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Pietro Battiston, Simona Gamba,
Matteo Rizzolli, Valentina Rotondi

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Cheating, scrutiny and loyalty in teams*

Pietro Battiston[†], Simona Gamba[‡],
Matteo Rizzolli[§] and Valentina Rotondi[¶]

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Abstract

Do people cheat more if it helps their team? And what if their actions are disclosed to their peers? To answer these questions, we run a lab-in-the-field experiment with girl and boy scouts during their summer camps. Scout troops are organized in patrols: these are thus naturally occurring and persistent teams which undertake many different activities and own common goods. These teams differ in many respects from the minimal groups typically used in the lab. While we find a very low overall level of cheating, our results show that subjects cheat more frequently when their decision is disclosed to peers in their team. This is in contrast with findings from other studies analyzing different forms of scrutiny. On the other hand, no significant difference is observed when cheating rewards the team rather than the individual.

Keywords: Lying; deception; cheating; public scrutiny; social image; adolescents; children; scouts; loyalty; experiments; behavioral economics
JEL classification: C90, D91.

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[†]University of Milan-Bicocca. Email: me@pietrobattiston.it
[‡]University of Verona. Email:gamba.simona@gmail.com
[§]LUMSA University. Email:m.rizzolli@lumsa.it
[¶]Bocconi University. Email:valentina.rotondi@unibocconi.it

> "Why do you laugh?" the Marionette asked her, worried now at the sight of his growing nose. "I am laughing at your lies." "How do you know I am lying?" "Lies, my boy, are known in a moment. There are two kinds of lies, lies with short legs and lies with long noses. Yours, just now, happen to have long noses." Pinocchio, not knowing where to hide his shame, tried to escape from the room, but his nose had become so long that he could not get it out of the door.
> Collodi, Carlo. *The Adventures of Pinocchio*, 1882

1 Introduction

Some of the most famous fairy tales teach children not to cheat. The story of Pinocchio, for instance, tells of a wooden puppet whose nose grows every time he lies. In his adventures Pinocchio meets false friends like the Fox, the Cat, and Candlewick who draw him to cheat more, as well as good mentors, like Jiminy Cricket and the Fairy with Turquoise Hair, who want him to be a force for good. This story conveys two clear messages: first, that lies have short legs, and nobody can run far with them without being caught; and second, that one's company may play a central role in shaping the decision of whether to cheat. It goes without saying that cheating is a widespread phenomenon, among both adults and young people. We do not need Collodi's imagination to find examples of corruption, corporate scandals, tax evasion, and fraud that impose heavy burdens on the society; in many such circumstances the decision to cheat is taken in team contexts, where the individual is subject to peers' scrutiny, and where cheating benefits the team as a whole.

With this paper we are interested in studying, by means of a lab-in-the-field experiment, the decision to cheat in team contexts where two effects can be at work: (i) the scrutiny effect, when teammates know *ex-post* the decision and (ii) the loyalty effect, when the team as a whole benefits from the individual's decision to cheat.

Cheating behavior in groups is the subject of some recent papers (Gino et al., 2009; Sutter, 2009; Gino et al., 2013; Conrads et al., 2013; Kocher et al., 2018; Soraperra et al., 2017; Korbel, 2017) which suggest that individuals making joint decisions in groups cheat more than individuals deciding alone. There are many reasons why this might be the case; we review some of these findings in the next section. However, the limit of this literature is that it focuses mostly on minimal groups that share nothing but the joint participation in the experiment (we review some exceptions below).

A recent paper of Hildreth et al. (2016) focuses on cheating behavior in groups that share some norms of loyalty (some of these are also naturally-occurring groups) and finds that loyalty curbs cheating. In this contribution the authors also highlight the ambivalence of loyalty: in general, the princi-

ple imposes to act in the best interest of the group, but this can both foster unethical behavior in close groups or, on the other end, trigger moral attributes and cultural scripts that in the end prompt team members to act more ethically (Hildreth et al., 2016).

Another set of recent papers that closely relate to our research questions focus on the role of public scrutiny in determining cheating behavior: most of them concur that public scrutiny tends to restrain cheating (Ostermaier and Uhl, 2017; Gneezy et al., 2018). However, in these experiments, the scrutinizers are either the experimenters themselves or third-party bystanders, never other teammates.

Our lab-in-the-field experiment innovates with respect to the previous literature because it deals with natural persistent teams where loyalty is already highly salient and because the decision to cheat is scrutinized by other teammates. In particular, our design allows us to address the following research questions: how is the level of cheating affected when subjects' decision to cheat is disclosed to the *team's* scrutiny, and does subjects' propensity to cheat change if it benefits the team as opposed to the individual?

Our experiment has been conducted with girl and boy scouts, aged 12–16, during their 2017 summer camps. We used a modified version of the coin task proposed by Bucciol and Piovesan (2011). In our version of the task, subjects made two simultaneous extractions out of two urns ("yellow" and "blue"), each of which contained two possible outcomes: €0 or €10 (see section 4). Subjects had to record the two drawn amounts respectively on a yellow card, to be kept private, and on a blue card, which was disclosed to the team at a later stage together with the original amount drawn from the urn. The other treatment dimension concerned the fact that the payoffs reported on the cards could be either paid out with individual vouchers or with team vouchers. In both cases, vouchers were to be spent at the local scouting store, but while individual vouchers could be used to purchase goods for private, individual use (e.g., backpacks, uniforms, or sleeping bags), team vouchers could be used to purchase goods for public, collective use (tents, pots, and other team equipment).

The scout population used in this study is interesting for a number of reasons. First, scout troops are organized into patrols that compete with each other in many activities during the year and that collectively own assets. Thus, patrols are natural teams, quite different from the minimal groups that are usually created in the lab for these kinds of experiments, and more similar instead to work teams inside firms, sport teams, and the multitude of different groups characterizing civil society. Second, while the literature on cheating is accumulating quickly, only limited research has been conducted on the adolescent age group. However, analyzing the above-mentioned research questions within this population is important: adolescence is one of the crucial phases in personality development, during which most of the behaviors

that will be maintained throughout a person's lifespan are formed (Gervais et al., 2000). It is also worth mentioning that the world scout movement is one of the largest youth organizations in the world (see Appendix A). Third, scouts attribute so much importance to honesty and loyalty as to include them as the first and second items, respectively, in their law[1] and this makes the decision to cheat even more salient.

Indeed, our results show that in the baseline treatment (without scrutiny and with individual payments) there is basically no cheating at all. Treatment manipulations however produce interesting results: on one hand, the possibility of cheating to favor the team's payoff does not alter the decision to report the true outcomes. In other words, we do not observe any loyalty effect. On the other hand, subjects cheat significantly more when their decision is disclosed to their teams; there is thus a significant scrutiny effect. As it was the case for Pinocchio when spending time with Candlewick, the presence of peers produces adverse effects on behavior. This novel evidence contrasts with previous findings on the role of scrutiny, but can be easily reconciled with the accumulated evidence that adverse peer-effects are often observed in groups, especially of this young age.

The remainder of this paper is organized as follows: section 2 briefly reviews the existing literature, section 3 presents a theoretical model and its predictions, which are tested with the experiment described in section 4. The results of the analysis are presented in section 5, and section 6 concludes the study.

2 Literature Review

Studies on individual cheating behavior have flourished in the last fifteen years. They were recently reviewed by Rosenbaum et al. (2014), Irlenbusch and Villeval (2015), Gino (2016) and Jacobsen et al. (2017).

Several authors have focused on cheating as a social phenomenon, exploring the role of groups in determining unethical behavior. One consistent finding in this body of literature is that group interactions determine more cheating than individuals deciding alone. Perhaps the first paper studying deception in teams is Sutter (2009). In his experiment, groups had to discuss a potentially deceptive signal and make a collective decision about it. Sutter was interested in observing individuals explicitly reasoning about the motives of their decisions (all team discussions were recorded). Incidentally, in this experiment, groups sent the deceitful message less often than individuals, but only as a result of "deception through telling the truth" due to

[1] 1) A scout's honor is to be trusted and 2) A scout is loyal (see Appendix A). It should be noted that the law does not specify the group, neither the group's interest which the scout shall be loyal to: according to Hildreth et al. (2016), "loyal" members can be guided towards a general adherence to ethical principles.

sophisticated team reasoning (Sugden, 2011). Kocher et al. (2018) confirm this result. Unlike these studies, in our experiments subjects make decisions alone and these decisions are only disclosed ex-post to the group.

Another common finding reported in the literature is that lying increases if the cheater can hide in the crowd. Conrads et al. (2013) ran an experiment in which subjects had to report the privately observed outcome of a dice roll. It was found that more cheating happened when subjects reported in pairs (in this case, they reported the sum of the two outcomes) than when they reported alone. Again, this effect is not applicable to our design, in which experimenters always observe the individual reports, even when the final payment is aggregated at the patrol level. Previous contributions also pointed out that observing other group members cheating increases the probability of cheating. Gino et al. (2009) ran an experiment in which many subjects simultaneously undertook a task in which cheating would spare effort; one person, who was wearing the university t-shirt (in-group) but was actually working with the researchers, ostensibly did just that. This increased cheating by all other group members. However, cheating decreased when the confederate wore the t-shirt of a rival university. It should be noted that this contagion effect could not happen in our experiment.

Other effects are more relevant to our design. For instance, previous studies on advantageous lies have shown that cheating increases when the lie positively affects both subject's own payoffs as well as the payoff of others, whether they be strangers or members of the same group (Gino and Pierce, 2010; Wiltermuth, 2011; Erat and Gneezy, 2012; Shalvi and Leiser, 2013). Gino et al. (2013) showed that this effect occurs both because the presence of other beneficiaries offers to subjects an easy justification for their dishonesty, and also (to some extent) because subjects care about the potential spillovers of their actions on others. For instance, Houser et al. (2016) show that parents cheat significantly more to benefit their children than to benefit themselves. Our design differs from these experiments because cheating increases either the team's collective voucher or the individual voucher, but never both at the same time.

Hildreth et al. (2016) focus on the ambivalent role of loyalty to a group in determining cheating behavior: on one extreme, loyalty characterizes the behavior of members of close-knit groups often associated with strict codes of silence, cronyism and parochialism, to the point that group norms and interests prevail over general interests and laws. At the other extreme, loyalty is part of a set of moral values that people embrace, pledge to and promote, and that strongly relate to other virtues such as honesty, humility, benevolence, and ethical behavior in general[2]. In their paper, they use both minimal groups as well as natural groups, in the form of student study groups and

[2]See Bruni and Sugden (2013) for a discussion of the role of virtues in economics and Hildreth et al. (2016) for a discussion of the virtue of loyalty in particular

fraternities;[3] and they manipulate loyalty via group discussion and loyalty pledges.[4] They show that loyalty generally has a positive effect on ethical behavior. We have already mentioned the importance of loyalty to boy scouts. In fact, the Scout Law presents loyalty as a *general* virtue (i.e., the recipient is left implicit). In our experiment we look at loyalty from a different angle than Hildreth et al. (2016): rather than making it more or less salient, we allow subjects, with their decision to cheat, to either benefit themselves alone or their team as a whole.

Our scouts also share the same religious (Catholic) beliefs. The role of religious beliefs in cheating behavior has been explicitly explored in two papers: Utikal and Fischbacher (2013) show that a group of nuns performing an individual cheating task is willing to make disadvantageous lies to appear honest; Shalvi and Leiser (2013), conducting an individual cheating experiment with two populations of female students at a secular and a religious university campus, respectively, in Israel, find no evidence of lying among religious students, but a positive amount of lying among secular students.

The degree of public scrutiny is another important aspect to understand cheating. Most of the experiments on cheating (including ours) envisage a fully anonymous protocol, at least vis-à-vis the experimenter, out of fear that cheating would be significantly curbed by non-anonymity. However, some papers introducing scrutiny by the experimenter (Mazar et al., 2008) still show a significant level of cheating. Gneezy et al. (2018) manipulate their treatments so that cheating can either be fully observable by the experimenter or not. The researchers find significant differences in the extent of lying when the subjects are non-observed. Other experiments introduce an anonymous observer other than the experimenter. In Houser et al. (2016), the presence of their child induces parents to cheat less. In Van de Ven and Villeval (2015), the presence of an anonymous observer does not significantly affect the level of cheating, either when the subject's identity is revealed to the observer, when the observer can communicate with the subject, or when the observer can reveal the subject's lies to the receiver. Pascual-Ezama et al. (2015) run a cheating task and manipulate both the presence of other students in the same room (however, even when present, peers do not directly observe the outcomes) and whether the reported outcomes are handed in directly to the experimenter, are stacked up on a pile, or are directly shredded. They find

[3] Hildreth et al. (2016) conduct the experiment among three fraternities, comprising 89 subjects. Using scout patrols allows us to observe a larger number of teams (31 in our case, comprising 160 subjects), which also tend to be homogeneous (in terms of social status/wealth), at least within the same troop. Kocher et al. (2018) runs his experiment in adolescent classrooms and in one of the treatments he allows students to endogenously team-up in groups of three (in the other groups' treatment students are randomly assigned to three-persons groups).

[4] See also Jacquemet et al. (2018) who use a public oath manipulation to study individual truth-telling behavior in the lab

that both the mild peer manipulation and the supervision manipulation curb cheating. In Ostermaier and Uhl (2017) when subjects reveal publicly their reported outcomes (but not the actual outcome of the die-roll) cheating is lower. In our treatments with team scrutiny, both the actual and the reported outcomes are disclosed to the team and this results in increased cheating.

Social preferences and personality traits develop from childhood and it is easy to expect cheating behavior to develop with age as well. However, there is only a limited amount of literature studying deception with non-adult subjects and the evidence so far is inconsistent. Bucciol and Piovesan (2011) find that children (aged 5–15) lie when they have the opportunity to do so, but tend to be honest when someone reminds them that lying is not good: cheating is however uniform across age. Glätzle-Rützler and Lergetporer (2015) find that among children (aged 10 or 11) and early adolescents (aged 15 or 16), lying aversion is widespread and the propensity to lie increases significantly with age. Cheating increases with age also in Korbel (2017). Interestingly, this latter paper manipulates also the group dimension and allows the cheating decision to be taken alone or in group, and finds that groups cheat more in both age groups (11–13 and 14–16). The cheating increase in age is however contradicted by Maggian and Villeval (2016) who, by analyzing a sample of children aged 7–14, find that older children lie less than younger ones. Our results are aligned with these latter findings.

3 Theoretical Framework

Generally speaking, we are interested in modeling individuals' decisions to truthfully report the drawn outcome. In our setting, the presence of the team could influence the decision of the individual along two dimensions: i) who is the *payoffs recipient* - the outcomes might be paid to the individual or cumulated in a collective payment to the team, and ii) the degree of *scrutiny* – the individual decision might or might not be disclosed to the team.

In the simplest setting, the individual decision produces only individual payoffs and remains private; following Gneezy et al. (2018), we model the problem of deciding whether to cheat as a general trade-off between the monetary returns of cheating and the non-monetary ethical cost of doing so. Assuming that the cost of lying is linear in the cheated amount, the resulting utility can be written as:

$$u(m_d) = m_d - m_t - \ell(m_d - m_t)$$

where $m_d - m_t$ is the difference between the reported amount and the observed amount; the cost of lying is represented by the coefficient ℓ times the net cheated amount.[5] We normalize m_t to 0 to obtain $u(m_d) = m_d - \ell m_d$.

[5]The fact that monetary incentives enter directly into the utility function does not lead

We first consider team payoffs. The returns from cheating are shared with the other $n-1$ members of the team, and therefore enter the individual utility function discounted by some factor α. Notice that $\alpha = \frac{1}{n}$ in the case of n perfectly selfish participants; instead, $\alpha > \frac{1}{n}$ if the individual positively values gains by other members of his team. On the other hand, the ethical costs of lying might be attenuated if others benefit (Gino et al., 2013 call this *self-serving altruism*), possibly reducing such cost by ℓ_α:

$$u_{T=1}(m_d) = \alpha m_d - (\ell - \ell_\alpha)m_d$$

(where $T = 1$ denotes Team payoffs), resulting in the general form:

$$\begin{aligned} u(m_d) &= (1-T)[m_d - \ell m_d] + T[\alpha m_d - (\ell - \ell_\alpha)m_d] = \\ &= m_d - \ell m_d - T m_d + T\ell m_d + T\alpha m_d - T\ell m_d + T\ell_\alpha m_d = \\ &= (1 - \ell + T(\alpha - 1 + \ell_\alpha))m_d \end{aligned}$$

Given the main research question of the present study, we are interested in conceptually distinguishing pure altruism (the mere utility of having other team members increase their own gains) from the "warm glow" feeling (Ottoni-Wilhelm et al., 2017; Andreoni, 1990) of having adhered to the social norm of *loyalty* toward team members. The loyalty effect can be precisely defined as the component of α which would be absent if m_d was not chosen by the individual, but was exogenously defined. The coefficient α can then be decomposed as $\alpha = \frac{1}{n} + \alpha_e + \nu_\alpha$, where α_e denotes the "pure altruism" component and ν_α is the "team loyalty" component. Assuming that the individual does not value *harming* other team members ($\alpha_e \geq 0$), that the social norm of loyalty is present ($\nu_\alpha \geq 0$) and that the subject would prefer to receive the entire monetary amount rather than share it ($\alpha \leq 1$ – after all, he could always redistribute the gains *ex post*), we have $\frac{1}{n} < \alpha < 1$.

The second dimension concerns scrutiny, inasmuch as the decision might be ex-post disclosed to other members of the team.[6] This might affect the individual's decision through different channels such as concerns about social image (Bénabou and Tirole, 2006; Ariely et al., 2009; Lacetera and Macis, 2010), or the fear of stigma and retaliation (Rasmusen, 1996; Funk, 2004; Herrmann et al., 2008). This dimension can be simply modeled by adding

to a loss of generality: in the presence of different utility functions, it would be sufficient to transform the cost of lying accordingly. Similarly, the fact that ℓ only depends on the cheated amount and not on the original amount is irrelevant, as long as m_t is considered to be fixed.

[6] A model with both reputation and intrinsic lying costs was presented by Abeler et al. (2018): the present model combines the same dynamics with the possibility that payoffs are distributed to others; at the same time, it simplifies the analysis by considering the distribution of liars as given.

a function of the cheated amount; for simplicity, we assume this depends on some linear factor σ, denoting the effect of social pressure on the decision:

$$u_{D=1}(m_d) = (1 - \ell + T(\alpha - 1 + \ell_\alpha))m_d + \sigma m_d.$$

(where $D = 1$ indicates that the decision to cheat is Disclosed to the team), resulting in the general form:

$$u(m_d) = (1 - \ell + T(\alpha - 1 + \ell_\alpha))m_d + D\sigma m_d. \tag{1}$$

In the first place, the presence of the group may increase the costs of cheating because, for instance, individuals want to conform to a prevailing social norm of honest behavior; in this case, $\sigma_h < 0$. However, there might be other circumstances and populations (in particular, the present study examines adolescents) whereby not taking the payoff dominant decision would be seen as a sign of "irrationality"[7]: in this case, $\sigma_h > 0$. Finally, σ also depends on whether the returns from cheating go to the individual or are redistributed to the team. It is reasonable to assume the existence of a social norm of loyalty that prescribes subjects must favor other team members; this is denoted with $\sigma_\alpha > 0$[8]. All in all, the presence of the group produces two potentially countervailing effects, so that we are hardly able to make predictions about the sign of $\sigma = \sigma_h + T\sigma_\alpha$. However, Equation (1) can be rewritten as:

$$u(m_d) = (1 - \ell + D\sigma_h + T(\alpha - 1 + \ell_\alpha + D\sigma_\alpha))m_d. \tag{2}$$

Our model enables the testing of some useful predictions on individual behavior:

Prediction 1. If the combined effects of altruism (α), the reduced cost of lying due to self-serving altruism (ℓ_α), and a taste for conformity to the social norm of favoring one's own team (σ_α) are large enough (i.e., $\alpha+\ell_\alpha+D\sigma_\alpha > 1$), more cheating will be observed in the public payoff conditions than in the private payoff conditions ($u_{T=1}(m_d) > u_{T=0}(m_d)$).

Prediction 1.1. If $\alpha + \ell_\alpha > 1$, then Prediction 1 also applies when the test is restricted to the conditions in which the decision is private. In this case, since we can simply assume $\alpha < 1$ (in light of the possibility that one might just redistribute one's earnings to the team), we can also conclude that $\ell_\alpha > 1 - \alpha > 0$ (benefiting the team reduces the cost of lying).

[7] Our model deliberately considers the desire to adhere to the social norm when observed (σ_h), as distinct from the mere desire to adhere to the social/ethical norm of honesty (ℓ).

[8] σ_α differs from ν_α because it represents the effect of being *observed* by other team members favoring the team, rather than simply the warm glow effect of helping the team.

Prediction 2. If the combined effects on reputation of "cheating" (σ_h) and of "altruistic cheating" (σ_α) are large enough (i.e., $\sigma = \sigma_h + T\sigma_\alpha > 0$), then we have $u_{D=1}(m_d) > u_{D=0}(m_d)$, and we will observe higher levels of cheating when the decision is observed by other team members than when it remains private.

Prediction 2.1. Ruling out altruistic cheating and thus keeping the individual payoff constant, if subjects are happy to be seen cheating ($\sigma_h > 0$), more cheating will be observed in the Team treatment than in the Individual treatment.

4 Experimental Design and Hypothesis

Our study is based on a modified version of the simple coin task proposed by Bucciol and Piovesan (2011). In the experiment, we exogenously manipulate: (1) the publicity of the individual choice (either kept private or disclosed *ex post* to the team), and (2) the recipient of gains from cheating (payoffs are paid either to the individual or to the team), in a 2×2 factorial design. Notice that the manipulation of the first condition is within-subject, as all experimental subjects make two cheating decisions, while the manipulation of the second condition is between-subjects, such that 80 subjects were paid with an individual voucher and 80 subjects were paid with a collective voucher. Our four experimental treatments are described in Table 1. Note that, in accordance with the experimental literature on cheating, our design does not allow us to directly observe cheating. We compare instead the share of respondents reporting "€10" to the probability distribution of a repeated fair coin toss (i.e., a binomial distribution).

Table 1: Experimental Design

		Within-subject (*scrutiny* effect)	
Between-subject (*loyalty* effect)		**Private decision**	**Disclosed decision**
	Individual Payoff	Private&Individual (80 obs)	Disclosed&Individual (80 obs)
	Team Payoff	Private&Team (80 obs)	Disclosed&Team (80 obs)

Two simultaneous random coin flips. Each subject was given a sealed envelope containing four pairs of triangles. Each pair comprised a blue and a yellow triangle, stapled together. In the inner part of each triangle either the amount €0 or €10 was printed. All together, the four pairs of yellow and blue triangles offered the following combinations: i) Y €0, B €0; ii)Y €10, B €0; iii)Y €0, B €10, iv) Y €10, B €10. By drawing one pair of

triangles from the envelope, it was as if each subject made two simultaneous coin flips, which could each deliver either €0 or €10.

The decision to cheat. One at a time, after drawing a pair of triangles from the envelope, the subjects dropped the envelope with the other three triangles into a trash bin (to be sealed and burned in the bonfire that same night), entered a tent where they unstapled the yellow and blue triangles, and recorded the privately observed values respectively on a yellow and a blue square card previously given to them. In the tent, there was also a yellow box (that no one, except the researchers at the end of the experiment, could inspect). By dropping their yellow square into the yellow box, the subjects finalized their private decision. The subjects then kept both the blue triangle and square in their pockets and exited the tent, throwing the remaining yellow triangle in the same trash bin as before.

Disclosure of the decision to the team. After all subjects had made their two decisions, they re-entered the tent by team/patrol. In a circle, each subject revealed to the team both the blue triangle (the drawn amount) and the blue square (the declared amount) thus sharing *ex post* their decision to cheat. They then stapled all the blue squares to a team sheet and dropped this sheet into a blue box. Finally, they ended this phase of the experiment by exiting the tent and dropping the blue triangles into the trash bin. Note that, while subjects knew their blue decision was going to be disclosed at a later stage to the team, both decisions (the individual one and the one disclosed to the team) were made at the individual level; in no way was any form of collective thinking tested as in Sutter (2009).

Individual vs. team payoffs. Subjects were paid with vouchers. Those could be spent at the local scouting shop, which sells all sorts of equipment, both for individual (e.g., uniforms, backpacks, and trekking shoes) and team use (e.g., tents, pans, and woodworking tools).[9] The treatment variation concerned the aggregation of these payoffs: in three troops, totaling 80 subjects, each subject received an individual voucher; in the other three troops, also totaling 80 subjects, individually declared amounts were aggregated in a collective team voucher.

While each subject participated in both "private decision" and "disclosed decision" conditions (in a within-subject design), each scout troop was randomly assigned to either the "individual payoff" or to the "team payoff" condition (in a between-subject design), as shown in Table 1.

[9]These are specialized stores that typically provide material for both individuals and patrols. Scouts often purchase technical materials in these stores for their activities during the year and, above all, for the activities carried out during the camp: camping tents, bivouac, thermal bowls, boots etc. In this sense, coupons are precious and can be compared to a monetary reward. This allows the experimenter to have a comparable payment across conditions: when the beneficiary is the individual (single coupon with which the individual can buy goods for private use, e.g., boots) or when it is the patrol (indivisible coupons with which the patrol can buy goods for common use, e.g., camping tents).

We now outline the hypotheses that stem from our model and that can be tested with our experimental design. We denote with $x_i \in \{0, 1\}$ the reported amount (1 corresponds to reporting €10).

H1 **Lure of profit and cheating in teams**:
$\overline{x} > 0.5$ vs. $\overline{x} = 0.5$.

In general, evidence of cheating emerges when the distribution of x_i (corresponding to m_d in the model) is higher than expected from a binomial distribution. We therefore begin by testing whether there is any evidence of cheating in our sample regardless of the treatment.

H2 **Disclosure and cheating**:
$\overline{x}_{Disclosed\&Individual,\ Disclosed\&Team} > \overline{x}_{Private\&Individual,\ Private\&Team}$

The first hypothesis to test our treatment conditions concerns the publicity of payoffs. We check whether, all else remaining the same, knowing that cheating will be observed *ex post* by other team members affects cheating behavior. This corresponds to verifying Prediction 2 in our behavioral model, that is, whether $\sigma = \sigma_h + T\sigma_\alpha > 0$.

H2a **Disclosure and cheating when the individual benefits**:
$\bar{x}_{Disclosed\&Individual} > \bar{x}_{Private\&Individual}$

H2b **Disclosure and cheating when the team benefits:**
$\bar{x}_{Disclosed\&Team} > \bar{x}_{Private\&Team}$

These two hypotheses are simply the disaggregated versions of H2, respectively, in the "individual payoff" and "team payoff" cases. They correspond to testing, in our behavioral model, whether $\sigma_h > 0$ and $\sigma_h + \sigma_\alpha > 0$, respectively.

H3 **Team payoffs and cheating:**
$\overline{x}_{Private\&Team,\ Disclosed\&Team} > \overline{x}_{Private\&Individual,\ Disclosed\&Individual}$

This hypothesis tests Prediction 1: whether the degree of publicity of payoffs (team payoffs or individual payoffs) has an effect on the level of cheating. It corresponds to testing whether $\alpha + \ell_\alpha + K\sigma_\alpha > 1$ in our behavioral model; that is, whether the combined effects of altruism (α), reduced cost of lying due to self-serving altruism (ℓ_α), and conformity to the social norm of favoring one's own team (σ_α) are large enough to increase cheating in the team treatments.

4.1 Procedures

The experiment was run in August 2017, during the summer camps of six scout troops from Trentino-Alto Adige, a region in northeastern Italy (all scout troops were from the same region and held their camp in the region).

Each troop comprised 4 to 6 patrols, for a total of 31 patrols, and 160 subjects evenly distributed by gender (51% males and 49% females), for a total of 320 observations (each subject made both the Private and the Disclosed decisions),[10] which reduce to 315 due to 5 missing observations in the Private decision. After reading the instructions, each participant took a first envelope, which contained a randomly assigned ID[11] written on a white card, and the two yellow and blue square cards reporting the same ID. Each participant then opened a second envelope, containing the four pairs of stapled triangles, drew one, and threw the remaining ones in the trash bin as described above. Then each participant entered a camping tent specifically mounted at a distance from where the rest of the troop was standing, and performed the task (unstapling the triangles, writing on the yellow and blue squares the amounts printed on the same color triangles). Afterward, patrols entered the tent one after the other, and completed the blue task (stapling together the square blue card, dropping the sheet in the blue box, and throwing the blue triangles in the thrash bin). While each subject/patrol performed the task, the rest of the troop was kept busy with traditional scout games and songs.

When all the members of the troop had completed the experimental tasks,[12] they were asked to answer a short questionnaire that included standard sociodemographic questions (see Appendix C.1), and received the payment. In order to guarantee full anonymity, payments were placed in an envelope with the ID of each subject (or with the name of the patrol for the Team treatment). The envelopes were then placed at the center of the camp so that each individual could take it whenever he deemed it appropriate after the researchers had left the camp. We paid the subjects for only one of the two tasks performed (yellow or blue squares). To determine which one, a coin was tossed at the end of the experiment. The entire session lasted between one hour and a half and two hours. Instructions for the two tasks (translated into English) are reported in Appendix C.

[10] One pilot was run previously in another troop, and one last session was discarded because the summer camp involved only two patrols that were formed ad hoc and did not reflect the actual patrols operating during the year.

[11] Following a tradition among Italian boy-scouts, each subject was randomly assigned a fantasy identity (known as a *totem*), composed by an animal name followed by an adjective.

[12] The session included another experiment, which was held after the experiment described in this paper. Participants knew in advance that they would participate in two different activities and then would have to fill out a questionnaire: however, instructions for the second activity were provided only after the end of the first experiment. Final payments were cumulated across the two experiments.

5 Results

5.1 Non-parametric analysis

While the objective probability of extracting €10 is $\pi = 0.5$, we find winning rates of $\pi = 0.539$, on average, across treatments. This suggests a level of cheating lower than what is found in the literature.[13] A one-sample test of proportion for the whole distribution and a one sample Kolmogorov-Smirnov test indicate that our data can be distinguished from binomially distributed data (p=0.08 and p=0.00, respectively), hence confirming hypothesis H1.

Figure 1: Share of subjects reporting 10

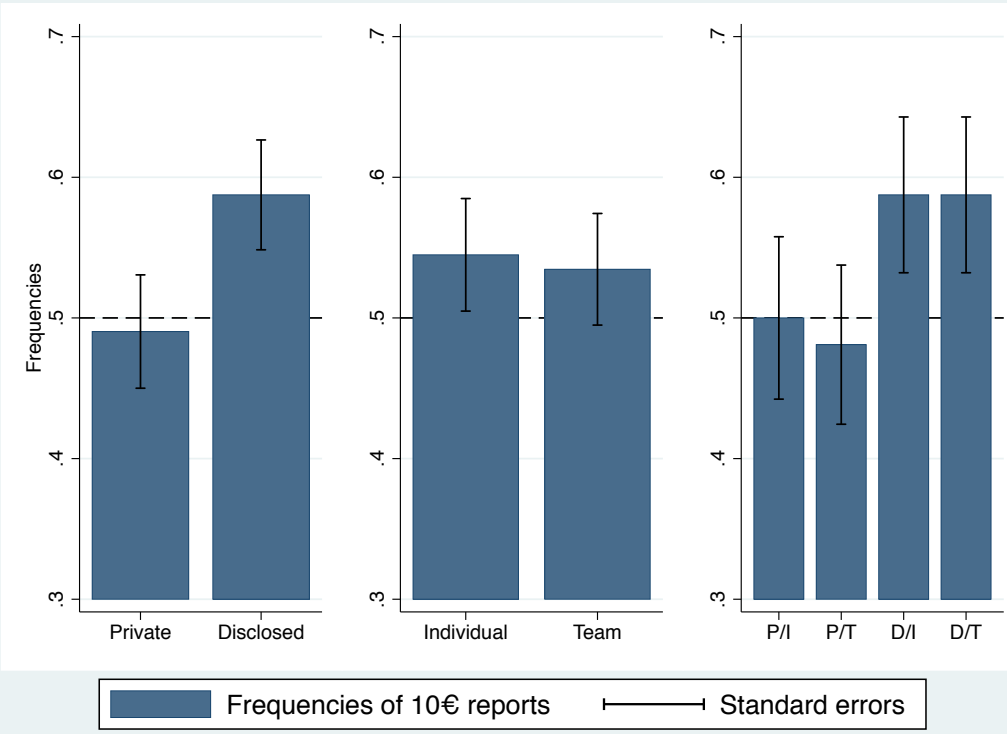


Figure 1 depicts the frequency at which subjects reported €10 in the Private vs. Disclosed conditions (left panel), in the Individual payoffs vs. Team payoffs conditions (center panel), and across the four treatments (right panel). The dotted line presents the expected distribution of a fair coin toss and the error bars report standard errors. Table 2 presents the percentages of each report under each treatment, together with the results of a one-sample test of proportion (p-values are reported in column 4).

[13] Abeler et al. (2018), for instance, find that across 43 countries, subjects leave on average about three-quarters of the possible gains on the table. Our subjects leave 92% of them ($100\% - 2(54\% - 50\%)$).

Table 2: Share of observations reporting 10 across treatments

Condition	Mean	p-value	N
Private Decisions	49%	0.595	155
& Individual Payoff	50%	0.500	76
& Team Payoff	48%	0.632	79
Disclosed Decisions	59%	0.013	160
& Individual Payoff	59%	0.058	80
& Team Payoff	59%	0.058	80

The results depicted in Table 2 and Figure 1 show that when an individual decision is disclosed to the team, cheating increases, confirming H2. Specifically, a t test on the equality of means confirms that $\overline{x}_{Disclosed\&Individual,\ Disclosed\&Team} > \overline{x}_{Private\&Individual,\ Private\&Team}$ (p=0.042), but does not confirm that $\bar{x}_{Disclosed\&Individual} > \bar{x}_{Private\&Individual}$ (p=0.138) and only marginally confirms that $\bar{x}_{Disclosed\&Team} > \bar{x}_{Private\&Team}$ (p=0.090).

The shift in behavior does not seem to be driven by $\alpha+\ell_\alpha+D\sigma_\alpha > 1$, that is, **by** the combined effect of altruism (α), self-serving altruism (ℓ_α), and taste for conformity to the social norm of favoring one's own team (σ_α): indeed, $\overline{x}_{Private\&Team,\ Disclosed\&Team} \not> \overline{x}_{Private\&Individual,\ Disclosed\&Individual}$ (p=0.572), therefore not supporting H3.[14]

5.2 Parametric Analysis

In order to provide a quantitative assessment of the relation between the probability of reporting €10 and a number of individual-level covariates, we run probit regressions; their marginal effects are reported in Table 3.

Explanatory variables include the two treatments, the interaction between the decision being disclosed (*DecisionDisclosed*) and the patrol benefiting from the lie (*TeamPayoff*), a dummy for being at least 15 years old (subjects were between 12 and 17 years old), a dummy for being male, and several measures extracted from responses to the final questionnaire: a measure of overall risk propensity behavior, five indicators of personality traits, an indicator of happiness, an indicator of trust in the patrol, and two variables measuring the willingness to break the rules to improve one's condition or the patrol's condition. Risk propensity is measured with a reduced version of the Domain-Specific Risk-Taking (DOSPERT) Scale (Blais and Weber, 2006), composed of questions about risk attitudes in the recreational, financial, ethical, health, and social domains. We used two questions from each domain out of the original ones. To obtain the overall risk propensity measure, we computed the average score of the ten questions. The scale

[14]Results from Wilcoxon rank-sum tests and Kolmogorov-Smirnov tests confirm results from the t tests.

goes from 1 to 7, where 1 represents a low risk propensity and 7 a high risk propensity. Personality traits included in the model are the "Big Five", investigated through a revised Italian version of the Ten-Item Personality Inventory (Chiorri et al., 2015): extraversion (*big_1*), agreeableness (*big_2*), conscientiousness (*big_3*), neuroticism (*big_4*), and openness to experience (*big_5*). In the Ten-Item Personality Inventory, possible answers to each question range from 1 (*completely disagree*) to 7 (*completely agree*); each personality trait is then measured as the score of the question directly asking about the trait, minus the score of the question asking about the opposite trait.

Table 3: Probit results

	(1)	(2)	(3)	(4)	(5)	(6)
DecisionDisclosed	0.097**	0.087	0.117**	0.072	0.075	0.080
	(0.046)	(0.068)	(0.048)	(0.070)	(0.071)	(0.072)
TeamPayoff	-0.009	-0.019	0.006	-0.038	-0.043	-0.041
	(0.061)	(0.082)	(0.059)	(0.077)	(0.077)	(0.080)
Interaction		0.019		0.087	0.089	0.082
		(0.094)		(0.098)	(0.100)	(0.100)
Male			-0.082	-0.082	-0.080	-0.080
			(0.059)	(0.059)	(0.057)	(0.060)
Older than 15			-0.107	-0.107	-0.105*	-0.100
			(0.067)	(0.067)	(0.063)	(0.061)
Risk			0.060*	0.060*	0.073**	0.074**
			(0.036)	(0.036)	(0.034)	(0.034)
Extraversion (big_1)			0.014*	0.014*	0.014*	0.011
			(0.007)	(0.007)	(0.008)	(0.008)
Agreeableness (big_2)			0.014	0.014	0.013	0.010
			(0.014)	(0.014)	(0.014)	(0.015)
Conscientiousness (big_3)			0.003	0.003	0.001	0.002
			(0.011)	(0.011)	(0.011)	(0.011)
Neuroticism (big_4)			-0.002	-0.003	0.005	0.007
			(0.010)	(0.010)	(0.010)	(0.010)
Openness to experience (big_5)			0.007	0.007	0.002	0.002
			(0.014)	(0.014)	(0.014)	(0.014)
Happiness					0.034**	0.030**
					(0.015)	(0.015)
Trust in patrol						0.024
						(0.024)
Break rules for oneself						-0.034
						(0.029)
Break rules for patrol						0.036
						(0.028)
N	315	315	283	283	277	275

Note: Average marginal effects from estimation with probit: dependent variable is x_i. Clustered (at the patrol level) standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

First, we test hypotheses [H2] and [H3] (in columns (1) and (3)). In ac-

cordance with the non-parametric results, when the decision is *disclosed*, the probability to report €10 is higher. In particular, from column (3) in Table 3, we see that the average probability to report €10 increases by 12 percentage points under the treatment, when controlling for covariates. Holding all other variables in the model at their means, the predicted probability of declaring €10 when the decision is private or when the choice is disclosed are 0.47 and 0.59, respectively. Instead, the team being the beneficiary of the cheating does not significantly influence the individual behavior, as highlighted by the non-significant coefficient for *TeamPayoff*.

In order to test hypotheses [H2a] and [H2b], we include the interaction between the two treatments (columns (2) and (4)) in the model. The lack of significance for *DecisionDisclosed* (p=0.294 in column (4), where we control for main observables) highlights that, when the beneficiary of cheating is the individual, disclosure does not significantly affect the individual behavior. Instead, a Wald test on the sum of coefficients for *DecisionDisclosed* and the interaction term results in an estimated increase by 15.9 points, and a Wald test rejects the null of no difference (p=0.017); that is, when the beneficiary of the lie is the team, disclosing the choice to the team itself increases individual cheating behavior. This "loyalty effect", however, becomes only marginally significant if we discard the covariates, i.e., run the same Wald test on coefficients from column (2) (p=0.097).

Considering that estimated coefficients on interactions in ordered models are difficult to interpret (Ai and Norton, 2003), we replicate the analysis with OLS (see Table 4, Appendix B), obtaining qualitatively unchanged results. Again, we find no significant evidence in favor of [H2a], while evidence in favor of [H2b] is significant only when we include covariates (p=0.027 with, p=0.110 without).[15] This is also in line with non-parametric results, which do not consider covariates and indeed yield, at most, marginally significant evidence in favor of [H2b].

As for control variables, our data show that the coefficient for being at least 15 years old is negative (in line with Maggian and Villeval 2016), but only marginally significant, while gender is not significant (also see Section 5.3). Among personality traits, the only one which seems to have an impact, albeit a marginal one, on individual behavior is extraversion (*big_1*). We find only mild evidence that less risk-averse individuals exhibit a higher propensity to cheat.

Intriguingly, if the control variables include the response to a question about happiness in life, as formulated in the European Value Survey (variable *happiness*, taking values from 1 to 10), we find that it is highly significant *and* that, once it is introduced, the coefficient for our measure of overall

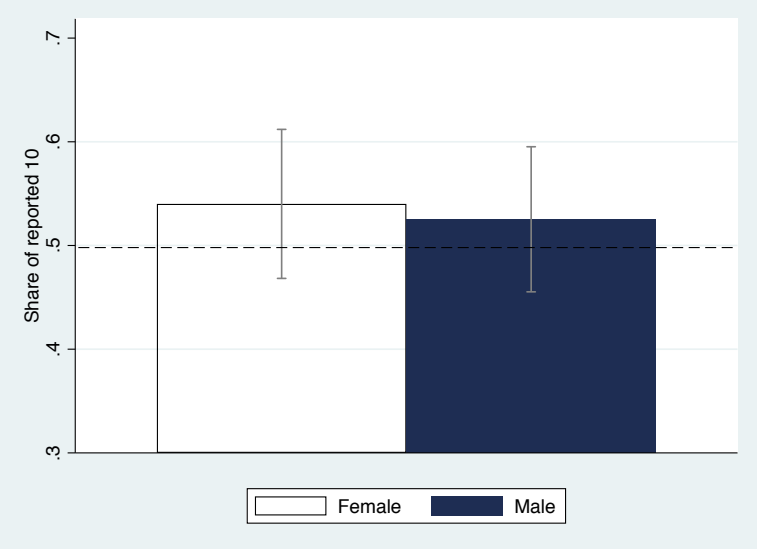
[15] A likelihood test does not reject the independence of observations within patrols/troops; in any case, all p-values refer to clustered standard errors; we also verified that a hierarchical model yields qualitatively similar results.

proneness to risk becomes larger and more significant (column (5)). It is important to notice that the happiness variable could be affected by reverse causality: it might be that lucky subjects who happened to draw one or two €10 triangles became happier – and unlucky subjects who are less risk-averse ended up actually cheating. As luck and cheating are, by design, empirically indistinguishable, we cannot corroborate this hypothesis through our experimental results, and the reverse causality concern justifies the exclusion of the happiness variable from the main estimation. Similar concerns justify the choice not to include variables such as declared trust and propensity to break the rules, as covariates in our main specification.[16] We still include them for completeness in column (6) of Table 3.

5.3 Gender-specific analysis

Results from Table 3 show that gender is not a significant predictor of the propensity to cheat, in contrast with other prominent papers in this literature such as Dreber and Johannesson (2008); Houser et al. (2012); Muehlheusser et al. (2015). Indeed, Figure 2 shows that the average share of reported 10€is similar among males and females.

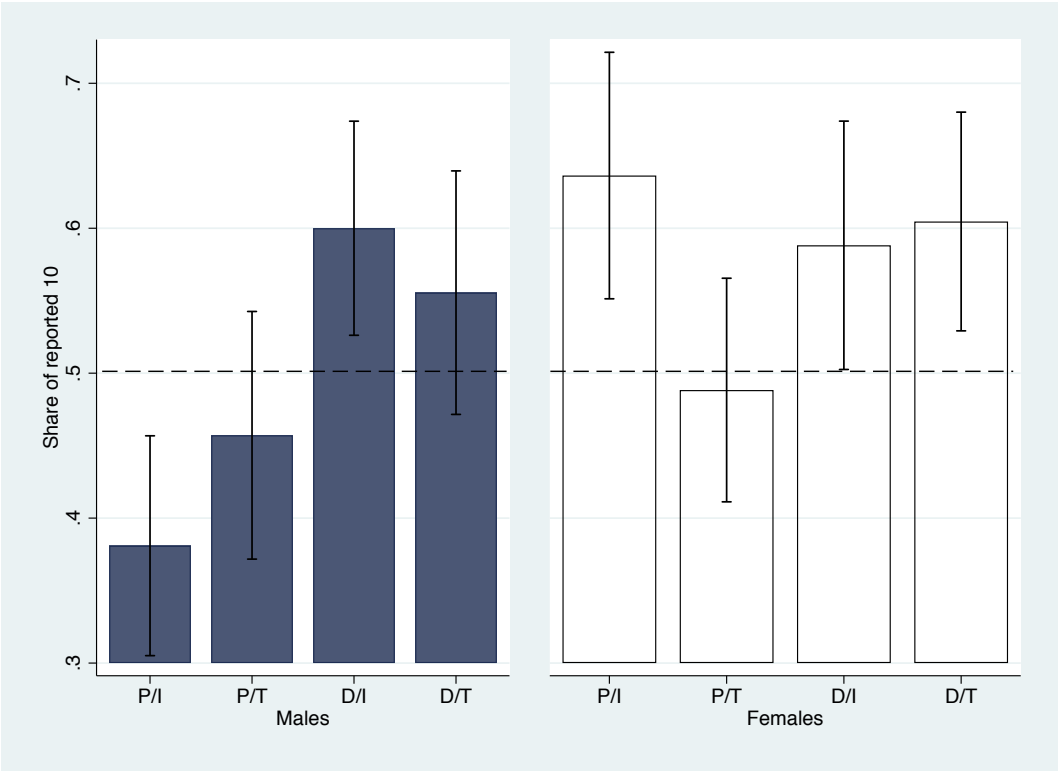
Figure 2: Cross-gender difference



However, when disaggregating across treatments (Figure 3), some interesting heterogeneities emerge. While most results are qualitatively similar across gender, male subjects display lower levels of cheating in the "private"

[16]The scale for trust goes from 0 (low level of trust) to 10 (high level of trust), while the scale of propensity to break the rules goes from 1 (high propensity) to 4 (no propensity). These variables have very low variability and explanatory power.

Figure 3: Differential effect across gender



treatment[17]. This is particularly evident in the case of individual payoffs. The behavior of males is at first sight counterintuitive, as they report significantly less than 50% lucky draws; although "negative" cheating has been mentioned in the literature (Utikal and Fischbacher, 2013), it was in a very peculiar context (a population of nuns which made "disadvantageous lies").

In our case, a more convincing explanation is found by comparing decisions at the *individual* level, i.e. by looking at the correlation of subjects' choices across treaments (private vs. disclosed). The structure of the task gave subjects the possibility to apply "moral hedging", that is, to strategically pick their behavior in the two conditions, finding a tradeoff between the moral cost of cheating and the cost/benefit of being observed by patrol members.[18] For a same distribution of potential payoffs, and for a same moral cost (where reporting "€0" rather than "€10" *compensates* reporting "€10" rather than "€0"), subjects could decide where to allocate the cheating – namely, whether to *exhibit* cheating behavior in front of teammates, or not.

Indeed, the correlation between individual choices in the within treatment

[17]The difference is significant at a 10% level according to a t test and to a Wilcoxon rank-sum test

[18]Notice that this is different from "standard" hedging, i.e., the exploitation of payoffs correlation across treatments. Indeed, as it is typical in the experimental literature, our design tackles this issue through randomization of payment across treatments.

is *negative* (albeit non significant); in other terms, the majority of subjects (both males and females) report "€10" in *exactly one* of the two conditions.[19] In particular, male subjects feature a strong asymmetry: they report 10 only in the Disclosed condition significantly more often than they report 10 only in the Private condition (p=0.036 from a one-sided binomial test).[20] In other words, there is strong evidence that males tend to cheat *only* in the disclosed decision, and to *compensate* by "cheating negatively" in the private decision. This does not apply to female participants, who, in the private decision with individual gains, seem to cheat at least as much as in the other conditions.

6 Conclusions

Before learning the hard way to become an altruistic and polite real boy, Pinocchio repeatedly misbehaves attempting to match the expectations of his false friends. As in every respectable fairy tale, Pinocchio eventually learns that lies have short legs and long noses. In real life, however, lies often go a long way[21] and those who cheat might enjoy an enduring privilege over those who do not.

In this paper, we studied cheating in adolescent teams of boy and girl scouts. These are naturally occurring and persistent teams, hence more similar to groups operating in work environments and in the civil society than the minimal groups typically studied in experiments.

We found that the overall level of cheating is well contained. On average the reported amount is €5,39 and therefore our subjects appropriate less than 8% of the maximum potential gains of cheating. This is remarkably less than the 22% subjects appropriate in the 72 studies analyzed by Abeler et al. (2018), and the comparison is even more striking when looking at Bucciol and Piovesan (2011) which is the study more similar to ours in the type of task, geographical sample, and age group (they report 71% in the baseline treatment, and claim that cheating is reduced by 36% and 13% for girls and boys respectively when a request not to cheat is introduced).

While cheating is generally low, one of our manipulations provides evidence of the important role of scrutiny which, however, goes in the opposite direction of what was previously found in other papers (see Mazar et al. 2008; Pascual-Ezama et al. 2015; Houser et al. 2016; Ostermaier and Uhl 2017; Gneezy et al. 2018): in fact, cheating increases when the decision to

[19] This is particularly interesting because a positive correlation would be expected based on a mere heterogeneity in the propensity to cheat at the individual level.

[20] When disaggregating across the between-subject variation, this effect is significant in the "payments to self" treatment, but not in the "payment to group" one.

[21] Theodor Adorno used the expression "lies have long legs" when discussing – very much ahead of his time – the relation between authoritarianism and fake news (Adorno, 2005). Thanks to Alan Miller for the insight.

cheat is disclosed to other team members. It should be noted, however, that in our experiment the scrutinizers were other team members and not bystanders or supervisors/experimenters as in other designs. The fact that some of the subjects give up their integrity when they know their decision will be revealed to other patrol members suggests that, somehow, *lies have long legs*, as social-image concerns seem to drive the decision of reporting the higher payoff to the team, even at the cost of lying. This is a novel result in the literature on cheating but it can be easily reconciled with the vast body of literature in social and developmental psychology, as well as criminology and sociology, that has studied the complex effects of peer interactions on antisocial behavior (Gordon et al., 2004; Monahan et al., 2009; Brechwald and Prinstein, 2011). Of course, in the interpretation of our results, it is important to keep in mind that our teams of peers are composed by scouts, who are a very peculiar group of individuals, sharing strong social norms. This makes the result if possible even more striking.

Contrary to our expectations, the second dimension of our manipulation, whether payoffs were paid to the team or not, did not trigger any significant treatment effect. Loyalty may imply that acting unethically is in the best interest of the group but it is also related to other virtues such as benevolence, honesty and helpfulness (Hildreth et al., 2016) and thus prompts ethical behavior; it appears that our subjects interpreted their loyalty pledge in this second declination.

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A Information on Scouting

"The Mission of Scouting is to contribute to the education of young people, through a value system based on the Scout Promise and Law, to help build a better world where people are self-fulfilled as individuals and play a constructive role in society."[22] The scout promise, law, and method are substantially shared by all scouts worldwide. Scout troops are characterized by shared social norms, homogeneous distribution of age, and a clear distinction of the individual roles within the patrol. All members of the Scout Movement worldwide are required to adhere to the Scout Promise and Scout Law. The wording may vary in different National Scout Organizations as appropriate to the local culture, but they are all based on the Promise and Law originally conceived by the founder of the Scout movement, Robert Baden-Powell: *" On my honor I promise that I will do my best to do my duty to God and to my Country, to help other people at all times, to obey the Scout Law."* In all countries, the first two articles of the Scout Law comprise some variation of the following texts: *"A Scout's honor is to be trusted"* and *"a Scout is loyal."*[23] The leading element of the scout method is the patrol (or team) system, the basic organizational structure in scouting. Each patrol, normally comprising of six to eight youths, operates as a team with one member acting as the team leader. Within each team and in ways appropriate to their capacities, the scouts organize their life, sharing responsibilities, making decisions, setting up, carrying out, and evaluating their activities, and assembling and maintaining materials required for such activities. During the summer camp, an implicit competition between patrols takes place. The aim of this competition, which is intended to be both fun and educational, is to instill in each member the awareness that the honor of his patrol depends in some degree on his own ability to play the game.

B Additional results

Table 4 provides the equivalent of Table 3 estimated through OLS.

C Experimental instructions

GENERAL INSTRUCTIONS[24]

[22] https://www.scout.org/mission Accessed on November 8, 2017.

[23] A comprehensive list of national scout laws is available on Wikipedia at http://en.wikipedia.org/wiki/List_of_Scout_Laws_by_country. Accessed on November 11, 2017.

[24] The main text reported below shows Individual Payoff instructions. Team Payoff instructions differ from Individual Payoff instructions. The substantial differences are reported in the text below in ***bold and italic***.

Table 4: OLS results

	(1)	(2)	(3)	(4)	(5)	(6)
DecisionDisclosed	0.097**	0.087	0.117**	0.071	0.075	0.078
	(0.047)	(0.069)	(0.050)	(0.073)	(0.074)	(0.076)
PatrolPayment	-0.009	-0.019	0.005	-0.039	-0.045	-0.046
	(0.061)	(0.084)	(0.060)	(0.080)	(0.080)	(0.085)
Interaction		0.019		0.087	0.088	0.084
		(0.094)		(0.100)	(0.103)	(0.105)
Male			-0.082	-0.082	-0.080	-0.079
			(0.061)	(0.061)	(0.059)	(0.063)
Older than 15			-0.104	-0.105	-0.102	-0.097
			(0.069)	(0.069)	(0.065)	(0.063)
Risk			0.059	0.059	0.072**	0.073*
			(0.037)	(0.037)	(0.034)	(0.036)
Extraversion (big_1)			0.014*	0.014*	0.014*	0.011
			(0.008)	(0.008)	(0.008)	(0.008)
Agreeableness (big_2)			0.014	0.014	0.013	0.010
			(0.014)	(0.014)	(0.015)	(0.015)
Conscientiousness (big_3)			0.003	0.003	0.001	0.002
			(0.011)	(0.011)	(0.011)	(0.011)
Neuroticism (big_4)			-0.003	-0.003	0.005	0.006
			(0.011)	(0.011)	(0.010)	(0.010)
Openness to experience (big_5)			0.007	0.007	0.002	0.002
			(0.014)	(0.014)	(0.014)	(0.014)
Happiness					0.033**	0.030*
					(0.015)	(0.015)
Trust in patrol						0.025
						(0.025)
Break rules for oneself						-0.033
						(0.030)
Break rules for patrol						0.036
						(0.029)
Intercept	0.495***	0.500***	0.292*	0.316**	0.006	-0.180
	(0.045)	(0.057)	(0.147)	(0.144)	(0.166)	(0.277)
N	315	315	283	283	277	275

Note: Analogous of Table 3 estimated with OLS. Dependent variable is x_i. Clustered (at the patrol level) standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Thank you for your participation in this activity. There will be two phases, in which you will make decisions following the instructions we will give you. You will then be requested to complete a questionnaire. The study will last a maximum of two hours. The procedures we use will not allow us to discover who made what decision, so the anonymity of the decisions is guaranteed. During the activity, you will be assigned a totem and we will refer to this to identify you. We will never be able to associate your name to the totem (nor are we interested in doing so). If you have any questions about the procedures, please do not hesitate to request further explanation. For the entire duration of the activity and the questionnaire, we ask you not to communicate with anyone, unless requested to do so by the procedures. Those who break these rules will be asked to leave the experiment. You will start by extracting an envelope containing three squares: a yellow one, a blue one, and a white one. The same totem is written on all of them; this will become your identity during the activity. In addition to the totem, the yellow and blue squares both have two boxes on them, one labeled "€0" and the other labeled "€10"; they will be collected during the activity. You can keep the white square as a reminder of your totem. Your choices during the activity will determine the value of the voucher you will receive, to be spent at the cooperative "il Bivacco." At the end of the activity, you will find these vouchers in a basket, inside an envelope addressed to your totem. Now you can turn the page.

SPECIFIC INSTRUCTIONS

Together, we will read through all the steps of this procedure one time. You will then perform the activity individually, following these instructions step by step.

1. At the entrance of the tent, you will receive an envelope containing four pairs of triangular cards. Every pair comprises a blue triangle and a yellow one. The four pairs of triangles are marked as follows:
   - 1st pair: yellow "€0" and blue "€0";
   - 2nd pair: yellow "€10" and blue "€0";
   - 3rd pair: yellow "€0" and blue "€10";
   - 4th pair: yellow "€10" and blue "€10".
2. Draw a pair at random, and put it in your pocket.
3. Throw the remaining pairs in the bin and enter the tent. The contents of the bin will be burned in the bonfire tonight.
4. Separate the yellow triangle from the blue one.

5. On the yellow square, use the pen to tick the amount you see on the yellow triangle; on the blue square, tick the amount you see on the blue triangle. The two amounts you tick are important, because one of the two will determine the value of the vouchers you will receive individually at the end of the experiment ***(because one of the two will determine the value of the voucher that will be delivered to your team at the end of the experiment.)***
6. Fold the yellow square in quarters and put it into the yellow box.
7. Put the blue triangle and the blue square in your pocket.
8. Exit the tent and throw the yellow triangle into the basket.
9. When everybody finishes the experiment, the yellow box will be sealed and brought out of the tent.
10. One team at a time goes into the tent and gets in a circle.
11. Then, all the members of the team do the following together:
    (a) Take out their blue triangles and put them in the center of the circle.
    (b) Take out their blue square and attach it with the scotch tape to a sheet of paper.
    (c) Fold the sheet of paper and insert it in the blue box.
    (d) Collect the blue triangles and throw them into the bin when exiting the tent.
12. When all teams are done, the blue box will be sealed and brought out of the tent.
13. A coin will be flipped. If the result is heads, the yellow box will be chosen; if the result is tails, the blue one it will be chosen.

If the yellow box is chosen, the value of the voucher that will be given to you individually ***(to your team)*** at the end of the experiment will be determined by what is written on the yellow square. What is written on the blue square will have no value.

If the blue box is chosen, the value of the voucher that will be given to you individually ***(to your team)*** at the end of the experiment will be determined by what is written on the blue square. What is written on the yellow square will have no value. If you have any questions, please ask them now before starting the activity.

C.1 Questionnaire

- Assigned totem:
- Year of birth:
- Place of birth:
- Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?
  ☐ Yes ☐ No (you can't be too careful)

  [Each of the following six questions was followed by check boxes with numbers from 0–10]
- From 0 to 10, how much do you tend to trust people in general?
- From 0 to 10, how much do you tend to trust members of your troop?
- From 0 to 10, how much do you tend to trust members of your patrol?
- From 0 to 10, how much do you agree that most people would try to take advantage of you if they had the chance?
- From 0 to 10, how much do you agree that most of the time people try to be helpful?
- From 0 to 10, taking all things together, how happy would you say you are?

- Was your father born in Italy? ☐ Yes ☐ No
- Was your mother born in Italy? ☐ Yes ☐ No
- How many people are in your family, including you?
- For each of the following groups of people, how willing would you be to break the rules in order to improve their condition?

  [Each of the following items was followed by check boxes with numbers from 1–4]

  - Your family
  - Your neighbors
  - Someone you know well
  - Someone you meet for the first time
  - Yourself

  - Someone of a different religion than yours
  - Someone of a different nationality than yours
  - Your patrol

- Please read the following personality traits and rate how well each pair of adjectives describes you. Even if you think that one characteristic describes you better than the other, using the following scale:

  [A 7-item Likert scale was used. Each of the following items was followed by check boxes with numbers from 1–7.]

  1. extroverted, exuberant
  2. difficult, adversarial
  3. trustworthy, self-disciplined
  4. worried, anxious
  5. open to new experiences, with many interests
  6. reserved, silent
  7. understanding, affectionate
  8. disorganized, absent-minded
  9. calm, emotionally stable
  10. traditionalist, routine-bound

- For each of the following statements, please indicate the likelihood that you would engage in the described activity or behavior if you were to find yourself in that situation. Provide a rating from Extremely Unlikely to Extremely Likely, using the following scale:

  [A 7-item Likert scale was used. Each of the following items was followed by check boxes with numbers from 1–7.]

  1. Going down a ski run that is beyond your ability. *[Recreational]*
  2. Investing 10% of your annual income in a start-up. *[Financial]*
  3. Betting a day's income on the outcome of a sporting event. *[Financial]*
  4. Revealing a friend's secret to someone else. *[Ethical]*
  5. Riding a motorcycle without a helmet. *[Health/Safety]*
  6. Speaking your mind about an unpopular issue in a patrol meeting. *[Social]*
  7. Bungee jumping off a tall bridge. *[Recreational]*
  8. Walking home alone at night in an unsafe area of town. *[Health/Safety]*
  9. Moving to a city far away from your parents. *[Social]*
  10. Not returning a wallet you found that contains €200. *[Ethical]*