reported by an individual determines their own payoff without affecting the payoffs of other group members. As such, only contagion influences group members' decisions through communication. In **Payoff Commonality (PC)** treatment, the payoffs of members are dependent; all members must report the same number to earn the payoff, otherwise they earn nothing. Under this rule, individuals can be pressured by peers to enter a specific number depending on what emerges as the majority opinion in the group. If the group norm is to maximize payoffs by lying, peer pressure should work against the oath, reducing its effectiveness under this incentive structure. On the other hand, if the group norm is to be honest, peer pressure should promote honest coordination.

To examine the impact of an oath and its procedure, the two incentive structures are interacted with the three oath treatments. In the **No-Oath** treatment, participants do not swear any oath. This serves as a baseline level of lying in groups. In the **Mandatory Oath (Mand-Oath)** treatment, participants swear a mandatory oath at the beginning of part 2 to tell the truth for the rest of the experiment. Lastly, in the **Voluntary Oath (Vol-Oath)** treatment, participants are offered the same oath, but are free to sign it or not.[3] The impact of a mandatory oath on lying in groups can be assessed by comparing the No-Oath and Mand-Oath treatments, while the impact of making the oath voluntary can be extracted by comparing the Vol-Oath and Mand-Oath treatments. The voluntary nature of the oath is expected to enhance its impact by reinforcing the intrinsic motivation associated with a voluntary commitment.

Results from the experiment confirm that oaths can be effective in groups. In the absence of an oath and the presence of peer effects, relying on preferences for truth-telling alone is clearly insufficient as more than 90% of individuals lie in groups. Introducing a mandatory oath reduces the likelihood to lie in groups by nearly 20 percentage points when group members' payoffs are independent. However, the impact is marginal under the payoff commonality rule. These results suggest that a mandatory oath can be effective in settings where dishonesty is contagious but its impact can be crowded out by peer pressure to lie for the group's financial gain. Allowing an oath to be taken voluntarily enhances its effectiveness further by nearly 20 percentage points under both incentive structures, potentially due to a stronger intrinsic motivation to uphold a voluntary oath. Additional analyses reveal that, while the oath changes the behavior of both honest and dishonest types, an increased intrinsic motivation arising from the voluntary procedure primarily comes from the honest types. Overall, these results indicate that to be impactful in a context where peer effects are present, the oath must be designed in close connection with the incentive structures and procedures.

The remainder of this paper is organized as follows. Section 2 provides an overview of the related literature. Section 3 outlines the experimental design and procedure. Section 4 reports the results. Section 5 discusses these findings and concludes.

2. Related Literature

This study contributes to the literature on the effect of an oath on lying. Most prior studies focused on individual settings and showed that it induces truth-telling (Jacquemet et al., 2019, Beck, 2021). A general interpretation is that the oath raises moral awareness and interferes with the justification process. Under oath, the costs of lying increase because doing so involves two moral transgressions (i.e., telling a lie and breaking an oath). This makes lying under oath less attractive.[4] Two recent studies

[3] Naturally, the voluntary procedure introduces endogeneity. By using individual decisions in part 1 as a proxy for their type, important aspects of the self-selection effect can be controlled for.

[4] A meta-analysis by Zickfeld et al. (2024) reported an overall negative impact of an oath on lying. Recent studies show that the effect of an oath may depend on the context. An oath can have a limited impact on partial lies compared to obvious ones

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have shown an oath to be effective in group settings (Dunaiev & Khadjavi, 2021, Zickfeld et al., 2023). The contribution of the current study goes beyond simply showing that an oath works in groups; it aims to understand *how* it can be effective in such a context by examining the influence of peers and the social information they transmit. These peer effects are not examined in the two studies.

The literature on peer effects and lying has shown that individuals are more likely to cheat in the presence of peers (e.g.,Weisel & Shalvi, 2015, Kocher et al., 2018, Bäker & Mechtel, 2019). Among various mechanisms proposed to explain this phenomenon, this study focuses on contagion, which refers to how individuals adjust their behavior in response to what their peers think or do.[5] The notion of contagion can be applied to both honest and dishonest behaviors; however, most prior studies found that dishonesty is more contagious than honesty (seeKeizer et al., 2008, Fosgaard et al., 2013, Kroher & Wolbring, 2015, Diekmann et al., 2015). For instance, Lauer and Untertrifaller (2019) found that individuals condition their decision to lie on that of their peers.[6] Further, there is evidence that people prefer being paired with a peer of the same type to reduce the moral cost of norm violation (e.g.,Gross et al., 2018, Charroin et al., 2022). This study contributes to this literature by examining whether an oath reduces lying in a setting where dishonesty is contagious.

The asymmetry in contagion can be explained by the information conveyed through peers' norm violation about the underlying empirical norms ('what others are actually doing') as opposed to the injunctive norms ('what one ought to do'). While most people would agree that lying is socially inappropriate, knowing that others actually lie allows individuals to justify their lies. This is consistent with the finding of Bicchieri et al. (2023) who showed that individuals distort their beliefs about the empirical norms to license their lies. Similarly, Dimant et al. (2024) found that people selectively sample lenient information about the empirical norms to facilitate lying. An oath is expected to limit the contagion of dishonesty as individuals are committed to keep the promise to be honest (Ellingsen & Johannesson, 2004, Charness & Dufwenberg, 2006, Vanberg, 2008).

This study further contributes by examining peer pressure as a mechanism distinct from contagion. Kandel and Lazear (1992) models peer pressure as a non-pecuniary social motivation that drives individuals to take certain actions under a team incentive. According to Kandel and Lazear (1992), when an individual's action determines the group's payoff, peer pressure prevents individuals from shirking as the action is perceived as suboptimal for the group. Without punishment opportunities and observability by peers, Kandel and Lazear (1992) conceptualizes peer pressure as a social cost borne by those whose action deviates from the 'group norm' (as inKrupka & Weber, 2013).[7] In the context of this study, if an individual's decision affects group members' payoffs, depending on what is perceived as an optimal action for the group or a group norm, peer pressure can encourage individuals to take an action that is consistent with the majority opinion.

To examine the role of peer pressure on the impact of an oath, the study varies the types of incentive structures group members face, and considers the case of the payoff commonality rule (Kocher et al., 2018). Under this rule, group members must coordinate their actions, as failure to do so results in a collective loss. This resembles, for example, decision-making in a committee, where the decisions of all members have material consequences for the group. While the oath reinforces the honesty norm, the group incentive fosters a preference for profit maximization, leading to two competing norms.

(Heinicke et al., 2019, Jacquemet et al., 2021), and on lies that are mutually beneficial compared to self-serving ones (Jacquemet et al., 2021). Some studies reported no effects (Koessler et al., 2019, Prima et al., 2020, Cagala et al., 2023) or even backfiring (Cagala et al., 2021).

[5]Other well-documented mechanisms in explaining the high prevalence of lying (or norm violation more generally) in a group context are rationality (Charness & Sutter, 2012), sophisticated deception (Sutter, 2009), diffusion of responsibility (e.g., Falk & Szech, 2013, Falk et al., 2020, Bauer et al., 2023), Pareto white lies (e.g., Wiltermuth, 2011, Conrads et al., 2013), and a lenient normative view (Behnk et al., 2022).

[6]Similar results have been documented in various settings such as tax evasion (Lefebvre et al., 2015, Burgstaller & Pfeil, 2024), the die-under-a-cup paradigm (Colzani et al., 2023, Huber et al., 2023) and deception game (Innes & Mitra, 2013).

[7]Kandel and Lazear (1992) also models peer pressure as guilt aversion (as in Battigalli et al., 2013), whereby an individual avoids an action that will fall below the group's expectation.

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If the majority prefers to maximize group payoffs, peer pressure can erode the honesty norm and compel an individual to lie. However, if honesty emerges as a group norm, peer pressure may compel individuals to be honest, as deviating from the predominant norm is costly – financially for the group and socially for the individual.

Lastly, the study contributes to a better understanding of how oath-taking procedures matter for its effectiveness in groups. Prior studies have demonstrated that an oath is effective whether it is mandatory (e.g.,Davis & Jaber-Lopez, 2022) or voluntary (e.g.,Jacquemet et al., 2019). Procedural differences may matter in group settings as social interactions within groups can erode or foster the honesty norm. On the one hand, a mandatory oath is externally imposed and restricts the freedom of choice. This may cause some individuals to perceive an oath as less meaningful, weakening intrinsic motivation. Voluntary oath-taking, on the other hand, preserves autonomy which can reinforce intrinsic motivation to be honest.[8] Consequently, the differences in oath-taking procedures may give rise to different levels of honesty norm and thus the success of oath interventions. Understanding the extent to which different procedures influence honesty in groups and how they interact with peer effects can be useful in designing effective interventions in an organizational context.

3. Experimental Design and Procedures

3.1. Design

Participants play an observed cheating game (Gneezy et al., 2018). They observe a video displaying an outcome of a die roll on the computer screen (i.e., ⚀, ⚁, ⚂, ⚃, ⚄, or ⚅), which has been randomly selected by the program. Each face of the die is associated with different payoffs: ⚀ for one token, ⚁ for two tokens, and so on. The exception is for ⚅, which yields zero tokens. Participants are asked to memorize the outcome of the die roll and to report it later. They earn the payoff depending on their report, and therefore can misreport to earn more tokens.

A mixed experimental design, similar to that of Kocher et al. (2018), is used.[9] The within-subjects dimension consists of three successive parts, and varies in whether the observed cheating game is played in an individual or a group setting. In part 1, the game is played in an individual setting, as described above. The decision in part 1 serves as a control variable for individual types. In part 2, participants are randomly matched to form a group of three. The three members view the same video of a die roll, after which they can chat anonymously for five minutes via computer. It is through this chat that peer effects operate in the experiment. The chat allows for a free-form communication apart from revealing identity. Messages are shown to all group members. Participants can leave the chat at any point of time. The chat ends either after all group members have left the chat or the time has elapsed. After the chat, each group member makes an individual report as in part 1. The decision in part 2 is the main outcome measure in this study. Finally, in part 3, participants play the game individually, as they did in part 1. The decision in part 3 will be used to examine any spillover effects from the group to the individual setting. No feedback is given regarding the decisions of other participants.

The between-subjects dimension is introduced at the beginning of part 2 in a 2x3 design, while part 1 remains the same across treatments. The presence of peer effects is introduced via the two incentive structures namely No Payoff Commonality and Payoff Commonality.

[8]Prior studies showed that individuals positively value decision rights (Fehr et al., 2013, Bartling et al., 2014), prefer autonomy (i.e., the ability to implement one's decision) (Ferreira et al., 2020, Freundt et al., 2023). and non-interference (i.e., independence from the decisions of others) (Pikulina & Tergiman, 2020).

[9]Given a high prevalence of lying observed in Kocher et al. (2018), the set-up is well-suited as the results likely reflect situations where lying is a group norm. Key design features, such as group coordination, communication, group composition, and behavior after group interaction, can be helpful in understanding how an oath works in groups. Naturally, this replicates the group treatments of Kocher et al. (2018), whose findings are confirmed (see section C.6 in Online Appendix for the replication of their main findings).

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No Payoff Commonality ('NPC') treatment: In the NPC treatment, participants faced an individual incentive structure where the payoffs of group members were independent. They were informed that the number they reported would not affect the payoff of their group members, and vice versa. Therefore, in this treatment, the incentive in part 2 is the same as in the individual setting (part 1 and 3), but allows for contagion via group communication. Peer pressure is absent in the NPC treatment as group members' actions do not impact the payoffs of one another.

Payoff Commonality ('PC') treatment: In the PC treatment, participants faced a group incentive structure where the payoffs of group members were dependent. They were informed that all the three members must report the same number to earn the payoff associated with that number; otherwise, they earned nothing. This incentive structure requires group members to coordinate on their individual reports and can build an expectation in favor of certain numbers. Consistent with Kandel and Lazear (1992), the design satisfies the two pre-requisites for peer pressure: collective consequences (profit sharing) and a means to exert pressure (communication). Therefore, the payoff commonality rule generates peer pressure, alongside contagion.

The two incentive structures are interacted with three oath treatments that vary in whether and how an oath is introduced.

No-Oath treatment: In the No-Oath treatment, participants played the game in a group setting without taking any oath.

Mandatory Oath ('Mand-Oath') treatment: In the Mand-Oath treatment, all participants had to individually swear an oath by which they committed to be honest and to tell the truth for the rest of the experiment. The oath-taking was done before knowing the instructions of part 2. To take the oath, participants re-typed the text on their computers.[10] The oath-taking was common-knowledge.

Voluntary Oath ('Vol-Oath') treatment: In the Vol-Oath treatment, all participants were offered the same oath (as in the Mand-Oath treatment) but were free to sign it. To ensure that participants did not sign for fear of exclusion from the session and the potential earnings, they were additionally informed that their decision to sign the oath would not affect their participation in any way and that the experimenter would not inform other participants of their decision. This was common-knowledge.[11] On the same screen, participants were asked whether or not they would like to take the oath by clicking on the button 'I agree' or 'I disagree'. Those who agreed to take the oath retyped it as in the Mand-Oath treatment, while those who disagreed retyped a neutral sentence.[12]

This results in six between-subjects treatments namely, No-Oath NPC, No-Oath-PC, Mand-Oath NPC, Mand-Oath PC, Vol-Oath NPC, and Vol-Oath PC. Moving from No-Oath to Mand-Oath, the treatment variations assess the impact of a mandatory oath in reducing lies in groups with different peer effects (contagion in the NPC treatments, and contagion and pressure in the PC treatments). Finally, moving from Mand-Oath to Vol-Oath, the treatment variations evaluate the extent to which the voluntary nature of the oath, and the intrinsic motivation it fosters, enhances its effectiveness.

In addition to the six main treatments, one control condition (**'Mand-Oath Indiv'**) was conducted where participants took a mandatory oath at the beginning of part 2 but played in the game in an

[10]The program checked whether the following words were typed correctly: '*I swear upon my honor,*' '*honestly*' and '*truth.*'

[11]Given the voluntary procedure, participants in the Vol-Oath treatment did not know who else signed the oath and could form beliefs regarding the decisions of others. In this respect, the set-up is similar to prior studies (see Jacquemet et al., 2019) who administered a voluntary oath where participants were not informed of others' decisions. On the contrary, those in the Mand-Oath treatment did not have to form beliefs, and knew that others had also signed the oath. While the aim is to compare the effectiveness of oaths by varying the procedures, it can be interesting for future research to examine the extent to which beliefs about others signing the voluntary oath may matter.

[12]The sentence was *'I do not agree to take the oath and I understand that I can still continue to participate in the experiment.'* This was not common-knowledge. The procedure was adopted to avoid placing participants in an uncomfortable situation where their neighbors could infer something about their decision. The set-up also helps in reducing the salience of participants inferring how many participants in the session agreed or disagreed to take the oath.

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individual setting. This will be used to assess the impact of a mandatory oath in the absence of any peer effects and to help disentangle them (see section 4.3 on the mechanisms).

3.2. Belief Elicitation

After completing the three parts of the experiment, all participants answered three incentivized belief questions about the empirical norms in each part of the experiment. The belief elicitation was not announced and came as a surprise. The focus is on the belief about the proportion of participants reporting '5'. At the end of the experiment, one of the three belief questions was randomly selected by the program for a bonus payment.

Finally, after the belief elicitation, participants completed a standard socio-demographic questionnaire, witnessed the randomization of payment for their decisions (more details in the next section) and received feedback about their payoff for all parts and the selected belief question. The design, behavioral conjectures and the number of observations were pre-registered prior to data collection at AsPredicted.org (#79968 and #171934).

3.3. Procedures

The experiment was run in-person at GATE-Lab in Lyon, France. Twenty-three sessions were conducted between November and December 2021 with 408 participants for the No-Oath NPC, No-Oath PC, Mand-Oath NPC, and Mand-Oath PC treatments.[13] Seventeen sessions were conducted between April and June 2024 with 304 participants for the Vol-Oath NPC, Vol-Oath PC, and Mand-Oath Indiv treatments.[14] All participants (55.62% females) were recruited via HRoot (Bock et al., 2014), mainly from local engineering and business schools.

The experiment was programmed using z-Tree (Fischbacher, 2007). As in Kocher et al. (2018), the randomization of the videos of the die outcomes was conducted for the first two sessions and then used for the rest of the sessions to increase statistical power and simplify treatment comparisons.[15] Upon arrival, participants randomly drew a ticket from an opaque bag which assigned them to computer terminals. A general instruction was given and read aloud at the start of the session. The remaining instructions (from part 1 onwards) were shown on computer screens at the beginning of each part. The average duration of the sessions was 50 minutes. Full instructions are reported in Online Appendix A.

At the end of the session, the additional payoffs were determined. For the decisions, the experimenter randomly selected one participant to draw a raffle. The raffle indicated a participant ID who then rolled a six-sided die. The outcome of this die roll determined which part of the experiment (1, 2, or 3) was payoff relevant. This procedure was described in the general instruction.

After determining and announcing which part determined the payoff for their decisions, participants received feedback on the payoffs of all parts, including the bonus earned from the belief question

[13]The number of observations is based on an ex-ante power calculation (see the pre-registration #79968). The actual number of observations is slightly higher to account for instances where participants saw a video of ⚄ in part 2 and could not engage in self-serving lies. See Table D1 in Online Appendix for an overview of the treatments and the number of observations.

[14]Two participants in the Mand-Oath Indiv treatment experienced a technical issue where the videos of the die roll were not displayed and therefore not included in the final dataset.

[15]Due to different turn-up rates across sessions, the videos shown were not perfectly balanced. To alleviate this issue, the program was made to allow a selection of specific videos from the first two sessions (e.g., in order to 'catch up' with the previous session). Table D5 in Online Appendix shows that the distributions of the videos displayed did not differ across treatments. The results are thus free from any differences in the videos shown.

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(randomly selected by the program). The average payment was 15.50 Euros (SD = 3.76), including a fixed fee of 5 Euros.[16]

4. Results

The results section is organized as follows. Section 4.1 assesses the impact of an oath on lying in groups under different incentive structures and procedures. Section 4.2 conducts a heterogeneity analysis to assess the treatment effects conditional on a given level of preferences for truth-telling. Section 4.3 explores the mechanisms of contagion and peer pressure.

4.1. The impact of an oath on lying in groups

This section evaluates the impact of an oath on the decision to lie in groups under different incentive structures and procedures. The participant is classified as a liar if they report a different number than the one shown in the video of the die roll.[17] An intention-to-treat strategy is used to preserve treatment assignments and assess the overall treatment effects. While oath-taking was exogenous in the Mand-Oath treatments, participants in the Vol-Oath treatments were free to sign the oath. Indeed, only 71.01% of participants swore the oath when it was voluntary.[18] Using an intention-to-treat strategy, an analysis is performed on the entire sample (i.e., including the non oath-takers in the Vol-Oath treatments and a few 'noncompliants').[19] One can interpret the intention-to-treat as an evaluation of the overall treatment effects where the 'treatment' is *having an option* to sign an oath, compared to when it is mandatory and when there is no oath.

Table 1 reports the coefficient estimations from the linear probability regressions with robust standard errors clustered at the group level (since decisions are correlated at the group level due to group chat). The dependent variable is a binary indicator whether the participant lie in part 2 (1 if liar and 0 otherwise). Groups that observe ⚄ in part 2 are excluded as they cannot lie upward (no one lies downward). The independent variables in model 1 include dummy variables for the oath treatments (Mand-Oath and Vol-Oath with No-Oath as a reference category), which take the value of 1 if the respective treatment is assigned and 0 otherwise, a dummy variable 'PC,' which takes the value of 1 if individuals face the payoff commonality rule and 0 otherwise, and their interaction terms. Model 2 further controls for socio-demographics (age, gender, and self-reported risk attitudes, field of study in business and economics, the number of tokens observed in the video in part 2 (ranging from 0 to 4 tokens), and individual types based on the decisions in part 1 (honest by choice or by observing '5', with liar as a reference category).[20]

Does an oath reduce the likelihood to lie in groups? Results from Table 1 suggest that it does. Looking at model 1, when group members do not face payoff commonality, swearing a mandatory oath reduces lying in groups by about 18 percentage points compared to when there is no

[16]For the sessions conducted in 2021, the project benefited from two sources of funding. Due to administrative issues, one was paid by bank transfer, while the other in cash. The author balanced the mode of payment across treatments. Regression analysis of these sessions shows no effect of cash payment on lying behavior (results available upon request).

[17]In the context of the observed cheating game (Gneezy et al., 2018), it is typical to analyze the decision to lie (i.e., the extensive margin) as those who decide to lie usually do so to the full extent (i.e., the intensive margin). This is observed in the experiment: among those who decide to lie, about 96%, 99%, and 99% lie to the full extent by reporting '5' in part 1, 2, and 3 respectively. Therefore, the main analysis focuses on the treatment effects at the extensive margin.

[18]There is no significant difference in the fractions of oath-takers in Vol-Oath NPC and Vol-Oath PC (73.33% and 68.63% respectively, $p = 0.540$, two-sided exact test). In addition, individuals who do not lie in part 1 are more likely to sign the oath when it is voluntary, suggesting self-selection (see Table D6 in Online Appendix). The analysis in section 4.2 controls for the important part of self-selection using the decision in part 1 as a proxy for individual type.

[19]Checking the text of the oath after the experiment, all typed correctly with only minor errors that did not change the meaning of the oath, except for three (one each in Mand-Oath NPC, Vol-Oath PC and Mand-Oath Indiv). These three participants modified the meaning of the oath (e.g., 'I will *not* be honest,' 'I will be honest, *may be*.'). This behavior can be considered

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Table 1. Treatment effects (Intention-to-treat)

Dependent Variable: Lie in part 2	(1) Coeff.	St.Err.	(2) Coeff.	St.Err.
No-Oath	*ref.*	*ref.*	*ref.*	*ref.*
Mand-Oath	-0.177***	(0.068)	-0.179***	(0.064)
Vol-Oath	-0.383***	(0.070)	-0.359***	(0.063)
PC	0.019	(0.059)	0.005	(0.055)
Mand-Oath X PC	0.085	(0.103)	0.114	(0.095)
Vol-Oath X PC	0.105	(0.113)	0.109	(0.105)
Constants	0.917***	(0.039)	1.154***	(0.144)
Control variables	No		Yes	
N	588		588	
Cluster	196		196	
R-Squared	0.117		0.228	

Notes: *** $p < 0.01$ This table reports coefficient estimations from the linear probability models. Robust standard errors clustered at the group level in parentheses. The dependent variable is a binary indicator whether the participant lies in part 2 (coded one for liar, zero otherwise). Model 1 includes dummy variables for the oath treatments (Mand-Oath and Vol-Oath, with No-Oath as a reference category), a dummy variable for payoff commonality treatment ('PC') and their interaction terms. Model 2 further controls for socio-demographics, namely age, gender (coded one for male, zero otherwise), self-reported risk attitudes, a dummy indicating a field of study in business and economics, the number of tokens observed in part 2, and dummy variables for individual types based on their decision in part 1 (honest by choice or by observing '5', and liar as a reference category). Groups that observe ⚄ in part 2 are excluded. This analysis does not include observations in the Mand-Oath Indiv treatment.

oath ($p = 0.009$). Strikingly, when oath-taking becomes voluntary (Vol-Oath vs. Mand-Oath), the likelihood to lie under no payoff commonality reduces by an additional 20 percentage points ($p = 0.011$, Wald test). A similar pattern is observed under payoff commonality. When group members face the payoff commonality rule, a mandatory oath reduces lying in groups by about 9 percentage points, but the effect remains insignificant ($p = 0.244$, Wald test). Nonetheless, making an oath voluntary reduces the likelihood to lie further by about 19 percentage points compared to mandating it. This effect is weakly significant under payoff commonality ($p = 0.065$, Wald test).

These results are robust to the inclusion of control variables (see model 2 in Table 1). A mandatory oath is effective under no payoff commonality ($p = 0.005$) and remains ineffective under payoff commonality ($p = 0.356$, Wald test). The impact of making oath voluntary is significant under both incentive structures ($p = 0.016$ for NPC treatments, and $p = 0.050$ for PC treatments, Wald tests).[21] For the control variables, self-reported risk taking and studying business and economics are positively correlated with the likelihood to lie in part 2 (significant at 1% and 5% level respectively). Observing a higher number of tokens and individual honest types are negatively associated with the likelihood to lie (all significant at 1% level).

as non-compliance. As the analysis uses an intention-to-treat strategy, these observations and their groups (if any) are not excluded.

[20]Tables D2 and D3 in Online Appendix show that the characteristics of the samples are not perfectly balanced. In particular, the fraction of individual type (proxied by the decision in part 1) varies across some treatments. While the fraction of liars in part 1 ranges between 48% and 52% in the No-Oath and Mand-Oath treatments, it ranges between 30% and 32% in the Vol-Oath treatments, which are statistically lower. Thus, controlling for participants' socio-demographics and types ensures that the treatment effects are not confounded.

[21]The insignificance of 'Mand-Oath X PC' suggests no differences in the impact the mandatory oath under both incentive structures ($p = 0.411$ in model 1 and $p = 0.232$ in model 2). The effect of making oath voluntary is also similar under both incentive structures. The diff-in-diff post-estimations using Wald tests (i.e., the difference between Vol-Oath and Mand-Oath in the NPC treatment vs. in the PC treatment) return the following p-values: $p = 0.880$ (model 1) and $p = 0.968$ (model 2).

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In sum, the results in this section suggest that while an oath works in a group setting, its effectiveness depends on the incentive structures and the oath-taking procedure. A mandatory oath is effective when group members' payoffs are independent. The impact of the mandatory oath becomes diluted once peer pressure is introduced through the payoff commonality rule. A voluntary procedure enhances the impact of an oath under both incentive structures, potentially by fostering an intrinsic motivation to uphold the promise to be honest.[22]

4.2. Heterogeneous responses to the oath

This section examines individual heterogeneity in response to the treatments. How do different types of individuals react to the oath? For whom do procedures matter? Based on the individual decision in part 1, participants are classified as an honest type if they do not misreport the outcome of the die roll, and as a dishonest type if they do. This variable is crucial to control for self-selection bias when the oath is voluntary.[23]

Table 2 presents the coefficient estimations from the linear probability regressions with robust standard errors clustered at the group level. The dependent variable is the dummy variable indicating whether the individual lie in part 2 or not. As in Table 1, Table 2 uses an intention-to-treat strategy and considers the same regression specifications, except that the regressions are performed separately for each individual type (models 1 and 2 for honest types, models 3 and 4 for dishonest types). Therefore, this analysis controls for self-selection by conditioning the treatment effects on a given level of preferences for truth-telling.

Overall, the results in Table 2 are consistent with those reported in Table 1 with one additional insight. While the oath affects both honest and dishonest types, the voluntary procedure strengthens the power of the oath solely for the honest types. Compared to honest individuals who do not take any oath, those who swear a mandatory oath under no payoff commonality reduce the likelihood to lie by about 24–26 percentage points (see models 1 and 2). The voluntary procedure further reduces the likelihood to lie by about 20 - 23 percentage points among this subset ($p = 0.080$, model 1 and $p = 0.036$ model 2, Wald tests). A similar result is observed under the payoff commonality rule. The impact of the mandatory oath under payoff commonality is limited even among the honest types (which is about 6 - 8 percentage points), while the voluntary procedure further reduces lying by about 20-26 percentage points for the honest types ($p = 0.083$ model 1 and $p = 0.013$ model 2, Wald tests).

Such enhancing effects of the voluntary procedure are not observed among the dishonest types (see models 3–4). For this subset of individuals, the reduction in the likelihood to lie caused by a mandatory oath under no payoff commonality is about 12–14 percentage points, but the voluntary procedure does not cause any additional reduction. This is also true under payoff commonality.[24]

In sum, the results in this section indicate that the mandatory oath changes the behavior of both honest and dishonest types. Nonetheless, the voluntary procedure enhances the impact of the oath primarily among the honest subgroup.

[22]Online Appendix C.1 provides an additional analysis of the treatment effects at the intensive margin, which shows that the oath has no impact on the size of lies. This implies that in the current setting, the oath affects only the consideration to lie; once individuals have decided to lie, they do so to the full extent, irrespective of the oath.

[23]This approach is limited by the ability to observe relevant characteristics that drive the decision to sign the oath and hinges on the assumption that the decision to lie in part 1 is informative of individual type. However, some prior studies documented a positive correlation between cheating in the lab and in the field (e.g., Potters & Stoop, 2016, Dai et al., 2017, Cohn & Maréchal, 2018), suggesting that such decisions can serve as proxies for individual types, though not without their limitations.

[24]All post-estimations using Wald tests confirm no effect of the voluntary procedure for the dishonest types. The differences are insignificant for the NPC treatment: $p = 0.825$ (model 3) and $p = 0.804$ (model 4). The respective p-values for the PC treatment are $p = 0.289$ and $p = 0.294$.

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Table 2. Treatment effects conditional on type (Intention-to-treat)

Dependent Variable:	Honest Type (1)		Honest Type (2)		Dishonest Type (3)		Dishonest Type (4)	
Lie in part 2	Coeff.	St.Err.	Coeff.	St.Err.	Coeff.	St.Err.	Coeff.	St.Err.
No-Oath	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*	*ref.*
Mand-Oath	-0.237**	(0.120)	-0.258**	(0.112)	-0.137**	(0.059)	-0.120**	(0.058)
Vol-Oath	-0.439***	(0.099)	-0.485***	(0.089)	-0.156**	(0.062)	-0.140**	(0.060)
PC	0.059	(0.102)	0.030	(0.092)	-0.022	(0.022)	-0.025	(0.029)
Mand-Oath X PC	0.153	(0.160)	0.201	(0.145)	0.034	(0.085)	0.026	(0.085)
Vol-Oath X PC	0.152	(0.149)	0.163	(0.137)	-0.064	(0.115)	-0.066	(0.111)
Constants	0.837***	(0.074)	1.021***	(0.210)	1.000***	(0.000)	1.229***	(0.220)
Control variables	No		Yes		No		Yes	
N	332		332		256		256	
Cluster	183		183		163		163	
R-Squared	0.145		0.244		0.067		0.112	

Notes: ** $p < 0.05$, *** $p < 0.01$ This table reports coefficient estimations from the linear probability models separately for honest types (models 1 and 2) and dishonest types (models 3 and 4). Types are determined by the decision in part 1. Robust standard errors clustered at the group level in parentheses. The dependent variable is a binary indicator whether the participants lie in part 2 (coded one for liar, zero otherwise). Models 1 and 3 include dummy variables for the oath treatments (Mand-Oath and Vol-Oath, with No-Oath as a reference category), a dummy variable for payoff commonality treatment ('PC') and their interaction terms. Models 2 and 4 further controls for socio-demographics, namely age, gender (coded one for male, zero otherwise), self-reported risk attitudes, a dummy indicating a field of study in business and economics, and the number of tokens observed in part 2. For honest type, an additional dummy is included to control for individuals who are honest by observing '5' in part 1. Groups that observe ⚄ in part 2 are excluded. This analysis does not include observations in Mand-Oath Indiv treatment.

Table 3. Coordination rates in the NPC treatments

Treatments	No-Oath NPC	Mand-Oath NPC	Vol-Oath NPC	Mand-Oath Indiv
All coordination	84.37%	56.25%	40.00%	36.36%
Honest	3.12%	6.25%	17.14%	36.36%
Dishonest	81.25%	50.00%	22.86%	0.00%
No. of groups	32	32	35	33

Notes: This table reports the coordination rates in the NPC treatments, and the Mand-Oath Indiv treatment. Coordination rates are reported at the group level (coded as one if all members report the same number, zero otherwise). Coordination is reported as overall and separately for honest and dishonest reports. Note that two observations in the Mand-Oath Indiv treatment do not have groups, and are not included in this analysis. One of the 33 groups has two members.

4.3. Mechanisms

To better understand how an oath works in groups with social interactions, this section presents results from additional analyses that shed light on the mechanisms of contagion and peer pressure by looking at (i) how group members coordinate under oath, and (ii) how individuals behave post group interaction (behavior in part 3).[25] Groups that observe ⚄ in part 2 are not included in the analysis. Wherever appropriate, comparisons are made with the control condition (Mand-Oath Indiv treatment) to help disentangle peer effects. All p-values reported in this section are from two-sided tests.

4.3.1. Contagion

Contagion operates in the experiment through group chat in part 2 where participants can learn what their peers will do (the empirical norm) as well as what others consider as an (in)appropriate thing to do (the injunctive norm). This allows individuals to internalize peers' normative views, giving rise to contagion. To investigate this mechanism, the analyses in this section focus on the NPC treatments. Since group members can communicate and earn independent payoffs, behaviors in the NPC treatments cannot be driven by the group's financial motive but rather by the erosion of social norms caused by communication. In addition, a comparison between Mand-Oath NPC and Mand-Oath Indiv makes a clear case for contagion in the former, as participants in the latter swore a mandatory oath and played the game individually without communicating with peers.

Table 3 presents the coordination rates by the nature of reports in the NPC treatments. In addition, the corresponding statistics in the Mand-Oath Indiv treatment are reported as a benchmark for no contagion.[26] Looking first at the group settings (i.e., NPC treatments), the pattern of coordination speaks to how an oath works in the presence of contagion. A mandatory oath in a group setting reduces dishonest coordination relative to no oath; from 81% in No-Oath NPC to 50% in Mand-Oath NPC ($p = 0.017$, exact test). Making oaths voluntary reduces dishonest coordination further to 23% in Vol-Oath NPC ($p = 0.025$, exact test). Though honest coordination increases in both oath treatments, the differences are not significant.[27] This implies that the introduction of an oath in settings with contagion causes the lying norm to break down, but it does not succeed in pushing *all* members to coordinate on the honesty norm.

To explore the extent to which contagion persists under oath, comparing the coordination rates in Mand-Oath NPC to those in Mand-Oath Indiv confirms that contagion erodes the honesty norm

[25]Other aspects of the data also shed light on the peer effects mechanisms, namely belief, group composition, and chat. The analyses and related discussion can be found in Online Appendix C. The author would like to thank the two co-editors and the two reviewers who encouraged the use of these different aspects to better understand these mechanisms.

[26]The only difference between Mand-Oath NPC and Mand-Oath Indiv is that in the latter participants play the game individually without communication. For this treatment, a 'group' refers to instances where the programme showed matched participants the same video of a die roll, but there was no communication by design. Two participants in Mand-Oath Indiv do not have any 'groups' and are not included in this analysis.

[27]Pairwise comparisons using exact tests show insignificant differences. The smallest p-value is 0.108.

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through communication. When individuals can communicate with peers, they become less inclined to coordinate on honest reports (30 percentage points, $p = 0.005$ exact test), and more so on dishonest reports (50 percentage points, $p < 0.001$ exact test). Taken together, these results suggest that group communication leads to a contagion of dishonesty, facilitating the erosion of norms. Without any group financial incentive, an oath curbs contagion by enhancing intrinsic motivation, which constrains individuals from following peer's norm violation.

Additional support for contagion comes from analyzing the spillover effects of the group setting in part 2 on individual behavior in part 3. If individuals have learned from their peers of the weak injunctive and empirical norms via group chat, it is intuitive to anticipate that due to the erosion of norms, individuals are more likely to break the oath later, compared to those who are not exposed to any contagion. This can be directly tested by comparing the behaviors in part 3 of participants in the Mand-Oath NPC and Mand-Oath Indiv treatments. The analysis of spillover effect of contagion (reported in Table D7 in Online Appendix) confirms the intuition: mandatory oath-takers who do not interact with others are about 15 percentage points less likely to lie in part 3 compared to those who have interacted with others in part 2 (significant at 1% level). This is consistent with the presence of contagion of dishonesty in the group setting.[28]

4.3.2. Peer pressure

In this experiment, peer pressure is a byproduct of the payoff commonality rule because an individual's decision has collective consequences for the group. The rule requires group members to coordinate to earn a common payoff, otherwise they earn nothing. Assuming that the group does not observe a payoff maximizing outcome (i.e., '5'), based on rationality alone, each individual misreports to maximize group's payoff. Heterogeneity in preferences can lead members to interpret the norms differently and consequently prefer to take different courses of actions.

Introducing an oath makes the honesty norm more salient.[29] Depending on which norm emerges as the majority opinion, an individual may become a 'weak link' and be pressured to report either the truth (if honesty is the group norm) or '5' (if payoff maximization is the group norm).[30] In this setting, peer pressure prevents individuals from deviating from the group norm because doing so is financially costly for the group and socially costly for the deviator.

Table 4 reports the coordination rates in the PC treatments. The fact that only 6% of groups in No-Oath PC coordinate on the honest reports, while 94% coordinate on dishonest reports suggests that profit maximization is the predominant norm in the absence of an oath. A mandatory oath causes about 10% of the groups to switch from dishonest to honest coordination, but the differences remain insignificant when comparing No-Oath PC and Mand-Oath PC ($p = 0.426$, exact tests). These rates change when the oath becomes voluntary. Compared to No-Oath PC and Mand-Oath PC, groups in Vol-Oath PC are more likely to coordinate on honest reports and less likely to coordinate on dishonest reports. The shifts in coordination rates from No-Oath PC to Vol-Oath PC are significant for both

[28] Other additional analyses support the mechanism of contagion. The chat analysis shows that the majority of groups use arguments in favor of lying at least once, which likely erodes the social norm in the group setting. The group composition analysis suggests that in treatments with communication, individuals condition, own lying decision on that of their group members. Belief data suggests that on average, participants in treatments with communication believe that the lying rate will be higher in part 3 compared to part 1. These additional analyses and related discussion can be found in Online Appendix C.

[29] The injunctive norms were elicited in the Vol-Oath NPC, Vol-Oath PC and Mand-Oath Indiv treatments. It is shown that an oath changes social perceptions about the (in)appropriateness of lying in groups, where oath breaking is perceived as very inappropriate in all treatments. Although this is not a direct evidence for the Mand-Oath treatments, a similar shift could be expected. See Online Appendix C.5 for the discussion related to social norms.

[30] Although various group norms may exist, the simplification of two competing norms is corroborated by the chat analysis. Conversations are mostly centered around profit maximization and morality (i.e., honesty as a value and respecting the oath). See Online Appendix C.4 for discussion on the content of communication.

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Table 4. Coordination rates in the PC treatments

Treatments	No-Oath PC	Mand-Oath PC	Vol-Oath PC
All coordination	100%	100%	88.23%
Honest	6.45%	15.63%	29.41%
Dishonest	93.55%	84.37%	58.82%
No. of groups	31	32	34

Notes: This table reports the coordination rates in the PC treatments. Coordination rates are reported at the group level (coded as one if all members report the same number, zero otherwise). Coordination is reported as overall and separately for honest and dishonest reports.

honest ($p = 0.024$, exact test) and dishonest coordination ($p = 0.001$, exact test).[31] Taken together, the pattern in group coordination suggests that while a mandatory oath makes the honesty norm salient and has some effects on behavior, it may not be strong enough to overcome peer pressure to lie. As a result, the mandatory oath is unable to shift the group norm from payoff maximization to one of honesty. However, voluntary oath-taking facilitates honesty to emerge as a group norm because of a stronger intrinsic motivation to commit more firmly to the promise one has made. This is reflected in some levels of miscoordination when an oath is voluntary, suggesting that some individuals are not willing to break the voluntary oath.

The analysis of the spillover effects of the group setting in part 2 on the behaviors in part 3 also lends support to peer pressure under the payoff commonality rule. If individuals have lied due to peer pressure, how will they behave later compared to those who have lied due to contagion? Unlike contagion where individuals internalize peers' normative views, those who lie out of peer pressure do so to avoid the social costs of deviating from the group norm, without necessarily adopting their peers' views. As such, the likelihood to lie in part 3 among those who have lied in part 2 due to peer pressure (i.e., PC treatments) is expected to be lower compared to those who have lied in part 2 because they learned from others that lying is acceptable (i.e., NPC treatments).[32]

The analysis of the spillover effects of peer pressure (reported in Table D8 in Online Appendix) shows that compared to those who lie in part 2 in NPC treatments, individuals who lie in part 2 in PC treatments are *less* likely to lie in part 3. This effect persists in both oath treatments and is stronger.[33] This suggests that people who lie to live up to peers' expectations are less likely to lie later compared to those who lie because they have internalized the normative views of their peers. This is consistent with peer pressure under the payoff commonality rule.

5. Discussion and Conclusion

This study demonstrates that an oath can be effective in group settings but its impact varies depending on the incentive structures and oath-taking procedures. When payoffs are determined individually, a mandatory oath significantly limits the contagion of dishonesty. However, its impact becomes marginal when payoffs are determined collectively. This can be explained by how peer pressure erodes

[31]Since the coordination rates in Mand-Oath PC fall between those of No-Oath PC and Vol-Oath PC, the difference between Mand-Oath PC and Vol-Oath PC is not significant for honest coordination ($p = 0.244$, exact test), but is significant for dishonest coordination ($p = 0.030$, exact test).

[32]This intuition is in line with the literature on moral balancing (see Monin & Miller, 2001, Ploner & Regner, 2013, Rahwan et al., 2018), which theorizes that people maintain a balance of good and bad behaviors. Those who lie out of pressure may compensate for their past norm violation by behaving honestly later.

[33]The spillover effect of pressure is true for No-Oath (model 1, $p = 0.078$, model 2, $p = 0.049$). Post-estimations using Wald tests reveal significant differences for both Mand-Oath (model 1, $p = 0.012$, model 2, $p = 0.010$) and Vol-Oath (both models, $p < 0.001$).

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the honesty norm in favor of profit maximization. Making the oath voluntary fosters intrinsic motivation, which enhances the oath's effectiveness under both incentive structures. These results highlight the importance of social interactions in determining the effectiveness of an oath in groups.

Why does the impact of the mandatory oath in groups depend on the incentive structures, but the effect of voluntary procedure remains stable across both incentive structures? The mechanism of peer pressure explains this. Depending on what the group norm is, peer pressure deters individuals from deviating from the majority opinion. Additional analyses suggest that while the honesty norm indeed becomes salient under a mandatory oath, it struggles to emerge as a group norm, leading peer pressure to erode the oath's effectiveness. However, when the oath becomes voluntary, the honesty norm is able to catch up with the profit maximization norm. This is consistent with a stronger intrinsic motivation under the voluntary oath, shifting peer pressure in favor of the honesty norm.

While one should remain cautious of the generalizability of lab findings, these results could be relevant in an organizational context where oaths are implemented, and where peer effects are naturally present. The experiment shows that an oath can serve as a psychological contract to morally engage individuals, constraining them from following peers' norm violation. The oath therefore can play an important role in counteracting the erosion of norms in settings prone to the contagion of dishonesty. The role of peer pressure is more nuanced. To make an oath impactful in group settings, honesty must emerge as the predominant norm. This is particularly important in situations where the deviation from the group norm entails social costs for individuals, and financial costs for the group. To achieve this end, leveraging individual intrinsic motivation to uphold the promise can facilitate the emergence of honesty norm.

This study opens up new research avenues. Future work can focus on finding the ways to sustain the impact of an oath in groups, which is found to be short-lived in the current setting. This is in contrast to other studies in individual settings, which demonstrated a long-lasting impact of an oath (Peer & Feldman, 2021, Kingsuwankul et al., 2023). Quantifying the extent of norms erosion, and identifying how to counter and reverse the decay can be useful in designing oath interventions. In relation to the oath-taking procedures, a better understanding of the role of beliefs can be useful in identifying the extent to which the impact of voluntary oath-taking relates to one's belief about others' decision to sign the oath and thus the honesty norm in general. Another direction will be to dig deeper into the different motives that drive voluntary oath-taking. Saccardo and Serra-Garcia (2023) show that 30% of individuals willingly seek out information to constrain their future selves from self-serving behavior. Future works could identify and separate different motivations behind voluntary oath-taking (e.g., intrinsic vs. instrumental), which may help in tailoring interventions to appeal to specific groups of individuals and enhance their impact.

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