

**EMPLOYEE VOLUNTEERING AND MANAGEMENT CONTROL
IN COOPERATIVE SETTINGS**

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EMPLOYEE VOLUNTEERING AND MANAGEMENT CONTROL IN COOPERATIVE SETTINGS

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS	iii
LIST OF TABLES	v
LIST OF FIGURES	vi
SUMMARY	vii
CHAPTER 1. Introduction	1
CHAPTER 2. Background and Literature Review	6
2.1 Cooperation Issues in Team Settings	6
2.2 Management Control Mechanisms	7
2.2.1 Formal Control Mechanisms and Economic Motives	8
2.2.2 Social Motives	9
2.3 Employee Volunteering Programs	13
2.3.1 Benefits of CSR	14
2.3.2 Employee Volunteering Programs	15
CHAPTER 3. Hypotheses Development	20
3.1 The Signaling Value of Volunteering	20
3.2 Strategic Considerations	24
CHAPTER 4. Methodology	27
4.1 Experimental Design	27
4.2 Experimental Procedure	30
CHAPTER 5. Results	33
5.1 Descriptive Statistics	33
5.2 Hypotheses Tests	34
5.3 Supplemental Analyses	37
CHAPTER 6. Conclusion	41
APPENDIX A. Experimental Instrument --- Stage One	44
APPENDIX B. Experimental Instrument --- Stage Two	45
REFERENCES	47

LIST OF TABLES

Table 1	Descriptive Statistics for <i>Cooperation</i>	33
Table 2	Results of Hypotheses Tests	36
Table 3	Process Measures	38

LIST OF FIGURES

Figure 1	Payoff Table for the Stage-Two Task	28
Figure 2	Timelines of the <i>Strategic</i> and <i>Non-Strategic</i> Conditions	32

SUMMARY

This study experimentally investigates whether employee volunteering programs can serve as an informal control mechanism that improves cooperation in team settings. I posit that employees who participated in volunteering programs are more likely to be conditional cooperators, who are willing to cooperate if others also cooperate, and use others' volunteering behavior as a signal of their type. I also posit that the effectiveness of this signal in facilitating cooperation depends on the perceived credibility of the signal. In the experiment, participants make a volunteering choice and then are paired to play a contextualized prisoners' dilemma game. As predicted, I find that, when volunteering appears non-strategic, the cooperation rate is higher when the paired participants both volunteered than otherwise. However, when volunteering could be strategic, the cooperation rate does not differ significantly, regardless of whether one or both of the paired participants volunteered. Implications of these findings for research and practice are discussed.

CHAPTER 1. INTRODUCTION

In recent years, corporate social responsibility (CSR) has drawn considerable attention from both practitioners and scholars. Over 90 percent of Fortune 500 firms have explicit CSR initiatives (Kotler and Lee 2004). Given the large amounts of resources invested in CSR, it is important to understand whether and how such investments create value for the firm, in addition to their societal benefits. Prior research has provided evidence that CSR engagement benefits firms in different ways, such as increasing employees' morale and lowering the cost of capital (e.g., Balakrishnan et al. 2011; Dhaliwal et al. 2011). This study investigates the spillover effect of a specific type of CSR initiative, employee volunteering programs, in cooperative settings.

Employee volunteering programs are a popular form of CSR initiatives. Surveys find that over 90 percent of Fortune 500 companies offer employee volunteering programs (Boccalandro 2009), and the number of firms that adopt such programs has increased steadily over time (Deloitte 2010). A typical volunteering program gives employees paid time off to volunteer and/or matches employees' volunteer hours with monetary or product donations. For example, the Timberland Company gives employees up to 40 paid hours off per year to volunteer and Google matches every 5 hours of volunteering with \$50 corporate donation. A major difference between volunteering programs and other forms of CSR initiatives is that it provides employees with opportunities to actively engage with the community. Employees who are willing to help people in the community are likely to be cooperative toward peers (Fehrler and Przepiorka 2013). Therefore, from the firm's

perspective, employees' volunteering behavior can be an informative signal about their type, and thus has implications for management control in team environments.

Team work has become increasingly common in organizational practice (Cohen and Bailey 1997). Teams can benefit organizations by enhancing information sharing, improving decision quality and increasing employee satisfaction (Wheelan 2014; Pizzini 2010). However, the popularity of teams has created a control challenge for firm management, as employees working in teams often face the dilemma of whether to cooperate with others or free ride (Prendergast 1999). Prior research in management accounting has investigated the effects of different formal and informal control mechanisms on employees' willingness to cooperate. While formal controls such as incentive contracts based on mutual monitoring are costly and often infeasible in practice, informal controls that rely on employees' social motives have been shown to be effective in improving cooperation (Knez and Simester 2001; Hamilton et al. 2003; Kelly and Tan 2010). I posit that employee volunteering programs can serve as an informal control mechanism by enabling employees to identify others' type and, thereby, improve cooperation.

Specifically, employees who participated in volunteering programs are likely to be conditional cooperators, who will cooperate if they expect that others will also cooperate (Dawes et al. 1977; Messick et al. 1983; Fischbacher et al. 2001). That is, while employee volunteers are more altruistic than non-volunteers, their final cooperation decision may depend on their expectations of whether others will cooperate. To form expectations about others, employees may focus on others' volunteering behavior. Prior studies find that volunteering behavior is reflective of individuals' propensity to act pro-socially. For

example, in the employee selection process, employers often believe that volunteers are more likely to become good organizational citizens (Organ 1988; Organ and Ryan 1995). Individuals who make charitable donations are perceived to be (and actually are) more trustworthy than those who do not make donations (Fehrler and Przepiorka 2013). I predict that employees who participated in volunteering programs are more willing to cooperate with others, but only when others also participated in volunteering programs, because employees use others' volunteering as a signal of their type and react accordingly. I also predict that the extent to which employees rely on this signal in deciding whether to cooperate depends on the perceived credibility of the signal. Specifically, if it is possible that others may strategically send a favorable signal by volunteering, the credibility of the signal would be questionable. As a result, employees may be reluctant to trust the signal in making their cooperation decision.

I conduct a two-stage experiment to test my predictions. In stage one, participants read a hypothetical case. They act as an employee of a company and choose between two options: to participate in a company-sponsored employee volunteering program that benefits people in the community, or to participate in an employee training session that potentially benefits themselves. In stage two, participants are randomly paired to play an incentivized one-shot prisoners' dilemma game, where they decide whether to allocate high or low resources to a joint project. Participants' resource allocation decision in stage two is the main dependent variable of interest. I use a 2 x 2 x 2 mixed experimental design, with two manipulated factors and a measured factor. I manipulate between-participants whether participants are aware of the stage-two task (i.e., resource allocation) before they make the stage-one decision (i.e., volunteering). If participants do not know about the

stage-two task when deciding whether to volunteer, the volunteering decision is likely to reveal their type (I refer to this condition as a *non-strategic* setting). By comparison, if participants know about the stage-two task when deciding whether to volunteer, the volunteering decision could be driven by a strategic motive (I refer to this condition as a *strategic* setting). I measure participants' actual volunteering decision in stage one. I also manipulate within-participant whether the other whom the participant is paired with volunteered in stage one, by asking participants to indicate, respectively, whether they would allocate high or low resources if the other volunteered *and* if the other did not volunteer.

Consistent with my predictions, I find that in non-strategic settings, cooperation rate is higher when the paired participants both participated in the volunteering program than otherwise. In strategic settings, however, cooperation rate does not differ significantly, regardless of whether one or both of the paired participants volunteered. Supplemental analysis suggests that participants are more likely to perceive others' volunteering as an attempt to influence them in strategic settings than in non-strategic settings. Participants also are less likely to believe that others' volunteering reveals their type in strategic settings than in non-strategic settings, and such beliefs influence participants' cooperation decisions. These findings are consistent with my theory that the credibility of the signal of type is affected when volunteering could be used by others in a self-serving manner.

This study has several implications for management accounting theory and practice. First, this study contributes to the management control literature by showing that employee volunteering programs can be used as an informal control mechanism to facilitate cooperation. The literature on cultural controls (e.g., Ouchi 1979; Van den Steen

2010a) suggests that firms can rely on organizational values to influence employees' behavior. Consistent with this literature, the results of this study suggest that firms that value and promote employee volunteering can benefit from the spillover effects of volunteering programs on team controls. However, these benefits may only be realized when employees perceive others' volunteering decisions as motivated by genuine pro-sociality. In practice, it is often recommended that firms should regularly recognize employees for their volunteering behavior (Points of Light 2013). The findings of this study provide an important caveat for such practice: to the extent that public recognition makes employees volunteering highly visible, it might cast doubt on the perceived motives behind volunteering and, in turn, undermine the positive effect of volunteering on cooperation.

This study also provides new insights for the CSR literature. Empirical evidence on whether and how CSR activities affect firm value is still far from conclusive (Margolis et al. 2009). Although the positive correlation between CSR activities and firm value has been documented, it remains an open question whether CSR activities lead to strong financial performance or the reverse. This study contributes to the CSR literature by showing that investment in a specific type of CSR activities, company-sponsored employee volunteering programs, can create economic benefits by improving cooperative performance.

The remainder of my dissertation is organized as follows. Chapter 2 reviews relevant literature. Chapter 3 discusses formal and informal control mechanisms and reviews the relevant literature. Chapter 3 provides theoretical background and develops testable hypotheses. Chapter 4 outlines the experimental method. Chapter 5 reports the results, and Chapter 6 offers concluding remarks.

CHAPTER 2. BACKGROUND AND LITERATURE REVIEW

2.1 Cooperation Issues in Team Settings

Teams have become increasingly common in organizational practice (Cohen and Bailey 1997). In a survey of senior executives, more than 80 percent of respondents believe that managing teams effectively is essential for their organizations to remain competitive (Ernst and Young 2013). The use of teams can enhance information sharing, improve decision quality, foster creativity and learning, and increase employee satisfaction (Wheelan 2014; Pizzini 2010). However, the increased popularity of teams also presents management control challenges for firms (Arya et al. 1997; Barron and Gjerde 1997), because the success of teams largely depends on whether employees are willing to cooperate with others to maximize the collective output. In team settings, employees may be compensated based on team outputs because individual contributions are not measurable (Holmstrom 1982). The use of group-based incentives may create a social dilemma for individual employees, in which the economically dominant strategy is to free ride (Prendergast 1999).

The cooperation issues in team settings are widely studied in the economic literature, using either prisoners' dilemma or public goods games. Empirical evidence suggests that a considerable portion of individuals free ride on others' efforts or contributions in one-shot games, although not as frequently as the conventional economic theory predicts (Dawes and Thaler 1988). Economists have also investigated whether repeated interactions can improve cooperation. For infinitely repeated interactions, theoretical models predict that cooperation can be played in equilibrium under certain

circumstances (Bó 2005). However, infinitely repeated interaction is seldom feasible in practice. For finitely repeated interactions, game theory suggests that the defection equilibrium will be reached in every stage of the game as a result of backward induction. A robust empirical finding is that cooperation often declines over time in finitely repeated games (e.g., Kim and Walker 1984; Isaac et al. 1984; Issac et al. 1985).

Because of the importance of teams for modern organizations and the prevalence of free-riding issues in team settings, researchers have investigated different types of management control mechanisms that can be used to mitigate free-riding and motivate more cooperation. Management control mechanisms are designed to limit the decision space of employees in order to encourage behaviors that will increase the probability of achieving the organization's goals and discourage behaviors that will not (Birnberg and Snodgrass 1988). Merchant and Ven der Stede (2007) classify management control mechanisms based on the object of control, which can be the results produced (results or output control), the actions taken (action or behavior control), or the types of people employed and their shared norms and values (personnel and cultural control). The first two types of controls are often conceptualized formal control mechanisms (Jaworski 1988), because they rely on formal incentive contracting. In contrast, personnel and cultural controls are considered as informal controls as they rely on individuals' social motives instead of formal contracting. In the next session, I first discuss how formal control mechanisms can affect employees' *economic* motives to cooperate. I then discuss how both formal and informal control mechanisms can affect employees' *social* motives to cooperate.

2.2 Management Control Mechanisms

2.2.1 Formal Control Mechanisms and Economic Motives

The first approach of formal control proposed by the agency literature is principal-agent monitoring. Alchian and Demsetz (1972)'s model suggests that the principal can hire a third-party specialist to verify agents' behaviors in team settings. In order to ensure incentive compatibility, the third-party specialist should receive the residual rewards of the team production. However, this principal-agent monitoring approach is often infeasible in practice. If third-party specialists can obtain verifiable information on individual agents' effort levels, it is optimal for principals to contract on individual effort instead of team outputs.

The second approach of formal control is mutual monitoring among agents. Compared to principals or third-party specialists, agents often have better information about team members' effort levels. Because agents are compensated based on team outputs, they have incentives to monitor each other's actions, allowing principals to extract private information (Holmstrom 1982). Two forms of peer monitoring are discussed in the literature: vertical monitoring and horizontal monitoring. Vertical peer monitoring relies on vertical communication from agents to the principal. Specifically, each agent observes others' actions and reports their observations to the principal. Each agent's compensation is contingent on others' report of his/her actions (Ma 1988; Arya and Glover 1996). The effectiveness of vertical peer monitoring largely depends on whether agents will truthfully report their observations or form collusive agreements (Itoh 1993; Evans et al. 2006).

Horizontal peer monitoring relies on team self-management and peer based control (Arya et al. 1997; Kandel and Lazear 1992; Prendergast 1999). Under horizontal

peer monitoring, principals design incentive systems that encourage agents to agree to take actions desired by the principal. The agreement among agents is enforced through formal sanctions, side contracting, or peer pressure. Essentially, horizontal peer monitoring relies on the coordination among agents, which requires agents to have access to *ex post* perfect information regarding others' actions. Such requirement is rarely attainable, especially in modern organizations where teams are often geographically dispersed.

2.2.2 *Social Motives*

Whereas formal controls can affect employees' economic incentives, they can also influence employees' social motives in cooperative settings. In this section, I discuss different types of social motives to cooperate, such as altruism, norm compliance, reciprocity, group identity, and trust, and how both formal and informal controls can influence these social motives.

Early research on social dilemmas uses altruism to explain cooperation, proposing that individuals engage in pro-social behaviors either because they derive utility from others' well-beings (Becker 1974; Unger 1991) or because they derive utility from the act of pro-social behavior *per se* (Andreoni 1990). Experimental evidence from the economic and psychology literature suggests that a substantial portion of individuals choose to cooperate in social dilemmas out of kindness. For example, Baston and Moran (1999, 2001) find that empathy-induced altruism reduced defection among female participants in one-shot prisoners' dilemma. In repeated game settings, altruistic motives can help sustain cooperation overtime. For instance, Andreoni and Miller (1993) find that reputation

building in repeated prisoners' dilemma is enhanced when participants believe that a large percentage of their opponents are altruistic.

Research in social psychology suggests that when individuals are aware of what behaviors are appropriate and expected in the setting, they often have preferences to conform to such expectations (Bicchieri 2005). Tayler and Bloomfield (2011) provide experimental evidence that formal controls, in the form of probabilistic audits, increase cooperation in a public goods game setting. The presence of formal controls not only impacts employees' sense of what behaviors are appropriate in the setting, but also increases employees' tendency to conform to the behavior of their peers.

Reciprocity plays an important role in cooperative settings. Reciprocity can be classified into two types: weak reciprocity and strong reciprocity. Weak reciprocity refers to individuals' willingness to cooperate only when reciprocal strategies are profitable. In finitely repeated games, weak reciprocity allows for reputation building, which in turn enhances cooperative outcomes. Because observability of past cooperative behaviors is essential for reputation building, a control system that provides feedback regarding others' actions can improve cooperation even if the feedback is not incorporated into formal contracting (Knez and Simester 2001; Kelly and Tan 2010). Strong reciprocity refers to individuals' willingness to cooperate with others and punish non-cooperators, even when such behaviors are not in their self-interest. One-shot trust games are often used to measure strong reciprocity. In a meta-analysis of 84 trust games, Johnson and Mislin (2011) find that senders allocate 50 percent of their endowment to receivers while receivers on average return 30 percent of the available fund. Another evidence of strong reciprocity is the finding that individuals are often willing to incur a cost to punish non-cooperators, even when they

are not directly harmed by the non-cooperators (Fehr and Fischbacher 2004). Interestingly, De Quervain et al. (2004) provide neurological evidence that punishment of non-cooperators in trust games lead to activation of the dorsal striatum, the part of brain that is associated with the processing of decision-related rewards (O'Doherty et al. 2004).

The fundamental reason behind the cooperation issue in team settings is the conflict between individual and group incentives. If employees identify more with the group, they may internalize the group outcome to a greater degree and are more willing to cooperate to maximize the group outcome. Group identity is an individuals' perception of belongingness to a social group (Turner et al. 1987). When group identity increases, individuals are less likely to draw distinctions between their own welfare and group members' welfares (Kramer and Brewer 1984). As a result, individuals are more likely to make personal sacrifices for the benefits of the group. In addition, higher levels of group identity will increase employees' expectations of other group members (Yamagishi and Kiyonari 2000). When employees expect others to cooperate, they are more likely to cooperate themselves as well (Dawes et al. 1977; Messick et al. 1983). In a cross-functional team setting, Rowe (2004) provide experimental evidence that properly designed accounting report structure and team structure can create a group frame, which helps to motivate cooperation. Towry (2003) find that group identity influences the effectiveness of mutual monitoring contracts. In teams with high level of group identity, employees are more able to coordinate with each other, increasing the effectiveness of horizontal mutual monitoring. In contrast, vertical mutual monitoring becomes less effective as employees are more able to collude with each other when they share a high level of group identity. In a recent study, Chen et al. (2017) find that mission-driven organizations can use a below-

market pay to attract employees who share the same values and missions with the organization. These employees are more willing to cooperate with each other, as they perceive their team members as value congruent and expect their team members to contribute to the social mission.

Trust is another important social motive underlying cooperation. The most common definitions of trust involve two components: the willingness to be vulnerable to the actions of another party and the positive expectation of another party's intentions or behaviors (Mayer et al. 1995; Rousseau et al. 1998). In cooperative settings, individuals always face some level of relational risk, which is the risk that other group member fail to live up to expectations with regards to effort or cooperation (Das and Teng 1996, 2001). Therefore, the willingness to be vulnerable or to take risk is a prerequisite for individuals to trust others in cooperative settings. The positive expectation of another party's intentions or behaviors provide individuals with reasons to engage in cooperative behaviors. Researchers have identified three antecedents of trust, or characteristics of the trustee: ability, benevolence, and integrity (Mayer et al. 1995; Colquitt et al. 2007). Specifically, ability refers to the trustee's knowledge and skills needed to succeed in the cooperative settings. Benevolence refers to the extent to which the trustee is perceived to want to do good to the trustor, independent of any egocentric profit motive. Integrity refers to the extent to which the trustee is perceived to adhere to moral and ethical principles that are acceptable by the trustor. Management control mechanisms can influence employees' propensity to trust and cooperate through their impacts on these three antecedents of trust.

The extant literature provides mixed evidence on whether the use of management control mechanisms will increase or decrease trust. The implementation of formal control

mechanisms can signal distrust from the principal, or the controlling party, which decreases agents' willingness to cooperate with the principal (Falk and Kosfeld 2006, Christ 2013). In addition, Malhotra and Murnighan (2002) find that when formal controls are present, employees attribute cooperation to the constraints imposed by the control. Therefore, the implementation of formal control inhibits the development of trust. However, Coletti et al. (2005) argue that this result does not account for the increased cooperation resulted from the economic incentives inherent in formal controls. They provide experimental evidence that when employees observe the increased level of cooperation induced by formal controls, they attribute the cooperation to their partners' innate trustworthiness instead of the presence of control. The control-induced trust has a positive impact on the subsequent level of cooperation, even after formal controls are removed. In a trust game setting, Garrett et al. (2015) replicate the finding that the presence of formal controls increase trust.

In sum, both economic and social motives affect employees' willingness to cooperate in team settings. Whereas formal controls can be effective in motivating desirable behaviors, they are often costly or infeasible to implement, especially in team settings where it is difficult to precisely monitor and measure individual inputs. Therefore, control mechanisms that rely on employees' social motives can be an alternative way to solve the cooperation issue in team settings. In this study, I am particularly interested in how employee volunteering programs, a specific type of CSR initiatives, can serve as an informal control mechanism. In the next section, I will review the CSR literature generally and employee volunteering programs specifically.

2.3 Employee Volunteering Programs

2.3.1 *Benefits of CSR*

In this study, I follow the approach of Fitch (1976) and Hales et al. (2016) and define CSR as any corporate action that benefits society by either generating a positive externality or mitigating a negative externality.¹ This definition is broad as it does not require CSR activities to be altruistic or go beyond the firm's current economic and legal requirements.

Over the past decades, firms have devoted considerable amounts of resources to CSR. A recent survey estimates that Fortune 500 firms in the US and UK spent \$15.2 billion on CSR in 2014 (*The Economist* 2015). Over 90 percent of Global Fortune 250 (G250) companies now publish CSR reports annually (KPMG 2015). One explanation for the growth in CSR is that CSR activities can be profitable for firms. First, empirical evidence suggests that CSR can help firms differentiate their products from their competitors (Navarro 1988; Sprinkle and Maines 2010) and enhance customer loyalty (Sen and Bhattacharya 2001). In addition, customers are willing to pay a higher price for responsibly produced goods (Eichholtz et al. 2010). Second, CSR can help firms reduce information asymmetry in the hiring process and create better employer-employee matches (Brekke and Nyborg 2004). CSR may also reduce the labor costs as employees are willing to accept lower wages from socially responsible employers (Burbano 2016). The benefits of CSR in labor markets also pertain to existing employees, as investments in CSR can motivate higher employee efforts (Balakrishnan et al. 2011, Douthit et al. 2017). Third, certain types of CSR activities can be used as a risk management tool. Empirical evidence

¹ Externality is defined as either a benefit or a cost borne by stakeholders who did not choose to receive the benefit or incur the cost (Buchanan and Stubblebine 1962).

suggest that following negative firm events, stakeholders react less negatively if the focal firm invested before in CSR activities that benefit society (Richardson et al. 1999; Godfrey et al. 2009). Forth, recent evidence suggests that investors incorporate CSR information into their investment decisions and require a lower cost of equity capital for firms that have strong CSR performance (Dhaliwal et al. 2011). Despite the many potential ways in which firms can benefit from CSR investments, the empirical evidence on the relationship between CSR activities and firm value is still inconclusive. In a meta-analysis, Margolis et al. (2009) find that only 28 percent of the 251 studies they examine report a positive correlation between CSR activities and corporate financial performance. In addition, many archival studies reported by Margolis et al. (2009) do not provide clear causality between CSR activities and financial performance. This is consistent with a recent finding that strong financial performance can lead to increase in future CSR investments (Lys et al. 2015).

As CSR is a broad concept, firms can engage in CSR in many different ways. For example, firms can invest in projects that reduce their carbon footprints (De Roeck and Delobbe 2012), promote ethical labor practices (DeTienne and Lewis 2005), sponsor community events (Lii and Lee 2012), or make charitable donations (Lev et al. 2010). In this study, I focus on a specific type of CSR initiative, employee volunteering programs.

2.3.2 Employee Volunteering Programs

Employee volunteering programs are initiatives sponsored by firm management that provide resources, time, leadership, and social encouragement in order for employees to volunteer in the local community (Knox 2016). Rodell et al. (2016) define employee

volunteering as “employed individuals giving time during a planned activity for an external nonprofit or charitable group or organization” (p. 57). Common elements of employee volunteering programs include providing employees with time-based support and/or financial and logistical support. Time-based support involves giving employees paid time off to volunteer or allowing employees to adjust their work schedules to accommodate volunteering (Basil et al. 2009). Financial and logistical support refers to the monetary and physical assets that a company donates to support employee volunteering. Common practices include allowing employees to use company facilities, equipment, or transportation (Basil et al. 2009; Booth et al; 2009), matching employees’ volunteer hours with monetary or product donations (Jones 2010), and providing financial support, such as paying entry fees or reimbursing costs for employee volunteering (Booth et al. 2009).

Volunteering programs have become a mainstream CSR practice in the corporate world. Survey evidence suggests that over 90 percent of Fortune 500 companies have employee volunteering programs that encourage and subsidize employees to perform community services (Boccalandro 2009), and the number of firms that adopt employee volunteering programs has been increasing (Deloitte 2010). In fact, corporate volunteering programs are believed to be “one of the fastest growing areas of voluntary activity” in Europe and North America (Bussell and Forbes 2008, 364).

Volunteering activities are, by definition, uncompensated and do not directly generate profits for firms. As discussed in Section 2.3.1, CSR activities have several benefits for firms, including enhancing firm image among customers and investors (Navarro 1988), mitigating stakeholders’ reactions to negative firm events (Richardson et al. 1999; Godfrey et al. 2009), and lowering the cost of equity capital (Dhaliwal et al. 2011).

As a specific type of CSR activities, employee volunteering programs may also benefit firms in the above ways. However, the defining characteristic that differentiates volunteering programs from other types of CSR activities is the opportunities they provide for employees to have direct social interactions with others in the community. Employee volunteering programs are typically led by the grassroots efforts of employees (Grant 2012). A recent survey of U.S. companies suggests that 62 percent of volunteering programs are directed by employees, of which 15 percent are solely driven by employees (Wainwright 2005). Therefore, the major benefits of volunteering programs for firms are their positive impacts on employee attitudes and performance.

Employee volunteering programs can improve current employees' performance for several reasons. First, research on volunteering outside the field of management suggests that individuals often obtain a sense of accomplishment and a sense of belonging from volunteering experience (Mojza et al. 2011; Caligiuri et al. 2013). To the extent that employees appreciate the volunteering opportunities, company-sponsored volunteering programs will be viewed by some employees as a type of employee benefit and, therefore, will be reciprocated with higher level of work effort (Booth et al. 2009). Second, because volunteering programs often leverage employees' skills, they provide opportunities for professional and leadership skills development (Wainwright 2005). Third, volunteering programs can strengthen employees' identification with their organizations (Jones 2010; Rodell et al. 2017) and increase employee engagement (Caligiuri et al. 2013). Research in organizational behavior has documented a robust positive relationship between employee engagement and performance, at both individual and business-unit level (see Judge et al. 2001 and Harter et al. 2002 for meta-analyses). Therefore, volunteering programs should

lead to improved firm performance through increased employee satisfaction and engagement. Consistent with this argument, Knox (2016) find that the number of volunteering hours disclosed in firms' sustainability reports is positively correlated with employees' future productivity, potentially due to the positive effects of volunteering programs on employees' loyalty and skill level.

Employee volunteering programs also can help firms attract and retain talents. A survey finds that about 70 percent of the surveyed Millennials believe that firms should use employee volunteering programs as a professional development tool and 62 percent prefer working in firms with such programs (Deloitte 2007). Using both laboratory and field data, Jones et al. (2014) find that companies can use employee volunteering programs to distinguish themselves from other potential employers. Employees who volunteer through company-sponsored programs report higher levels of commitment to their organizations and increased intention to stay at the job (Peterson 2004).

Taken together, the extant literature suggests that employee volunteering programs positively influence employees' behaviors in the workplace. The current study extends this literature by investigating another benefit that employee volunteering programs may bring to the firm: that is, signaling employees' pro-sociality and improving the overall cooperative performance in team settings. In this study, I focus on employee volunteering programs, rather than other types of CSR initiatives such as charitable contributions, for two reasons.

First, compared to monetary donations, volunteering is considered a more public form of contribution (Lee et al. 1999) and, therefore, is more likely to be observed and used

by others in the firm as a signal. Second, by definition, volunteering involves giving time. The contribution of time represents more active involvement and more direct social interactions with others in the community than the contribution of money. Recent studies in marketing and psychology suggest that individuals perceive the contribution of time and money differently. When opportunity costs are held constant, individuals perceive the contribution of time to be more moral and self-expressive than the contribution of money, especially for individuals whose self-concepts are more organized around their moral beliefs (Reed et al. 2007). Liu and Aaker (2008) find that asking individuals to consider the amount of time (vs. money) they are willing to donate to charities lead to higher levels of actual donations, as the concept of time activates a more emotional mindset which ultimately leads to other-focused behaviors. Therefore, participation in volunteering programs is more likely to serve as an informative signal of employees' pro-sociality in cooperative settings.

CHAPTER 3. THEORY AND HYPOTHESES

3.1 The Signaling Value of Volunteering

In this study, I use a one-shot prisoners' dilemma experiment to examine how employees' cooperation is influenced by volunteering behavior. When facing social dilemmas, individuals have different behavioral dispositions toward whether to cooperate or free ride (Kurzban and Houser 2005, Rustagi et al. 2010). The literature on volunteering has identified prosocial personality (Penner et al. 1995), a two-dimensional construct consists of other-oriented empathy (i.e., individuals' pro-social thoughts and feelings) and helpfulness (i.e., individuals' behavioral tendency to help), as an important individual-level antecedent of volunteering intensity and persistence² (Penner 2002; Finkelstein 2009). Research on motives for volunteering theorizes that there are two types of motives: self-oriented and other-oriented (Musick and Wilson 2007). Self-oriented motives are concerned with potential positive outcomes for volunteers, such as increased positive affect and self-esteem, acquisition of new knowledge and skills, advancement in one's career, and maintenance of social relationships (Clary et al. 1998). In contrast, other-oriented motives focus on improving the well-being of others. This is consistent with outcome-based social preferences models, which suggest that volunteers derive utilities from both an improvement of others' well-being (Becker 1974; Unger 1991) and the act of helping *per se* (Andreoni 1990). Empirical evidence suggests that other-oriented motives are a significant predictor of volunteering intensity in both the general adult population (Penner

² Volunteering intensity captures the frequency with which an individual volunteers while volunteering persistence captures the longevity of an individual's volunteering activity. For a review of common measures of each construct, see Rodell et al (2016).

and Finkelstein 1998) and employees (Brockner et al. 2014), while self-oriented motives have little impact on volunteering (Penner and Finkelstein 1998; Carlo et al. 2005).

Taken together, the above discussion suggests that volunteers are likely to be more pro-social than non-volunteers. Therefore, in social exchanges, volunteers are less likely to maximize their own economic interests, but are more likely to act cooperatively, than non-volunteers. Consistent with this argument, Fehrler and Przepiorka (2013) find that, in a trust game setting, second-movers who made charitable donations send back larger proportions of the investment returns to first-movers. Therefore, compared to employees who chose not to volunteer, employees who self-selected into volunteering programs are more likely to act pro-socially in social dilemmas.

While volunteers may be more altruistic in general (Carpenter and Myers 2010), altruism is unlikely to be the main driving force of cooperative behavior in social dilemmas (Palfrey and Prisbrey 1997). In team settings, the collective output depends on employees' joint actions. Individual employees' unilateral altruistic behavior may not be able to achieve the cooperative outcome, and may actually make them worse off, if others exploit their altruism (Yamagishi and Sato 1986). Therefore, even employees who are willing to pursue the cooperative outcome may need to protect themselves from others' opportunistic behavior (Dawes and Thaler 1988). In the public-goods game literature, there is robust empirical evidence that the majority of individuals can be classified as either conditional cooperators who will contribute if they expect others to contribute, or free riders who never contribute (Gächter 2006). For example, in Fischbacher and Gächter (2010)'s experiment, about 55 percent of the participants are conditional cooperators and 23 percent are free riders. The remaining percentage of participants either are unclassifiable (about 10 percent)

or exhibit a more complex behavioral pattern (e.g., about 12 percent of participants contribute up to a certain point and then start to reduce contribution as others contribute more). Such a distribution of different types of individuals is replicated across several laboratory studies (Chaudhuri 2011), suggesting that even individuals who are more pro-social are unlikely to cooperate unconditionally in social dilemmas.

Both conditional cooperators and free riders may defect in social dilemmas, but they often do so for different reasons. For conditional cooperators, expectations about others' behavior have important impacts on their willingness to cooperate (Dawes et al. 1977; Messick et al. 1983). If they expect others to not cooperate, they will also not cooperate, out of concerns about being taken advantage of (Poppe et al. 1986; Ahn et al. 2001). For free riders, expectations about others' behavior is less important because they always tend to act in an economically rational way. That is, free riders will defect in social dilemmas out of greed instead of fear (Ahn et al. 2001).

Based on the above discussion, I expect that employee volunteers are less likely to be free riders – that is, more likely to be conditional cooperators – than non-volunteers. As conditional cooperators, employee volunteers' final decision of whether to cooperate depends on whether they expect others to cooperate. Research in economics suggests that mechanisms that allow conditional cooperators to identify and monitor each other help sustain cooperation (Rustagi et al. 2010), and others' volunteering behavior can serve as such a mechanism. In the labor market, volunteering experience is often interpreted as a positive signal about potential employees' pro-social attributes (Katz and Rosenberg 2005; Handy et al. 2010). Firms believe that volunteers are more likely to be good organizational citizens who are willing to incur personal costs to engage in extra-role behaviors to help

the organization and colleagues (Organ 1988; Organ and Ryan 1995). Individuals who voluntarily engage in other forms of pro-social activities, such as making donations to charities, are also perceived as more trustworthy than those who choose not to engage in these activities (Albert et al. 2007; Fehrler and Przepiorka 2013).

Others' trustworthiness is important for conditional cooperators to make cooperation decisions because they are concerned about the relational risk of being exploited (Kerr 1983). Individuals who desire cooperation often seek justification for trusting others (Weber et al. 2004), and others' volunteering experience provides such justification by serving as a signal of their type. However, the extent to which employees rely on this signal in making cooperation decisions will likely depend on the perceived motive behind others' volunteering. I first consider settings where others' volunteering behavior is perceived as non-strategic. That is, employees believe that others' volunteering decision is a genuine reflection of their pro-social attributes. In these settings, I expect that employee volunteers will be more cooperative when they work with other volunteers. By comparison, non-volunteers are more likely to be free riders, whose cooperation decisions are unaffected by others' behavior. Taken together, this leads to the following hypothesis:

H1: In non-strategic settings, the cooperation rate is higher when employees and their partners both chose to participate in volunteering programs than otherwise.

In a recent study, Chen et al. (2017) find that mission-driven organizations can use a below-market pay to attract employees whose personal values are congruent with the organizational mission. Specifically, they find that below-market pay increases team cooperation, regardless of whether the team-based task contributes to the organization's

social mission. The current study differs from Chen et al. (2017) in two ways. First, Chen et al. (2017) focus on the role of compensation contracts in employee selection, while the current study focuses on employees' behaviors under a given compensation contract. Second, participants in Chen et al. (2017) are always paired with team members who selected the same contract. Therefore, their findings do not speak to how pro-social employees would behave when they are paired with team members who are less pro-social.

3.2 Strategic Considerations

Now I consider settings where participation in volunteering programs may not be truly reflective of individuals' pro-sociality. Prior research on signaling suggests that individuals without the desirable attributes tend to mimic those who have these attributes, if the cost of mimicking does not exceed its benefits (Vesterlund 2003). If employees expect others to observe and draw inferences from their volunteering behavior, they will have extrinsic motives to volunteer even if they do not genuinely value volunteering. Consistent with the above arguments, in a cross-country survey, Handy et al. (2010) find that in countries where volunteering is viewed more positively (such as the United States and Canada), undergraduate students volunteer more frequently in order to build their resume.³

In practice, there are many factors that can affect the observability of employees' volunteering decisions to team members. For example, a recent survey finds that slightly more than half of the participating firms have some forms of employee volunteer

³ Prior studies suggest that impression concerns are another reason that some individuals volunteer (Linardi and McConnell 2008, Carpenter and Myers 2010). In this study, I focus on employees' strategic consideration, rather than pure impression concerns. As discussed in the Methodology section, the experiment is designed such that impression concerns are not likely to be salient to participants.

recognition as part of their volunteering programs (Committee Encouraging Corporate Philanthropy 2014). Employee volunteer recognition is often recommended by practitioners as a best practice to encourage employee volunteering and ranges from giving thank-you notes to large-scale organization-wide award ceremonies (Point of Lights 2013). These recognition programs make it salient to employees that others can observe their volunteering behavior and potentially infer their type. Therefore, in firms that regularly recognize employee volunteers, employees who do not genuinely value volunteering may nonetheless volunteer, in order to show to colleagues that they are pro-social and cooperative.

Another factor that can affect the observability of employees' volunteering behavior and provide employees with extrinsic motives to volunteer is whether their job responsibilities require regular and predictable cooperation with others. Teams vary in their structure and composition. For example, functional teams are typically composed of employees from the same department and meet regularly (Rowe 2004). In these teams, employees are likely to anticipate frequent interactions with other team members, and thus have more incentives to volunteer strategically in order to be perceived as pro-social. In contrast, cross-functional teams are more temporary in nature. Employees in these teams interact less frequently with other team members and, therefore, may be less motivated to signal their pro-sociality.

For my purpose, if employees make the volunteering decision strategically, the volunteering decision will become less diagnostic about their pro-sociality, and employees will have difficulty identifying peers who are genuinely trustworthy. Therefore, in settings where a strategic motive may underlie the volunteering decision, volunteering is a less

informative signal of type and, as a result, is less effective in facilitating cooperation. This leads to the following hypothesis:

H2: Compared to non-strategic settings, the cooperation rate in strategic settings is affected to a lesser extent by whether employees and their partners participated in volunteering programs.

CHAPTER 4. METHODOLOGY

4.1 Experimental Task and Design

I design a two-stage experiment to test my hypotheses. In stage one, participants complete an individual task. In this task, participants assume the role of an employee of a company who is offered the opportunity to take paid time off and volunteer at a local nonprofit organization. Participants are asked to choose between two options: participating in the volunteering program, or participating in an employee training session (see the case materials in Appendix A). The case materials suggest that the volunteering program will benefit people in the community and the training session will potentially improve employees' own job-related skills. In stage two, participants are randomly paired, and each pair plays an incentivized one-shot prisoners' dilemma game in an organizational context: they are endowed with private resources and are asked to decide whether they will allocate high or low resources to a joint project (see the case materials in Appendix B). Cooperative outcome will obtain if both participants in the pair contribute high resources to the joint project, but each participant has an economic incentive to defect by allocating low resources to the joint project. Figure 1 presents the payoff table for the stage-two task.

It is important to note that participants' volunteering decision in stage one is hypothetical and does not affect their experimental earnings. I made this design choice for two reasons. First, as discussed in section 2.3.2, the contribution of time and the contribution of money activate different types of mindsets and are perceived differently by observers. If the stage one volunteering decision affects participants' income, they may

perceive the volunteering behavior as a contribution of money instead of a contribution of time. Second, a recent study find that employees who work for CSR firms are likely to engage in moral licensing and shirk on their primary job duty (List and Momeni 2017). Not linking volunteering decisions to experimental earnings minimizes the possibility of moral licensing in my setting.

(Player 1, Player 2)		Player 2	
		High resource	Low resource
Player 1	High resource	(1500, 1500)	(1000, 2000)
	Low resource	(2000, 1000)	(1200, 1200)

Figure 1: Payoff Table for the Stage-Two Task

I used a 2 x 2 x 2 mixed experimental design, with two manipulated factors and one measured factor. First, I manipulated between-participants whether participants are aware of the stage-two task before they make stage-one decisions (Yes versus No). This manipulation resulted in two conditions: *Strategic* (i.e., participants know about the stage-two task when deciding whether to volunteer) versus *Non-Strategic* (i.e., participants do not know about the stage-two task when deciding whether to volunteer). Second, I measured participants' actual decision of whether to participate in the volunteering program (Yes versus No). Third, I used the strategy method to manipulate within-participant whether the other person whom the participant is paired with decided to volunteer (Yes versus No). Specifically, I asked participants to indicate, respectively, whether they would allocate high or low resources to the joint project if the other person

chose to participate in the volunteering program *and* if the other person chose not to participate in the volunteering program. Then, depending on the other's actual volunteering decision, one of the two allocation choices was used to determine the participant's earnings. The main purpose of using the strategy method was to ensure that there are sufficient observations for the case where the other volunteered and the case where the other did not volunteer.⁴

It is worth noting that the volunteering decision in the *Strategic* condition is different from pre-game communication, which has been shown to increase cooperation (see Ledyard 1994 and Chaudhuri 2011 for reviews). Pre-game communication can be either free-form or restricted-form. Regardless of the communication format, it gives individuals an opportunity to make promises to cooperate or exert high level of effort.⁵ Whereas the communication is non-enforceable and represents cheap talk in a game-theoretical sense, it still may increase cooperation or effort because it activates the social norm of promise-keeping. Individuals may experience guilt if they fail to keep their promises and violate others' expectations (Vanberg 2008). However, the volunteering decision in my strategic setting does not involve promises. Whereas employees may strategically choose to participate in volunteering programs with the hope of influencing others' beliefs about their type, they do not explicitly commit to anything. Therefore, employees will be less likely to experience guilt if they later defect.

4.2 Participants and Experimental Procedures

⁴ Prior research suggests that decisions elicited by the strategy method are similar to decisions elicited by the direct-response method (Cason and Mui 1998, Brandts and Charness 2000, Oxoby and McLeish 2004).

⁵ For example, in Evans et al. (2016), managers make nonbinding collusive agreements via instant messaging. In Douthit et al. (2012) and Arnold and Grasser (2017), agents promise certain levels of effort in a principal-agent setting.

Seventy-eight undergraduate business students at a public university in the U.S. participated in the experiment. Seven experimental sessions were conducted, and the number of participants in each session ranged from eight to fourteen. Participants' average age was 20.8 years and 47 percent were male. The experiment task was computerized using the z-Tree software (Fischbacher 2007).

Upon arrival at the laboratory, participants were seated at a computer terminal and gave their informed consent. At the beginning of the study, participants in all conditions were informed that the study consisted of two parts and were given stage-one instructions (i.e., volunteering decisions). Afterwards, in *Non-Strategic* conditions, participants decided whether they would like to participate in the volunteering program and explained the reasons behind their choices. Then, they proceeded to stage two (i.e., resource-allocation decisions). After reading stage-two instructions, participants answered a quiz to ensure that they fully understood the instructions and were not able to proceed until all questions were answered correctly. Next, participants were randomly paired and made allocation decisions in the prisoners' dilemma game.

Experimental procedures for *Strategic* conditions are different in terms of when participants were given stage-two instructions. Specifically, after reading stage-one instructions, participants in *Strategic* conditions were immediately given stage-two instructions. Then, they answered the quiz related to stage-two instructions and were not able to proceed until all questions were answered correctly. After passing the quiz, participants decided whether they would like to participate in the volunteering program and explained the reasons behind their choices. Then, they were randomly paired and made allocation decisions in the prisoners' dilemma game.

In all conditions, after the two stages were completed, participants answered a post-experimental questionnaire. Then, participants were paid in cash (a five-dollar participation fee plus experimental earnings) and dismissed.⁶ The average participant payoff was \$10. The timelines of *Strategic* and *Non-strategic* conditions are depicted in Figure 2.

⁶ Whereas it is possible that participants might indirectly infer their partners' volunteering decision based on their payoffs at the end of the session, they are never explicitly informed of their partners' decisions. I made this design choice to minimize the possibility that participants in the *Non-Strategic* conditions will choose to volunteer out of impression concerns.

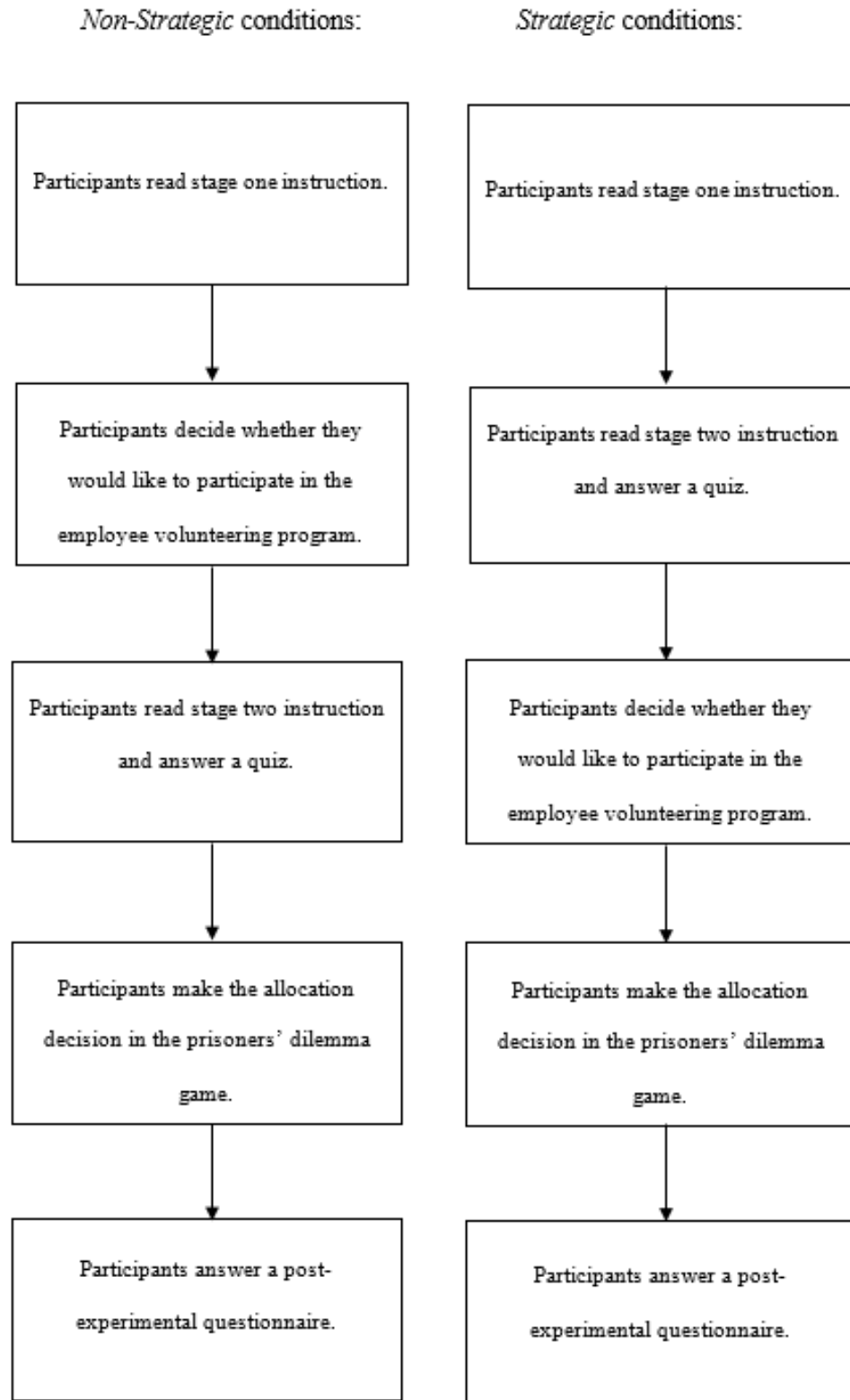


Figure 2: Timelines of the *Strategic* and *Non-Strategic* conditions

CHAPTER 5. RESULTS

5.1 Descriptive Statistics

Table 1 presents descriptive statistics for all experimental conditions. The dependent variable is the binary choice of whether participants cooperated in the prisoners' dilemma game, which is coded as one if a participant contributed high resources and zero otherwise, labeled *Cooperation*. I have three main independent variables: (1) a dummy variable which equals one for *Strategic* conditions and zero for *Non-strategic* conditions, labeled *Strategic*, (2) a dummy variable which equals one if the participant chose to volunteer in stage one and zero otherwise, labeled *OwnVolunteer*, and (3) a dummy variable which equals one if the other person whom the participant is paired with chose to volunteer in stage one and zero otherwise, labeled *OtherVolunteer*.

Table 1 - Descriptive Statistics for *Cooperation*

Non-Strategic conditions:

		<i>OtherVolunteer</i>	
		Yes	No
<i>OwnVolunteer</i>	Yes	0.73 N = 22	0.32 N = 22
	No	0.50 N = 12	0.25 N = 12

Table 1 continued

Strategic conditions:

		<i>OtherVolunteer</i>	
		Yes	No
<i>OwnVolunteer</i>	Yes	0.55 N = 33	0.33 N = 33
	No	0.45 N = 11	0.27 N = 11

Notes:

1. *Cooperation* equals to one if the participant contributed high resources to the joint project and zero otherwise.
2. *OwnVolunteer* equals to one if the participant chose to volunteer in stage one and zero otherwise.
3. *OtherVolunteer* equals to one if the other person whom the participant is paired with chose to volunteer in stage one and zero otherwise.
4. The cell entries are the percentage of participants who choose to cooperate and the number of observations in each condition.
5. The number of participants in *Non-strategic* and *Strategic* conditions are 34 and 44, respectively. Each participant makes two resource allocation decisions, depending on whether the other person chose to participate in the volunteering program or not.

5.2 Hypotheses Tests

H1 predicts that, in non-strategic settings, the cooperation rate will be higher when both participants in the pair chose to volunteer in stage one than otherwise, and H2 predicts that this effect will be weaker in strategic settings. Because H1 and H2 jointly predict an ordinal interaction effect, I first test an overall contrast model across *Non-strategic* and *Strategic* conditions (Buckless and Ravenscroft 1990). This contrast model uses the weights of +6 for the *Non-strategic* condition where the two paired participants both volunteered, 0 for the *Strategic* condition where the two paired participants both

volunteered, and -1 for the other six conditions.⁷ As reported in Panel A of Table 2, consistent with my predictions, this contrast model is statistically significant ($p = 0.001$, one-tailed).⁸

Then, I conduct separate tests to examine the effect of volunteering on cooperation in *Non-strategic* conditions and *Strategic* conditions, respectively. In *Non-strategic* conditions, H1 predicts an interactive effect between *OwnVolunteer* and *OtherVolunteer* on *Cooperation*. I conduct a contrast analysis using the weights of +3 for the condition where the two paired participants both volunteered and -1 for the other three conditions. As reported in Panel B of Table 2, this contrast model is statistically significant ($p = 0.002$, one-tailed).⁹ I also regress *Cooperation* on an indicator variable that equals one if the two paired participants both volunteered and zero otherwise, controlling for repeated measures. The indicator variable is statistically significant ($p = 0.003$, one-tailed), suggesting that *Cooperation* is significantly higher when both participants chose to volunteer in stage one than otherwise. As reported in Panel A of Table 2, follow-up simple effect tests reveal that *Cooperation* is significantly higher when both participants chose to volunteer in stage one than when only the focal participant chose to volunteer in stage one ($p = 0.003$, one-tailed), when only the other chose to volunteer in stage one ($p = 0.093$, one-tailed), or when neither chose to volunteer in stage one ($p = 0.004$, one-tailed). These results provide support for H1.

⁷ I assigned a zero weight to the *Strategic* condition where the two paired participants both volunteered, because I did not make a specific prediction as to whether *Cooperation* will be higher in this condition than in the other three *Strategic* conditions.

⁸ The residual between-condition variation not captured by the contrast model is non-significant ($p = 0.883$), indicating that the contrast model provides a good explanation for the experimental results.

⁹ The residual between-condition variation not captured by the contrast model is non-significant ($p = 0.755$), indicating that the contrast model provides a good explanation for the experimental results.

Table 2 – Results of Hypotheses Tests

Panel A: Omnibus contrast analysis (Dependent variable = *Cooperation*)^a

	SS	df	MS	F-stat	p-value (one-tailed)
<i>The overall interaction effect</i>	2.424	1	2.424	10.305	0.001
Error	34.811	148	0.235		

Panel B: Contrast Analysis for H1 in *Non-strategic* conditions (Dependent variable = *Cooperation*)^b

	SS	df	MS	F-stat	p-value (one-tailed)
<i>The predicted interaction effect</i>	1.996	1	1.996	8.881	0.002
Error	14.386	64	0.225		
Simple-effects Tests					
<i>[Self: Volunteer; Other: Volunteer] > [Self: Volunteer; Other: Non-volunteer]</i>				8.190	0.003
<i>[Self: Volunteer; Other: Volunteer] > [Self: Non-volunteer; Other: Volunteer]</i>				1.784	0.093
<i>[Self: Volunteer; Other: Volunteer] > [Self: Non-volunteer; Other: Non-volunteer]</i>				7.868	0.004

Panel C: ANOVA for H2 in *Strategic* conditions (Dependent variable = *Cooperation*)

Source	SS	df	MS	F-stat	p-value (two-tailed)
<i>OwnVolunteer</i>	0.095	1	0.095	0.367	0.548
<i>OtherVolunteer</i>	0.640	1	0.640	2.808	0.101
Interaction	0.004	1	0.004	0.017	0.898

Notes:

a. The contrast analysis of the overall interaction effect uses the code +6 for the *Non-strategic* condition where the two paired participants both volunteered, 0 for the *Strategic* condition where the two paired participants both volunteered, and -1 for the other six conditions.

b. The contrast analysis of the predicted interaction effect uses the code +3 for the *Non-strategic* condition where the two paired participants both volunteered, and -1 for the other three *Non-strategic* conditions. See Table 1 for the definitions of other variables.

In *Strategic* conditions, I conduct an ANOVA, with *Cooperation* as the dependent measure, *OwnVolunteer*, *OtherVolunteer* and their interaction as the independent measures.

As reported in Panel C of Table 2, the main effects of *OwnVolunteer* ($p = 0.548$, two-tailed) and *OtherVolunteer* ($p = 0.101$, two-tailed), and the interaction term ($p = 0.898$, two-tailed), are non-significant. These results show that, consistent with H2, in settings where a strategic motive may underlie the volunteering decisions, volunteering no longer facilitates cooperation.

My theory suggests that, in *Strategic* conditions, individuals who do not genuinely care about volunteering may nonetheless volunteer out of strategic consideration. Consistent with this reasoning, a logit regression finds that participants in *Strategic* conditions are more likely to participate in the volunteering program than those in *Non-Strategic* conditions ($p = 0.082$, one-tailed). However, despite the increased participation in the volunteering program, as the perceived motive underlying volunteering becomes unclear in *Strategic* conditions, participants are less likely to rely on others' volunteering behavior in deciding whether to cooperate. As expected, I find that, when both participants chose to volunteer in stage one, *Cooperation* is lower ($p = 0.09$, one-tailed) in *Strategic* conditions (0.55) than in *Non-Strategic* conditions (0.77). Taken together, these results provide support for H2.

5.3 Supplemental Analyses

To further understand participants' decision processes, I conduct a series of supplemental analyses. As reported in Table 3, in the post-experimental questionnaire, I ask participants to indicate the extent to which they agree with the following statements, "I think the other participant made the volunteering decision in task 1 with the purpose of influencing me in task 2," and "I made the volunteering decision in task 1 with the purpose of influencing the other participant in task 2," on a Likert scale ranging from 1 (Strongly

Disagree) to 7 (Strongly Agree). Participants’ average responses to these two questions are both significantly higher in *Strategic* conditions than in *Non-Strategic* conditions (p values < 0.003 , two-tailed), indicating that participants in *Strategic* conditions understand the potential strategic motive behind the volunteering decision.

Table 3 – Process Measures

	<i>Non-Strategic</i> Conditions		<i>Strategic</i> Conditions	
	Volunteers (N = 22) Mean (s.d.)	Non-Volunteers (N = 12) Mean (s.d.)	Volunteers (N = 33) Mean (s.d.)	Non-Volunteers (N = 11) Mean (s.d.)
Influence me ^a	2.95 (1.68)	2.92 (1.44)	4.42 (1.73)	3.64 (1.36)
Influence the other ^b	1.82 (1.22)	2.25 (1.36)	3.73 (2.18)	2.82 (2.23)
Belief ^c	4.50 (1.68)	5.36 (1.92)	4.82 (1.74)	3.91 (1.92)
General tendency to trust ^d	5.86 (1.21)	4.58 (1.88)	5.00 (1.75)	5.00 (2.41)
Guilt ^e	4.23 (1.77)	4.25 (2.05)	4.15 (1.84)	2.82 (1.83)

Notes:

All responses are made on Likert scales ranging from 1 (Strongly Disagree) to 7 (Strongly Agree).

a. “I think the other participant made the volunteering decision in task 1 with the purpose of influencing me in task 2.”

b. “I made the volunteering decision in task 1 with the purpose of influencing the other participant in task 2.”

c. “If the other participant chose to volunteer in task 1, he or she is more likely to allocate high resources in task 2 than if he or she chose not to volunteer in task 1.”

d. “I see myself as someone who is generally trusting.”

e. “I would feel guilty not allocating high resources to the project if the other participant chose to volunteer in task 1.”

My theory also suggests that, compared to strategic settings, volunteers in non-strategic settings are more likely to infer others’ types from their volunteering decisions. To measure volunteers’ belief that others’ volunteering behavior reveals their type, in the post-experimental questionnaire I ask participants to indicate the extent to which they agree with the following statement, “If the other participant chose to volunteer in task 1, he or she is more likely to allocate high resources in task 2 than if he or she chose not to volunteer in task 1”, on a Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree).

Consistent with the theory, volunteers' average response to this question, labeled *Belief*, is higher in *Non-Strategic* conditions than in *Strategic* conditions ($p = 0.069$, one-tailed). In addition, in *Non-Strategic* conditions, a logit regression finds that volunteers' cooperation decision is significantly related to *Belief* ($p = 0.062$, two-tailed). However, this relationship is not significant in *Strategic* conditions ($p = 0.104$, two-tailed). These results provide evidence that volunteers are willing to cooperate when they view others' volunteering behavior as a credible signal of their type, but not when they become suspicious about the credibility of the signal.

Some individuals may be inherently more trusting than others. To test whether this personality trait affects my results, in the post-experimental questionnaire I measure participants' general tendency to trust by asking them to indicate the extent to which they agree with the following statement, "I see myself as someone who is generally more trusting," on a Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). Whereas volunteers in the *Non-Strategic* conditions perceive themselves as more trusting than non-volunteers ($p = 0.021$, two-tailed), volunteers and non-volunteers in the *Strategic* conditions do not differ in their general tendency to trust ($p = 1$, two-tailed). These findings suggest that in non-strategic settings, volunteering programs act as an effective screening mechanism in selecting employees of certain characteristics. However, the selection benefit of volunteering programs diminishes in strategic settings.¹⁰ I repeat the hypotheses tests after including participants' general tendency to trust as a covariate. All of the

¹⁰ Prior research suggests that agreeableness, one of the Big Five personality traits, is a significant antecedent of employee volunteering (Carlo et al. 2005). As individuals who score high on agreeableness tend to be more altruistic and trusting (Graziano 1994), it is possible that the general tendency to trust measure captures agreeableness to some extent.

statistical inferences remain unchanged. Therefore, although volunteers in *Non-Strategic* conditions identify themselves as more trusting in general, they do not unconditionally trust others more in social dilemmas. Instead, they are more willing to cooperate only when they perceive others to be of the same pro-social type.

My theory suggests that the volunteering decision serves as a signal of employees' pro-sociality and the signal is less credible in more strategic settings. While the results of hypotheses tests are consistent with my theory, a possible alternative explanation is that employees appreciate others' volunteering decision and view their own cooperation as a way to "reward" volunteers. That is, employees are more willing to cooperate with volunteers not because they perceive volunteers as more trustworthy in cooperative settings, but rather because they want to avoid the guilt of mistreating more pro-social colleagues. The impact of such guilt aversion on cooperation is weaker in more strategic settings where the volunteering decision is less reflective of individuals' pro-sociality. I measure participants' perception of guilt by asking them to indicate the extent to which they agree with the following statement, "I would feel guilty not allocating high resources to the project if the other participant chose to volunteer in task 1," on a Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). Participants' response to this question does not differ significantly across the *Strategic* and *Non-Strategic* conditions ($p = 0.334$, two-tailed), indicating that guilt aversion cannot explain the observed pattern of cooperation, lending credence to my theory.

CHAPTER 6. CONCLUSIONS

This study examines whether and how employee volunteering programs can serve as an informal control mechanism that facilitates cooperation in collaborative environments. Employees who participated in volunteering programs are likely to be cooperative, conditioning on the expectation that others will also cooperate. Therefore, volunteering programs can help improve cooperation by enabling conditional cooperators to signal their type and identify others' type. However, the extent to which employees rely on such signals to make cooperation decisions depends on the perceived credibility of the signal. If there are opportunities for others to strategically signal their type by volunteering, the credibility of the signal will be questionable. As a result, employees are less likely to rely on the signal to make their cooperation decisions. I conduct a two-stage experiment to test these predictions and find that, in settings where volunteering can genuinely reflect one's pro-social attributes, cooperation rate is higher when the participant and his partner both volunteered than otherwise. However, in settings where volunteering could be driven by other personal motives, it no longer has a significant impact on subsequent cooperation decisions.

My study extends the accounting literature on management control in cooperative settings. Given the prevalent use of teams in modern organizations, it is important to understand how different types and components of management control systems improve cooperation among team members. My results suggest that employee volunteering programs can facilitate cooperation by providing signals about employees' propensity to cooperate, but only when employees' volunteer decisions are perceived as non-strategic.

My study also has important implications for CSR practices by identifying an undocumented benefit of volunteering programs and how the realization of such benefits are moderated by contextual factors that affect the perceived motive underlying volunteering. While these contextual factors (e.g., public recognition) may attract more employees to participate in volunteering programs, they could undermine the benefits of such programs for enhancing cooperative performance. In practice, firms may adopt volunteering programs to achieve different purposes, such as improving employees' morale (Caligiuri et al. 2003) and developing employees' leadership skills (Wainwright 2005). In designing and executing employee volunteering programs, firms need to consider the main purpose they aim to achieve and tailor the program to maximize the likelihood of achieving the goal.

Some limitations of this study could be addressed in future research. First, in my experiment I use a one-shot prisoners' dilemma game, yet in practice individuals in cooperative settings often interact repeatedly. In repeated games without institutional remedies such as communication and punishment, voluntary cooperation is often fragile and declines over time. Prior research suggests that mechanisms that allow conditional cooperators to identify and monitor each other can help sustain cooperation in repeated games (Rustagi et al. 2010). It would be interesting to examine whether and how volunteering programs can serve as such a mechanism to facilitate reputation-building. Second, employees in my study cannot select whom they are paired with. Future research can examine how volunteering programs affect employees' selection of employers and work partners, and how employees interact with each other after the selection. Third, prior research suggests that participation in volunteering programs can be driven by

compensatory motives (Grant 2012). Specifically, if employees perceive their regular job as boring and meaningless, they may seek to obtain meaningfulness from volunteering. Future research could distinguish between different types of non-strategic motives of volunteering and examine how employees perceive and react to these motives. Last, while my study examines volunteering, a helping behavior towards individuals outside the organization, it would be interesting to study how helping behaviors among employees can convey information about individuals' types and influence subsequent interactions.

APPENDIX A. EXPERIMENTAL INSTRUMENT – STAGE ONE

For the purpose of this study, suppose that you are a market research analyst for ABC Company, a manufacturer and retailer of home improvement products.

ABC Company has an Employee Volunteer Program where employees volunteer at local and national nonprofit organizations. Every year, employees can take up to 60 hours of paid time off volunteering at qualified nonprofit organizations. Now, the Employee Volunteer Program provides an opportunity to volunteer at XYZ, a national nonprofit organization that offers a wider variety of low income assistance programs. XYZ's mission is to help low-income families achieve sustainable independence through community resources.

The Employee Volunteer Program at XYZ helps low-income individuals identify career options and develop workforce skills. The program has helped hundreds of participants find full-time jobs that enable them to better support their families. If you join the program, your responsibilities would include helping organize a series of employment preparation workshops and acting as mock interviewers in some workshops. Also, you would help with promoting the program and attracting more volunteers.

Your company is currently providing a series of information sessions. The purpose of these sessions is to inform employees about the new trends in the industry, such as new technology and potential changes in the market. Participation in these sessions is not mandatory. Employees can freely decide whether they would like to attend the information sessions based on their need and schedule.

Non-Strategic conditions:

Because your time is limited, you will decide whether you would like to participate in the Employee Volunteer Program by volunteering at XYZ, or attend the information sessions at your company. Now please choose one of the options on the computer and briefly explain why on the next page.

Strategic conditions:

Because your time is limited, you will decide whether you would like to participate in the Employee Volunteer Program by volunteering at XYZ, or attend the information sessions at your company. Before you make the decision, please first read task 2 instruction.

APPENDIX B. EXPERIMENTAL INSTRUMENT – STAGE TWO

Task 2 involves decision making in an organizational setting. You will be randomly paired with another participant. We will use a currency called "Lira." The Lira you earn will be converted into dollars (details described later), and you will be paid in private in cash at the end of the study based on your participant ID.

Please read the instructions carefully because the amount of money you earn may depend on the decisions that you make. You will take a quiz after reading the instructions. No one will be able to continue until everyone has passed the quiz.

Your Task

You and the other participant in your group will each decide how to allocate resources to a joint project. Specifically, you will each choose whether to allocate *high* or *low* resources to the project. The allocated resources will determine the performance of the project, which in turn will determine a bonus for you and the other participant (detail provided below). If you allocate *high* resources to the project, you will incur a personal cost of 1000 Lira, which will be subtracted from your bonus to determine your net payoff. If you allocate *low* resources to the project, there will be no personal cost.

- If you and the other participant *both* allocate high resources to the project, its performance will be high and the bonus will be 5000 Lira. The bonus will be shared equally between you two. That is, you and the other participant will each receive 2500 Lira. The net payoff for you and the other participant will be $2500 - 1000 = 1500$ Lira.
- If *either* you *or* the other participant (but *not both*) allocates high resources to the project, its performance will be average, and the bonus will be 4000 Lira. The bonus will be shared equally between you two. That is, you and the other participant will each receive 2000 Lira. The net payoff for the person who chose high resources will be $2000 - 1000 = 1000$ Lira, and the net payoff for the person who chose low resources will be $2000 - 0 = 2000$ Lira.
- If you and the other participant *both* allocate low resources to the project, its performance will be low, and the bonus will be 2400 Lira. The bonus will be shared equally between you two. That is, you and the other participant will each receive 1200 Lira. The net payoff for you and the other participant will be $1200 - 0 = 1200$ Lira.

Recall that the other participant will make exactly the same decision as you. You will each make your choice without knowing the other's choice. The table below summarizes the net payoff for you and the other participant based on possible combinations of the level of resources allocated to the project.

Your allocation to the joint project	The other participant's allocation to the joint project	Your net payoff	The other participant's net payoff
<i>Low</i>	<i>Low</i>	<i>1200</i>	<i>1200</i>
<i>Low</i>	<i>High</i>	<i>2000</i>	<i>1000</i>
<i>High</i>	<i>Low</i>	<i>1000</i>	<i>2000</i>
<i>High</i>	<i>High</i>	<i>1500</i>	<i>1500</i>

You will make the allocation decision in two possible situations:

1. You will decide whether to allocate high or low resources to the project if the other participant in your group **chose to participate** in the Employee Volunteer Program in task 1.
 2. You will decide whether to allocate high or low resources to the project if the other participant **chose not to participate** in the Employee Volunteer Program in task 1.
- That is, you will make these two decisions without knowing whether the other participant participated in the Employee Volunteer Program in task 1. Later, depending on whether or not the other participant actually participated, we will use either Decision 1 (i.e., if the other participant actually participated in the Employee Volunteer Program) or Decision 2 (i.e., if the other participant did not participate) to determine your payoff.

The other participant in your group will make exactly the same two decisions, and will receive a payoff determined the same way.

For example, suppose that you decide to allocate high resources to the project if the other participant in your group participated in the Employee Volunteer Program in task 1 and allocate low resources if the other participant did not participate.

- If the other participant actually did not participate, your allocation to the project will be “low.” And if the other participant made the same two choices as you, and you actually did not participate, his/her allocation will be “low.” Therefore, you and the other participant will each receive 1200 Lira (refer to the table above).
- If the other participant actually participated, your allocation will be “high.” And if the other participant made the same two choices as you, and you did not participate, his/her allocation will be “low.” Therefore, you will receive 1,000 Lira and the other participant will receive 2,000 Lira.

At the end of the experiment, the Lira you earn will be converted to dollars at a rate of 250 Lira = \$1, and you will be paid in private in cash.

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