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When does team renumeration work? An experimental study on interactions between workplace contexts

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Abstract

The extent to which individuals cooperate depends on the context. This study analyzes how interactions of workplace context elements affect cooperation when free-riding is possible. Context consists of a novel team building exercise, varying degrees of complementarity in production, and different remuneration schemes. After participation in the team building exercise and when complementarities are high, subjects exert higher efforts under team remuneration than under individual remuneration, despite the possibility to free-ride. Across all contexts, subjects cooperate significantly more than Nash equilibria predict. Compared to contexts in which not all contextual elements are cooperatively aligned, cooperation in a cooperative context relies significantly less on beliefs and personal values. Instead, a cooperative context changes how a subject's achievement motivation influences cooperation. Our findings present insights on how preferences react to context interactions and how these reactions can explain organizational use of team incentives.

1. Introduction

Traditional economic theory fails to explain why firms use team remuneration to incentivize their workers (Baker et al., 1988). In theory, the free-rider problem leads workers to shirk under such incentives because they bear the full costs of their efforts while receiving only a fraction of their productivity (Alchian and Demsetz, 1972; Holmstrom, 1982).[1] Since individual performance incentives do not contain such a social dilemma, we would expect them to outperform team incentives when available. Team remuneration is, however, a prevalent form of compensation in many organizations (Kruse et al., 2010; Lawler and Mohrman, 2003).

Firm's agency to design workplace context exceeds merely setting incentive structures. Total output can be increased through team remuneration if firms successfully establish a workplace context that leads to cooperation among workers. In order to create a cooperative workplace context, firms need to promote a team identity among colleagues. Team identity facilitates communication, coordination, and integration among team members by creating a feeling of membership in a well-defined group (Eckel and Grossman, 2005; Kerr and Slocum Jr., 1987). Team building exercises serve the purpose to help workers to identify with a team (see Riener and Wiederhold, 2016; Tajfel, 1978). They aim to increase communication and common as well as successful experiences between workers usually unrelated to the firm's trades (Buller and Bell, 1986; Salas et al., 1999). Importantly, these two elements at the firm's discretion, the form of remuneration and actions to promote a team identity, interact with one another (Andersson et al., 2016). We extend the analysis of this interaction by the dimension of complementarities between workers. This study analyzes how the form of remuneration interacts with the contextual factors of team identity and degree of complementarity in the form of synergies in production to influence cooperation at the workplace. By means of a laboratory experiment we present insights on when team remuneration yields higher effort than individual remuneration and how this result depends on the workplace context. Our insights inform the existing literature on how workers' beliefs and motivations vary across interactions between contextual elements at the workplace.

Complementarities in production in the form of team synergies are present when effort provided by a worker affects a team member's productivity too. Such complementarities can manifest through communication, sharing of knowledge and ideas, increased creativity resulting from more diverse labor inputs as well as enjoying working together towards an ambitious goal with workers with diverse expertise. Complementarities are therefore an important influence on team output in many firms. Team identity and remuneration choice also interact with complementarities in efforts between workers. On

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[1] In what follows, we use the terms team incentive and team remuneration synonymously. These terms describe a classic "sharing rule" a la Holmstrom (1982). A worker receives a compensation that depends on the team's total output irrespective of her exerted effort.

the one hand, it is easy to see that the degree to which workers notice and build on complementarities between colleagues varies and can be influenced through team building exercises. Communication and common experiences increase awareness of and exposure to existing complementarities. The reverse is also straightforward: when skills are highly specialized but a common target should be met, specialists need to communicate and coordinate actions with one another which in turn has the potential to lead to a team identity. On the other hand, the form of remuneration interacts with complementarities. Rotemberg (1994) argues that it depends on the remuneration scheme to which degree workers are willing to internalize positive externalities of production that result from existing synergies. In particular, team remuneration enables workers to signal own cooperative behavior to team members. When synergies between workers are high, this signal becomes less noisy under team remuneration.

Recently, the experimental investigation of interactions between elements of workplace context has received increasing attention from economists (Andersson et al., 2016; Riener and Wiederhold, 2016; Weber and Camerer, 2003). The bottom line is that elements like incentivization of effort, the decision to control worker's productivity, organizational values and culture, team feeling, and social preferences of workers should all be aligned to optimally motivate employee performance. We add new insights to this literature since our evidence suggests that team remuneration can lead to higher effort than individual remuneration, but only when complementarities in the form of team synergies are high. Moreover, while previous research has considered the interaction between workplace context and worker-level social preference type, we extend this analysis to the interaction of workplace context and social preference type with motivational states and beliefs. Our results indicate that beliefs and achievement motivation affect the decision to provide effort differently depending on the workplace context.

Subjects in our study take part in a novel two-person team building exercise. This task serves to induce a team identity by allowing for communication between team members and entertaining joint team achievements. Afterwards, subjects participate in a stylized effort game with the same team member as before. In a 2x2 design, we vary the incentive scheme (team and individual remuneration) and the degree of team synergy (low and high). The effort game consists of 15 rounds in which subjects first decide how much effort they want to put in and subsequently state their belief about the effort decision of their team member for each round. In addition to the beliefs, our experiment also assesses a proxy for a social preference type by means of Social Value Orientation (SVO). Finally, we identify how five distinct motives that are particularly important within organizations react to the team building exercise and how these motives are causally affected by the different remuneration schemes and the degree of synergy in the effort game. To this end, subjects' motivational states are measured before and after the team building exercise as well as after the effort game.

In contrast to Nash equilibrium predictions, we find that under high team synergy team remuneration results in higher effort levels than individual remuneration. The opposite ranking is found under low team synergy. Furthermore, effort is significantly higher than the Nash equilibrium in all treatments. We argue that this is mainly driven by our team building exercise as it significantly affects subjects' motives.

We further find that beliefs about team member's effort correlate significantly less with effort choices under team remuneration and high team synergy than under individual remuneration and high team synergy. Furthermore, the influence of achievement motive on effort varies between treatments. Most prominently, under high team synergy the effect of a higher achievement motive on effort is negative under individual remuneration while it is positive under team remuneration. This indicates a change in the influence of achievement motive depending on the workplace context in line with the concept of "we thinking". The concept of "we thinking" describes a mode of reasoning in which an individual is motivated to pursue the goals of the group instead of individual goals (Akerlof, R., 2016; Deutsch, 1949). If workers are motivated to pursue the group's goal as one's own, they will provide high individual effort under team remuneration and hence cooperate despite the possibility to free ride. Whereas the combination of team building, team remuneration and high team synergy induces more achievement oriented subjects to act towards a group goal and cooperate more, this result does not hold under individual remuneration where achievement motivated subjects seem to be motivated to pursue their individual goals. Finally, more prosocial subjects do not exert more effort under team remuneration compared to individual remuneration in the high team synergy treatments. Higher effort under team incentives and high synergies therefore cannot be entirely attributed to more prosocial team members. We interpret these results as indicative that cooperation is not only belief and trait type dependent, but context-dependent.

The paper is structured as follows. In the next section, we present previous insights about workplace context relevant to our study. Section three presents literature on the importance of different motives for decision making within organizations. The design of our experiment is shown in section four. Section five presents our results and section six concludes.

2. Workplace Context

2.1 Team Remuneration and Team Synergies

Teamwork and team incentives are common in many organizations (see e.g. Kruse et al., 2010, Lazear and Shaw, 2007). For instance, Kruse et al. (2010) report that almost half of American private-sector employees' pay is tied to the team's performance. Team remuneration can have profound advantages for team members and firms since they alter the social distance among team members and the salience of prosocial motives (Meier, 2006; Rob and Zemsky, 2002; Berger et al., 2011).

The problem of free-riding under team incentives arises when the joint output is shared among team members and the marginal product of each team member is not observable. Agents have thus an incentive to shirk. Economic theory suggests that in the absence of effective monitoring, individual remuneration schemes should be preferred over team remuneration schemes (Alchian and Demsetz, 1972; Holmstrom, 1982). Explanations for the use of team remuneration found in the literature include incentives to help others (Itoh, 1991), peer pressure (Kandel and Lazear, 1992), and social preferences (Wambach and Englemaier, 2005).

When comparing the efficiency of team and individual remuneration empirical studies find mixed results. Some studies find that team remuneration schemes underperform compared to individual remuneration schemes as economic theory suggests (Encinosa et al., 2007; Erev et al., 1993; Gaynor and Gertler, 1995; Nalbantian and Schotter, 1997, Thurkow et al., 2000). Other authors find no significant difference in the performance between team and individual remuneration (Dijk et al., 2001; Farr, 1976; London and Oldham, 1977; McGee et al., 2006; Vandegrift and Yavas, 2011). Finally, several empirical studies find team superior to individual remuneration schemes (Allison et al., 1993; Babcock et al., 2015; Hamilton et al., 2013; Pizzini, 2010). These mixed results indicate that team remuneration alone is insufficient to increase cooperation and motivate workers to exert more effort and that more attention towards the exact circumstances that make team remuneration work is warranted.

Team synergy may explain why team remuneration is used in organizations despite its theoretical underperformance. Under team synergy individual output is a function not only of the worker's own effort, but also of the team members' effort (Alchian and Demsetz, 1972; Chao and Croson, 2013; Lawford, 2003).[2] One of the few exceptions in the economics literature that acknowledges the importance of team synergies as a mechanism that promotes collaboration is by Lasker et al. (2001) on medical partnerships; another study is by Wageman and Baker (1997) in a laboratory experiment. Chao and Croson show in an experiment that team remuneration outperforms individual remuneration when synergies are high enough. Given the parametrization of their experimental setup, the intuition for their result is straightforward. When effort externalities are sufficiently large, this effect outweighs the free-rider problem. However, the degree of complementarity in effort needed for selfish individuals to exert more effort under team than under individual remuneration is so large that it is only reasonable to assume for a small fraction of firms such as highly specialized partnerships (Pizzini, 2010). Team synergies can also be described as a form of positive externality. The economic literature on games with positive externalities suggests that cooperation increases with an increase in the externality (Chauduhri,

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[2] Note that team synergies differ from strategic complements. Strategic complements exist when a change of another subject' choice positively affects the marginal payoff of a subject.

2011; Zelmer, 2003). The willingness of workers to internalize positive externalities depends on how easy it is to demonstrate altruistic deeds towards their colleagues (Rotemberg, 1994).

2.2 Team Identity

The economic literature mostly neglects that workers are rarely motivated by pure selfishness and that successful teamwork builds on social interactions, norms, and structures among co-workers (Dur and Sol, 2010; Granovetter, 2005; Huck et al., 2012; Riener and Wiederhold, 2016; see also: Bosworth et al., 2016). Social identity theory provides a useful framework to explain why team members do not necessarily shirk under team remuneration. It argues that individuals behave primarily as members of well-defined and clearly distinct social groups (Tajfel, 1978). A work team can constitute such a social group and hence shape norms, values, and attitudes that influence workers' interactions (Akerlof, 2000, 2005; Eckel and Grossman, 2005). A social or team identity shared with colleagues, facilitates cooperation among team members by creating a feeling of membership.

Related to team identity and cooperation among work teams is the concept of "we thinking". It describes a mode of reasoning in which an individual is motivated to pursue the team's goals (Akerlof, R., 2016). Once successfully established, team identity promotes "we thinking", in which individuals perceive themselves as part of the "we". This makes it more salient for workers to exert high effort even when free-riding is possible. An example of "we thinking" is found between soldiers who are often motivated to action by thinking about what is best for the group even if it means risking their own lives (Akerlof, R., 2016, Shils and Janowitz, 1948). Social psychologists refer to this concept as "group cohesion". Group pride is put forward by different researcher as a reason for why subjects pursue group ends instead of individualistic ones (e.g. Tyler, 1990). In line with this research, empirical studies have induced team identities and generally found that this suppressed self interest in favor of the team's interests (Bacharach, 1999; Bandiera et al., 2005, 2013; Brewer and Kramer, 1986; Charness, 2012; Chen and Chen, 2011; Chen and Li, 2009; Eckel and Grossman, 2005; Gold and Sugden, 2007; Heap and Zizzo, 2009; Kramer and Brewer, 1984; Lankau et al., 2012; and Weber and Camerer, 2003).

Team identity is created either based on naturally occurring characteristics of group members, like race, sex, and occupation or artificially. The well-known minimal group paradigm (Tajfel, 1970) is often used to induce group or team identities. Here, group membership is assigned randomly based on some superficial criterion like a preference for painters and subsequently labeling the different groups with different names. Goette et al. (2012) suggest, however, that this is an oversimplification that does not capture essential aspects of team identity in the real world. The authors provide evidence that additional motivations which arise when group induction is not minimal are important determinants of individual behavior towards both in-group and out-group team members (see also Pan and Houser, 2013). Eckel and Grossman (2005) explore the extent to which team identity can deter shirking and free-riding behavior in a public good game that resembles a team production setting. Their results provide evidence

that random anonymous team assignments are insufficient to overcome self-interests, whereas actions designed to enhance artificial team identity by letting them solve a task together contribute to higher levels of cooperation (see also Babcock et al., 2015).

Riener and Wiederhold (2016) rely on a team building exercise consisting of a simple coordination game to induce a team identity. Successful team building exercises facilitate positive group experiences and mutual judgement about the team experience among workers and can therefore present a source of pride of the group's achievement (Sundstrom et al., 1990). Their results indicate that practices and contextual elements at the workplace directed towards increasing worker's effort should be aligned. Team building works best to create a team identity when it is complemented by suitable incentives. For example, in a work context characterized by a team identity, imposing strict controls on workers' outputs inhibits cooperation.

The economic literature on interaction effects between several contextual elements at the workplace is scarce. There is a rising interest among economists in studying different dimensions of corporate culture on economic outcomes (Earley, 1993; Kosfeld and von Siemens, 2011; Van den Steen, 2010; Weber and Camerer, 2003). One notable exception is the experimental study by Andersson et al. (2016) which studies how personal preferences, corporate culture, and different incentive schemes interact with each other in a tournament to determine effort provision. They find that the "triple-fit", or alignment, of these three elements is important to optimally motivate workers. However, no study has shown how team synergy, remuneration schemes and team identity align to create a cooperative workplace context.

3. Motives and Traits at the Workplace

Research in social psychology differentiates between states and dispositional characteristics, so-called traits. A state is a momentary emotional reaction to internal and/or external triggers which involves physical, motivational, cognitive and psychological reactions and hence drives behavior. Traits are often used to describe subject's personality characteristics that are stable over time. Traits interact with context-dependent factors to activate motivational states. It is this subjective motivational state which in turn drives the psychological, behavioral and emotional reactions once it is activated (Schultheiss and Brunstein, 2001). Decades of psychological, biological, and neuroscientific research suggests that distinct context-sensitive motivational states are associated with distinct action tendencies and decisions (Emmons and McAddams, 1991; Pang, 2010). Motivational states, or motives, are defined as dispositions to experience particular types of incentives as pleasurable and rewarding, to strive for certain types of goals, and hence to activate particular behavioral tendencies and related decisions (Schultheiss and Strasser, 2012; Heckhausen, 1977; Utz et al., 2004). This notion stands in contrast to classical economic theories, which assume that decisions are determined by stable preferences, which are generally assumed to be context-insensitive, stable over time and exogenously given. Worker's

motivation and the underlying motivational states are thus an integral part of their performance equation at the workplace (Chatman, 1989, Grandey et al., 2002).

The seminal research by McClelland (1971 and 1987) based on Murray (1938) focuses on an array of distinct workplace related needs or motives, including, achievement, affiliation, power, and autonomy. By far, most of the attention in McClelland's model focuses on the needs for achievement (defined as behavior directed toward competition with a standard of excellence) and power (defined as a need to have control over one's environment). In a similar vein, Griskevicius et al.'s (2013) research sheds light on motives that can be relevant at the workplace. These motives are affiliation, self-protection, status attainment and caring (see also Kenrick et al., 2010; Schaller et al., 2007). For example, individuals use different exchange rules and behavioral tendencies when interacting at the workplace with friends and allies (affiliation) or competitors and superiors (status attainment). When Griskevicius et al.'s (2013) need for self-protection is active, behavior that pursues selfish wanting or consumption is triggered. This behavior is associated with an increased focus on own needs and behavioral tendencies towards the maximization of individual resources, less cooperative behavior as well as increased preferences towards social distance and solitary activities (Lea and Webley, 2006; Vohs et al., 2006). Finally, it has long been known that the motive to care for your colleagues is an important driver of behavior at the workplace (Hersey, 1932; Roethlisberger and Dickson, 2003). Barsade and O'Neill (2014) have found that a culture of care at the workplace increases wellbeing and teamwork. Also, social psychologists have found that the care motive leads to helping others and an increasing interest in other's welfare (Goetz et al., 2010; Condon and Feldman Barrett, 2013). A key implication of this framework that different contexts activate different motives is that the same information from the environment may be interpreted and acted upon very differently. The specific behavior depends on the trait characteristics of the individual and how she appraises the context. Depending on which motivational system has been primed to process the contextual stimuli, different behavior can emerge.

Given the context of our study, we focus on five motives that have theoretical and empirical evidence for workplace motivation as outlined above. These five motives are achievement, affiliation, care, power-status and selfish-wanting/consumption. In the appendix in table A.1 we present an overview and definitions of our motives and examples for their importance at the workplace. The table also contains words that are specific to these five motives and are used in the experiment. These words are selected based on a semantic categorization task in which subjects are asked to ascribe a number of motive-related words to motivational categories (Chierchia et al., 2018).

In terms of behavioral tendencies related to trait characteristics, more prosocial individual cooperate generally more even when free-riding is possible (e.g. Balliet et al, 2009). Social value orientation (SVO) by Murphy et al. (2011) provides a numeric score which can be used as a proxy to determine the prosociality of individuals.

4. Experimental Design and Hypotheses

Our experimental design consists of three core building blocks. The first is an exogenous manipulation of team identity by instituting a team building exercise. The team building exercise is supposed to lead to a common experience of having achieved something non-trivial and engaging together. This generates a feeling of collegiality or membership to a group (i.e. "being in the same boat") (see Eckel and Grossman, 2005; Riener and Wiederhold, 2016). The team building is operationalized by using a spot the difference task with the possibility to communicate with the team member. To the best of our knowledge, this team building exercise in its concrete computerized form is novel in the experimental economics literature.

The second block is a two-player effort game, conducted after subjects participated in the team building exercise. Across four treatments we vary either the form of remuneration or the degree of team synergy in production between subjects. The core feature of the game is that higher effort is monetarily more costly, but increases not only one's own production but also the production of the team member (depending on the degree of complementarity in effort). Each subject is matched with its previous team member from the team building exercise.

The third block follows after the effort game and examines a proxy of trait prosociality by social value orientation (SVO, Murphy et al., 2011). The experiment further measures the impact of the team building exercise and the treatments in the effort game on motives that are relevant at the workplace. Motives are measured using a questionnaire of words related to five different motives (see Chierchia et al., 2018). They are measured at three different times in the experiment, at the beginning of the experiment, after the team building exercise, and after the effort game. All experimental blocks were computerized and conducted in z – Tree (Fischbacher, 2007). At the end of the experiment, subjects completed a short questionnaire on their socio-demographic characteristics. Figure 1 depicts the sequence of the experiment. Screenshots from the different experimental stages can be found in the appendix. All stages of the experiment were incentivized with an experimental currency unit denominated in points. The exchange rate from points to Euro was 250 to 1 and common information to all subjects before the first stage of the experiment.

Figure 1: Sequence of the experiment

4.1 Team Building Exercise

The team building exercise consists of a spot the difference task in randomly matched groups of two that includes the possibility to communicate with each other via a computerized chat. Communication not only helps intra-team coordination but has been shown to successfully increase cooperation in social dilemmas and decrease free-riding in public good games (Balliet, 2010; Charness and Kuhn, 2011; Isaac and Walker, 1988).

In this task, each group is presented with picture pairs of three different paintings.[3] Each of the three picture pairs has a number of differences but is otherwise identical. The task is to find as many of the unknown differences as possible within an allotted time of three minutes for each picture pair. After the three minutes elapse, only the left picture of the pair is displayed for an additional minute. When the left picture disappears after 60 seconds, subjects have to enter individually the amount of mistakes they found in a box on the screen. Subjects can communicate by means of a computerized chat during the team building exercise except for those screens on which they individually have to enter the number of differences they found.[4] Subjects are instructed not to reveal any personal information about themselves in the chat and informed that their identities remain anonymous throughout the whole experimental session. The additional minute in which only one picture is displayed and the chat serve the purpose to facilitate coordination on the differences found. The two team members receive each 25 points for each difference found. They do, however, only receive the points if both team members individually enter the same number and the number chosen is not higher than the total number of differences in the picture pair. These conditions ensure that both team members have to coordinate in order to receive any payment. The coordination was sufficiently simple to facilitate the establishment of team identity and pairs who successfully mastered the task have justifiable reason to be proud of their achievement since it takes considerable effort to find a high number of correct differences (Riener and Wiederhold, 2016, Akerlof, R., 2016). In addition, the task is designed to rule out the possibility that subjects learn how cooperative their team member behaves. This is particularly important to avoid any heterogeneous spillover effects onto the effort game.

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[3] The three picture pairs are the Dancing class by Degas, the Kiss by Klimt and the Wanderer above the Sea of Fog by Friedrich. Two of the picture pairs were provided by pyrosphere. Pyrosphere (pyrosphere.net) is a game developer firm that developed a spot the difference task for classical paintings for mobile devices and who were kind enough to provide some pictures for the team building exercise. One picture pair was retrieved from the internet.

[4] We checked the chat protocols to see whether personal information was exchanged during the two-player interaction. Nearly all subjects limited their discussion only to the game. Since dropping the subjects who did reveal their identities or personal information leaves all results virtually unchanged, we kept them in the sample. No team found every difference in the team building exercise. In fact, the average number (standard deviation) of differences found was 8.18 (1.76) out of 15 total differences (Klimt), 7.65 (1.42), out of 10 (Degas), and 6.68 (1.06) out of 10 (Friedrich). This indicates that the spot the difference task inhibited an appropriate amount of difficulty.

The subjects did not receive any feedback on how many differences their team member actually entered in the box or the total number of mistakes per picture pair until the end of the experiment. This avoids reciprocal effects, formation of beliefs about ability or type of the team member as well as other motivational responses. At the end of the exercise, subjects are asked how much fun they had doing the task and how successful they perceived the cooperation with the team member. This was done on a 7 point scale, ranging from "not at all" to "very much". On average (standard deviations in parentheses), subjects rated the task as being a 6.31 (1.03) fun and 6.26 (0.75) successful. We take this as evidence that the team building exercise leads to a sense of achievement in subjects and is perceived as engaging and entertaining. The exercise was chosen such that it is unrelated to the tasks to be performed in the next stages, i.e. the coordinative element of our team building exercise played a central role. No information that could potentially alter subjects' beliefs or judgements, for example, by exposing social preferences, is revealed through the coordinative team building exercise.

4.2 Effort Game

The effort game is a modified version of the design developed by Chao and Croson (2013) and involves a 2x2 design: the remuneration scheme (individual and team) and team synergy levels (high and low) are varied. Each subject i is randomly assigned to one of the four treatments. Importantly, teams stay identical between the team building exercise and the effort game which implies a partner matching in the effort game. Both, team synergy level and remuneration scheme are between-subject factors. Teams consist of two subjects who simultaneously choose effort levels e_i from the integers {0, 1, ..., 105} independently from each other. Effort generates production, y_i according to the following function:

(1) $y_i = 10e_i + s * e_j \; with \; j = 1,2 \; and \; i \neq j$

with e_j being the effort of the other team member. The marginal product of effort on one's own production is 10 in all treatments. s describes the marginal product on the team member's production. Hence, s is the team synergy level and is set to 1 in the low team synergy treatments and to 9 in the high team synergy treatments. While higher efforts increase production linearly, the costs of effort increase quadratically:

(2) $C(e_i) = 0.1 \; e_i^2 \; with \; i = 1,2$

Note that different from the production function, effort costs only depend on subject $i's$ own chosen effort. Under the individual remuneration scheme, each team member receives payoffs depending on their own production. The subjects' payoff under individualized remuneration is then

(3) $\pi_i^{ind} = y_i - C(e_i)$

Under the team remuneration scheme, team members share the total team production $(y_i + y_j)$ equally. The subjects' payoff under team remuneration is then

(4) $\pi_i^{team} = \frac{1}{2}(y_i + y_j) - C(e_i)$

The first order conditions yield the following equilibrium efforts for both remuneration schemes:

(5) $e_i^{*\ ind} = 50$ and $e_i^{*\ team} = 25 + 2.5 * s$

The social optima read:

(6) $e_i^{SO\ ind} = e_i^{SO\ team} = 50 + 5 * s$

The equilibrium predictions generated by our parametrization are depicted in Table 1. Given the positive team synergy, socially optimal effort always exceeds the corresponding Nash equilibrium. Nash equilibrium efforts are predicted to be always larger under individual remuneration than under team remuneration. This holds because the team synergy level is smaller than the marginal product of one's own effort level. This assumption seems realistic for most organizational teams. In this aspect we deviate from Chao and Croson (2013) who focus on partnerships in which the marginal product of the partner can exceed the marginal product of one's own effort on the own production. Raising the team synergy level above one's own marginal product resolves the free-rider problem under team remuneration and thus results in Nash equilibria that are higher under team remuneration than under individual remuneration.

In addition, we elicit subjects' beliefs about team member's effort in every round. After each effort decision, subjects are asked to guess what integer between 0 and 105 the team member chose for her effort in this round. Following Gächter and Renner (2010), we incentivize the guesses with 150 points if the guess does not deviate more than 10 integers from the actual team member's choice.

Subjects play 15 rounds in each session under a single treatment. After choosing an effort level and guessing the team member's effort, subjects are reminded of their own decision, receive feedback about their team member's decision, and their respective earnings for each round in points. Communication is not allowed at this stage of the experiment. Effort decisions from one of the 15 rounds are randomly chosen to be paid out in the end. Likewise, one different round is randomly chosen for the payoff from the stated beliefs. An example of the translated version of instructions can be found in the appendix. The choice set and parameters were chosen such that it is impossible for the subjects to generate negative payments over the course of the experiment. In order to control for income effects, we set the show up fee such that under the Nash equilibria, subjects receive almost identical payments across treatments.

Before the 15 rounds were played, each subject has to complete two comprehension questions about the incentive structure that they subsequently face. Each question consists of choosing an integer from {0, 1, …, 105} for both team members as hypothetical effort decisions. Afterwards, based on their choices, subjects have to calculate their costs, which could be read from a provided cost table, as well as the own or team production, depending on the remuneration scheme of the treatment, and the total payoff that each team member would receive from the hypothetical decisions. To make sure that subjects understood the game, the correct answer is displayed after they finished providing answers for each of the two comprehension questions. No subject received any information about the entries and performance of their respective team member. Subjects choose their own hypothetical effort levels in this comprehension check to prevent possible anchoring effects (Furnham and Boo, 2011). Completing this comprehension check is incentivized.

Table 1: Equilibrium predictions

$e_i \in \{0,1,\dots,105\}$, 2-subject teams, 15 rounds	Individual remuneration	Team remuneration
Low team synergy ($s = 1$)		
Equilibrium effort (NE)	50	27.5
Socially-optimal effort (SO)	55	55
High team synergy ($s = 9$)		
Equilibrium effort (NE)	50	47.5
Socially-optimal effort (SO)	95	95

4.3 Elicitation of Motives and Prosocial Traits

In order to assess the impact of the team building exercise and the treatments of the effort game on motives, subjects take part in three questionnaires over the course of the experiment probing their motivational states. Each questionnaire consists of the identical 17 items. The order of these items is randomized per subject and for each time the subject encountered the motive questionnaire. Subjects work on them at the beginning of the experiment, after the team building exercise, and after the effort game. All questions ask the subjects how they rate their current motivational state with respect to a certain motivation which was presented as a word. In particular, subjects select on a 7-point scale ranging from "not at all" to "very much", "to which degree they feel like one of the following motivations in this very moment". Each subject provides such ratings for five motives that are relevant at the workplace, achievement (3 words), affiliation (3), care (3), power-status (3), and selfish-wanting/

consumption (3), as well as the affective states of being happy and being sad. These words were selected to be maximally specific indicators for distinct motives (Chierchia et al., 2018). A complete list of words can be obtained upon request. Subjects in this task receive 180 points every time they completely answer the questionnaire.

After the last questionnaire, subjects participate in an implementation of the SVO Slider Measure task (Murphy et al., 2011, Crosetto et al., 2012). The SVO measures a person's preferences on how to allocate resources between the self and another person. We use this measurement to elicit the prosocial trait of our subjects. Subjects make distribution decisions on the 6 primary items of the SVO measure. For the SVO measurement, subjects are randomly regrouped into groups of two. The regrouping protocol ensured that they are not matched with another subject they had already previously encountered in the team building exercise and effort game. This is common knowledge to the subjects. The subjects are told that one of the six rounds and their role in it would be chosen randomly to be paid out.[5] Similar to Riener and Wiederhold (2016) and Fehr and Williams (2013) our prosocial trait measurement is conducted at the end of the experiment.

4.4 Hypotheses

The hypotheses in this subsection follow from the previously presented empirical findings. We hypothesize that a cooperative workplace context consisting of team remuneration and high team synergy after a team building exercise results in higher effort compared to any other treatment. This implies that effort under *TR high* is higher than under *IR high*. Although team remuneration aligns team's goals with the team identity, the free rider problem under low team synergy is expected to be prevalent enough for individual remuneration to yield higher effort. Hence, the degree of synergy is decisive for team remuneration to lead to higher effort than individual remuneration which follows from Rotemberg (1994).

We further hypothesize that effort in the effort game is significantly higher than Nash equilibrium in all treatments. Whereas Chao and Croson (2013) find in a similar effort game without a team building exercise that effort converges towards the respective Nash equilibrium, the economic literature on team identity and team building suggests that cooperation above Nash equilibrium can be maintained during the entire game. We expect that effort deviates from Nash equilibria towards the social optima since the team building exercise leads to a shared team identity and team feeling (Eckel and Grossman, 2005; Riener and Wiederhold, 2016; Chen and Li, 2009). The continuation of the partner matching between team building exercise and effort game should further strengthen cooperative bonds within work teams independent of the team synergy and the remuneration choice.

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[5] The items are parametrized such that subjects could earn between 113 and 750 points.

Effort decisions above Nash equilibrium, can be rationalized by social preferences of the form

$$U_i = (1 - x_i)\pi_i + x_i\pi_j$$

Where i's utility from the payoffs in the effort game, U_i, depends on $i's$ own payoff from the effort game, π_i, the team member's payoff from the effort game, π_j, and x_i, the degree of how much i's utility positively depends on j's payoff. For effort decisions that lie above the Nash equilibrium but are at most as high as the social optimum it follows that $0 < x_i \leq 0.5$. In addition, the hypothesis that effort under *TR high* is higher than under *IR high* implies under such social preferences that $x_i^{TR\ high} > x_i^{IR\ high}$; which is indicative of context-dependent social preferences.

Since motives are affected by the context in which an individual takes a decision, we hypothesize that the team building exercise as well as the effort game affect motives scores. In particular, the team building exercise will increases scores on more prosocial motives, i.e. affiliation and care and those that are outcome related, i.e. achievement and power-status due to their team accomplishments. In the effort game, the different treatments will affect motives differently. We hypothesize that the cooperative context of team building exercise, team remuneration and high team synergy results in the highest prosocial motive states, i.e. care and affiliation, and that the hypothesized high cooperation levels result in the highest states of (team-)achievement compared to others.

5. Results

5.1 Effort and the Workplace Context

The data collection took place between April and June 2017. The experiment was organized and administered with the software hroot (Bock et al., 2014) and programmed with the software z-Tree (Fischbacher, 2007). In total, 230 subjects participated in the experiment. Of these, 52 (26 pairs) took part in in the individual remuneration - low team synergy treatment (*IR low*), 60 in individual remuneration - high team synergy (*IR high*), 60 in team remuneration – low team synergy (*TR low*) and 58 in team remuneration – high team synergy (*TR high*). Subjects came from the University of a WEIRD city subject pool and study diverse subjects, with 31% of the subjects having an economics related background. The share of females in the experiment was 47%. According to Boschloo tests, we find neither significant gender differences nor significant differences in the share of economics students across the four treatments. Subjects earned on average €11.21 for participating in a session, which lasted around 90 minutes.

Result 1: Average effort under TR high is significantly the highest across all treatments.

Average effort decisions over 15 rounds in the effort game by treatment are as follows; *IR low*: 54.76 [51.78, 57.74][6], *IR high*: 67.17 [57.55, 76.79], *TR low*: 44.58 [37.68, 51.48], *TR high*: 82.51 [75.81, 89.21]. Our main result is expressed in Figure 2, which depicts average effort decisions over 15 rounds for all four treatments. As can be seen, *TR high* displays the highest average efforts over all rounds, followed by *IR high*, *IR low*, and *TR low*. Figure 2 also shows that the end-game effects occurs in the team remuneration treatments, which is common in finitely repeated social dilemma games (see, e.g. Ledyard et al., 1995). This can be interpreted as evidence that subjects are aware of the free-rider strategy as being individually rational in the *TR* treatments. As for the low synergy treatments, we see little variation in average effort levels over the 15 rounds with *IR low* effort decisions slowly converging towards the Nash equilibrium.

Independent of the team synergy, selfish rational optimization implies that effort under *IR* is always higher than under *TR* as seen in Table 1. When one compares average effort decisions over 15 rounds at the group level between treatments, we find that average effort decisions of *TR low* are indeed lower than under *IR low* (Wilcoxon rank sum test, $p = 0.005$).[7] However, effort under *TR high* is significantly higher than effort under *IR high* ($p = 0.016$). This evidence suggests that the degree of team synergy is important to explain situations where *TR* leads to higher effort than *IR* in the presence of team identity. Note also that effort levels between *IR high* and *IR low* do not differ significantly ($p = 0.113$)[8]. Result 1 is also supported by regression analysis. Table 2 presents GLS random – effects regression models with standard errors clustered at the team level. The dependent variable is the effort decision over all 15 rounds.

Model 1 confirms the results from Figure 2: Chosen effort differs significantly across treatments. In addition to the treatment dummies, model 2 includes the control variables Female, Age and Economics background. Including these controls does neither change the size of the coefficient estimates nor decrease their significance considerably. Females put in significantly less effort into the effort game and having an economics background also has a negative influence on effort decisions that is marginally significant.

Result 2: Average effort is significantly higher than its respective Nash equilibrium prediction for all treatments.

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[6] 95% confidence interval calculated with standard errors clustered at the team level.

[7] All subsequent tests for differences in mean effort levels over 15 rounds across treatments were done with the Wilcoxon rank sum test. Before these tests were conducted, a Kruskal-Wallis test was performed that investigated whether the four treatment means differ significantly. The test indicated that pairwise tests for treatment differences are permissible ($H = 40.27$, $df = 3$, $p < 0.01$).

[8] Moreover, *TR high* has significantly higher average efforts over 15 rounds than both *IR low* and *TR low* at both $p < 0.001$. Also, *IR high* leads to significantly higher efforts than *TR low* at $p = 0.002$.

It becomes apparent from Figure 2 that average effort exceeds Nash equilibrium predictions in all four treatments. We find that effort averages over 15 rounds at the team level differ from their respective Nash equilibrium prediction at the below 1% significance level for all treatments using the Wilcoxon signed-rank test. We interpret result 2 as evidence that the common team experience, the repeated interaction, and communication with the identical team member in the team building exercise leads to more cooperative behavior between team members across all treatments.
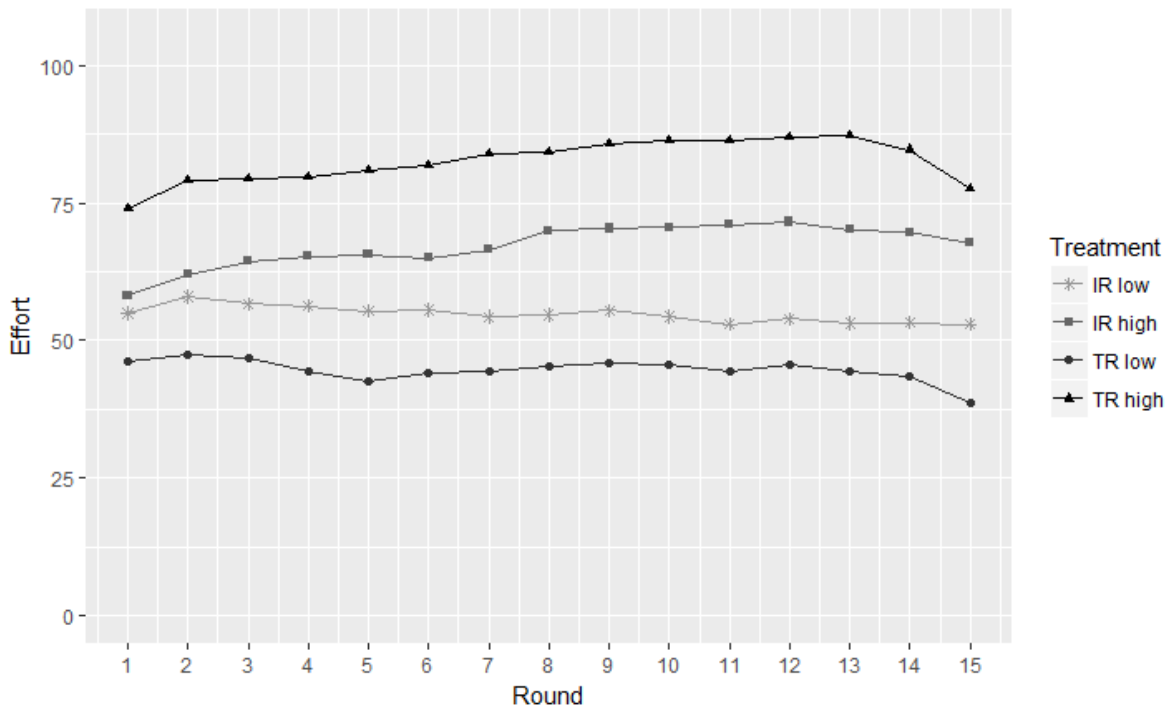

Figure 2: Average effort decisions over 15 rounds across treatments

IR low: Nash equilibrium, social optimum: 50, 55; *IR high*: Nash equilibrium, social optimum: 50, 95; *TR low*: Nash equilibrium, social optimum: 27.5, 55; *TR high*: Nash equilibrium, social optimum: 47.5, 95

Result 3: Workplace context influences motives significantly.

Figure 3 depicts average motive scores at the baseline measurement from the beginning of the experiment and average motive scores measured directly after the team building exercise. We find that the team building exercise increases states of achievement, affiliation, care and power motives significantly, while it decreases states of the selfish-wanting /consumption motive significantly. All of these differences are significant below the 1% significance level. The nonparametric test used for these results evaluates the Somers' D statistic.[9] We see this as evidence that the first component of our workplace context, the team building exercise, varies the degree to which motives are perceived.

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[9] The paired test clusters at the subject level and accounts for repeated ratings that subjects make within a motive category. The test uses a generalization of the confidence interval of the Wilcoxon sign rank test.

Table 2: Effort regression

Dependent variable: Effort decisions in the effort game over 15 rounds

Model	1	2
IR high	12.42**	13.16***
	(5.07)	(4.89)
TR low	-10.18***	10.48***
	(3.75)	(3.72)
TR high	27.75***	28.31***
	(3.63)	(3.45)
Female	-	-12.92***
		(2.78)
Age	-	-0.39
		(0.39)
Econ	-	-4.65*
		(2.51)
Constant	54.76***	72.57***
	(1.39)	(10.05)
Observations	3450	3450
N	230	230
Overall R^2	0.28	0.33

$** = p < 0.05; \; *** = p < 0.01$

Random – effects regressions estimated with the GLS method;

Standard errors clustered at the team level in parentheses

Treatment specific differences in motivational states can arise after subjects have participated in the effort game. Figure 4 shows average motive scores of achievement, affiliation and care motives after the effort game by treatment. Figure 4 focuses on these three motives because a Kruska-Wallis test finds that the distribution between treatments differs significantly only for achievement motive scores (p-value< 0.01), care motive scores (p-value< 0.01), and marginally significant for affiliation motive scores (p-value=0.09). The treatment with the highest effort decisions, *TR high*, is also the treatment with the highest ratings on achievement, affiliation and care motives. Figure 4 also presents results from nonparametric tests (Wilcoxon rank sum) for treatment differences in motive scores after the effort game. The most pronounced differences become apparent between *TR high* and *TR low*. We find that

reported achievement, care, and affiliation motive score under *TR high* are significantly higher than under *TR low*. Moreover, *TR high* leads to higher achievement motivation compared to *IR high* and *IR low* at marginally significant levels. Finally, we find that *IR low* leads to significantly higher ratings on the care motive than *TR low*. We conclude from this analysis that the degree of team synergy that is present when subjects are incentivized by team remuneration has a significant influence on the degree of achievement, affiliation and care motives of the subjects.
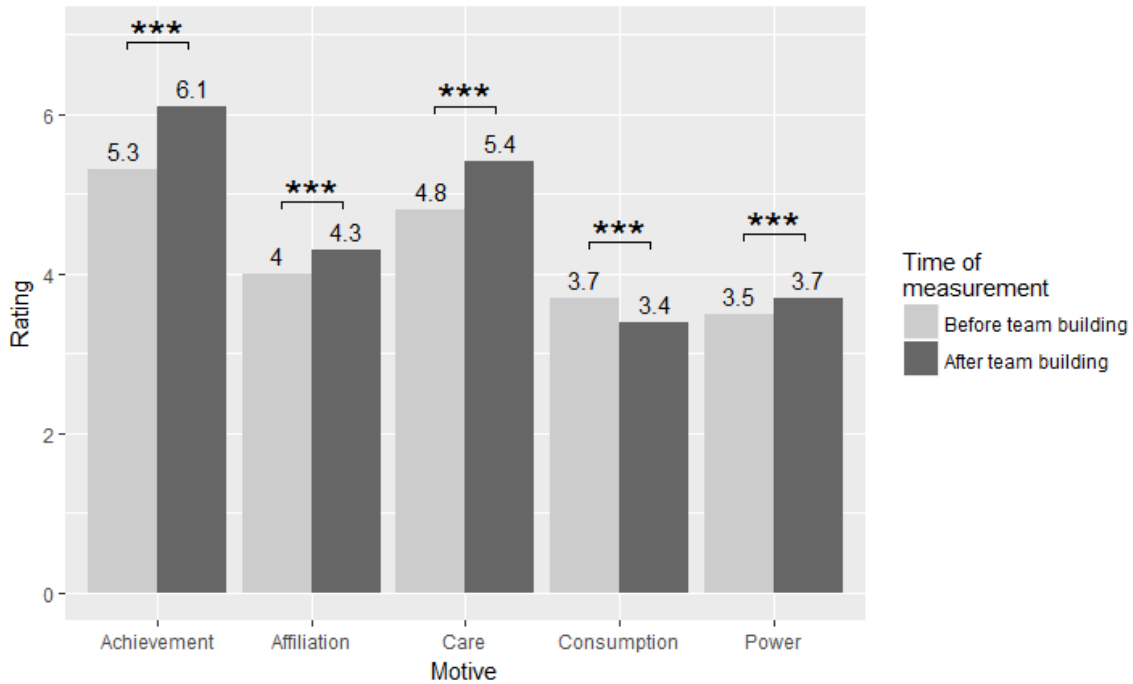

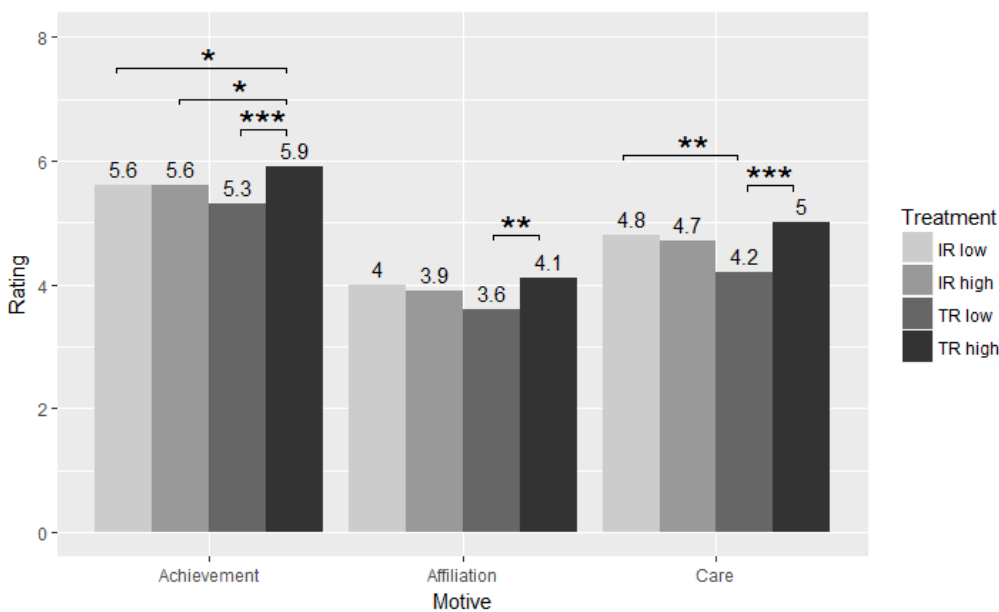Figure 3: Motive ratings before and after the team building exercise

Figure 4: Motive ratings after the effort game

5.2 The Role of Beliefs, Motives and Social Values for Effort Decisions

In this subsection, we examine different channels that influence effort decisions with a particular emphasis on our main result: Efforts under *TR high* are higher than efforts under *IR high*. The goal of this analysis is to assess the influence of beliefs, motives and a proxy for social preferences (SVO) on our main result and to present insights into how these measures influence effort decisions differently between treatments.

5.2.1 Beliefs

Table 3 provides an insight into how effort decisions depend on beliefs.[10] Apart from the belief variable, model 3 is identical to model 1 in Table 2. Beliefs are normalized by subtracting average beliefs over all treatments. We find that while incorporating beliefs diminishes the significance of the *IR high* and *TR low* treatment dummies slightly, significant treatment differences in effort provision persist. This might be driven by heterogeneous belief formation across treatments (see Table A1 in the appendix). How beliefs affect efforts heterogeneously across treatments is presented in models 4 and 5. The two regression models divide the sample into high and low team synergy subsamples. Model 4 regresses a team remuneration dummy, beliefs normalized for the average beliefs of the high team synergy treatments, and the interaction variable between the team remuneration dummy and beliefs on effort decisions over 15 rounds for the high team synergy subsample.

Model 5 uses the identical list of explanatory variables, but is estimated based on the low synergy treatments subsample with beliefs normalized for the average beliefs in the low team synergy treatments. Since effort decisions in these two samples were made under different strategic incentives, it is not straightforward to compare differences in the sizes of the coefficient estimates between these two models. What is noteworthy, however, is the sign change for the coefficient estimates for the interaction terms of "TR x Belief" in the two models. Under high team synergy, an increase in beliefs about the team member's effort decision increases effort under *TR* significantly less than under *IR*. We interpret this as suggestive evidence that effort decisions under *TR high* are not as strongly driven by changes in beliefs compared to *IR high*. A different picture emerges for the low team synergy subsample in model 6. The interaction variable of "TR x Belief" shows a positive sign in this model and is also highly significant. Therefore, under low team synergy, subjects under *TR* significantly increase effort more when beliefs increase. Hence, we find that the degree of team synergy influences whether beliefs under *TR* or *IR* correlate stronger with effort decisions. Overall, beliefs vary across workplace context but cannot fully account for why *TR high* leads to higher effort than *IR high*.

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[10] Table A1 in the appendix presents an analysis of the belief formation process similar to Fischbacher and Gächter (2010).

Table 3: The influence of beliefs on efforts

Dependent variable: Effort decision over 15 rounds

Model	3	4	5
IR high	2.06**	-	-
	(0.91)		
TR low	-1.28**	-	-
	(0.60)		
TR high	4.66***	-	-
	(1.03)		
TR	-	2.37**	-3.27***
		(1.16)	(0.96)
Belief	0.87***	0.97***	0.49***
	(0.02)	(0.02)	(0.12)
TR x Belief	-	-0.16***	0.40***
		(0.05)	(0.12)
Constant	60.96***	74.11***	52.07***
	(0.30)	(3.23)	(0.84)
High synergy sample		X	
Low synergy sample			X
Observations	3450	1770	1680
N	230	118	112
Overall R^2	0.86	0.86	0.77

$* = p < 0.1; ** = p < 0.05; *** = p < 0.01$

Random – effects regressions; estimated with the GLS method

Standard errors clustered at the team level in parentheses

5.2.2 Motives

Next, we investigate whether motives influence effort decisions in general and how it relates to our main result in particular. We focus this analysis on the influence that motive scores measured after the team building exercise have on effort in the first round of the effort game. We restrict the analysis to effort decisions in round 1 to avoid any reciprocity or preference learning effects and thus allow for a direct link between motives and effort decisions. We find that only achievement has a significantly negative influence on effort decisions in round 1 (see table A2 in the appendix). The two regression models in table 4 investigate the influence of achievement motive on effort decision in round 1 for the high and low team synergy subsample, respectively. Model 6 and 7 contain a *TR* treatment dummy, motive scores after the team building exercise for all five motives and interaction terms between the treatment dummy and the five motive scores. In order to facilitate readability all motives and their

corresponding interaction term except for achievement are omitted in the table.[11] In the high team synergy treatments, achievement motive correlates significantly positively under *TR high*, but significantly negatively under *IR high* with effort in round 1.[12] In model 7, the low team synergy subsample, we do not find any significant effect of achievement motive on effort decision in round 1 independent of the remuneration scheme.

The overall negative influence of achievement on effort provision in round 1 is mainly driven by *IR high.* In contrast to this, under *TR high*, an increase in achievement motive increases effort decisions in round 1. Thus, under high team synergies the influence in the form of a significant sign change of achievement motive on effort depends on the remuneration scheme. This finding is complemented by the previous motive analysis in Figure 3. The team building exercise significantly increases self-reported ratings of achievement motive. As previously discussed, subjects that experience the achievement motive pursue their set goal. We interpret our results as suggestive evidence that the team building exercise and *TR high* align subjects' achievement goal to perform well as a team and thus cooperate more because it increases the team's performance. On the other hand, increases in achievement motivation decreases cooperation under *IR high*. This is evidence for a different influence of achievement motivation between contexts that could result from different goals that subjects pursue across contexts.

5.2.3 SVO

Social Value Orientation (SVO) examines individual traits that influence behavior in social dilemmas (Messick and McClintock, 1968; Van Lange, 1999). After the effort game, we elicited subjects' SVOs with a newly matched stranger as either the receiver or proposer. The Kruskal-Wallis test on the mean SVO angles does not reject the null hypothesis that the distribution across treatments is identical.[13] Except for the SVO angle variable, model 8 in table 5 is identical to model 2 above.

We find strong evidence that an increase in trait prosociality leads to higher effort. At the same time, the coefficient estimates and estimated standard errors for the treatment dummies of *IR high*, *TR low* and *TR high* remain virtually unchanged between models 2 and 8. This indicates that prosociality alone

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[11] None of the motive scores or their interaction term correlate significantly with effort in round 1, except for the Affiliation motive which correlates positively with effort decision in round 1 under low team synergy treatments and the Selfish-Wanting motive which correlates negatively with effort decision in round 1 under the high team synergy treatments.

[12] This finding is robust to extending average effort in round 1 to round 1-5. Under this specification, the interaction effect remains weakly statistically significant and the achievement motive has a negative influence.

[13] Following Murphy et al. (2011) the SVO angle was calculated for each subject according to the following formula: $\tan^{-1}\left(\frac{mean\ amount\ allocated\ to\ self - 375}{mean\ amount\ allocated\ to\ other - 375}\right) * \frac{180}{3.142}$. With a mean SVO angle at around 27 across all treatments, the average subject is of the prosocial SVO type. Murphy et al. categorize SVO types according to their SVO angle according to the following: SVO angle < -12.04: competitive; -12.04 ≤ SVO angle ≤ 22.45: individualist; 22.45 < SVO angle ≤ 57.15: prosocial; 57.15 < SVO angle: altruist.

cannot explain cooperation across contexts and that other aspect of workplace context have an influence on effort provision. Model 9 and 10 in table 5 present a more nuanced analysis of prosociality on effort by dividing the sample in low and high team synergy treatments. Both models regress effort over all 15 rounds on a TR treatment dummy, SVO angle, and an interaction between TR treatment and SVO angle.

In the high team synergy sample, SVO angle is positively correlated with effort decisions. The positive effect of prosociality on effort is significantly less pronounced for *TR high* compared to *IR high*, as indicated by the interaction effect. In other words, whereas under *IR high* more prosocial subjects cooperate significantly more, under *TR high,* the high degree of cooperation is not driven significantly by more prosocial individuals. This suggests that a cooperative workplace context with team remuneration and high team synergy after a team building exercise increases cooperation even for individuals that are less prosocial. Under *IR high* however, subjects that have a high trait prosociality cooperate significantly more, which is in line with previous findings (Andersson et al., 2016). While the influence of trait prosociality on effort remains positive under *TR high*, it is not significant. This suggests that contextual elements can be aligned in such a way that cooperation under this context does not depend significantly on one's social trait. These findings stand in contrast to the results obtained under low team synergies shown in model 10. The effect of prosociality on effort is much weaker for both *TR* and *IR*. Moreover, we do not find any significant difference between *TR* and *IR* for the effect of prosociality on effort provision in this subsample. Our main result that effort under *TR high* is higher than under *IR high* is not driven by more prosocial individuals increasing their efforts more under team incentives. However, both, remuneration scheme and degree of team synergy are important for the extent to which prosociality influences effort which means that traits interact with contexts to influence behavior.

So far, the effects of beliefs, trait prosociality and achievement motive on effort decisions have been considered in isolation. Table 6 presents a regression that regresses these three variables as controls alongside the treatment dummies on effort. We find that all three variables as well asall treatment dummies remain significant to explain effort provision. This suggests that besides the three channels that we have considered in this paper, context – dependent preferences that adapt to the workplace condition are relevant drivers for the degree of cooperation we observe between treatments. Our results indicate that workplace context can facilitate more cooperation by increasing the salience of cooperative team goals and aligning individual contextual elements.

Table 4: The influence of motive scores on effort by degree of team synergy

Dependent variable: Effort decision in round 1 of the effort game		
Model	6	7
TR	-78.14	22.44
	(56.05)	(33.77)
Achievement	-9.18**	-3.13
	(3.59)	(2.42)
TR x Achievement	15.68**	-0.33
	(5.86)	(4.99)
Constant	110.5***	57.17**
	(31.66)	(23.57)
Additional motives	X	X
High synergy sample	X	
Low synergy sample		X
N	118	112
Overall R²	0.22	0.11

$** = p < 0.05; *** = p < 0.01$

OLS regression; Standard errors clustered at the team level in parentheses

Table 5: The influence of Social Value Orientation (SVO) on efforts

Dependent variable: Effort decision over 15 rounds

Model	8	9	10
IR high	12.71***	-	-
	(4.59)		
TR low	-9.98***	-	-
	(3.54)		
TR high	28.05***	-	-
	(3.61)		
TR	-	42.00***	-16.11***
		(11.49)	(5.44)
SVO Angle	0.48***	1.13***	0.20**
	(0.11)	(0.26)	(0.09)
TR x SVO Angle	-	-0.99***	0.22
		(0.35)	(0.21)
Constant	41.64***	37.01***	49.31***
	(3.10)	(8.90)	(1.42)
High synergy sample		X	
Low synergy sample			X
Observations	3450	1770	1680
N	230	118	112
Overall R^2	0.32	0.28	0.12

$** = p < 0.05; *** = p < 0.01$

Random – effects regressions; estimated with the GLS method;

Standard errors clustered at the team level in parentheses

Table 6: The influence of relevant channels and treatment dummies on effort decisions

Dependent variable: Effort decision over 15 rounds	
Model	11
IR high	2.30***
	(0.85)
TR low	-1.26**
	(0.56)
TR high	5.26***
	(1.13)
Belief	0.86***
	(0.02)
SVO Angle	0.10***
	(0.03)
Achievement	-0.88***
	(0.30)
Constant	63.28***
	(1.84)
Observations	3450
N	230
Overall R^2	0.86

$** = p < 0.05$; $*** = p < 0.01$

Random – effects regressions; estimated with the GLS method

Standard errors clustered at the team level in parentheses

6. Conclusion

Many aspects of workplace contexts have been neglected for the most part in economics. Economists have primarily been focused on rational behavior which do not allow for other-regarding motives or contextual factors other than monetary incentives. However, empirical evidence suggests that non-pecuniary incentives and other contextual elements significantly influence how workers behave within organizations. In particular, social relations fostered through a common team identity, achievements and communication as well as team synergies (i.e. a complementarity in production between workers) shape the context and influence workers' effort decisions. As a result, workplace context shapes beliefs, motivations as well as how prosocial traits affect decisions.

Our experiment is designed to test how a workplace context with different remuneration schemes and team synergies influence effort after a team building exercise that promotes a common team identity. We find that on average team remuneration, despite the free-rider problem, results in higher effort than individual remuneration when team synergy is high. We further find that effort in all treatments is significantly higher than Nash equilibrium predictions. We interpret this finding that our team building exercise increases team identity independent of the degree of team synergy or remuneration scheme.

Our results suggest that preferences at the workplace are context sensitive. Most importantly, a cooperative workplace context includes not only reward interdependencies but also social and task interdependencies. Our results further suggest that when workplace context elements are unambiguously aligned towards a cooperative end, subjects do not have to rely as much on belief-based inferences. Similarly for prosocial preferences, when contextual elements are cooperatively aligned, it is unambiguous that own behavior should be directed towards group ends irrespective of one's own trait-based behavioral tendencies towards strangers. One possible explanation is given by the influence of the achievement motive. More achievement motivated subjects cooperate more under cooperative contexts but less under individual contexts. Achievement motivated subjects may pursue different goals depending on context. For example, under team remuneration the team's performance is more salient whereas under individual remuneration the individual performance is more salient. This interpretation should be seen in the light of team identity. Team identity enables subjects to think more in terms of team goals than under individual remuneration in certain contexts. In this sense, the concept of "we thinking" (Akerlof, 2016) can be interpreted through the lens of motives. Once subjects focus on team goals it is straightforward to assume that the need to achieve an individual goal diminishes.

Effort is not just the sum of individual contextual elements but how these elements align to create specific workplace contexts. These interaction effects at the workplace determine how a specific situation is perceived by the worker and change objective goals and motivations. Hence, contextual elements should be carefully designed within organization, taking into account potential interactions. The workplace culture should be as clear as possible and point towards a common direction, leaving no room for ambiguities due to contextual misalignment.

Appendix

A.1 Overview of workplace relevant motives

Table A1: Overview of workplace relevant motives

Motive & Definition	Associated goal & behavioral tendencies	Words associated with motive (questionnaire words)	Importance for the workplace
Achievement Achieve something better or more efficient than previously	Compete with a standard of excellence, ambitious, persistent or dominant actions	Hard-working, productive, success-driven	Aspiration levels, pursuing subjective goals and targets
Affiliation Need to be liked or belong to a group	Form and maintain cooperative alliances, norm-adherence and norm compliance	Attached, affable, popular	Productive teams of friends and allies, conform to norms within teams
Care Wanting to be accepted and to accept and nourish others, behave altruistically	Helping, generosity, and cooperation	Helpful, supportive, unselfish	Caring for well-being of one's team.
Power-Status Desire to have an impact, to be strong, and to influence others, be better than others	Gain and maintain social status; control over environment, competitive, reputation concerns	Officious, firm, stifling	Increased reward sensitivity, and risk taking, performance dependent on others
Selfish-wanting/consumption Maximization of own self-interests and consumption, protect and focus on own well-being	Pursue subjectively-defined ends optimally, wanting and desire goods and services	Consumerist, materialistic[14]	Selfish behavior without considering others

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[14] Two of the three German consumption motive related words have the same English translation.

A.2 Additional Regression Results: Belief formation

Table A1: Belief formation regression

Dependent variable: Belief about team member's effort decisions	
Model	A1
IR high	1.18***
	(0.44)
TR low	-0.66*
	(0.40)
TR high	1.38***
	(0.45)
Round	-0.12**
	(0.05)
Effort team member (t-1)	0.53***
	(0.02)
Belief (t-1)	0.42***
	(0.03)
Constant	3.63***
	(0.66)
Observations	3220
N	230
Overall R^2	0.91

$* = p < 0.1; ** = p < 0.05; *** = p < 0.01$

Random – effects regressions on the individual subject over 14 rounds (round 2

Round 15) of the effort game; estimated with the GLS method

Standard errors clustered at the team level in parentheses

By means of a GLS random effects regression model we find that the guess about the team members' effort choice over the course of the effort game is significantly influenced by the treatments in the effort game. TR high and IR high increase held beliefs significantly at the below 1% significance level while TR low decreases beliefs marginally significantly at the below 10% level, all relative to the IR low treatment. These findings are robust to integrating a count variable for the round of the game, the effort decision of the team member in the previous round and the own belief in the previous round. We conclude from this that the context of the effort game determined by the treatments affects belief formation significantly, or: beliefs are context dependent.

Motive Scores on Effort

Model A2 in Table A2 regresses the five motives measured after the team building exercise and treatment dummies on effort decisions in round 1. Note that the treatment dummy coefficients differ in size and significance compared to model 1 and 2 in table 2. However, observation sample and estimation method differ between tables. Therefore, to conclude that motive scores after the team building exercise explain treatment differences on effort over all rounds is not possible. Achievement motive has a significant negative effect on effort. This holds true even when we leave out any motive besides achievement (model A3). We want to point out, however, that absence of further evidence of the influence of (other) motives on effort does not prove that it does not exist. Our motive elicitation method by means of motive specific word clusters may be an imprecise measure for motives. Moreover, we find highly significant correlations between our different motive measures[15]. Achievement motive measures after the team building and after the effort game are highly significantly positive correlated with every other motive category. The presentation of both models – A2 and A3 – can therefore be seen as a robustness check of the achievement influence despite this collinearity between motives.

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[15] Correlation coefficients between achievement motive and other motives after the team building exercise (significance of correlation coefficient in parentheses): $\rho_{achievement,\ affiliation} = 0.18$ ($p < 0.01$); $\rho_{achievement,\ care} = 0.24$ ($p < 0.01$); $\rho_{achievement,\ power} = 0.27$ ($p < 0.01$); $\rho_{achievement,\ wanting} = 0.17$ ($p < 0.05$).
Correlation coefficients between achievement motive and other motives after effort game (significance of correlation coefficient in parentheses): $\rho_{achievement,\ affiliation} = 0.33$ ($p < 0.01$); $\rho_{achievement,\ care} = 0.27$ ($p < 0.01$); $\rho_{achievement,\ power} = 0.33$ ($p < 0.01$); $\rho_{achievement,\ wanting} = 0.27$ ($p < 0.01$).

Table A2: The influence of motive scores on effort

Dependent variable: Effort decision in round 1 of effort game

Model	A2	A3
IR high	3.77	3.50
	(4.91)	(4.89)
TR low	-7.80*	-8.30*
	(4.68)	(4.38)
TR high	20.55***	20.10***
	(4.23)	(4.26)
Achievement	-3.76**	-3.81**
	(1.69)	(1.53)
Affiliation	1.40	-
	(2.15)	
Care	-1.26	-
	(2.55)	
Power	0.97	-
	(1.88)	
Selfish-Wanting	-1.17	-
	(1.25)	
Constant	78.11***	77.58***
	(14.53)	(12.70)
N	230	230
Overall R2	0.16	0.16

* = p < 0.1; ** = p < 0.05; *** = p < 0.01

OLS regressions on individual effort decisions in round 1of the effort game

Standard errors clustered at the team level in parentheses

A.3 Instructions

Welcome to today's study. During this study you will work on different tasks in different parts. Within these parts, you will make decisions which have financial consequences for you and other participants. Your decisions in the single parts result in points. These points are converted to Euros at the end of the study. You receive €1 for 250 points. In addition to your payoffs from the single parts, you receive a fixed amount for your participation in today's study (show-up fee) of 600 points. The show-up fee as well as these parts of the study, for which you earn a flat and fixed amount if you complete the part properly ensure, that in any case, you will receive a positive amount at the end of the study. You are informed about how exactly your decisions are remunerated with points in the instructions for the single parts. We will distribute the instructions for the single parts separately and read them out loud. Please read along while the instructions are being read out to you. Please do not talk to other participants. If you have a question, please raise your hand quietly. A scientific assistant will come to you and answer your question in private. The identities of the individual participants will not be revealed during today's study.

<u>Motives</u>

In this part you indicate, how much you feel yourself driven by different feelings and motivations just now or rather how strong you currently perceive them. These motivations will be displayed to you as a word on the screen and you have to indicate for every word on a 7-point scale how much you feel yourself driven by this feeling or motivation. You receive 180 points for your work on this part when you have carefully indicated your perception for every word on the scale at the end of the study. Please look at the screen now and start with this part as soon as it is displayed to you.

<u>Picture puzzle within Teams</u>

In this part you build a team with another participant in this room. The teams have been randomly assigned before the beginning of this part. Within your team you will jointly work on three picture puzzles. In doing so you have to find differences in two almost identical pictures for every picture puzzle within your team. During this task you can communicate with your team member via a chat window and exchange about found mistakes or organize your work.

Initially, one picture pair will be displayed to you on the screen per picture puzzle. At first, you have 3 minutes to count the differences between the two pictures. As soon as you see a picture pair, your time is running. Meanwhile you have the possibility to communicate with your team member by chat. After the three minutes, only the left picture of the picture pair will be displayed to you for additional 60 seconds. In this time, you can still communicate with your team member by chat and compare the amount of mistakes found. Subsequently, you and your team member each separately enter into a box on the screen how many differences you have found. For every mistake found, you get 25 points. However, you only get points for found differences in a picture pair if:

- You and your team member enter an identical amount into the box. Should you and your team member not enter an identical amount of differences, you and your team member receive nothing; irrespective of how many differences you have entered individually.
- You and your team member state a number which is smaller or equal the amount of differences that the respective picture puzzle actually contains. Thus, you receive no points if a number is stated that is higher than the actual amount of differences.

An overview about your decisions and those of your team member, as well as the resulting payoffs from the picture puzzle part takes place at the end of the study.

<u>Example:</u>

- You state that you have found 5 differences in the first picture pair. Your team member states that she found 6 differences. Both of you do not receive any points for this first picture pair.
- You state that you have found x differences in the second picture pair. Here, your team member also states that she found x differences. In fact, the second picture puzzle only has x-1 differences. Both of you receive no points for this second picture pair.
- You state that you have found 10 differences in the third picture pair. You team member also states that she has found 10 differences. In fact, there are 10 or more differences between the two pictures in the third picture puzzle. You and your team member respectively receive 250 points for the third picture puzzle.
- In this example you would receive 250 points for the entire picture puzzle part at the end of the study. These result from the sum of the scored points from the three picture puzzles. Puzzle 1 = 0 points; puzzle 2 = 0 points; puzzle 3 = 250 points; puzzle 1 + 2 + 3 = 250 points.

<u>Instruction for the Chat Feature:</u>

The chat is situated in the left part of the screen. In the bottom-left, blue-highlighted window you can write your message to your team member and send it by pushing "Enter". The written messages of both team members appear in the window above. Messages from you are marked with the adding "You". Messages from your team member are marked with the adding "Your team member". The chat is thought of as a tool, which shall support you in your joint work on the picture puzzles. For instance, you can write down and send notes about found differences here. The history of all sent messages is visible in the chat window at all times.

<div align="center">Decision Situation</div>

In this part of the study, you collaborate with the identical team member, you have already collaborated with in the picture puzzle part. You work together with this identical team member in this part over 15 rounds. Per round, you will make one **decision** and will state one **belief** about the behavior of your team member. How many points you get in this part depends on your decisions and beliefs as well as the decisions of your team member.

The **decision** you make each round:

In each of the 15 rounds, you and your team member respectively choose an integer between 0 and 105. The chosen integer is **your decision** in this round. Enter this decision into the box on the screen. Your payoff will depend on the number you chose and the one which your team member chose.

<u>(IR low; IR high with larger synergy parameter of 9 analogously)</u>

<u>Production:</u>

The decisions that you and your team member make, determine your respective **production**. This is composed as follows:

Your production = $10 \times$ (**Your decision**) + $1 \times$ (decision of team member)

Production of your team member = $10 \times$ (decision of team member) + $1 \times$ (**your decision**)

However, also costs are connected to the number that you selected as **your decision**.

Costs:

Your costs and the costs of your team member for possible decisions are:

Your costs $= 0.1 \times$ (**Your decision**)^2

Costs of your team member $= 0.1 \times$ (decision of team member)^2

You alone bear the costs of **your decision**. Note, that costs are increasing quadratically if you decide for higher numbers. This means that if you choose a smaller number, you only bear little cost. However, if you decide for a large number, costs grow disproportionately and you bear very high costs.

Example: (Full particulars in cost table)

If you decide to select **10** as **your decision**, you bear costs to the amount of **10**.

However, if you decide to select **100** as **your decision**, you bear costs to the amount of **1000**. Hence, it is possible to make losses resulting from high costs, and accordingly receive a suboptimal amount of points because of a decision that was too high.

Points:

The points from your decision result from the difference between your production and your costs. Your points are:

Your points = Your production – your costs

This can be depicted as follows:

Your points $= 10 \times$ (**Your decision**) $+ 1 \times$ (decision of team member) $- 0.1 \times$ (**Your decision**)^2

(TR low; TR high with larger synergy parameter of 9 analogously)

Production:

The decisions that you and your team member make, determine your **production**. This is composed as follows:

Your production $= 10 \times$ (**Your decision**) $+ 1 \times$ (decision of team member)

Production of your team member $= 10 \times$ (decision of team member) $+ 1 \times$ (**your decision**)

Your joint **team production** is the sum of your production and the production of your team member. This can be expressed in a simplified way:

Team production $= 11 \times$ (**your decision** + decision of team member)

However, also costs are connected to the number that you selected as **your decision**.

Costs:

Your costs and the costs of your team member for possible decisions are:

Your costs $= 0.1 \times$ (**Your decision**)^2

Costs of your team member = 0.1 × (decision of team member)^2

You alone bear the costs of **your decision**. Note, that costs are increasing quadratically if you decide for higher numbers. This means that if you choose a smaller number, you only bear little cost. However, if you decide for a large number, costs grow disproportionately and you bear very high costs.

Example: (Full particulars in cost table)

If you decide to select **10** as **your decision**, you bear costs to the amount of **10**.

However, if you decide to select **100** as **your decision**, you bear costs to the amount of **1000**. Hence, it is possible to make losses resulting from high costs, and accordingly receive a suboptimal amount of points because of a decision that was too high.

Points:

The points from your decision result from the difference between your share of the joint team production and your own costs. Your points are:

Your points = $^1/_2$ × (**team production**) – your costs

This can be depicted as follows:

Your points = 5.5 × (**Your decision** + decision of team member) – 0.1 × (**Your decision**)^2

The **belief** you state per round:

Directly after you made your decision in every round, you state a belief about the decision that your team member made in this round. For that purpose, you enter your belief as an integer between 0 and 105 in the box on the screen. If the belief about the previous decision of your team member does not deviate more than 10 units from her actual decision, you receive in this part an additional bonus of 150 points. Otherwise, you receive no bonus for your belief.

One round and therefore one decision as well as the decision of your team member in this round will be randomly chosen at the end of the study to determine your points from this part. In addition, **a different round** is randomly selected for the possible bonus payment from the belief statement about the decision of the team member.

Comprehension Check

Before you begin to make decisions in the decision situation described above, we would like to probe your comprehension of it. For this purpose, please answer the two practice questions on the screen. The instructions to this will be displayed to you on the screen. After your answered the comprehension questions, you will make your decisions within the decision situation described above.

Distribution Task

In this part of the study you work on six distribution decisions. For this purpose, you build a group of two with another participant in this room. The group assignment was carried out randomly before the

beginning of this part of the study. The identities will stay anonymous for the two of you respectively. The random group assignment in this part ensures, that **in no case** you will be matched with a participant into the group of two who was your team member in previous parts of the study.

In the six short tasks you will make decisions how you distribute certain amounts of points between yourself and the other person. To this end you choose for every task the one of nine given distributions that you prefer. One of these six tasks will be randomly selected to determine your as well as the payoff of the other person in the group from this part. In this randomly selected task it will also be randomly determined, if your preferred distribution or the preferred distribution of the other participant in the group is selected to specify your payoffs from this part.

Beispiel:

Select the distribution you prefer the most:									
You get	750	703	656	609	562	515	468	422	375
	○	○	○	○	○	○	○	○	○
Someone gets	375	422	468	515	562	609	656	703	750

Please look at the screen now. As soon as the program was started, please indicate your decisions which payoff alternative you prefer for each task.

Cost Table

Your decision	Costs of this decision	Your decision	Costs of this decision
0	0,0	53	280,9
1	0,1	54	291,6
2	0,4	55	302,5
3	0,9	56	313,6
4	1,6	57	324,9
5	2,5	58	336,4
6	3,6	59	348,1
7	4,9	60	360
8	6,4	61	372,1
9	8,1	62	384,4
10	10	63	396,9
11	12,1	64	409,6
12	14,4	65	422,5
13	16,9	66	435,6
14	19,6	67	448,9
15	22,5	68	462,4
16	25,6	69	476,1
17	28,9	70	490
18	32,4	71	504,1
19	36,1	72	518,4
20	40	73	532,9
21	44,1	74	547,6
22	48,4	75	562,5
23	52,9	76	577,6
24	57,6	77	592,9
25	62,5	78	608,4
26	67,6	79	624,1
27	72,9	80	640
28	78,4	81	656,1
29	84,1	82	672,4
30	90	83	688,9
31	96,1	84	705,6
32	102,4	85	722,5
33	108,9	86	739,6
34	115,6	87	756,9
35	122,5	88	774,4
36	129,6	89	792,1
37	136,9	90	810
38	144,4	91	828,1
39	152,1	92	846,4
40	160	93	864,9
41	168,1	94	883,6
42	176,4	95	902,5
43	184,9	96	921,6
44	193,6	97	940,9
45	202,5	98	960,4
46	211,6	99	980,1
47	220,9	100	1000
48	230,4	101	1020,1
49	240,1	102	1040,4
50	250	103	1060,9
51	260,1	104	1081,6
52	270,4	105	1102,5

A.4 Screenshots of Experimental Procedure

Motive elicitation screens
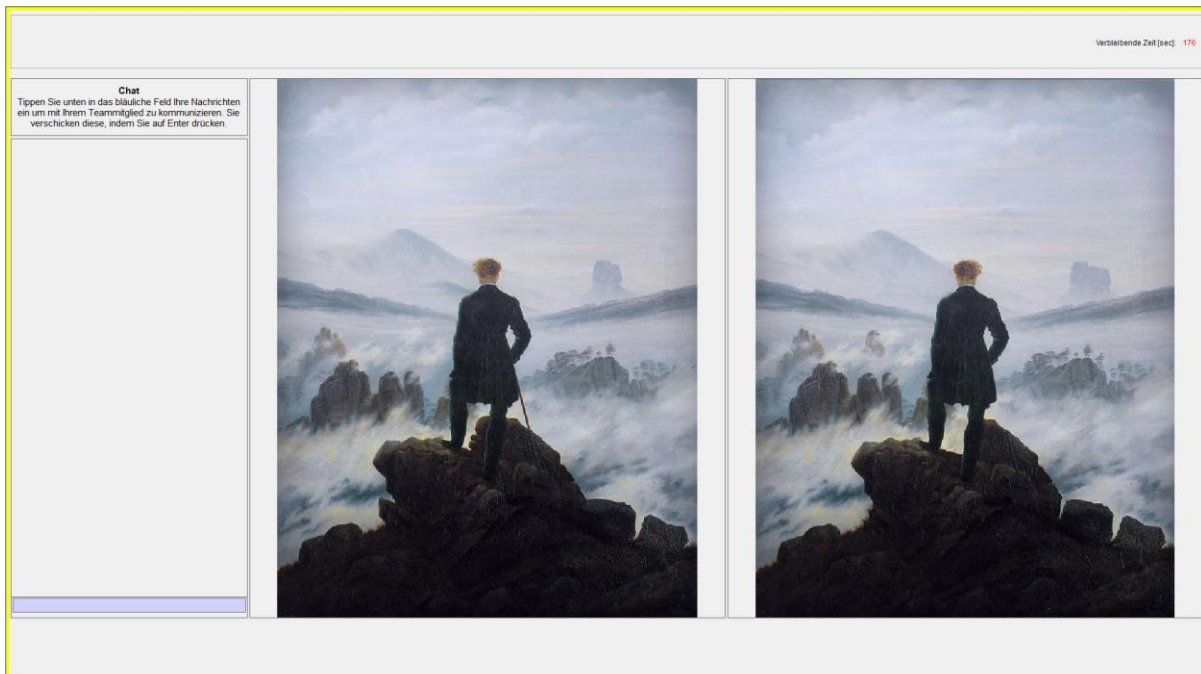
Team building screen 1 (one of three picture pairs)

Chat
Tippen Sie unten in das bläuliche Feld Ihre Nachrichten ein um mit Ihrem Teammitglied zu kommunizieren. Sie verschicken diese, indem Sie auf Enter drücken.

Team building screen 2 (one of three picture pairs)

Wie viele Unterschiede haben Sie zwischen den beiden Bildern gefunden?

Bitte beachten Sie, dass Sie Entscheidungen innerhalb eines Teams treffen. Sie bekommen nur dann eine Auszahlung für diese Aufgabe, wenn Sie und Ihr Teammitglied dieselbe Zahl eingeben. Bitte geben Sie nun Ihre Entscheidung darüber ein, wie viele Unterschiede Sie gefunden haben.

Wie viele Unterschiede haben Sie gefunden?

Weiter

Team building screen 3 (one of three picture pairs)
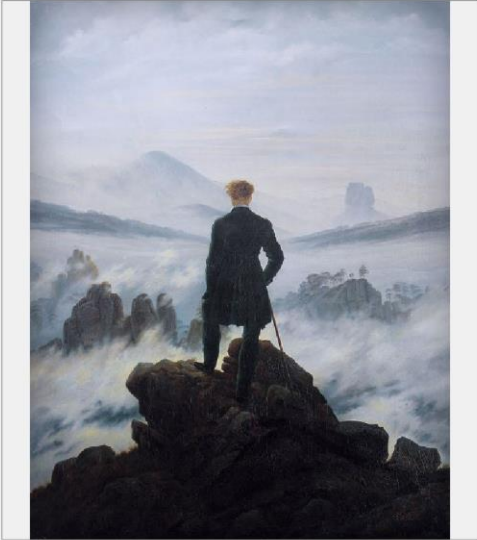
Bitte geben Sie auf einer Skala von 1 (der Punkt ganz links) bis 7 (der Punkt ganz rechts) an, wie gerne Sie an dieser gemeinsamen Teamaufgabe gearbeitet haben.
1 bedeutet "gar nicht" und 7 "sehr gerne"

Gar nicht ○ ○ ○ ○ ○ ○ ○ Sehr gerne

Bitte geben Sie auf einer Skala von 1 (der Punkt ganz links) bis 7 (der Punkt ganz rechts) an, wie erfolgreich Sie die Zusammenarbeit in der Bilderaufgabe einschätzen.
1 bedeutet "gar nicht" und 7 "sehr erfolgreich"

Gar nicht ○ ○ ○ ○ ○ ○ ○ Sehr erfolgreich

Weiter

Question after team building: Was team building fun / successful?

Verständnisfragen

Mit den folgenden beiden Verständnisfragen haben Sie Gelegenheit, die Entscheidungssituation besser zu verstehen. Dazu müssen Sie selbst 2 Beispiele der Entscheidungssituation durchgehen. Wie Sie die Beispiele lösen können, ist in den Instruktionen, welche Sie erhalten haben, erklärt. Ihr Teammitglied wird nicht über Ihre Beispiele und Ihre Angaben informiert. Die Beispiele sind hypothetisch und zählen nicht zu den 15 auszahlungsrelevanten Runden der Entscheidungssituation. Pro Beispiel müssen Sie sich für eine eigene hypothetische sowie eine hypothetische Entscheidung Ihres Teammitglieds entscheiden. Basierend darauf müssen Sie die Produktion bestimmen, die Kosten, welche mit Ihrer Entscheidung verknüpft sind eintragen und dann Ihre Auszahlung in Punkten bestimmen. Nachdem Sie pro Beispiel Ihre Eingaben gemacht haben, erscheint ein Bildschirm, der Ihnen die korrekte Lösung zeigt. Pro bearbeiteter Beispielaufgabe erhalten Sie 100 Punkte. Falls Sie zu den Verständnisfragen eine Frage haben, können Sie sich jederzeit leise melden. Ein wissenschaftlicher Mitarbeiter wird dann zu Ihnen kommen und Ihre Frage im Stillen beantworten.

Weiter

Comprehension and exercises 1

Bitte beachten Sie, dass es sich hierbei um Beispielaufgaben handelt, welche Ihr Verständnis der Entscheidungssituation im Anschluss vertiefen sollen. Die Werte die Sie wählen, sind unverbindlich für Ihre späteren Entscheidungen und die Ihres Teammitglieds und werden Ihrem Teammitglied **nicht** mitgeteilt. Bitte beachten Sie, dass in der späteren Aufgabe Ihr Teammitglied alle Entscheidungen selbstständig trifft. Bitte nutzen Sie den . als Dezimalstelle.

Wählen Sie eine eine ganze Zahl zwischen 0 und 105 als Beispiel für **Ihre Entscheidung:**

Wählen Sie eine eine ganze Zahl zwischen 0 und 105 als Beispiel für die Entscheidung Ihres Teammitglieds:

Bestimmen Sie mit diesen Beispielentscheidungen und den Instruktionen nun die folgenden Antworten. Dazu können Sie den Taschenrechner benutzen, wenn Sie auf den Taschenrechnerknopf in der Ecke rechts unten klicken.

Bestimmen Sie die Produktion, die sich aus den Beispielentscheidungen oben ergibt:

Bestimmen Sie die Beispielkosten für Ihre gewählte Beispielentscheidung anhand der beigefügten Kostentabelle:

Bestimmen Sie Ihre Punkte für die von Ihnen gewählten Entscheidungen:

OK

Comprehension with exercises 2

Bitte beachten Sie, dass es sich hierbei um Beispielaufgaben handelt, welche Ihr Verständnis der Entscheidungssituation im Anschluss vertiefen sollen. Die Werte die Sie wählen, sind unverbindlich für Ihre späteren Entscheidungen und die Ihres Teammitglieds und werden Ihrem Teammitglied **nicht** mitgeteilt. Bitte beachten Sie, dass in der späteren Aufgabe Ihr Teammitglied alle Entscheidungen selbstständig trifft. Bitte nutzen Sie den . als Dezimalstelle.

Rechner

≡ Wissenschaftlich

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Wählen Sie eine eine ganze Zahl zwischen 0 und 105 als Beispiel für **Ihre Entscheidung:**

Sie eine eine ganze Zahl zwischen 0 und 105 als Beispiel für die Entscheidung Ihres Teammitglieds:

en nun die folgenden Antworten. Dazu können Sie den Taschenrechner benutzen, wenn Sie auf den Taschenrechnerknopf in der Ecke rechts unten klicken.

Bestimmen Sie die Produktion, die sich aus den Beispielentscheidungen oben ergibt:

ie die Beispielkosten für Ihre gewählte Beispielentscheidung anhand der beigefügten Kostentabelle:

Bestimmen Sie Ihre Punkte für die von Ihnen gewählten Entscheidungen:

Zur Suche Text hier eingeben

DEU 14:31 22.11.2017

Comprehension and exercises 2 (with calculator)

In diesem Beispiel haben Sie sich für folgende Zahl als **Ihre Entscheidung** entschieden: 6

In diesem Beispiel haben Sie sich für folgende Zahl als die Entscheidung Ihres Teammitglieds entschieden: 6

Als Ihre Produktion haben Sie angegeben: 6

Die richtige Antwort ist: 114
Die Produktion berechnet sich wie folgt:
10 × (**Ihre Entscheidung**) + 9 × (Entscheidung des Teammitglieds)

Als Kosten für **Ihre Entscheidung** haben Sie angegeben: 6.0

Die richtige Antwort ist: 3.6
Die Kosten berechnen sich wie folgt:
0.1 × (**Ihre Entscheidung**) × (**Ihre Entscheidung**)

Sie haben angegeben, dass Sie so viele Punkte aus den Beispielentscheidungen erhalten: 6.0

Die richtige Antwort lautet: 110.4
Die Punkte berechnen sich aus:
Ihre Produktion - Ihre Kosten

OK

Comprehension and exercises 3: Feedback

Wie lautet Ihre Entscheidung ?

Bitte beachten Sie, dass Sie in allen Runden dieser Entscheidungssituation Entscheidungen innerhalb eines Teams treffen. Ihr Teammitglied ist dabei die Person, mit der Sie bereits bei der Bilderaufgabe zusammengearbeitet haben.
Bitte entscheiden Sie sich nun, welche Zahl Sie als **Ihre Entscheidung** einsetzen wollen. Bedenken Sie, dass Sie eine Zahl zwischen 0 und 105 einsetzen können.

Welche Zahl setzen Sie als **Ihre Entscheidung** ein?

Weiter

Effort game 1: Effort decision

Einschätzung über die Entscheidung Ihres anderen Teammitglieds:

Bitte geben Sie Ihre Einschätzung darüber an, welche Zahl Ihr Teammitglied gerade als Entscheidung eingesetzt hat.

Welche Zahl hat Ihr Teammitglied als Entscheidung eingesetzt?

Weiter

Effort game 2: Belief elicitation

Dieser Bildschirm informiert Sie über die Ergebnisse aus den Entscheidungen, die Sie und ihr Teammitglied in dieser Runde getroffen haben.

Sie und Ihr Teammitglied haben folgende Entscheidungen in dieser Runde getroffen, aus denen diese Ergebnisse resultieren:

Diese Zahl haben Sie als Entscheidung eingesetzt:	4.0
Diese Zahl hat Ihr Teammitglied als Entscheidung eingesetzt:	2.0
Sie haben geschätzt, dass dies die Entscheidung Ihres Teammitglieds ist:	4
So viele Punkte resultieren aus den Entscheidungen Ihres Teams für Sie:	56.40
So viele Punkte erhalten Sie zusätzlich aus Ihrer Einschätzung:	150
So viele Punkte resultieren aus den Entscheidungen Ihres Teams für Ihr Teammitglied:	55.60

Weiter

Effort game 3: Information about previous round

1 von 6

Sie erhalten	638	652	666	680	694	708	722	736	750
	○	○	○	○	○	○	○	○	○
Jemand erhält	113	146	179	211	244	277	310	342	375

Sie erhalten   **0**

Jemand erhält   **0**

OK

SVO screen 1

Für jede der folgenden Fragen, geben Sie bitte jeweils diejenige Verteilung an, welche Sie am meisten bevorzugen.

4 von 6

Sie erhalten	750	736	722	708	694	680	666	652	638
	○	○	○	○	○	○	○	○	○
Jemand erhält	375	408	441	474	507	539	572	605	638

Sie erhalten   **750**

Jemand erhält   **375**

OK

SVO screen 2

SVO screen 3

Dieser Bildschirm informiert Sie über die Ergebnisse aus den Entscheidungen, die Sie und ihr Teammitglied in der Bilderpaaraufgabe getroffen haben.

Bilderrätsel 1:

So viele Fehler haben Sie im ersten Bilderpaar angegeben: 4

So viele Fehler hat ihr Teammitglied im ersten Bilderpaar angegeben: 3

So viele Fehler beinhaltete das Bilderrätsel tatsächlich: -1

So viele Punkte resultieren aus den Entscheidungen Ihres Teams im ersten Bilderpaar für Sie: 0.00

Bilderrätsel 2:

So viele Fehler haben Sie im zweiten Bilderpaar angegeben: 2

So viele Fehler hat ihr Teammitglied im zweiten Bilderpaar angegeben: 2

So viele Fehler beinhaltete das Bilderrätsel tatsächlich: -1

So viele Punkte resultieren aus den Entscheidungen Ihres Teams im zweiten Bilderpaar für Sie: 50.00

Bilderrätsel 3:

So viele Fehler haben Sie im dritten Bilderpaar angegeben: 1

So viele Fehler hat ihr Teammitglied im dritten Bilderpaar angegeben: 1

So viele Fehler beinhaltete das Bilderrätsel tatsächlich: -1

So viele Punkte resultieren aus den Entscheidungen Ihres Teams im dritten Bilderpaar für Sie: 25.00

Weiter

Final payoff screen 1

Ihre Auszahlung aus der heutigen Studie

Auszahlung aus der Entscheidungssituation

Der Zufallsmechanismus hat folgende Runde zur Auszahlung ausgewählt:	15
Ihre Punkte in der ausgewählten Runde:	36.90
Ihre Auszahlung aus der ausgewählten Runde in Euro:	0.15
Die Punkte Ihres Teammitglieds in der ausgewählten Runde:	38.10
Die Auszahlung Ihres Teammitglieds aus der ausgewählten Runde in Euro:	0.15
Für Ihre Teilnahme an dieser Aufgabe erhalten Sie zusätzlich diesen pauschalen Betrag in Euro:	0.50

Auszahlung aus der Entscheidungssituation: Einschätzungen

Der Zufallsmechanismus hat folgende Runde zur Auszahlung der Einschätzungen ausgewählt:	8
Die Entscheidung Ihres Teammitglieds in der ausgewählten Aufgabe:	3
Ihre Schätzung in der ausgewählten Runde:	2.00
Ihre Punkte aus der Einschätzung:	150.00
Ihre Auszahlung aus der Einschätzung in Euro:	0.60

Auszahlung aus der Team-Bilderrätselaufgabe

Ihre Auszahlung aus dem ersten Bilderpaar:	0.00
Ihre Auszahlung aus dem zweiten Bilderpaar:	0.20
Ihre Auszahlung aus dem dritten Bilderpaar:	0.10
Ihre Gesamtauszahlung aus der Bilderrätselaufgabe:	0.30

Auszahlung aus der Aufteilungsaufgabe

Ihre Punkte aus der ausgewählten Runde:	638.00
Ihre Auszahlung aus der Aufteilungsaufgabe in Euro:	2.55

Auszahlung aus den Angaben zu Motiven und Gefühlen

Punkte für die Angaben über die Intensitäten der Motive:	450.00
Ihre Auszahlung aus den Angaben über Motive in Euro:	1.80

Auszahlung aus den Verständnisfragen

Punkte für die Arbeit an den Verständnisfragen:	200.00
Ihre Auszahlung aus der Arbeit an den Verständnisfragen in Euro:	0.80

Ihre Gesamtauszahlung aus der heutigen Studie (gerundet auf die erste Dezimalstelle): | **6.80**

Weiter

Final payoff screen 2

Die Studie ist nun beendet. Vielen Dank für Ihre Teilnahme!

Ihre Gesamtauszahlung aus der heutigen Studie beträgt **6.80 Euro.**

Final screen

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