Summary of the paper

"The Hidden Costs of Control"

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June 2023

1 Introduction

This paper primarily explores whether "control" from employers will reduce employee performance. The authors conducted experiments where subjects participated in a two-stage principal-agent game to further investigate the relationship between employer control and employee performance. The paper presents the following findings:

1. The majority of agents exhibit control-averse behavior, meaning that they reduce their working performance when subjected to control measures such as minimum performance requirements or restricted working hours.

2. Agents anticipate that controlling principals expect lower performance from them.

3. Agents perceive "control" as a sign of distrust and a limitation on their autonomy in decision-making.

4. The majority of principals choose to trust their agents rather than implementing control measures.

5. Principals who opt for control have lower expectations regarding their agents' performance.

Furthermore, the study reveals that even when principals use additional motivational factors such as wages, control still has a negative impact on employee performance. Therefore, the authors conclude that the use of control entails hidden costs. However, they acknowledge that the costs and benefits of controlling agents depend on various factors, such as the composition of agent types

and the strength of control. The authors suggest that when dealing with opportunistic agents with low intrinsic motivation to perform in the principal's interest, controlling may yield minor costs but substantial benefits. Additionally, they find that agents' weaker performances are more akin to a response to control as a form of punishment rather than a reward for trust.

2 Experimental Design

The paper examines a principal-agent game in which the agent must decide on a productive activity, denoted as x, that incurs costs for the agent but benefits the principal. The principal can impose a minimum activity level, $\underline{x}$, requiring the agent to choose a value above $\underline{x}$ (with an upper bound of 120 for x). The authors conduct three main treatments: a low-control treatment (C5) with $\underline{x} = 5$, a medium-control treatment (C10) with $\underline{x} = 10$, and a high-control treatment (C20) with $\underline{x} = 20$. In each treatment, the agent is asked to choose x under both controlled and non-controlled situations before knowing whether the principal will set $\underline{x}$. This approach is known as the strategy method. To assess robustness, possible interpretations, and the validity of the results, three control treatments are conducted, with C10 serving as the basis for comparison.

The first control treatment (SR10) investigates whether agents' behavior depends on the "strategy method." In this treatment, agents are asked to choose x after learning whether the principal will exert control, resulting in a single choice for x. If agents' behavior is not influenced by the strategy method, the mean and median x values should not significantly differ between C10 and SR10.

The second control treatment (EX10) tests whether the principal's control decision genuinely impacts the agent's behavior. In this experiment, $\underline{x} = 10$ is exogenously imposed, limiting the agent's choices to values between 10 and 120. The principal does not need to make any decisions. If the principal's control decision indeed affects the agent's behavior, EX10 should exhibit higher mean and median x values compared to C10.

The third control treatment (GE10) explores the validity of the results within

a more general economic context. In this treatment, the principal decides not only whether to impose $\underline{x}$ but also determines the wage ($w \in 10, 30, 60, 120$) of the agent.

Finally, the authors conduct a questionnaire study involving participants who have not experienced any experimental treatments. In the questionnaire study, subjects are presented with five scenarios and asked to indicate their work motivation level (ranging from very low to very high, with five options) under controlled and non-controlled conditions.

3 Main Results

***Result*1.** The authors observe hidden costs of control in all main treatments (C5, C10, and C20).

***Result*2.** The hidden costs of control outweigh the benefits in all main treatments.

TABLE 1—AGENTS' CHOICES DEPENDENT ON THE PRINCIPAL'S DECISION

		Treatment		
		C5	C10	C20
Principal controls	Average	12.2	17.5	25.4
	Median	5	10	20
Principal does not control	Average	25.1	23.0	26.7
	Median	20	20	30

Note: Number of observations: $n = 70$(C5), $n = 72$(C10), $n = 67$(C20).

In Table 1, it is evident that the average and median values of x when not being controlled are significantly higher than those when being controlled in treatments C5, C10, and C20. This indicates the presence of hidden costs of control, and it suggests that these costs exceed the benefits in all main treatments.

***Result*3.** There is substantial heterogeneity among the agents in all main treatments, but the majority of agents exhibit a negative reaction.

TABLE 2—HETEROGENEITY OF AGENTS' BEHAVIORAL REACTION TO CONTROL

	Treatment								
	C5			C10			C20		
	Positive	Neutral	Negative	Positive	Neutral	Negative	Positive	Neutral	Negative
Number of agents	14	11	45	18	13	41	25	14	28
Relative share	0.20	0.16	0.64	0.25	0.18	0.57	0.37	0.21	0.42
Average x if controlled	10.2	22.3	10.3	11.1	22.7	18.7	21.9	39.4	21.5
Average x if not controlled	4.8	22.3	32.1	1.9	22.7	32.3	4.9	39.4	39.8

Table 2 shows that some groups of agents respond positively, neutrally, or negatively to control. However, the majority of agents exhibit a negative reaction, resulting in a net negative benefit of control in the three main treatments. It is important to note that these results do not imply that trust is always superior to control. Table 2 also reveals that the principal's profit increases as the strength of control intensifies. The average profit difference between controlling and trusting is -25.8 in C5, -11.0 in C10, and -2.6 in C20. Therefore, the authors argue that the disciplining effect eventually outweighs the negative effect on motivation, leading to a positive net benefit of control.

Result4. The majority of principals choose not to control the agent.

Result5. Principals who opt for control have lower expectations regarding x compared to principals who do not control. Expectations generally align with agents' average performance.

TABLE 3—PRINCIPALS' BEHAVIOR AND BELIEFS

	Treatment					
	C5		C10		C20	
	Control	Trust	Control	Trust	Control	Trust
Relative share	0.26	0.74	0.29	0.71	0.48	0.52
Average belief of x	17.8	29.6	19.4	25.7	25.3	34.1
Average counterfactual belief of x	12.8	14.9	—	—	10.3	23.0
Average x actually chosen	12.2	25.1	17.5	23.0	25.4	26.7
Are beliefs "correct"?	Yes	Yes	Yes	Yes	Yes	No

Notes: Counterfactual beliefs were elicited only in treatments C5 and C20. Beliefs are "correct" if the Mann-Whitney test does not reject the hypothesis that actual choices and corresponding beliefs are the same ($p > 0.1$).

Table 3 provides evidence for Result 4 and Result 5. Notably, the principal's beliefs appear to be accurate in most cases (except for C20). Principals who choose control consistently have lower expectations, and agents indeed demonstrate weaker performances due to the signal of distrust and lower expectations

associated with control. Conversely, principals who choose trust hold higher expectations, and agents exhibit better performances. Hence, agents' behavior tends to confirm both types of beliefs, supporting the notion of a "self-fulfilling prophecy of distrust." It is also worth mentioning that the average x values when trusted are roughly the same across the three treatments, indicating that agents' weaker performances can be seen as a form of punishment in response to control, rather than a reward for trust.

Regarding the control treatments, in SR10, no significant differences were found compared to the results of C10, indicating that agents' behavior is not influenced by the "strategy method." In Ex10, the average (median) value of x is 28.7 (20), while in C10, if being controlled, it is 17.5 (10). This suggests that the lower x value in C10 is a response to control and can be viewed as a form of punishment toward controlling.

In GE10, the principal has the ability to control and determine the agent's wage from the set $10, 30, 60, 120$. This treatment explores the interactions between control and wage. If the principal offers high wages but chooses to control, there is a contradiction between the high wages signaling trust and kindness, and the control signaling distrust and unkindness.

Result6. The authors observe a positive relationship between wage and x, but this relationship weakens when the principal exercises control.

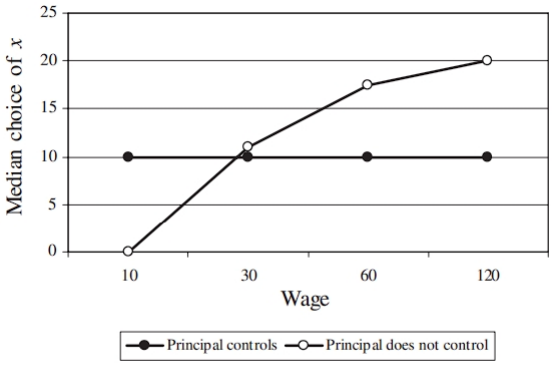

FIGURE 3. HIDDEN COSTS OF CONTROL IN THE GIFT-EXCHANGE GAME

Figure 3 demonstrates that as the wage increases, the net benefit (median) of control decreases. If the wage is 10, even a reciprocal agent would choose $x < 10$, resulting in a potential positive net benefit of control. However, if the wage exceeds 10, a reciprocal agent might choose $x > 10$, leading to a negative net benefit of control. This implies that control partially diminishes agents' motivation to reciprocate high wages with high performance levels.

4 Questionnaire Data

TABLE 4—"HOW HIGH IS YOUR WORK MOTIVATION?"

	Scenario 1 (Supermarket)		Scenario 2 (Working times)		Scenario 3 (Job interview)		Scenario 4 (Locked door)		Scenario 5 (Internet)	
Work motivation	Control	Trust	Control	Trust	Control	Trust	Control	Trust	Control	Trust
Very low	0.07	0.01	0.03	0.01	0.01	0.01	0.08	0.00	0.09	0.02
Low	0.31	0.03	0.26	0.14	0.14	0.02	0.24	0.07	0.33	0.12
Medium	0.36	0.25	0.48	0.30	0.41	0.10	0.41	0.33	0.41	0.42
High	0.23	0.60	0.20	0.45	0.39	0.53	0.25	0.50	0.15	0.42
Very high	0.03	0.11	0.03	0.10	0.05	0.34	0.02	0.10	0.02	0.02
Number of observations	199	204	204	199	203	197	199	203	203	199

In this section, the authors employ a questionnaire to investigate the impact of control on motivation in typical work environments. Each participant is presented with five scenarios and is asked to express their level of work motivation in each scenario under two conditions: being controlled and being trusted. The questionnaire captures participants' responses to different work situations and allows for an assessment of how control influences their motivation. According to Table 5, the results indicate that control has a detrimental effect on people's work motivation in real work environments. This finding suggests that there are hidden costs associated with control in these settings. By lowering individuals' motivation, control can potentially hinder their performance and overall job satisfaction. It highlights the importance of considering the negative consequences of control in work environments and the need to balance control mechanisms with trust and autonomy to foster employee motivation and productivity.

5 Concluding Remarks

The authors discuss the implications of their findings for organizational design. Firstly, they suggest that employers can design incentive contracts that effectively manage opportunistic behavior without diminishing the motivation of intrinsically motivated individuals. This means that organizations can implement control mechanisms to ensure accountability and performance without negatively impacting the intrinsic motivation of their employees. Secondly, the authors emphasize the importance of avoiding negative signaling when introducing incentives or control. They suggest that employers should be mindful of how their actions and messages are perceived by employees. Sending a negative message can undermine motivation and trust, potentially leading to unintended consequences. The results from the EX10 treatment highlight the significance of third-party involvement, such as consultancies or governments, in the implementation of control and explicit incentives. Lastly, the findings from the GE10 treatment indicate that employers should be cautious about simultaneously displaying trust and distrust towards their employees. The authors argue that even a slight expression of trust may be interpreted as a lack of trust altogether.