

**The Ripple Effect of Managerial Behavior: Exploring Post-Experimental Impact of
Leading by Example on small firms' Cooperation and Performance**

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Abstract

Cooperation between employees in a company is an important input to firm performance. This study examines how a manager's cooperative behavior and the visibility of this behavior affect the cooperation amongst employees, and subsequently firm performance. To do so, we conducted a field experiment with managers and their employees from 320 Vietnamese small and micro firms to determine the impact of a manager's leading by example (LBE) on employees' behavior, corporate culture, and firm performance. Both managers and employees participated in a Public Good experiment which aimed to elicit an individual cooperative behavior. Noteworthy is that the decision made by a manager in the experiment was given as an example to employees before they made decision in that same experiment. We considered that the example of cooperation by managers in the Public Good experiment communicated a powerful signal to the employees regarding the importance of fostering cooperation in the workplace. Such a signal by the manager, who is at the top in the organizational hierarchy, would impact their employees' behavior in the workplace and firm's outcomes beyond the experiment. Interestingly, we found that concealing a manager's identity from their employees enhances the impacts of LBE.

Keywords: leading by example, cooperative behavior, corporate culture, firm performance, managers, employees.

I. Introduction

Cooperation plays a crucial role in ensuring organizational effectiveness (Schneider et al., 2017; Chambers & Baker, 2020). This is because cooperation enables the sharing of information, joint problem-solving, and an increased willingness to be long-term oriented in terms of one's behaviors towards co-workers and managers. However, organizations are comprised of individuals with conflicting interests and motivations. As such, one important goal of an organization is to ensure its members' cooperation in collective actions (Gavetti et al., 2007). Additionally, cooperative effort is usually costly for individuals and is difficult to measure (Kosfeld & von Siemens, 2011). For instance, it is typically difficult to recognize, let alone verify, whether an employee has made efforts to help a co-worker or shared information with them. Employees thus have little incentive to be cooperative, which results in lower levels of collaboration and organizational outcome. In this study, we examine the role of manager's leadership in fostering cooperation within firms which ultimately results in improving firm performance.

To explore the role of leadership, we first elaborated on the concept of leadership in this study (see Lord et al., 2017) for insights on the importance of focusing on leadership in organization related studies. In their leadership practice, leaders tend to use various measures such as change of policies (Yukl, 2002), interpersonal emotion management strategies (Wang et al., 2023) or rhetorical skills (Shamir, 1995). A recent study by Graham et al. (2022) emphasized that the best leadership tool a CEO possesses is their own example. Along this line, we want to examine how a manager's cooperative behavior and the visibility of this behavior affect the culture of cooperation and subsequently of firm performance. For this purpose, we grounded our study on Bandura's (1977, 1991) social learning theory (SLT), which posits that individuals learn by observing and following the behaviors of their role models. Prior studies (Brown et al., 2005;

Gittell et al., 2010; Li et al., 2018) highlighted managers' key role in modeling behavior for employees, given their top position in the organizational hierarchy. Managers could set examples for a whole range of behaviors that they want their employees to emulate. When a manager demonstrates an example of cooperative behavior to their employees, they communicate a powerful signal that lets the employees know that their manager considers it important to foster cooperation within the firm. In line with Vesterlund (2003), and Yaffe and Kark (2011), we refer to this phenomenon as leading by example (LBE).

To explore the role of LBE in cooperation, we conducted a study with real managers and their employees from small and micro firms - whose median number of employees is about seven. Simon and Houghton (2003) highlighted the fact that small and micro firms provide an ideal setting for exploring the scope of a manager's decision-making. This is because compared with large firms they have fewer formal procedures, greater centralization, and lower organizational inertia¹. In addition, small firms facilitate frequent and informal interactions between managers and their employees (Analoui & Karami, 2003). Along this line, our manager participants played the most crucial role deciding their firm's strategies, just as CEOs in the large corporations. Furthermore, they directly engage in the daily implementation of the firms' strategies, just as operating managers

¹ Focusing on small and micro firms, we also addressed an important observation from McKenzie and Woodruff (2017) that these firms account for more than 80% of total enterprises in emerging economies. In Vietnam, SMEs and micro firms play essential roles in the economy, accounting for 98 % of all enterprises, 40 percent of GDP, and 50 percent of employment. The number of SMEs has grown by around 100,000 in 2016, driven mostly by government's effort to promote the growth of these firms.

in larger firms (Lubatkin et al., 2006). Such interactions play a role in narrowing the social distance between managers and employees which in turn enhances the impact of LBEs. In this regard, our study is related to an important question of the micro-institutional approach: under which conditions mimetic pressures will be particularly strong (Schilke 2018; Zucker, 2019).

A crucial element of our study is a field experiment. To measure cooperation at the individual level, we applied the Public Goods (PG) experiment, which has been used to gauge cooperative behavior in a significant number of studies across various disciplines (e.g., Rustagi et al., 2010; Kniffin et al., 2017). In conducting the PG experiment, we randomly divided the participants into groups of three. Each participant's initial endowment was 50 points, which could be used to contribute to the group's common fund. The total contribution was doubled and then divided equally among the three players. Each player's final payoff was the sum of the points he retained from the initial endowment, after contributing to the common fund, and the points received from the division of the common fund. Since all the decisions were made anonymously, participants' contributions in the experiment constituted a measure of their willingness to cooperate.

Given its setup, the PG experiment is of direct relevance to our study. Specifically, in the PG experiment, the group's total payoffs would be optimal if the members are cooperative and contribute to the common goal (fund). However, any contribution to the common goal is costly for particular individuals. As such, a selfish individual would contribute nothing and free-ride on others' contributions. In the context of our study, we explore cooperation as a collective behavior toward accomplishing an organization's shared goal (Wagner III, 1995; Gavetti et al., 2007); yet, the exertion of cooperative effort is costly for individuals and difficult to measure (Kosfeld & von

Siemens, 2011). Therefore, the manager's initiative in leading-by-example (**LBE**) plays a significant role in fostering cooperation in the organizations.

Along this line, our study presents a unique perspective by examining the impact of LBE on participants after completion, as opposed to most studies in which interactions between subjects are limited or non-existent. We make a novel contribution by exploring the post-experimental effect of leading-by-example (LBE). Unlike most experiments where the participants never or rarely interact with each other after conclusion of the experiment, our managers and employees will continue to work and interact with one another in their firms afterwards as well. We considered LBE to be externally incorporated in the experiment through expected future interactions within the firms, thereby reinforcing or enhancing existing norms of cooperation, particularly when employees were made aware of their managers' exemplary cooperative behavior. Such a mechanism is likely to have a positive effect on the firm's cooperative culture outside of the experiment. In particular, the example of cooperation by managers in the experiment communicated a powerful signal to the employees regarding the importance of promoting cooperation in the workplace. Such a signal by the manager, who is at the top in the organizational hierarchy, would impact employee behavior in the workplace, corporate culture, and firm performance beyond the experiment.

II. Theoretical Model

A novel finding from our study is that concealing managerial identity enhances cooperative responses to leading-by-example (LBE) interventions presents a fascinating puzzle for organizational theory. Conventional wisdom suggests transparency should strengthen, not weaken, leadership influence. To reconcile this apparent contradiction, we develop a formal Bayesian model that systematically integrates belief formation processes with strategic cooperation decisions. This framework extends beyond traditional social learning approaches by explicitly

modeling how employees update their beliefs about managerial authenticity when confronted with different information structures.

Our central theoretical innovation lies in conceptualizing managerial cooperation as a signal whose interpretation is contingent on the revelation context. Through a Bayesian lens, we can formalize the cognitive mechanisms through which identity concealment paradoxically enhances signal clarity rather than diminishing it—providing a rigorous foundation for understanding the empirical patterns observed in the Vietnamese small-firm context.

1. Formal Model Structure with Bayesian Fundamentals

Consider an organization comprising a manager (m) and employees $i \in N = \{1, 2, \dots, n\}$. The manager possesses private information about their cooperative type, represented by parameter $\theta_m \in [0, 1]$, which captures their intrinsic preference for cooperation. Employees maintain beliefs about this parameter, but cannot observe it directly. Each agent chooses a cooperation level $a_i \in [0, \bar{a}]$, contributing to both individual utility and organizational performance. The manager moves first, selecting a_m based on their type θ_m and strategic considerations, after which employees observe a_m and respond accordingly.

Bayesian Belief Structure

The cornerstone of our model is the Bayesian belief formation process. Employees maintain a probability distribution over the manager's type, updated through observed behavior. The prior belief distribution is denoted:

$$p(\theta_m) \sim \text{Beta}(\alpha_0, \beta_0)$$

where the Beta distribution provides a natural conjugate prior for cooperation propensity, with α_0 and β_0 reflecting the strength and direction of initial beliefs about managerial cooperativeness.

Upon observing the manager's cooperation level a_m , employees update their beliefs according to Bayes' rule. However—and this represents the crucial insight—this updating process differs fundamentally between the identity-concealed and identity-revealed conditions.

Identity-Contingent Signal Processing

Identity-Concealed Condition (L1):

When the manager's identity is concealed, employees interpret a_m as a relatively pure signal of type θ_m . The likelihood function takes the form:

$$p(a_m|\theta_m) \propto \exp\left(-\frac{(a_m - \theta_m)^2}{2\sigma_C^2}\right)$$

This Gaussian formulation captures the notion that cooperation levels are noisy but unbiased signals of underlying type when identity is concealed. The parameter σ_C^2 represents signal variance in the concealed condition.

Identity-Revealed Condition (L2):

When identity is revealed, employees recognize that managers may engage in strategic self-presentation, contaminating the signal. The likelihood function becomes:

$$p(a_m|\theta_m) \propto \exp\left(-\frac{(a_m - (\theta_m + \kappa))^2}{2\sigma_R^2}\right)$$

where $\kappa > 0$ represents the expected inflation in cooperation due to self-presentation motives, and $\sigma_R^2 > \sigma_C^2$ reflects the increased signal variance when identity is revealed.

Posterior Belief Formation

Applying Bayes' rule, the posterior beliefs about the manager's type become:

For L1 (identity concealed):

$$p(\theta_m|a_m)_{L1} \propto p(a_m|\theta_m)_{L1} \cdot p(\theta_m)$$

For our chosen functional forms, the posterior distribution becomes:

$$p(\theta_m|a_m)_{L1} \sim \text{Beta}(\alpha_1, \beta_1)$$

where $\alpha_1 = \alpha_0 + \lambda_C \cdot a_m$ and $\beta_1 = \beta_0 + \lambda_C \cdot (1 - a_m)$ with $\lambda_C = \frac{1}{\sigma_C^2}$ representing the precision of the concealed signal.

For L2 (identity revealed):

$$p(\theta_m|a_m)_{L2} \propto p(a_m|\theta_m)_{L2} \cdot p(\theta_m)$$

This yields:

$$p(\theta_m|a_m)_{L2} \sim \text{Beta}(\alpha_2, \beta_2)$$

where $\alpha_2 = \alpha_0 + \lambda_R \cdot (a_m - \kappa)$ and $\beta_2 = \beta_0 + \lambda_R \cdot (1 - (a_m - \kappa))$ with $\lambda_R = \frac{1}{\sigma_R^2}$ representing the precision of the revealed signal.

The expected value of the manager's cooperative type under each condition becomes:

$$E[\theta_m | a_m]_{L1} = \frac{\alpha_1}{\alpha_1 + \beta_1}$$

$$E[\theta_m | a_m]_{L2} = \frac{\alpha_2}{\alpha_2 + \beta_2}$$

These posterior expectations reflect employees' updated beliefs about managerial authenticity after observing cooperation and considering identity information.

Utility Maximization with Bayesian Beliefs

Employee Utility Structure

Building on the posterior beliefs, employee utility is formulated as:

$$U_i(a_i) = \underbrace{(e - a_i) + r \cdot \frac{a_i + \sum_{j \in N \setminus \{i\}} a_j}{n}}_{\text{Material Payoff}} + \underbrace{\gamma \cdot (1 - (a_i - a_m)^2)}_{\text{Conformity Utility}} + \underbrace{\eta \cdot a_i \cdot E[\theta_m | a_m]}_{\text{Belief-Dependent Utility}}$$

This structure incorporates:

1. Standard material payoffs from the public goods game
2. Conformity utility from aligning with the manager's example
3. Belief-dependent utility that increases with perceived managerial authenticity

Optimal Cooperation Decision

The first-order condition for employee i 's optimal cooperation level yields:

$$\frac{\partial U_i}{\partial a_i} = -\left(1 - \frac{r}{n}\right) - 2\gamma \cdot (a_i - a_m) + \eta \cdot E[\theta_m | a_m] = 0$$

Solving for a_i^* :

$$a_i^* = a_m - \frac{1 - \frac{r}{n} - \eta \cdot E[\theta_m | a_m]}{2\gamma}$$

Substituting the posterior expectations, we have:

For L1 (identity concealed):

$$a_i^{L1*} = a_m - \frac{1 - \frac{r}{n} - \eta \cdot \frac{\alpha_1}{\alpha_1 + \beta_1}}{2\gamma}$$

For L2 (identity revealed):

$$a_i^{L2*} = a_m - \frac{1 - \frac{r}{n} - \eta \cdot \frac{\alpha_2}{\alpha_2 + \beta_2}}{2\gamma}$$

The Identity Concealment Effect

The difference in cooperation between conditions becomes:

$$a_i^{L1*} - a_i^{L2*} = \frac{\eta}{2\gamma} \cdot \left(\frac{\alpha_1}{\alpha_1 + \beta_1} - \frac{\alpha_2}{\alpha_2 + \beta_2} \right)$$

Since $\sigma_R^2 > \sigma_C^2$ (signal is noisier when identity is revealed) and $\kappa > 0$ (strategic inflation exists when identity is revealed), the analysis confirms:

$$\frac{\alpha_1}{\alpha_1 + \beta_1} > \frac{\alpha_2}{\alpha_2 + \beta_2}$$

This inequality establishes that the posterior expectation of managerial authenticity is higher in the identity-concealed condition, thus predicting greater employee cooperation—precisely matching the empirical findings from our study.

2. Dynamic Belief Evolution and Organizational Culture Formation

Sequential Belief Updating

In organizational settings, cooperation dynamics unfold over time. Let us extend the model to multiple periods $t = 1, 2, \dots, T$. The Bayesian framework elegantly accommodates this extension, as posterior beliefs at t become priors for $t + 1$:

$$p_t(\theta_m) = p_{t-1}(\theta_m | a_{m,t-1})$$

This recursive structure generates path-dependent belief trajectories that formalize the concept of organizational culture as shared beliefs about leadership authenticity.

The updating equations become:

$$\begin{aligned}\alpha_t &= \alpha_{t-1} + \lambda_{C/R} \cdot (a_{m,t-1} - \delta \cdot I_t) \\ \beta_t &= \beta_{t-1} + \lambda_{C/R} \cdot (1 - (a_{m,t-1} - \delta \cdot I_t))\end{aligned}$$

where I_t is an indicator variable for identity revelation at time t , and δ represents the discount factor applied to observed cooperation when identity is revealed.

Convergence Properties and Cultural Stability

As $t \rightarrow \infty$, beliefs converge to a stationary distribution:

$$\lim_{t \rightarrow \infty} p_t(\theta_m) = p_\infty(\theta_m)$$

The convergence rate and limiting distribution depend critically on the identity revelation regime. Under consistent identity concealment, beliefs converge more rapidly to a distribution centered closer to the manager's true type θ_m . In contrast, persistent identity revelation leads to systematically biased long-run beliefs, with potentially deleterious effects on organizational culture.

Organizational Performance Implications

Integrating the Bayesian belief structure with the production function developed earlier:

$$\Pi_t = \lambda \cdot \sum_{i \in N} a_{i,t} + \delta \cdot \left(\sum_{i \in N} a_{i,t} \right)^2 - c \cdot \sigma^2(a_t)$$

we can derive the expected performance trajectory:

$$E[\Pi_t] = \lambda \cdot n \cdot E[a_{i,t}] + \delta \cdot n^2 \cdot (E[a_{i,t}])^2 - c \cdot E[\sigma^2(a_t)]$$

where:

$$E[a_{i,t}] = a_{m,t} - \frac{1 - \frac{r}{n} - \eta \cdot E[\theta_m | a_{m,1}, a_{m,2}, \dots, a_{m,t-1}]}{2\gamma}$$

This expression demonstrates how organizational performance emerges from the dynamic interaction between managerial behavior, identity revelation policies, and employee belief formation processes.

Summary: The Bayesian model of leadership influence developed here provides a framework for understanding the counterintuitive empirical finding that concealing managerial identity enhances the effectiveness of leading by example. By formalizing the belief formation process, we demonstrate that identity concealment paradoxically enhances signal clarity by eliminating attribution ambiguity.

The main insight emerges from the Bayesian posterior estimations: when a manager's identity is concealed, their cooperative behavior is interpreted as a more reliable signal of genuine cooperative preference, leading to higher posterior expectations of authenticity. These enhanced beliefs, in turn, augment the belief-dependent component of employee utility, resulting in greater cooperative responses. This theoretical mechanism aligns precisely with the empirical patterns observed in the Vietnamese small-firm study while providing a rigorous mathematical foundation for understanding leadership influence more broadly. Moreover, the dynamic extensions of the model generate testable predictions about cultural evolution and long-run performance that could guide future empirical work on organizational leadership.

III. Methods

In this section, we will elaborate on our baseline data, the Public Goods experiment, and the experimental design.

The Baseline Data: Organizational Culture and Value Survey (OCVS)

All our managers and their employees are from 320 small and micro Vietnamese firms that were selected from the *Organizational Culture and Value Survey* (OCVS). The National Economics University and the General Statistical Office (GSO) have been jointly implementing

OCVS since 2010.² Four waves have been completed prior to the present study. OCVS focuses on small enterprises with fewer than 50 employees, most of which are micro firms with fewer than 10 employees.

For the purposes of this study, it is significant to note that the managers in our sample firms are the primary decision-makers. This is a critical aspect because, in smaller firms, the influence of leading-by-example (LBE) can be more pronounced compared to larger firms, where decision-making is typically distributed among a wider management team. Notably, most of these managers are founders of their companies, primarily consisting of family-business owners and sole proprietors.

This distinction is essential as it shapes the decision-making dynamics within these enterprises. Owner-managers often merge personal and familial priorities with business decisions, which can influence both leadership styles and cooperative dynamics within the firm (Kim and Nguyen, 2023). Similarly, sole proprietors, with their comprehensive control over business decisions, offer a distinctive insight into the effects of leading-by-example due to their autonomous role. These factors are crucial for understanding how leadership and cooperation are manifested and perceived in small and micro firms.

Experimental Design

In collaboration with the General Statistical Office of Vietnam, we conducted our study following a two-stage structure. In brief, before the employees participated in the PG experiment, which was a part of the 2016 OCVS (from December 2016 to February 2017), we had provided them with examples from the managers. We referred to the manager's example as LBE. It is

² The GSO has become a department under the Ministry of Planning and Investment since 2010.

noteworthy that the employees may be exposed to different kinds of LBE depending on which treatment group their firm is assigned to. In the following sections, we will elaborate further on the PG experiment and our study design.

First stage: Conducting a public goods experiment with the manager participants

In the first stage, the managers participated in the PG experiment. Appendix A1 presents the instructions related to the experiment. Several studies show that cooperation in this game in the laboratory predicts cooperative group behavior in real-world situations (e.g. Rustagi et al., 2010). One important question is whether the decisions made in the one-shot experiment have any correlation with individual behavior in real life. Peysakhovich and Rand (2016) presented causal evidence to support of previous cross-cultural correlational studies, suggesting that the norms of cooperation (revealed by play in one-shot economic games) positively co-vary across cultures with measures of institutional quality, such as rule of law (Gächter et al., 2010; Herrmann et al., 2014) and market integration (Henrich et al., 2010).

To conduct the PG experiment with managers, prior to conducting the 2016 OVCS, we conducted eight experimental sessions between October and November 2016, focusing specifically on managers from each firm included in our study. The procedure for each experimental session was as follows. First, the participants arrived at the experiment site and registered themselves. Then, they received their seat assignment cards, which indicated their room and seat numbers. The seat numbers were used to match the manager with the firms in order to deliver the managers' examples to the employees.

After completing the PG experiment, the participants waited for us to compute their final payoffs. Once the payments were prepared, we gave coded payment envelopes to the participants' representatives. The participants submitted their identification cards to these representatives to receive their envelopes. Finally, it is worth noting that we used an incentivized design. In particular, we implemented an exchange rate regime for our PG experiment with the managers. Each point earned by the participants in the PG experiment equalled 3000 VND for the manager participants.³ The average length of the experiment session, including the general introduction at the beginning and a post-experiment survey at the end, was 1.5 hours.

Second stage: Presenting the manager's contribution in the PG experiment as example to employees

In the second stage, the managers' decisions in the PG experiment were then presented to the employee participants as examples. Specifically, we incorporated the managers' choices in the PG as examples for the employees when they made decisions in the *corporate culture* section of the OVCS, which utilized the same PG experiment. We referred to the manager's examples as LBE. One interesting aspect of our study is that it uses various treatment groups, thereby exposing employees to different kinds of LBE as follows.

Random Assignment of Firms to Different Groups

For firms in the baseline group L0

The managers made an anonymous choice in the PG experiment. The employees of firms in L0 did not receive an example. The L0 group enabled us to distinguish the LBE in cooperation from

³ On average, the manager participants earned 88,850 VND (around 4.6 USD) from the PG experiment.

managers being inherently cooperative. Particularly, the cooperative managers in the L0 group would decide to contribute more to the common fund even though their decisions were anonymous.

For firms in the treatment group L1

Moving on to our main treatment group, L1, we gave each manager of the firms the following information:

"Your choice in this experiment will be given to your employees as an example before they participate in the same experiment, which is a part of the Organizational Culture and Value Survey (OVCS) that the GSO will conduct with your firm next month. However, your employees will not know that you made this choice."

By ensuring that their identities will not be disclosed to their employees, the treatment L1 allowed us to regulate the managers' self-image concerns that might have influenced their decisions if their choices were to be observed by their employees. We wanted the managers to believe that their examples would be presented to their employees as examples from any other manager. Thus, the managers would not expect their actions to be perceived as commands to their employees or have a stronger effect on them than the actions of just any manager. Furthermore, we aimed to relieve the managers from their concerns about any prior commitments they might have made to their employees. For instance, we did not want the managers to think that "I have to behave according to the firm's mission statement."

The employees of the firms in treatment group L1 were informed of the following:

"The example you will receive is the actual choice made by a manager who participated in this same experiment. The manager knew that their identity is not disclosed to you."

It is worth noting that the instruction intentionally provides employees with an example (or a lack) of cooperative behavior. Also, they are made aware that this is an example from the

manager; in other words, LBE becomes salient in this instruction to the employees. Finally, employees understand that the manager knew that their identity will be concealed from the employees while they made their decisions.

For firms in the treatment group L2

In the next treatment group, L2, to make their self-image concerns more salient, we revealed the managers' identities to their employees. We informed the managers of the following:

"Your choice in this experiment will be given to your employees as an example before they participate in the same experiment, which is a part of the Organizational Culture and Value Survey (OVCS) that the GSO will conduct with your firm next month. Your employees will know that you made this choice."

The employees of the firms in the treatment group L2 were informed of the following:

"The example you will receive is the actual choice made by your manager who participated in this same experiment. The manager knew that their identity is disclosed to you."

Note that in this instruction, the example by the managers is made salient to their employees. In addition, employees knew that that the manager was made aware of the fact that their identities will be revealed to the employees.

For firms in the treatment group L3

Finally, we wanted to investigate whether an employee would respond to LBE from a random manager in the same way he would if it had come from his own manager. Moreover, it would be interesting to find out whether a manager might undertake LBE simply due to his status, which is higher than a typical employee's. To explore these possibilities, in the treatment group L3, we matched each manager with a random employee who did not have any prior relationship with the assigned manager. The managers were given the following instruction:

"Your choice in this experiment will be given to employees of a random firm before they participate in the same experiment, which is a part of the Organizational Culture and Value Survey (OVCS) that the GSO will conduct with that random firm next month."

The employees of a random firm were informed of the following:

"The example you will receive is the actual choice made by a manager who participated in this same experiment. "

We can note that compared with employees in the L1 and L2 groups, the instruction provided to the employees in L3 group don't make the manager's identity salient. Especially, it doesn't mention whether or not the manager's identity is disclosed.

Recruiting Participants

Given the opportunity cost involved, inviting managers and employees to participate in the experiment was challenging. Fortunately, we were able to coordinate with the Small and Medium Enterprise Promoting Center under the Ministry of Planning and Investment of Vietnam to conduct the experiment.⁴ To conduct our study, with the assistance of the Center, we selected 485 small and micro firms (fewer than 50 employees) from the OVCS survey which has been mentioned above. We focused on these kinds of firms given their importance in emerging economies including Vietnam. According to GSO's White Book (2015), small (from 10 to 50 employees) and micro firms (i.e., less than 10 employees) account for more than 96% of total enterprises in

⁴ Recognizing the importance of micro firms (with fewer than 10 employees) and small enterprises (firms with fewer than 50 employees), Vietnamese government has aimed to promote the growth of these firms. Most of the firms in our sample have attended some kind of training by the MPI. Other firms have gained some form of support i.e., low interest loan. These factors enhance the likelihood of firm's participation. As such, we were able to recruit a relative large number of firms.

Vietnam, of which micro firms account for more than 73% as of 2015. Focusing on small and micro firms, we also addressed an important observation from McKenzie and Woodruff (2017) that micro firms employ more than 90% non-agricultural labor force in emerging economies.

Next, we stratified these firms according to their location (city), industry (the type of products), and firm's size. As in Holm et al. (2013), we selected those sectors that reflect strong local production lines to narrow down industrial diversity. In addition, we focused on industries in which most Vietnamese micro and small firms operated.⁵ The selected industries include textile, ordinary machinery, computer, and communication equipment. Out of the 485 selected firms, we were able to recruit 320 firms to participate in the study. We classified these firms into services e.g., retailing stores (34%), communication and IT (31%), and textile industries (35%).

It is noted that the reason due to which the rest of the 165 firms did not participate was mostly owing to the manager's unwillingness to participate or they decided to withdraw from the study. To examine whether there exists any difference between the participating and non-participating firms, in Table 1 panel B, the comparison of the firms belonging to these two groups is presented. While examining the table, we could observe that these two groups of firms are not significantly different from one another in terms of most of their characteristics.

Table 1 outlines the characteristics of our participants across different treatment groups. Notably, about 28% of the managers are founders, which represents a significant portion of our sample. These founder-managers are primarily family-business owners and sole proprietors. Understanding the roles and decision-making authority of these individuals is crucial, as these

⁵ According to the Statistical Year Book (GSO 2015), Vietnamese micro and small firms mainly worked in the following industries: 61 % in services sectors including retailing and IT, 35 % in manufacturing sectors including textile.

factors can significantly influence the adoption and effectiveness of leading-by-example (LBE) behaviors within their firms.

Additionally, the majority of the managers in our study are male. Given this gender dominance, the findings from our experiment should primarily be interpreted as reflective of male managerial behavior. The median level of education of the managers was found to be 16 years of schooling, which is equivalent to that of a university graduate. As expected, the employee participants had a lower level of education than the manager participants. In addition, we noticed a balanced assignment of participants among the treatment groups L0, L1, L2, and L3 at the baseline, both in terms of the sample size and the firm’s specifics, including the firm’s cooperative culture. This pattern is consistent with the randomization check which we have elaborated in the following section.

Table 1. Classification of participants, and descriptive statistics of main variables

Panel A: Classification of firms by treatment groups

Group	Type of examples and information	No. of firms
L0	Employees receive no example; manager’s decisions in PG experiment are kept secret.	79
L1	Employees receive examples from their own manager, but are not informed about the managers' identity.	81
L2	Employees receive examples from their own managers and know the managers' identity.	84
L3	Employees receive examples from a random manager.	76

L0	L1	L2	L3	Total
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Managers and Firms Specifics

Number of manager participants	79	81	84	76	320
- Male	72	74	77	70	293
- Female	7	7	7	6	27
Median age	35	34	35	34	35
Median years of schooling	16.5	16	16.5	16	16
Median monthly income (10 ⁶ VND)	24.84	25.28	24.81	25.07	25.06
Median months of tenure in the current firm	42	47	46	44	48
Founder status (1 = founded the firm)	.34	0.32	0.34	.37	0.28
Median number of employees	7	8	7	8	7
Service sector (%)	35	32	34	36	34
Textile sector (%)	34	35	37	33	35
Communication and IT sectors (%)	31	33	29	31	31

Employees

Number of participants	425	422	437	428	1712
- Male	241	246	256	252	995
- Female	184	176	181	176	717
Median age	32	34	33	35	35
Median years of schooling	10	8	12	12	10
Median months of working for the current firm	15	16	18	16	16

Panel B. Comparison of participating and non-participating firms

	Participating firms	Non-participating firms	P-value of mean difference
Managers			
Number of participants	320	165	
- Male	293	147	
- Female	27	18	
Mean age	34.75	35.58	.22
Mean years of schooling	15.27	15.18	.25
Mean monthly income in million VND	24.46	25.07	.19
Median number of employees	7	7	

Employees

Number of participants	1712	881	
- Male	995	442	
- Female	717	439	
Mean age	35.40	41.45	.012
Mean years of schooling	11.48	10.76	.16
Mean months of working for the current firm	16.75	15.95	.25

Part C:

Correlation between main variables

	X1	X2	X3	X4	X5	X6	X7
Manager Age (X1)	1						
Manager Tenure (X2)	0.56	1					
Manager Female (X3)	0.07	0.14	1				
Manager's salary (X4)	0.11	0.22	0.07	1			
Firm yearly sales (X5)	0.31	0.34	0.44	0.41	1		
Corporate culture of cooperation (X6)	0.22	0.27	0.26	0.19	0.31	1	
Number of employees (X7)	0.15	0.18	0.22	0.14	0.04	0.12	1

Randomization Check

Randomizing the participants to the various treatment groups enabled us to address the challenges that were involved in exploring the link among LBE, corporate culture, and firm

performance. One such instance is the difficulty to identify the casual link between a manager's LBE and the corporate culture. Does LBE in a cooperation improve the corporate's honesty culture? Does having a high level of cooperative culture influence a manager's tendency to undertake LBE? The randomization allowed us to control for firm-level heterogeneity regarding the cooperation and firm performance. To ensure that the randomization had been conducted properly, we checked for the systematic differences among the firms in the treatment groups L0, L1, L2, and L3. To achieve that, we ran the following regressions:

$$Y_i = \alpha_0 + \alpha_1 L_1 + \alpha_2 L_2 + \alpha_3 L_3 + \gamma X_i + \varepsilon_i$$

where the dependent variable Y_i could be a firm-level characteristic derived from the OCVS database a year prior to this experiment. The independent variables included a set of binary variables that indicate which group the organization was assigned to. The reference variable was the control group L0. If the estimated coefficient was found to be insignificant, there were no significant differences in the firm-level's main characteristics by the treatment groups.

The findings are presented in Table 2. As expected, we did not find significant coefficients for all the specifications. Such an outcome reveals that these groups do not exhibit any significant differences in terms of their primary characteristics at the baseline. As an alternative to the conduction of a randomization check, we also implemented another method wherein we compared the main characteristics among the firms across the treatment groups L0, L1, L2, and L3. Panel B of Table 2 presents the main results. Consistent with the above findings, we did not find any significant differences in these variables.

Table 2. Randomization Checks on Baseline Differences across Groups

Panel A: Using regression

	<i>Dependent variables</i>					
	Sales employee	Manger's year per of schooling	Manger tenure	Corporate culture cooperation	Number of employees	Employee's tenure
	(1)	(2)	(3)	(4)	(5)	(6)
L1	2.84 (2.32)	1.56 (2.08)	1.28 (1.15)	0.46 (.24)	-1.22 (1.91)	0.76 (1.58)
L2	1.28 (1.50)	-0.42 (1.68)	1.32 (1.45)	-.52 (1.26)	.87 (1.42)	-1.18 (0.96)
L3	2.23 (2.65)	0.84 (1.42)	1.12 (1.28)	1.58 (1.29)	- 0.56 (0.50)	2.47 (2.54)
Observations	320	320	320	320	320	320
F-stat (joint significance)	2.16	1.84	2.56	2.75	1.87	1.76

Test of coefficient equality
 L1 = L3 (p value) 0.19
 L2 = L3 (p value) 0.22
 L1 = L3 (p value) 0.18

Panel B. Comparing firms' main characteristics among treatment groups

	L0	L1	L2	L3	Pvalue L0 vs L1	Pvalue L0 vs L1	Pvalue L0 vs L1
Sales per employee (\$US 1,000)	44.25	44.78	44.26	44.17	0.35	0.42	0.4
Manger's year of schooling	15.27	16.23	15.57	16.25	0.15	0.42	0.16
Manager's tenure	3.25	3.04	3.02	3.27	0.22	0.18	0.35
Corporate culture of cooperation	2.75	2.61	2.82	2.69	0.41	0.45	0.52
Number of employees	7.9	8.22	7.84	8.04	0.43	0.56	0.48

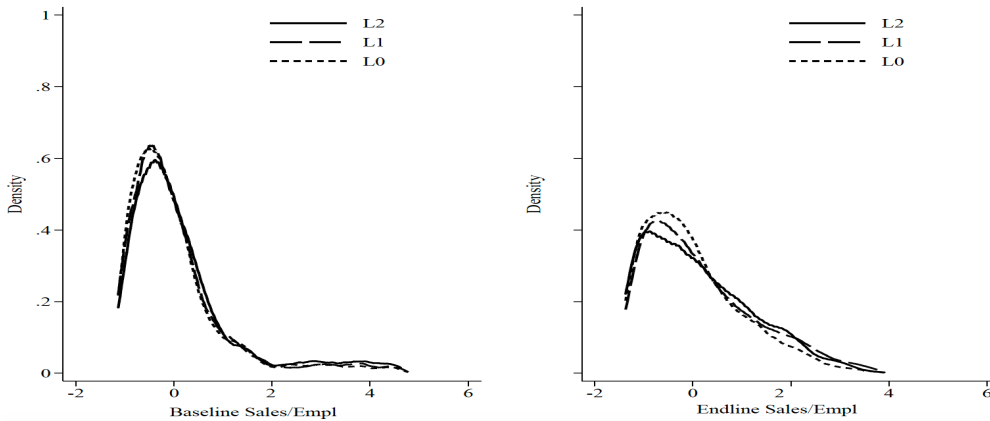
Employee's tenure (months)	37.8	40.2	37.9	42.15	0.14	0.43	0.11
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Note: This table explores whether significant differences exist between experimental treatment groups. To do so, we present OLS results from regressing the baseline firm's characteristics on different treatment group dummies. Corporate culture of cooperation is collected from the Organization Culture and Values Survey (OCVS). Reference category: L0. Entries are unstandardized coefficients, with standard errors in parentheses.

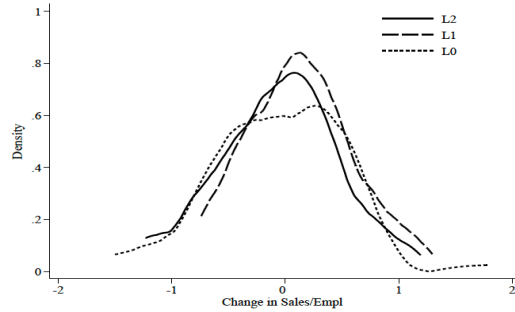
Finally, figure 1 panel A represents the kernel density of the standardized firm's sales per employee across groups. We can note that the distributions are very close at baseline (on the left). The p-values for the Kolmogorov-Smirnov tests of equality of distributions at baseline have p-values 0.242 (L0 vs L1), 0.322 (L0 vs L2), and 0.344 (L1 vs L2). However, the distributions are significantly different from each other at endline (on the right) i.e, one year after the experiment with the p-values 0.004 (L0 vs L1), 0.007 (L0 vs L2), and 0.024 (L1 vs L2).

Figure 1. Kernel density of the standardized firm's sales per employee

Panel A:



Panel B:



Panel B compares the kernel density of changes in sales per employee between L0, L1, and L2. The effect does not appear to be driven by outliers, as the L1 distribution lies everywhere to the right of the L2 distribution. The p-values for the Kolmogorov-Smirnov tests of equality of distributions are 0.008 (L0 vs L1), 0.014 (L0 vs L1), and 0.047 (L1 vs L2).

IV. Analysis of the Managers' Cooperative Behavior

Descriptive Analysis

Table 3 depicts the statistics of the managers' contributions in the Public Goods experiment. The mean number of points contributed by the managers is 24.68 (N = 320). This contribution constitutes about 42% of the socially optimal level. Our finding is in line with the typical participation in PG experiments, which ranges from 1/3–2/3 of the socially optimal level (see the survey by Leyard, 1995).

Table 3. Descriptive Statistics of the Public Goods Contribution by Managers and Employees

Managers	Public goods game contribution
----------	--------------------------------------

24.68
(8.14)
[320]

Employees	Public goods game contribution
	18.43
	(10.36)
	[1684]

Note: The reported statistics are the mean contribution, standard deviation, and the number of observations.

Regression Results

Thereafter, we ran a regression so as to explore the factors that determine the managers' LBE in a cooperation. In order to accomplish this, we applied the following model specification to estimate the treatment's effects on the managers' cooperative behavior:

$$y = \alpha_0 + \alpha_1 L_1 + \alpha_2 L_2 + \alpha_3 L_3 + \zeta Z + \varepsilon$$

The dependent variable y corresponds to the contribution made by the managers in the PG experiment. L_1 , L_2 , and L_3 are the binary variables representing the respective treatment groups; the control group L_0 is the reference group. Z vector of the managers' and firm-level's specific variables, including the managers' tenure in the current firm, age and industry of the firm, and the employees' education levels. Finally, we apply the censored Tobit given a fair number of 0 and/or 50 contributions.

Table 4 presents the main findings. The results indicate a positive and significant treatment effect on the managers in the L_1 and L_2 groups ($\alpha_1 = 3.75, p - value < 0.01$; $\alpha_2 = 3.58, p - value < 0.01$), with contributions to the Public Goods (PG) experiment increasing by 3.75 and 3.58 points, respectively. In other words, the managers make a significantly higher contribution in the PG experiment when they are made aware that their contribution would be provided to their employees as an example. This finding shows that the managers wanted to undertake LBE by

offering examples of cooperation to their employees. We also found that the difference between the coefficients for L1 and L2 was insignificant ($p = 0.155$), indicating the managers in both the groups had the same tendency to provide example of cooperative behavior to their employees. Finally, it is worth mentioning that the coefficient for L3 was insignificant ($\alpha_3 = 1.76, p - value > 0.1$), suggesting that the managers in our study did not have a motivation to undertake LBE for the employees of another firm.

Table 4. Determinants of the Managers' Cooperative Behavior

	Model 1	Model 2
Treatment L1	3.75** (1.49)	3.48** (1.52)
Treatment L2	3.58** (1.46)	3.32** (1.51)
Treatment L3	1.76 (1.22)	1.15 (1.19)
Number of employees		1.09 (1.29)
Employee's education		1.56+ (0.89)
Firm's cooperative culture (from the OCVS Survey)		1.56+ (1.96)
Control for firm's specifics	No	Yes
Observations	320	320
Pseudo R ²	0.28	0.35
Test of coefficient equality		
L1 = L3 (p value)	0.011*	
L2 = L3 (p value)	0.042*	
L1 = L2 (p value)	0.155	

Note: Entries are unstandardized coefficients, with standard errors in parentheses

Dependent variable is the number of points contributed by the managers in the Public Goods experiment

Reference category: L0

Firm's specifics include firm's age, employees' education level and industry. Standard errors are clustered at the firm level.

+*significant at 10%*; * *significant at 5%*; ** *significant at 1%*

V. Analysis of Employees' Behavior in The Experiment

Having explored all the factors affecting the manager's cooperative behavior in the PG experiment, we venture further to examine how a manager's example influenced the choices made by their employees. It should be noted that the OVCS of 2016 incorporated choices made by the managers in the PG experiment as examples for employees who were participating in that same experiment. A positive effect of LBE would indicate that the employees imitated their managers' examples to a certain extent and used it as a reference in order to make their own decisions in the PG experiment.

Table 3 presents the average level of contribution made by the employees of each treatment group in the PG experiment. The mean contribution made by all the employees is 18.43 points, which is significantly less than that by the managers. This finding is consistent with the insights in Quang (1998) and Rowley et al. (2007), according to which, that the employees of Vietnamese firms have become more selfish since the economy moved toward a more market-oriented economy in early 1990's. This also highlights the importance of LBE by managers to promote cooperation among the firms.

To explore the impact of the managers' examples on the employees' cooperative behavior, we ran the following regression to examine the link between the contributions y made by the

employees – measured at the aggregate firm’s level i.e., mean level. Taking into account aggregation, we explored the intraclass correlation coefficient (ICC). The intraclass correlation for this variable was 0.42 ($p < 0.0011$).

We then run the following model (censored Tobit):

$$y = \alpha_0 + \alpha_1 L_1 + \alpha_2 L_2 + \alpha_3 L_3 + \alpha_L LBE + \sum_{i=1}^3 \alpha_{iLG} L_i * LBE + \zeta Z + \eta E + \varepsilon$$

where L_1 , L_2 , L_3 are the binary variables indicating whether the employee(s) belong to firm in treatment group L_1 , L_2 , L_3 respectively. LBE represents the managers’ contribution in the experiment, and E is a vector of the employees’ specific variables, including their age, gender, education, and years of working for the current firm. Note that, we cluster the standard error at the firm level, which is the unit of randomization.

Table 5 depicts the determinants of the employees’ cooperative behavior as measured in accordance with their contributions in the Public Goods (PG) experiment. In general, the observed positive coefficient of the managers’ examples signifies that a manager’s LBE is quantifiably influential. Specifically, the positive coefficient of 0.25 for managers’ LBE indicates that a 0.25 increase in the unit of managers’ cooperative behavior correlates with an increase in employee contributions by 0.25 in the experiment ($\alpha_L = 0.25, p - value < 0.05$), highlighting the direct impact of managerial exemplification on employee cooperation.

Interestingly, the response level, varies depending on the treatment groups assigned to the employees’ firms. Delving into the interaction of LBE with the treatment group, and aligning with hypothesis 3A, it is notable that the interaction coefficient between LBE and L1 is significant ($\alpha_{L1*LBE} = 0.48, p - value < 0.01$). A significant coefficient of 0.48 economically means that when managers' identities remain unknown, their cooperative behavior leads to 0.48 unit increase in employee contributions. It suggests that employees in the L1 group respond more substantially

to their manager's cooperative behaviors. Similarly, a significant coefficient of 0.35 on interaction effect of LBE and L2 ($\alpha_{L2*LBE} = 0.35, p - value < 0.01$) underscores a more pronounced impact on the L2 group as opposed to the control group L0, indicating a differentiated influence based on the level of treatment.

Further scrutiny reveals that the L3 group's interaction effect does not yield significance ($\alpha_{L3*LBE} = 0.18, p - value > 0.1$). However, bear in mind that the employees in the group L3 received examples from a random manager. Thus, our findings suggest that the employees (L1 and L2) who received examples of cooperative behavior from their managers tend to be more responsive than those (L3) who had received examples from randomly assigned managers.

Finally, the statistical test for the coefficient equality sharpens this interpretation by confirming a significant difference between the effects in the L1 and L2 groups. This finding suggests that the effect of LBE on employees' cooperative behavior is slightly more significant in the L1 treatment group, wherein the managers' identity was not revealed to their employees.

Figure 2 graphically displays the fitted line of the regression between the average contribution made by the employees and the managers in the PG experiment—controlling for the managers' and firms' characteristics—for L0, L1, and L2 groups. We could notice that L1 has the steepest slope, followed by L2 and L0, respectively. This finding suggests that employees in the L1 group respond most significantly to the managers' examples.

Table 5. Determinants of the Employees' Cooperative Behavior

	Model
Managers' LBE in cooperation	0.25* (0.12)
L1*LBE	0.48**

L2*LBE	(0.13) 0.35**
L3*LBE	(0.12) 0.18 (0.14)
Test of coefficient equality	
L1*LBE = L3*LBE (p value)	0.008**
L2*LBE = L3*LBE (p value)	0.025*
L1*LBE = L2*LBE (p value)	0.045*
Including binary variable L1, L2, L3	Yes
Control for firm's, manager's and employee's specific variables	Yes
Pseudo R ²	0.42
Number of observations	1717

Note: Entries are unstandardized coefficients, with standard errors in parentheses

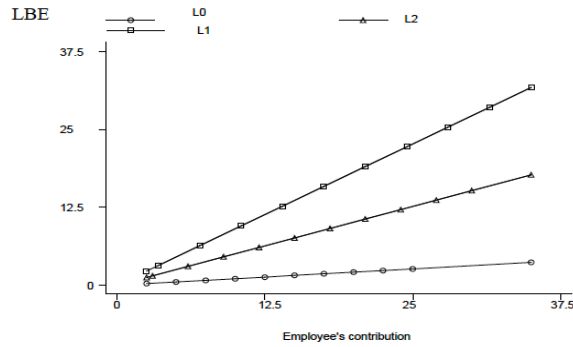
Dependent variable is the number of points contributed by employees in the Public Goods experiment – which is a part of the 2016 OVCS survey.

Manager's LBE is the manager's cooperative score in the experiment. Test of coefficient equality compares the differences in the manager's LBE effect on employee's cooperativeness by treatment groups. For example, testing $L1*LBE = L3*LBE$ would tell us whether - employee's cooperativeness in the L1 group - would be as responsive to the manager's LBE as that by employees' in the L3 group.⁶ Standard errors are clustered at the firm level.

+ *significant at 10%*; * *significant at 5%*; ** *significant at 1%*

Figure 2. The link between manager's example and employees' cooperative behavior varies by treatment groups

⁶ To do this in Stata: <https://stats.idre.ucla.edu/stata/faq/how-can-i-compare-regression-coefficients-across-3-or-more-groups/>



Note: This figure displays the fitted line of the regression of the average contribution by employees in the PG experiment on the managers' example (LBE) – controlling for managers' and firms' characteristics at the mean - for L0, L1, and L2 groups.

Our study revealed an interesting finding regarding the link between the managers' LBE and the employees' responses. Why are the employees in the treatment group L1 more responsive than those in treatment group L2 even though the managers in both the treatments behaved similarly? We propose that in the treatment group L2, wherein the managers' identity was revealed to their employees, the employees might have been uncertain about the managers' motives for undertaking LBE. They might have wondered whether the managers' example on cooperative behavior was driven by a genuine motive to foster a culture of cooperation within a firm that would benefit the organization as a whole – or it was driven by the manager's image concern. In the treatment group L1, the identity of the managers who gave examples to the employees was not disclosed. We propose that an example of cooperative behavior from a manager, whose identity is not revealed, provides employees with a more precise signal and mitigates uncertainty about their manager's motive of undertaking LBE. This induces the employees to be more responsive to their manager's LBE.

VI. The Impacts of LBE on Firm Performance after the Experiment

One notable and distinct aspect of our research is that both managers and employees continued their roles within the same firm post-experiment. This continuity allowed us to investigate whether the managers' demonstrated behavior of cooperation during the experiment—referred to as LBE—could have external influences on future interactions between managers and employees, thereby fostering a cooperative culture within the firms. In particular, we examined if our participating managers continued to promote cooperative behavior at work, aligning with the cooperative examples they set during the experiment. To assess this, a year after the experiment, we conducted a survey from December 2017 to February 2018, targeting employees across all firms involved in our study. The survey included the following questions:

Q1: On a scale of 1 to 5, do you view your manager as a role model for cooperation in the workplace?

Q2: How do you think a typical employee at your company would respond to the previous question?

We used the mode of the responses to Q2 as an indicator of how broadly employees perceived their managers as role models of cooperation. This approach helped gauge the level of LBE exhibited by managers as perceived by the majority of their employees. To encourage earnest responses to Q2, we randomly selected 156 firms where employees, whose answers to Q1 matched those of another randomly selected employee from the same firm, received a reward of 60,000 VND (approximately \$2.75 USD).

Furthermore, we merged data from the 2017 OCVS (from 12/2017 to 2/2018), including all firm specific characteristics, with our experimental data to explore the relationship between managerial LBE and firm performance. It is crucial to note that our focus was on those firms where managers and employees had been working together for at least a year post-experiment. Out of the initial 320 firms, 284 met this criterion and were included in our analysis.

We present the main findings in Table 6⁷. Column 2 displays the sales per employee and column 3 uses profit per employee to represent firm performance. As expected, a manager's example has a significant and positive effect on firm performance, particularly pronounced in groups L1 and L2, where employees received examples from their own managers. The estimated coefficients on L1*LBE suggest that for firms in group L1, managers' LBE increases sales per employee by 6.58 units ($\alpha_{L1*LBE} = 6.58, p - value < 0.01$) and profits per employee by 4.27 units ($\alpha_{L1*LBE} = 4.27, p - value < 0.05$). For firms in group L2, the increases are 5.84 units for sales ($\alpha_{L2*LBE} = 5.84, p - value < 0.01$) and 3.92 units for profits ($\alpha_{L2*LBE} = 3.92, p - value < 0.05$) per employee. These figures underscore the economic significance of leading by example, translating not only into improved cooperative culture within firms but also into tangible financial outcomes. Conversely, the effect of LBE for firms in group L3, where employees received examples from a random manager, is statistically insignificant, highlighting the critical role of identification and relational ties in the efficacy of leadership behaviors. This aligns with insights from Gino et al. (2009), which emphasize the importance of personal identification in the influence of observed behaviors. In our study, the employees in L3 group were less likely to identify with a manager from a random firm; hence, they are less responsive to their (random managers) examples.

Table 6. The effect of LBE in Cooperation one year after the experiment

	Firm's culture	Sales /employee	Profits /employee
Manager's LBE in cooperation	0.28+ (0.15)	4.35* (2.26)	2.26 (1.44)
L1*LBE	0.56*	6.58**	4.27*

⁷ Building on Imai et al.'s (2010) works, we implemented a mediated moderation model to estimate the effect of LBE post experiment.

	(0.25)	(2.38)	(1.95)
L2*LBE	0.41+	5.84**	3.92*
	(0.20)	(2.41)	(1.74)
L3*LBE	0.15	1.19	0.95
	(0.13)	(0.76)	(0.75)
Including binary variables L1, L2, L3	Yes	Yes	Yes
Control for firm's, manager's and employee's specific variables	Yes	Yes	Yes
Adjusted R squared	0.32 (Pseudo)	0.37	0.28
Number of observations	284	284	284

Note: Entries are unstandardized coefficients, with standard errors in parentheses

The dependent variables are the firm's cooperative culture, and firm performance as measured by sales and profit per employee – one year after the experiment. These variables are collected from the 2017 OCVS survey. Model 1 (culture of cooperation) includes the mediator - employee's honesty. Model 2 and model 3 (firm performance) include the two mediators estimated from model 1 (employee's cooperation) and model 2 (culture of cooperation).

In all models, we also control for the level of dependent variable from previous year in each of the above model specification. These control variables are collected from the OCVS survey.

Standard errors are clustered at the industry level.

+ *significant at 10%*; * *significant at 5%*; ** *significant at 1%*

Figure 2 visualizes the results by showing the kernel density of standardized sales per employee for each of the three groups: L0, L1, and L2, both at baseline and the follow-up one year after the experiment. We can note that the distributions are very close at baseline. The p-values for the Kolmogorov-Smirnov tests of equality of distributions at baseline have p-values 0.242 (L0 vs L1), 0.322 (L0 vs L2), and 0.344 (L1 vs L2). However, the distributions are significantly different from each other at endline with the p-values 0.004 (L0 vs L1), 0.007 (L0 vs L1), and 0.024 (L1 vs L2). In addition, figure 2 panel B compares the kernel density of changes in sales per employee between L0, L1, and L2. We can notice a more significant pattern of change among

firms in L1 group. Also, the effect is less likely to be driven by outliers given that L1 distribution scatters everywhere to the right of the L2 distribution.

The Impact of Concealing the Managers' Identity to Their Employees

This section examines whether concealing the managers' identity from their employees would cause the enhancement of the influence of LBE. For this purpose, we explore whether LBE had the same effect on the firms in the L1 group as those in the L2 group. Recall that the only difference between these two groups is that employees in L1 were informed about their managers' identity, whereas those in the other weren't. Table 7 highlights the interactive effect of LBE and each treatment group, i.e., L1, L2, and L3. We can note that as compared to L2, the coefficient of the interaction term is more significant for the L1 group in all outcome variables, including employees' cooperation, organizational culture of the cooperation, and firm performance.

Table 7. Test of coefficient equality derived from Table 6

	Cooperative Culture	Sales employee	per Profit per employee
L1*LBE = L3*LBE (p value)	0.019*	0.032 *	0.024*
L2*LBE = L3*LBE (p value)	0.046*	0.091 ⁺	0.088 ⁺
L1*LBE = L2*LBE (p value)	0.076 ⁺	0.122	0.065 ⁺

Note: Test of coefficient equality compares the differences in the experimental effect by treatment group. For example, testing L1*LBE=L2*LBE would tell us whether - the effect of LBE on corporate culture, and firm performance in the L1 group - would be the same as those in the L2 group one year after the experiment.

Standard errors are clustered at the industry level.

⁺ significant at 10%; * significant at 5%; ** significant at 1%

Discussions

Our results uncovered the positive impact of the managers' examples regarding cooperative behavior (LBE) on organizational outcomes. The relatively quick effect of LBE, i.e., within a year of the experiment, is in line with the findings from a number of experimental studies on prosocial behavior. For instance, Gino and Ariely (2016) highlighted that if a person (e.g., a manager), who is running the organization, is telling the workers (e.g., employees) that they want to foster a certain behavior (e.g., cooperation), the employees' understanding of what is acceptable change instantly. By bringing the focus on the managers' LBE in cooperation, our study also complements insights from a number of existing studies. Carr and Walton (2014) found that the cues of working together can inspire intrinsic motivation, which enhances team performance. The participants also worked more efficiently, had higher engagement levels, and lower fatigue levels. Moreover, the impact persisted for several weeks after the experiment.

Furthermore, we focused on small and micro firms. There was a high level of interaction between the managers and employees on a daily basis. Ling et al. (2008) showed that, as compared to big firms, managers in small firms play a more crucial role in the growth of the firm's performance. Simon and Houghton (2003) highlighted that small organizations provide an ideal setting that allows exploration of a manager's decision-making, since they have fewer formal procedures, greater centralization, and lower organizational inertia. These conditions maximize the effect of a manager's effort (e.g., LBE) to improve the organizational outcomes (e.g., corporate culture and firm performance). Moreover, a small firm operates in a way that is similar to a team, which is related to the setup of the PG experiment that highlights the importance of cooperation with an organization.

Finally, the cultural context may play an important role in enhancing the effectiveness of LBE by managers. In our study context, Vietnamese culture can be characterized by the dominance of collectivism, power distance, and Confucianism. Weng (2017) noted that this cultural context matches well the paternalistic leadership approach that assigns central importance to close relations and hierarchy. In particular, managers are expected to provide guidance to their employees, who are, in turn, supposed to follow this guidance. Such cultural context highlights the importance of paternalistic leadership. Especially, managers are expected to guide their employees, who in turn are supposed to follow their guidance. By providing examples of cooperative behavior, the managers have guided the employees to work cooperatively and the employees have responded accordingly for the achievement of the organization's collective goal.

VII. Conclusion and Directions for Future Studies

In this study, we investigated how managers can encourage cooperation within small firms by exemplifying cooperative behavior. We discovered that such initiatives positively impact firm culture and performance. By focusing on small and micro firms, we addressed McKenzie and Woodruff's (2017) observation that these businesses employ the majority of the non-agricultural labor force in developing countries. Our findings suggest that fostering growth in small firms can be achieved through managers' leading-by-example (LBE) in cooperation.

Interestingly, our study revealed that manager participants exhibited higher levels of cooperation compared to employee participants. We attributed this to the salient status difference between managers and employees, which led managers to assume a leadership role and be mindful of the messages their actions conveyed. The managers' motivations appeared altruistic, reflecting public good properties since their influence on employees did not directly benefit them. Additionally,

managers may have been concerned about their self-image, as employees would directly judge their decisions even without personal acquaintance or feedback.

Managerial Implications:

Our study offers valuable insights for managers and HR professionals, as it highlights the importance of LBE in fostering a cooperative work environment. The following managerial implications can be derived from our findings:

1. Managers should actively engage in cooperative behavior to positively influence their employees and create a culture that values collaboration and teamwork.
2. HR professionals should prioritize the recruitment and selection of managers with a demonstrated history of cooperative behavior and a strong inclination towards teamwork.
3. Organizations should invest in training programs designed to enhance managers' cooperative behavior, as this could lead to increased cooperation among employees and improved firm performance.
4. Managers should be mindful of their actions and the messages they convey to employees, as their behavior can directly impact employees' perceptions and workplace culture.

Further research could explore the distinction between management and leadership, along with other aspects of the extensive leadership literature. Building on institutional theory in sociology (e.g., Zucker, 1977; Zucker & Schilke, 2019) and social learning literature, future studies might examine the role of mimicry, wherein employees simply copy their manager's actions. Additionally, it would be valuable to investigate the role of social or peer pressure, examining how employees' behavior is influenced by their peers' cooperative or uncooperative actions in the workplace. This could help unravel the role of hierarchy in fostering cooperation and provide

insights into normative and coercive pressures to conform, as discussed by institutional theorists in sociology and social psychologists

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