The Role of Social Identity and Social Value Orientation for Group Performance

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Abstract

We examine in this paper the role of social identity for group performance. In particular, using a budget-linear contract, we verify if group performance is higher for individuals who elicit group identity than for those that elicit personal identity. In addition, we examine if the benefits of group identity for group performance is higher for proselves or prosocials. In a 2 x 2 x 10 mixed experimental design, we manipulate social identity (group versus personal) and measure social value orientation in an experimental task in which participants have to decide their level of cooperation with the attainment of a group budget-based goal during ten periods in a public-goods dilemma setting. Consistent with social identity theory, we find that participants cooperate more with group performance when they elicit a group identity than a personal identity. In addition, our results provide support to the goal-transformation hypothesis (relative to the goal-amplification hypothesis) suggesting that group identity is more important for proselves than for prosocials. The main implication of our results is that the use of budget-based linear contracts can induce cooperation for proself individuals in a workgroup environment if they elicit group identity.

**Palavras chave:** Social Identity, Social Value Orientation, Group Incentive, Cooperation, Group Performance.
1. INTRODUCTION

The use of workgroups improve decision-making process and generate performance benefits (Murphy & Cleveland, 1995; Brickley, Smith, & Zimmerman, 2009). The main challenge in workgroup settings is that some employees choose to free ride rather than to cooperate with group performance since the firm cannot observe their opportunistic behavior (Holmstrom, 1982). Prior accounting studies have demonstrated that certain types of group incentive contracts such as budget-based and profit sharing contracts (e.g., Fisher, Peffer, & Sprinkle, 2003; Guynon, Balakrishnan, & Tubbs, 2008; Kelly & Tan, 2010) can motivate employees to cooperate. However, formal control mechanisms like incentive contracts are not able to capture precisely all dynamics involved in employees’ decision to cooperate and because of this informal control mechanisms are often more effective to promote cooperation in a workgroup environment (Luft, 2016). In addition, prior accounting studies have shown that individual differences are an important driver of employees’ decision to cooperate with the workgroup (e.g., Naranjo-Gil, Cueva-Rodríguez, López-Cabrales, & Sánchez, 2012; Upton, 2009). Despite the importance in explaining cooperation in workgroup settings, our knowledge on the effects of informal control mechanisms such as social identity and individual differences such as social value orientation on employee cooperation is still limited in the management control literature. In this paper, we address this gap by examining the effects of social identity on employee cooperation with group performance under a group budget-linear contract and if this effect depends on employee social value orientation.

Studies focusing on incentive contracts to promote employees cooperation in workgroup settings assume that their utilities are determined mainly by external payoffs and that they do not care about other group members payoffs (Dawes, 1980; Kollock, 1998). However, prior accounting studies have indicated that employees utilities are also affected by such factors as preference for honesty, trust, and reciprocity (e.g., Evans, Hannan, Krishnan, & Moser, 2001; Towry, 2003; Coletti, Sedatole, & Towry, 2005). In particular, one factor that can move individuals’ utilities from a predominant focus on external payoffs in workgroup settings is group identity (Kollock, 1998). Social identity theory suggests that we have a tendency to classify others and ourselves into social categories such as group membership and then perceive ourselves as belonging to a particular group (Ashforth & Mael, 1989). In addition, increased identity to a particular group may lead us to favor in-group members and to oppose to out-group members (Ashforth & Mael, 1989; Tajfel, 1982).

Prior studies in social psychology has acknowledged the role of group identity in stimulating cooperation in different social contexts (e.g., McVoy & Major, 2003; Verkuyten, 2005). Similarly, the accounting literature has paid increased attention to the role of social identity as an informal control mechanism for the achievement of goal alignment (e.g., Abernethy, Bouwens, & Kross, 2017; Bauer, 2015). In particular, employees’ willingness to cooperate with their workgroup depend on whether their predominant social identity is either a group or a personal one (De Cremer & Van Vugt, 1999). This way, group members who have high levels of identification with their group tend to cooperate more with the group than those with low levels of identification (Kramer & Brewer, 1984; Brewer & Kramer, 1986). Our first goal in this paper is to examine if, relative to individuals who do not feel as part of an organizational group (personal identity), those who perceive themselves as member of a group (group identity) cooperate more with the attainment of group performance.

The focus on payoff structure also neglects that individual differences play a role in explaining cooperative behavior in workgroup settings and that some individuals do care about other group members payoffs (Kollock, 1998; Weber, Kopelman, & Messick, 2004). In particular, some individuals are willing to maximize only their own outcomes either with little (or no concern) about others’ outcomes or relative to others’ outcomes (proself individuals), while some individuals are willing to maximize not only their own outcomes, but also others’
outcomes (prosocial individuals) (Van Lange, 1999). Examining a variety of settings, prior studies confirm that prosocial individuals are generally more likely to cooperate than proselfs (e.g., De Dreu & Boles, 1998; Van Lange, Bekkers, Schyt, & Van Vugt, 2007) and that this tendency is relatively stable (Weber et al., 2004).

We then expect that the effect of social identity on group performance will depend on social value orientation (De Cremer & Van Vugt, 1999). However, the way social value orientation moderates the effect of social identity on individual cooperation is open to debate in the context of a group incentive contract. In particular, there are two alternative hypotheses predicting the joint effect of social identification and social value orientation on cooperative behavior (De Cremer & Van Vugt, 1999). On one side, group identity would increase cooperation more for prosel than for prosocial individuals (goal-transformation hypothesis). On the other side, group identity would increase cooperation more for prosocial than for prosel individuals (goal-amplification hypothesis)

In their studies, De Cremer and Van Vugt (1999) find support to the goal-transformation hypothesis using a public-goods setting. Cardinaels, Dierynck and Zhang (2018), however, provide evidence more aligned to the goal-amplification hypothesis using a capital budgeting task. Therefore, our second goal in this paper is to examine which of the two alternative hypotheses relative to the moderating role of social value orientation in the effect of social identity on employee cooperation with group performance prevail in a workgroup setting.

We adapt an experimental task (Upton, 2009) and manipulate social identity between-participants in two levels (personal versus group). Based on Van Lange (1999), we measure social value orientation and classify participants as either prosocials or prosel. Participants have to indicate their level of cooperation with group performance by deciding the amount of financial resources they would allocate to the achievement of a budget-based goal through ten rounds in a public-goods dilemma setting. We use a budget-linear incentive contract with a moderate budget target to compensate employees. Our results suggest that group performance is higher for participants who elicit group identity relative to those who elicit personal identity. As to the two alternative hypotheses, we find support to the goal-transformation hypothesis that group identity has a larger effect on group performance for prosels than for prosocials.

Our results provide theoretical as well as practical contributions. We contribute to the emerging management control literature on the role of social identity as an informal control mechanism for the achievement of goal alignment. Prior accounting studies have explored the role of social identity relative to a variety of groups, such as accounting profession, clients, superior, and organization (e.g., Bauer, 2015; Abermethy et al., 2017; Burt, Libby, & Preslee, 2017; Cardinaels et al., 2018). More related to the setting examined in this paper, Gómez-Ruiz and Naranjo-Gil (2014) show that team identity has a positive effect on team performance and that this effect is explained by teammembers identified motivation. We extend this literature by showing that the positive effect of social identity on group performance depends on individual differences. In particular, group identity is more important to stimulate cooperation and improve group performance for prosel employees than for prosocials. These results imply that it is important to consider individual differences such as social value orientation along not only with formal control mechanisms such as budget-linear contracts (Upton, 2009) but also with informal control mechanisms such as social identity.

Our results also contribute to designers of management control systems in groupwork environments. Organizations typically spend high volume of financial resources designing formal monitoring and incentive schemes such as budget-linear contracts to stimulate employees to cooperate in workgroup settings (Dewhurst, Guthridge, & Mohr, 2009). While formal control mechanisms may be helpful in stimulating employee cooperation in such settings, they are not able to capture all the dimensions involved in employees’ decision-making processes (Luft, 2016). Our results show that management control system designers can benefit
from using informal control mechanisms such as social identity that are likely less expensive and possibly more effective in stimulating employee cooperation in workgroup environments, particularly for those employees who are more individualistic and competitive.

Next, we review prior literature and develop our hypotheses. We then describe our experimental design and present our main results. Finally, we discuss the main implications of our results as well as limitations and opportunities for future research.

2. LITERATURA REVIEW AND HYPOTHESES

2.1 Informal Control Mechanisms and Cooperation in Workgroups

The literature in management control has dedicated increased attention to understand how different control mechanisms affect employee cooperation in workgroups (Luft, 2016). This research has mainly focused on the role of formal controls and, more specifically, on the effect of different incentive schemes (e.g., Kelly, 2010; Farrar, Libby, & Thorne, 2015). For instance, Fisher et al. (2003) find that group performance is higher under a moderate group budget linear scheme than under both a group piece-rate scheme and a group budget fixed scheme at different budget levels. In another example, Guymon et al. (2008) show that group performance is higher under a group budget linear scheme than under a group piece-rate scheme for tasks with an additive production function, but not for those with an interdependent production function.

One underlying assumption of studies focusing on the role of formal control mechanisms such as incentive schemes is that individual utility is mostly determined by the payoff structure (Dawes, 1980; Kollock, 1998). In fact, prior studies have shown that if organizations are able to design incentive schemes that increase rewards for cooperative behavior such as group-based incentive contracts then employees will cooperate more (Farrar et al., 2015; Libby & Thorne, 2009). Therefore, based on this assumption, informal control mechanisms would play a small, if any, role in employees’ decision to cooperate.

The excessive focus on formal control mechanisms neglect recent findings suggesting that informal control mechanisms are important to understand individual cooperative behavior in different settings (Van Lange, 1999; Chen & Chen, 2011; Weber et al., 2004). Similarly, this focus is contrary to recent claims highlighting the importance of considering how formal and informal control mechanisms interact to affect desired outcomes (Berry et al., 2009; Kachelmeier, Thornoch, & Williamson, 2016). In particular, Luft (2016) emphasizes that informal control mechanisms are more appropriate to promote cooperation in a workgroup environment as they are able to capture the dynamics involved in employees’ decision-making process.

Prior accounting studies provide empirical evidence on the role of informal control mechanisms such as trust and reciprocity to promote cooperation in different types of workgroup settings (e.g., Towry, 2003; Coletti, Sedatole, & Towry, 2005). For instance, Kachelmeier et al. (2016) show that the communication of a value statement, an informal control mechanism, increases employees’ congruent behavior even in the presence of an incongruent incentive scheme. In another example, Mass, Van Rinsum and Towry (2012) show that social preferences such as fairness and trust reciprocity are important informal control mechanisms to understand managers’ willingness to obtain costly information.

We focus in this research on social identity as an informal control mechanism and examine if individuals who are exposed to an induced salient group identity cooperate more with the attainment of group performance than those who are not exposed to group identity. We also examine if the effect of social identity on cooperation depends on social value orientation. We develop hypotheses predicting the main effect of social identity on cooperation with group performance in a workgroup setting as well as the moderating role of social value orientation. Before that, based on social identity theory, we discuss the role of social identity as an informal control mechanism.
2.2 Social Identity as an Informal Control Mechanism

Identity represents the individual sense of self that is associated with a variety of social categories such as ‘in-group member’ and ‘out-group member’ and with prescribed behaviors given a particular category (Akerlof & Kranton, 2000). In particular, social identity theory suggests that individuals fall into social categories such as religious affiliation, gender, and organizational groups and that the categories serve two main purposes. First, they serve to create cognitive segments and social order that enable individuals to define others in a systematic way. Second, they serve to enable individuals to define themselves in the social environment (Ashfort & Mael, 1989). Social identity is essential for the individual’s satisfaction, motivation and effectiveness in a variety of settings, including the organizational setting (e.g., McVoy & Major, 2003; Verkuyten, 2005), ultimately influencing economic outcomes (Akerlof & Kranton, 2000).

In the context of the management control literature, social identity is an informal type of socio-cultural control (Malmi & Brown, 2008; Ouchi, 1979) in which individuals in the role of organizational agents cooperate with the organization and its subgroups due to a sense of belonging (Ashfort & Mael, 1989). Informal controls such as social identity are important because they can affect the effectiveness of formal controls (Langfield-Smith, 1997; Flamholtz, 1983). For instance, social identity can act as a low-cost substitute for costly incentive and monitoring systems in a single-task setting so that the higher the employee identification with the organization, the lower the value of formal incentive contracts (Heinle, Hofmann, & Kunz, 2012). In multiple task-settings social identity can be a complement to the use of formal incentive contracts and its complementary role will depend on the relative importance of the performance measure precision and congruity (Heinle et al., 2012). Given its potential advantages relative to formal control mechanisms (Luft, 2016), accounting studies have devoted increased attention to social identity as an informal control mechanism (Antebey, 2008).

As an example of recent studies in accounting showing the role of social identity, Bauer (2015) conducts two experimental studies to examine the role of social identity in an audit context. He demonstrates that auditors with stronger identity with their clients act in a less independent manner by agreeing more with the accounting treatment suggested by the client; however, this effect only occurs when auditors are not exposed to professional values. If the salience of professional identity is more intense, auditors are more likely to question the accounting choices suggested by their clients (Bauer, 2015). In another example, Abernethy et al. (2017) collect survey data to verify if organizational identity can mitigate agency costs associated with the provision of financial incentives. They find that employees are more likely to manipulate earnings when the organization uses performance-based incentive schemes. In addition, Abernethy et al. (2017) show that organizational identity can mitigate this opportunistic behavior and thus can be a complement to the formal incentive contract.

Burt et al. (2017) also demonstrate in an experimental context of subjective performance evaluation that social identity can complement formal incentive contracts. In particular, they show that when superiors can adjust subordinate goals downward at the end of the period to account for uncontrollable events, a higher level of superior-subordinate identity reduces the negative effects of this potential downward adjustment on subordinate expectancy of goal attainment and performance. In a capital budgeting experimental setting, Cardinaels et al. (2018) suggest that employee identification with the organization relative to the business unit explains why a reduced social distance between the owner and the business unit employee decreases employee misreporting.

Different from prior studies that focus on the role of social identity in cooperation with external agents (Bauer, 2015) or in hierarchical relations (Abernethy et al., 2017; Burt et al., 2017; Cardinaels et al., 2018), we examine the role of social identity in cooperation among
members of a workgroup in a horizontal relation. Managing horizontal relations of cooperation has been acknowledged as an important role for management control systems (Luft, 2016). We then examine if an informal control system such as group identity can complement the role of a formal control system such as a budget-linear incentive contract in stimulating employee cooperation with the workgroup.

2.3 Group Identity and Cooperation in Workgroup Settings

Group identity stimulates cooperation in different social contexts (e.g., McVoy & Major, 2003; Verkuyten, 2005). The benefits derived from group identity are particularly relevant in groupwork environments since individuals who have greater identity with a particular group tend to cooperate more with members of that group (Kramer & Brewer, 1984; Brewer & Kramer, 1986). For example, Van Vugt and De Cremer (1999) demonstrate in an experimental study that individuals with a higher level of group identity cooperate more with a social investment than those with a lower level of group identity. In addition, Van Vugt and De Cremer (1999) demonstrate that individuals with a higher level of social identity are less likely to need a leader to coordinate individual contributions than those with a lower level of social identity.

In another example, Van Vugt and Hart (2004) conduct an experimental study to demonstrate that social identity may act as a social glue that holds the group together. They show that individuals with a higher level of social identity also have greater loyalty toward the group and have greater intention to remain in their groups even in the presence of an attractive financial option to leave the group and work individually. Van Vugt and Hart (2004) also suggest that the greater group loyalty of those with higher level of group identity is explained by positive views on group membership.

In the management control literature, to the best of our knowledge Gómez-Ruiz and Naranjo-Gil (2014) provide the only example of prior studies examining the role of social identity in cooperation with group performance in a horizontal setting. In an experimental study, they show that group identity improves group performance and that increased identified motivation explains this positive effect. Thus, group identity leads group members to internalize the organization’s values into their own personal values that in turn causes positive effects in their cooperation with group performance (Gómez-Ruiz & Naranjo-Gil, 2014).

In our experimental setting, we elicit group identity using a similar task commonly used in prior studies in which participants have to solve a painting problem (e.g., Chen & Li, 2009; Chen & Chen, 2011). Half the participants can use an online chat program to discuss their proposed solution to the problem with the other group members (group identity), while the other half have to solve the problem on their own (personal identity). We then expect that relative to participants who have to solve the problem on their own, those who communicate with the other group members will elicit a group identity and cooperate more with the attainment of group performance. We formally state our first hypothesis predicting the main effect of social identity on employee cooperation with group performance as follows:

H1: The level of cooperation is higher for participants in the elicited group identity than for those in the elicited personal identity.

2.4 The Moderating Role of Social Value Orientation

Social value orientation is another factor that can lead employees to cooperate with group performance even in the presence of formal control systems stimulating them to behave opportunistically (Kollock, 1998; Weber et al., 2004). In particular, social value orientation affects the individual willingness to cooperate with the group (Boone, Declerck, & Kiyonari, 2010). Prior studies indicate that some individuals tend to cooperate more with group
performance because they do care about others’ payoffs in addition to, or relative to, their own payoffs (Van Lange, 1999; Bogaert, Boone, & Declerck, 2008).

Social value orientation is a relatively stable individual difference variable and captures the value individuals assign to their own outcomes relative to others’ outcomes (Weber et al., 2004). Two main types of orientation have typically been considered in prior studies (Van Lange, Agnew, Harink, & Steemers, 1997; De Cremer & Van Vugt, 1999): on one hand, some individuals are willing to maximize only their own outcomes either with no concern about, or relative to, others’ outcomes (proself individuals); on the other hand, some individuals are willing to maximize both their own outcomes and others’ outcomes (prosocial individuals). Prosocials are generally more likely to cooperate with the group than proselfs in a variety of different settings (e.g., De Dreu & Boles, 1998; Van Lange, Bekkers, Schyt, & Van Vugt, 2007).

In accounting settings, Upton (2009) confirms this expectation in an experimental study when the organization uses a budget-linear contract with moderate budget targets to compensate employees. He shows that under this incentive contract prosocial employees are more likely to cooperate with group performance than proselfs. Similarly, Thomas and Thornock (2017) find experimental evidence suggesting that prosocials and proselfs respond differently to different types of feedback (i.e., input and output) and that prosocial individuals tend to cooperate more with group performance than proselfs, except when proselfs receive output feedback.

Prior studies have shown that social value orientation is a relevant moderator of the effect group identity has on employee cooperation with group performance (De Cremer & Van Vugt, 1999; De Cremer & Van Dijk, 2002). However, the particular pattern of that moderation role is open to debate as it exists two alternative hypotheses predicting the joint effect of social identity and social value orientation on cooperative behavior: goal-transformation hypothesis and goal-amplification hypothesis (e.g., Pruitt & Kimmel, 1977; Kramer & Goldman, 1995).

The goal-transformation hypothesis suggests that group identity should increase cooperation more strongly for proselfs than for prosocials so that individuals who care less about cooperating with the group would be those most affected by an elicited group identity (De Cremer & Van Vugt, 1999; De Cremer & Van Dijk, 2002). Differently, the goal-amplification hypothesis suggests that group identity should increase cooperation more strongly for prosocials than for proselfs so that individuals who already have a higher predisposition to cooperate would be those most affected by an elicited group identity (De Cremer & Van Vugt, 1999; De Cremer & Van Dijk, 2002).

A series of experimental studies examines the competing hypotheses in public-goods social dilemmas and overall find support to the goal-transformation hypothesis. For instance, De Cremer and Van Vugt (1999) show that prosel individuals are more affected by the elicitation of group identity than prosocials. In another example, De Cremer and Van Dijk (2002) find support to the goal-transformation hypothesis that group identity leads individuals to consider heavily the collective payoff, but only when no performance feedback is provided about prior failure or success. Finally, De Cremer, Van Knippenberg, Van Dijk and Van Leeuwen (2008) also support the expectation that group identity influences cooperation rate more for prosocials than for proselfs and that individuals’ sense of collective self mediates this effect.

Prior studies have also provided empirical evidence supporting the goal-amplification hypothesis. For instance, when performance feedback is provided about prior failure or success, De Cremer and Van Dijk (2002) suggest that trust is likely the most important factor explaining the effect of group identity on cooperation, supporting the goal-amplification hypothesis. In a capital budgeting experimental setting, Cardinaels et al. (2018) find that prosocial employees are less likely to misreport than prosel employees when there is a reduced social distance between the employee and the owner and that increased employee identification with the
organization explains this effect. This evidence focused on hierarchical cooperation is aligned with the goal-amplification hypothesis.

In this study we examine the two competing hypotheses in a public-goods social dilemma setting. Overall, prior studies in social psychology find support to the goal-transformation hypothesis in this setting (e.g., De Cremer & Van Vugt, 1999; De Cremer & Van Dijk, 2002; De Cremer et al., 2008). In our experimental setting, group members receive information about other group members cooperation as well as if their group failed or succeed in the achievement of the group performance in each of the ten rounds. In a setting in which performance feedback is provided De Cremer and Van Dijk (2002) find support to the goal-amplification hypothesis. Given the lack of convergence in these findings, we then examine which alternative hypothesis relative to the moderating role of social value orientation in the effect of social identity on employee cooperation prevails in our setting. Thus, we formally state our second hypothesis in two parts, each one relative to one of the alternative hypothesis.

H2a: The positive effect of an elicited group identity on the level of cooperation is stronger for proselfs than for prosocials (goal-transformation hypothesis).

H2b: The positive effect of an elicited group identity on the level of cooperation is stronger for prosocials than for proselfs (goal-amplification hypothesis).

3. METHOD

We test our hypotheses predicting the main effect of social identity on cooperation with group performance and the moderating role of social value orientation (Figure 1) in a scenario similar to a public-goods social dilemma in which participants are compensated based on a budget-based contract with a moderate target level. Participants work in pairs to perform a workgroup task adapted from Upton (2009). In each period, group components have to decide how much to allocate of their endowment to a private account relative to a group account. Individual contributions made to the private account benefit only the own individual; individual contributions made to the group account benefit both the own individual and the other group member, but only if the group achieves a moderate group budget-based target. As detailed below, we manipulate social identity between-participants in two levels (group versus personal). We use the instrument tripple dominance (Van Lange et al., 1997) to measure participants’ social value orientation.

![Figure 1. Theoretical model](image)

3.1 Participants

Participants were 135 undergraduate students at northeast universities in Brazil who participated in one of seven experimental sessions. We excluded 39 participants who did not have a social value orientation consistent with one of the two main types—prosocials or...
proselfs. Our final sample consisted of the remaining 96 participants who were grouped into 48 pairs based on their social value orientation: 24 pairs of prosocials and 24 pairs of proselfs. We did not change the composition of the pairs throughout the ten rounds of the experimental task. Participants were connected and interacted through an online computer chat program and their identities were not revealed during or after the experimental task. The average age of participants is 24 years, and 73 percent of the participants are male. As we will detail below, participants received compensation for their participation according to their compensation scheme and group output.

3.2 Experimental Task

At the beginning of each of the ten rounds participants received an endowment of R$700.00 and had to decide how to allocate the endowment between a private account that benefited only the own individual and a group account that benefited the two members of the group, resembling a public-goods dilemma. Individual compensation depended on the participant own choice and the choice of the other group member. Moreover, individual compensation also depended on the achievement of a budget-based target as for the resources allocated to the group account. Specifically, each R$100.00 allocated to the private account generated a 30 reward points for the participant only; each R$100.00 allocated to the group account generated a 20 reward points for each of the two components of the group, but only if the group achieved the budget target. Therefore, if the group did not achieve a budget target for the group account set at R$800.00, they would not be entitled to receive the reward points associated with the group account. This budget-based bonus scheme is similar to the one used in Upton (2009) for the achievement of a moderate budget target. The compensation scheme is expressed as follows:

\[
TP_i = bCD + bD(O_1 + O_2 - C) + a (T_i - O_i)
\]

Where:

- \(TP_i\) = total pay for participant \(i\);
- \(O_i\) = contribution to the group by participant \(i\);
- \(T_i\) = total endowment;
- \(a\) = individual utility (pay) per unit from individual exchange;
- \(b\) = individual pay per unit from total group contributions;
- \(C\) = budget; and
- \(D = 1\) if group contribution is equal to or greater than the budget; \(0\) otherwise.

Table 1 shows the compensation and Nash equilibria under the moderate budget contract. Similar to Upton (2009), we use the following parameter values to generate the compensation matrix shown in Table 1: \(b = 20\) and \(a = 30\). In addition, we set the budget target (\(C\)) equals to R$800.00. The level of the budget target functions as a formal control mechanism to mitigate the free-rider effect (Upton, 2009). The budget contract has various positive Nash equilibria when group components contribute to the group account, and these equilibria are Pareto superior to cheating (Holmstrom 1982). This happens because of the discontinuity in the budget-based compensation scheme that changes the incremental benefit of cooperating with group performance.

Table 1

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<th>Compensation Matrix</th>
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<td>Individual 1 Choices (II)</td>
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Participants had five minutes to examine five pair of paintings each one, painted by either Paul Klee or Wassily Kandinsky. They had ten minutes to indicate which artist provided information to participants as to which of the two artists painted each of the ten paintings. For participants in the group identity (personal identity) condition, we allowed (did not allow) them to use an online chat program to communicate with the other group member and discuss the problem. Participants were free to

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Specifically, in a two-component group suppose that both components are allocating the total amount of available resources to the group account. If this is the case, group components ensure that the group budget-based target is achieved and associated reward points are equally shared between the two components. If, however, one component decides not to contribute to the group account and achievement of the group budget-based target, then this target will not be achieved and reward points will be zero for the two group components. Therefore, in this scenario the benefit of contributing to the group is greater than the benefit of cheating and cooperation with the group account represents the best mutual choice (Fisher et al., 2003).

The compensation matrix in Table 1 represents a context in which group identity is not activated, and captures the preferences of proself individuals (Van Lange, 1999). We expect that this compensation matrix will be changed due to the activation of a group identity and that this change will depend on social value orientation. As a consequence, we expect that the actual compensation matrix will differ from the one presented in Table 1 because participants eliciting different social identity and with different types of social value orientation have different pattern of preferences as to how reward points are shared between group components. Aiming at guiding participants and getting them used to the task, we provided examples of own and other contributions and related reward points.

3.3 Independent Variables

We run a 2 x 2 x 10 mixed experimental design. We manipulate the first independent variable, social identity, between-participants in two levels: personal identity and group identity. First, participants selected a basket displayed on the computer screen where there were envelops containing either white or green/red cards with an ID number on the cards (Chen & Chen, 2011). We used the color of the cards to form two different groups: white cards indicating personal identity condition; and green/red cards indicating group identity condition. Then, irrespective of their social identity condition, participants were asked to solve a painting problem which represented the actual social identity manipulation (De Cremer & Van Vugt, 1999; De Cremer & Van Dijk, 2002; Kramer & Brewer, 1984; Eckel & Grossman, 2005; Chen & Chen, 2011). Participants had five minutes to examine five pair of paintings each one containing one painting by Paul Klee and one painting by Wassily Kandinsky. Next, we provided information to participants as to which of the two artists painted each of the ten paintings. In the sequence, participants received two final paintings that could have been painted by either Paul Klee or Wassily Kandinsky. They had ten minutes to indicate which artist painted each of these two additional paintings. For participants in the group identity (personal identity) condition, we allowed (did not allow) them to use an online chat program to communicate with the other group member and discuss the problem. Participants were free to
decide if their answers would conform to any decision reached by their respective group as well as to contribute to the discussion. In order to reinforce the social identity manipulation, we informed participants in the group identity (personal identity) condition that they were competing for a prize to be drawn equal to 100 additional reward points if the group (group member) provided a correct answer to the painting problem (Turner et al., 1987). Only at the end of the experiment, we informed participants which artist painted each of the two paintings.

We use the triple-dominance instrument (Van Lange et al., 1997) to measure the second independent variable, social value orientation. This instrument consists of a series of nine choices in which participants had to choose one among three options indicating their preferred payoff, taking into account other’s payoffs. The three options in each choice represent three social value orientation: prosocial, individualistic, and competitive. Participants were classified in one of the three social value orientations according to the consistency of their choices (Van Lange et al., 1997): i) if they chose equal payoffs at least six times, they were classified as prosocial; ii) if they chose higher payoffs for themselves at least six times, they were classified as individualistic; and iii) if they chose payoffs with larger differences in relation to other’s payoffs at least six times, they were classified as competitive. Of the 135 participants who completed the social value orientation instrument, 48 were classified as prosocial, 30 as individualists and 18 as competitors. Based on previous studies (Van Lange & Kuhlman, 1994; De Cremer & Van Dijk, 2002), we aggregate individualists and competitors and classify them as proselves, totaling 48 participants. 39 participants did not make at least six consistent choices and were not included in the analysis. We therefore formed 24 pairs of prosocial individuals and 24 pairs of proself individuals.

Our final independent variable, round, is a within-participant variable. Participants repeated the experimental task for ten rounds with the same group component, allowing for some level of mutual monitoring (Upton, 2009).

3.4 Experimental Procedures

Upon arrival, participants sit in a computer desk located in a room whose layout was prepared so that contact and communication among participants were minimized. To guarantee anonymity, participants received an identification number that was later used to pay them based on their performance in the experimental task.

In the beginning of each experimental session, one member of the research team briefly introduced the study’s importance and general purpose as well as general instructions about the experimental sequence. Participants then read a set of specific experimental instructions about the experimental task, including information about their role, endowment, reward points, payoff function, group output, decision setting, and feedback information after each round. Participants received a link to access the computer software containing the experimental task developed for the purposes of this research.

The experiment had two phases. To start phase 1, participants had to provide demographic information in order to register to an internet webpage and have access to the experimental task. Participants then started phase 1 which consisted of the application of the instrument capturing their social value orientation. Based on that, we randomly assigned participants to two-person groups with similar social value orientation. They remained in the same group throughout the experiment. In the second phase, we randomly allocated the two-person groups to one of the social identity condition. For the group identity condition, participants interacted with their pairs through an online chat program. After solving the painting problem, participants started a public-goods game consisting of a voluntary contribution mechanism and received detailed information about the reward matrix and the budget target.

The game consisted of a decision task in a social dilemma setting performed through ten rounds. Participants were not aware of the number of rounds. To reduce task complexity
(Upton, 2009), we used an additive production function in which group output consisted of the sum of individual contributions. Individual contribution was a function of the fixed endowment and converted directly into output. To increase the salience of the interdependency between group members, each group member was aware of the contributions of the other (Upton, 2009). In addition, participants knew their effort (contribution)-performance relation, i.e. there was no uncertainty regarding each individual performance.

After the ten rounds, participants completed a post-experimental questionnaire including questions on their understanding of the social identity manipulation and the payoff function. We then checked in the computer software individual accumulated reward points, converted them to Brazilian currency, paid participants in cash confidentially, and dismissed them. Participants received a compensation in the range of R$5.00—R$20.00 (mean = R$10.00), and experimental sessions were competed in the range of 55-70 minutes.

4. RESULTS
4.1 Comprehension and Manipulation Checks
We used examples of own and other contributions to the group account in order to examine if participants understood the compensation matrix and asked them to calculate the related reward points. 84 percent of participants correctly calculated compensation. We also checked if participants understood the group composition by asking if they were part of a group with the same group member throughout the experiment. 72 percent of participants correctly responded to this question. All participants correctly answered that they were part of groups with two members.

We asked participants their perception of being part of a group during task performance relative to be performing the task in their own. We find that participants in the group identity condition perceived themselves as part of a group at a larger extent than participants in the personal identity condition and the difference is statistically significant ($t = 8.665, p = 0.000$). Finally, we asked participants their level of belongingness to a group. Results indicated that participants in the group identity condition showed a higher level of belongingness to a group than participants in the personal identity condition and again the difference is statistically significant ($t = 8.716, p = 0.000$). Together, these two questions confirm that our manipulated social identity variable was successful.

4.2 Hypotheses Tests
Table 2 presents the descriptive statistics by social value orientation and by social identity for the entire task period. Our dependent variable is group performance measured as the sum of each group member endowment allocated to the group account. Group performance is highest for participants in the social identity condition (973.83), in particular for participants with a proself value orientation (1,042.00). Conversely, for participants in the personal identity condition, group performance is higher for prosocials (842.00) than for proselfs (610.00). This pattern of mean group performance suggests that the elicitation of group identity has a more profound impact for proselfs than for prosocials, providing preliminary support to the goal-transformation hypothesis.

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Descriptive statistics</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Group Performance</td>
</tr>
<tr>
<td></td>
<td>Means, (standard deviation) and [number] of groups</td>
</tr>
<tr>
<td></td>
<td>Personal Identity</td>
</tr>
<tr>
<td>Proselfs</td>
<td>610.00</td>
</tr>
<tr>
<td></td>
<td>(111.35)</td>
</tr>
</tbody>
</table>

São Paulo, 24 a 26 de Julho de 2019.
To test our hypotheses statistically, Table 3 reports overall ANOVA findings for the entire experiment. Hypothesis 1 predicts that the level of cooperation is higher for participants in the elicited group identity than for those in the elicited personal identity. Consistent with this expectation, group performance is significantly higher for the group identity condition (975.8) than for the personal identity condition (706.7), supporting Hypothesis 1 ($F = 35.31$; one-tailed $p = 0.000$).

Hypothesis 2 predicts the two alternative hypotheses relative to the moderating effect of social value orientation on the relationship between social identity and group performance. Hypothesis 2a, the goal-transformation hypothesis, predicts that the positive effect of an elicited group identity on the level of cooperation is stronger for prosocials than for prosocials. Alternatively, Hypothesis 2b, the goal-amplification hypothesis, predicts that the positive effect of an elicited group identity on the level of cooperation is stronger for prosocials than for prosocials. Table 3 confirms that social value orientation moderates the effects of social identity on group performance ($F = 15.66$; one-tailed $p = 0.000$).

<table>
<thead>
<tr>
<th>Factor</th>
<th>df</th>
<th>MS</th>
<th>$F$</th>
<th>$p$-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANOVA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social identity (group or personal)</td>
<td>1</td>
<td>784,339.29</td>
<td>35.31</td>
<td><strong>0.000</strong></td>
</tr>
<tr>
<td>Social value orientation (prosocial or prosocial)</td>
<td>1</td>
<td>41,005.95</td>
<td>1.85</td>
<td>0.181</td>
</tr>
<tr>
<td>Social identity x social value orientation</td>
<td>1</td>
<td>348,019.29</td>
<td>15.66</td>
<td><strong>0.000</strong></td>
</tr>
<tr>
<td>Error</td>
<td>44</td>
<td>22,215.71</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Reported $p$-values are one-tailed for tests of directional predictions, as indicated in boldface, and are two-tailed otherwise.

To verify to which group of participants—proselfs or prosocials—the effect of social identity is stronger, we also examine simple effects. For prosocials, we find that group performance is higher when participants elicit a group identity (1,042.00) than when they elicited a personal identity (610.00) and that the differences are significant ($t = 8.66$; one-tailed $p < 0.001$, untabulated results). For prosocials, we find a similar pattern with group performance being higher when participants elicit a group identity (928.57) than when they elicit a personal identity (842.00). However, the differences are not significant ($t = 1.20$; one-tailed $p = 0.240$, untabulated results). Taken together, these results provide support to the goal-transformation hypothesis (Hypothesis 2a) relative to the goal-amplification hypothesis (Hypothesis 2b), suggesting that the effect of social identity on cooperation with group performance is stronger for prosocials than prosocials.

5. SUMMARY AND DISCUSSION

In workgroup settings employees often choose to free ride rather than to cooperate with group performance (Holmstrom, 1982). In a public-goods social dilemma in which participants are compensated based on a budget-based contract with a moderate budget target, we show that...
the elicitation of group identity can be an effective informal control system to increase the likelihood of cooperation with group performance. In particular, we find that participants in the group identity condition cooperate more than those in the personal identity condition. In addition, we show that the effect of social identity on group performance depends on individual differences. Our results indicate that the effect of social identity on group performance is stronger for proselfs than for prosocials. We therefore provide support to the goal-transformation hypothesis relative to the goal-amplification hypothesis.

Our results contribute to the management control literature focused on understanding the role of informal controls in employee behavior in the presence of formal control mechanisms (Berry et al., 2009). Prior research shows that in a setting in which group identity is not activated proself employees are less likely to cooperate with group performance in a group incentive contract based on moderate budget-goal (Upton, 2009). By exploring the role of social identity, we show that the elicitation of group identity has an overall positive effect on group performance and this effect is stronger for proself individuals. Therefore, we contribute to the management control literature focused on the role of social identity by showing that group identity is an effective informal control mechanism capable of reducing free-rider behavior particularly for those employees concerned mainly about their own outcomes, i.e. proself employees.

The result that group identity is stronger for proselfs than prosocials is of particular importance for the debate about the moderating role of social value orientation in the effects of social identity on group performance. Prior studies have shown divergent results as to the prevalence of the two alternative hypotheses (e.g., De Cremer & Van Vugt, 1999; De Cremer & Van Dijk, 2002; De Cremer et al., 2008; Cardinaels et al., 2018). This mixed results may suggest that the moderating role of social value orientation is context-dependent. We contribute to this debate by, in our setting, finding support to the goal-transformation hypotheses that group identity increases cooperation more for proself than for prosocial individuals rather than to the goal amplification hypothesis that group identity increases cooperation more for prosocial than for proself individuals.

Organizations can also benefit from our results. In particular, designers of management control systems can consider the complementarities between formal and informal control systems to increase the overall efficiency of the management control systems package (Berry et al., 2009; Malmi & Brown, 2008). Informal control mechanisms can be more effective than formal controls to capture certain dimensions involved in employees’ decision-making process (Luft, 2016). In particular, our results show that the elicitation of group identity increases cooperation with group performance and that this effect is particularly stronger for proself individuals. Therefore, organizations for which workgroups are of greater importance for the attainment of improved performance could make structural design choices favoring tasks performed by groups rather than individually. In addition, organizations could implement actions and programs capable of promoting group identity such as by communicating organizational values valuing workgroup and group performance.

Our study is susceptible to some limitations that may provide opportunities for future research. First, we consider a single task to capture participants’ cooperation with group performance. However, future research could examine a setting in which employees have to perform multiple tasks. This may be of particular importance for examining the moderating role of social value orientation in the effect of social identity on group performance as previous accounting studies have provided evidence more aligned with the goal-amplification hypothesis in a capital budgeting setting (Cardinaels et al., 2018). In addition, in multiple-task settings employees typically allocate more effort to those tasks that are more easily measured (Holmstrom & Milgrom, 1991). Future studies could examine if the elicitation of group identity can lead employees to pay more attention to those tasks that are not objectively measured.
Second, we consider a single individual difference variable. However, employees have multiple individual differences and then future research could consider the role of alternative individual difference variables. For instance, individuals high in Machiavellianism are more likely engaged in budgetary slack creation (Hartmann & Mass, 2010). Future studies could thus examine if the activation of group identity could be an effective mechanism to mitigate the opportunistic behavior for individuals scoring high in Machiavellianism. Finally, we examined a single type of contract. Prior studies show that employees are more likely to free-ride under a piece-rate contract than under a budget-linear contract (Fisher et al., 2003). Therefore, it is not clear if the activation of group identity would be as effective to increase cooperation with group performance under a budget-linear scheme as under a piece-rate scheme and if this effect would be stronger for proselfs than for prosocials.

REFERENCES


