Managerial Intervention, Employee Motivation, and Collaboration

Roi Orzach and Kramer Quist*

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Abstract

The economic literature on delegation focuses on the demotivational effects of managerial intervention. However, many managers motivate employees while proactively intervening in the decision-making process. We build a principal-agent model to analyze when managerial intervention is, and is not, motivational to the agent. While managerial intervention may demotivate the agent by tempting the principal to take actions that waste employee effort, managerial intervention can also motivate the agent by incentivizing principal effort that complements the agent's effort. That is, delegation may demotivate the agent when the principal and agent work collaboratively. Our results speak to understanding the role of strategic complementarity in determining when various managerial practices do, and do not, motivate employees.

JEL Codes: D21, D23, D74. **Keywords:** Collaboration, Delegation, Empowerment, Management

*Orzach: Department of Economics, MIT, 50 Memorial Drive, Cambridge MA 02142 (e-mail: orzach@mit.edu); Quist: Ross School of Business, University of Michigan, 701 Tappan Ave, Ann Arbor, MI 48109 (e-mail: kramerq@umich.edu);

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1 Introduction

In the early 2000's, Apple's industrial designers were considered among the industry's most empowered. At rival companies, designers haggled with middle managers to prevent designs from being altered to cut costs. By contrast, Apple's designers could focus on making beautiful designs because CEO Steve Jobs valued well-designed products (Wilson, 2014). Jobs had a collaborative relationship with the designers, having daily conversations with Apple's head of design. However, Jobs consistently trusted his own exacting standards over the designers' judgement, once requesting 50 design iterations for a cardboard box before seeing one he approved (Isaacson, 2011).

Apple designers often cited Jobs' frequent intervention in the decision making as being motivational (Isaacson, 2012). This observation runs counter to much of the delegation literature, which considers managerial intervention to be demotivational because the manager makes ex-post decisions that waste the employee's ex-ante effort (Aghion and Tirole, 1997; Baker et al., 1999; Rantakari, 2012). In contrast, Jobs' intervention augmented designers' efforts as he regularly kept the design's best features and discarded its worst. Jobs understood the quality of various design features because he paid meticulous attention to the design process. This attention exposed designers to the liability that Jobs would discard a design because he fixated on a trivial flaw, but it also allowed the designers to be more confident that their effort would result in great designs.

In this paper, we develop a stylized principal-agent model to consider how managerial intervention in decision making may motivate or demotivate the agent. More specifically, we consider two ways the principal can involve herself less in decision making, with similar results: she can formally delegate decision rights to the agent, or she can informally delegate—retaining the decision right but often rubber-stamping the agent's suggestion of how to use it. We find that more managerial involvement can either (i) demotivate the agent by increasing principal temptation to use decision rights in a way that waste agents effort or (ii) motivate the agent by incentivizing the principal to exert effort complementary to the

agent's effort.

Our model builds conceptually on Aghion and Tirole (1997) (henceforth AT).[1] Like much of the delegation literature, AT argues that delegation is motivational to the agent (Baker et al., 1999; Liu and Migrow, 2022). Perhaps the belief that both forms of delegation are motivational is largely an artifact of modelling assumptions. In AT and similar models, both the principal and agent exert effort to discover private information about the payoffs of a prospective decision, with this information being valuable to the degree it influences decision making. In equilibrium, the owner of the decision right is influenced by the other party's information only when the owner lacks private information. The principal thus has two ways to motivate the agent to acquire private information, both of which prevent the principal's information from rendering the agent's information obsolete. First, she can formally delegate the decision right, allowing the agent to use his own information. Second, the principal can informally delegate the decision right, meaning she retains the decision right while exerting low effort in discovering private information. Doing so causes the principal to likely be uninformed, and this lack of private information causes the principal to rationally rubber stamp the agent's proposed decision.

Inspired by AT, our model changes the interaction between the efforts of the principal and agent. While these efforts are strategic substitutes in AT, we generalize to also consider complementary efforts. More specifically, the agent exerts effort to discover an idea, or prospective decision, and the principal exerts effort to discover the payoffs of pursuing that decision. As in AT, for some parameterizations, both formal and informal delegation can motivate the agent by preventing an informed principal from rejecting ideas that would help the agent. However, when incentive conflict is sufficiently small and additional information is sufficiently valuable, the manager can instead motivate the employee by discovering more information. Here, additional information can help the principal reject ideas that would

[1]Similar to Aghion and Tirole (1997), we focus on the effect of delegation on the agent's incentives to acquire information and mute communication incentives. Other papers such as Dessein (2002) or Deimen and Szalay (2019) focus on communication incentives and assume the agent is endowed with information.

harm the agent.

Next, we consider the principal's choice to either formally or informally delegate. By delegating, the principal (i) reduces her ability to make more ex-post profitable decisions and (ii) either increases or decreases the agent's effort incentives, depending on the complementarity of the principal's and the agent's efforts. As a result, the principal formally or informally delegates only when doing so is motivational to the agent. Stated differently, the existing literature's analysis that both formal or informal delegation are demotivational is correct when the principal is at the margin of considering either practice. However, when the principal is not at the margin, delegation may be demotivational. Indeed the principal most actively intervenes in decision making when delegation would be demotivational.

After presenting the results of our model, we use these results to better understand managerial practices. We begin this discussion by applying the model to analyze four qualitatively-different managerial styles. Two of these styles, *micromanager* and *absentee manager*, are slurs used to describe managers who demotivate employees by adopting opposite approaches to decision making: micromanagers are too involved in decision making and absentee managers are too uninvolved in decision making. The other two styles, *hands-off manager* and *hands-on manager*, can both motivate employees while taking opposite approaches to decision making: hands-off managers let employees make decisions while hands-on managers actively intervene in decision making.[2] Our model sheds light on when high (low) managerial intervention will result in a micromanager (absentee manager) or a hands-on manager (hands-off manager).

Before concluding, we use the model to discuss how managers can empower employees to motivate them. In a seeming contradiction, Apple designers were simultaneously powerless and powerful. They were powerless as Jobs often rejected their proposals. They were powerful as their best designs were incorporated into final products because Jobs used his control

[2]These are, of course, not the only style of managers. For instance, Englmaier (2010); Englmaier and Reisinger (2014) show that an "overconfident" manager may lead to superior outcomes when competing against outside firms. Our focus is instead on how managers interact with their employees.

to improve product designs rather than to cut costs. This powerful-yet-powerless tension among empowered employees begs the question of what empowerment means; empowered employees are definitionally powerful (hence the 'power' in empowerment), but powerful in what sense? We further discuss the motivating case of Apple and use the results of our model to discuss how giving employees power over decision making may undermine other forms of empowerment that are motivational.

1.1 Literature Review

The literature on the optimal allocation of decision rights across and within organizations is one of extensive study. This literature notes that a party may relinquish control of a decision right to increase their partner's effort resulting in an increase in their own utility. Between organizations this literature focuses on how contracts influence the optimal effort incentives (Grossman and Hart, 1986; Aghion and Tirole, 1994). In contrast, we focus on the allocation of decision rights within organizations where, as standard in the literature, formal contracts are infeasible. In this literature (cf. Aghion and Tirole, 1997), a principal and an agent individually produce costly information about the benefit of a project and then decide whether to implement the project.

In this case, because an ex-ante informed principal has no need to delegate decision making, the delegation literature often considers issues of information asymmetry. For example, delegation may cause agents to more accurately communicate decision-relevant information (Dessein, 2002; Alonso et al., 2008; Rantakari, 2008, 2016). In contrast, we focus on the literature that considers how delegation affects agent incentives to acquire private information.[3] In much of this literature, the agent exerts effort to allow him to suggest a prospective decision that the agent considers desirable (Aghion and Tirole, 1997; Baker et al., 1999;

[3]We limit our discussion to effort that occurs *before* the decision is made. By contrast Bester and Krähmer (2008) considers the question of how delegation affects ex-post effort incentives. Further, we limit our discussion to theoretical papers, notable papers which combine models similar to Aghion and Tirole (1997) and data are Lo et al. (2016) and Alfaro et al. (2024), however in both papers delegation is always motivational for the agent.

Liu and Migrow, 2022).[4] Formal delegation can thus motivate the agent by preventing the principal from rejecting projects that the agent would prefer to implement.

In a smaller portion of this literature, the agent's effort causes the agent's suggestion to be more desirable to the principal, meaning formal delegation may demotivate the agent by preventing the principal's use of the decision right from punishing low agent effort (Szalay, 2005; Newman and Novoselov, 2009; Rantakari, 2012; Itoh and Morita, 2022).[5] Throughout this literature, the principal and agent have an adversarial relationship, meaning the principal can affect the agent's outcome only by choosing to not make the agent's preferred choice.

Much of this literature also allows for informal delegation, meaning the principal gives the agent limited control by accepting many of the agent's proposed projects in equilibrium. Informal delegation can be sustained by a relational contract (Baker et al., 1999), or by the principal exerting little effort to find an alternative to the agent's proposal (Aghion and Tirole, 1997; Rantakari, 2012).[6] Throughout the literature, the principal and agent maintain the same adversarial relationship, implying the intuition about the motivational consequences of informal delegation mirror that of formal delegation: informal delegation motivates by limiting how often the principal makes decisions that waste agent effort.

We depart from the delegation literature by allowing the principal and agent to have complementary efforts.[7] This addition introduces a new consideration into the relationship between delegation and motivation. More specifically, delegation may discourage the principal's from working collaboratively with the agent, potentially demotivating the agent. By considering complementary efforts (collaboration), our model has broad similarities to much of the economic work on motivating teams (Che and Yoo, 2001; Georgiadis, 2015; Kvaløy and

[4]E.g., an agent might discover a prospective decision or find information making a decision seem desirable.

[5]Itoh and Morita (2022) considers a decision-maker and an implementer with potentially different preferences. The case of identical preferences is similar to delegation. Relatedly, Van den Steen (2005) analyzes an environment where a decision-maker and an employee have different beliefs. The case of identical beliefs is similar to delegation.

[6]Szalay (2005) and Armstrong and Vickers (2010) model environments where the principal formally delegates a decision to the agent, but the principal determines which choices the agent can make with that decision right. These papers are similar to informal delegation in that the agents are given limited control

[7]We allow the principal to discover information about a prospective decision's value to each of the principal and agent. This is related to the distinction between the knowledge and ability of managers in (Levy, 2014).

Olsen, 2019; Halac et al., 2021a,b), with the distinction that this literature focuses primarily on incentive contracts rather than decision rights.

2 Model

We consider an organization that searches for, and investigates the quality of, an idea before deciding whether to implement the idea. The organization is composed of a principal (she) and an agent (he). In this section, we describe a version of the model that allows for formal delegation, and in Section 3, we solve the model and then introduce informal delegation to the model.

We begin by briefly describe the timing of the game before giving more details below: (i) the principal may assign the decision right of whether to implement any discovered idea to the agent (where delegation is defined as the agent obtaining the decision right and centralization the principal retaining the decision right), (ii) the agent exerts costly effort searching for an idea that brings uncertain payoffs v_p and v_a to the principal and agent respectively, when implemented, (iii) if the agent discovers an idea, the principal exerts costly effort to publicly reveal v_p and v_a, and (iv) the owner of the decision right chooses whether to implement the idea. We say the organization is centralized (respectively, decentralized) when the principal (respectively, agent) controls the decision right in (iv).

Idea Generation and Information: The agent expends effort $e_a \geq 0$, at personal cost $c_a(e_a)$, to generate an idea with probability e_a, with no idea being generated otherwise.[8]. A generated idea has an uncertain value v_a, v_p to the agent and principal, respectively. We assume $v_a, v_p \sim F$, where the joint distribution has finite expected values. If an idea is generated, the principal expends effort e_p, at cost $c_p(e_p)$, to publicly reveal v_a, v_p with probability e_p, with no information being revealed otherwise.

Idea Implementation: An idea must be generated to be implemented. If no idea is imple-

[8]Alternatively, one can view the agent as expending effort to determine if a known idea is sufficiently valuable to pass onto the principal.

mented, both players receive a utility of 0 less their effort costs. If an idea is implemented, principal and agent receive payoffs of $v_a - c_a(e_a)$ and $v_p - c_p(e_p)$, respectively. Both players are risk-neutral, expected-utility maximizers.

Assumptions: We assume $c_a(0) = 0$, $c_a'(\cdot) \geq 0$ with equality at 0, $c_a''(\cdot) > 0$; we also assume that $c_a(1)$ is sufficiently large to ensure that the optimal effort choice corresponds to a probability and an identical set of conditions for $c_p(\cdot)$. Additionally, we assume $\mathbf{E}(v_p), \mathbf{E}(v_a) > 0$, ensuring that both parties would approve the idea absent additional information.[9] Lastly, to ensure that ideas are rejected with positive probability we assume $\mathbf{P}(v_a < 0), \mathbf{P}(v_p < 0) > 0$.

Consistent with the literature, we assume that effort and outcomes are non-contractible. Finally, as in Aghion and Tirole (1997), we assume the agent is protected by limited liability, preventing the agent from paying the principal for the decision right, although the results are qualitatively similar when allowing such payments.

Given such assumptions, we analyze Subgame Perfect Equilibria of the above model.

Discussion of the Model: While stylized, the model encapsulates some of the core elements of the centralization/delegation tradeoff. An employee (agent, he) generates an idea, and a manager (principal, she) gathers information about the idea before choosing whether to pursue it. The manager's information can either (i) harm the employee by causing the manager to reject an idea against the employee's wishes or (ii) help the employee by rejecting an idea upon discovering faults which make it unappealing to both parties. This duality reflects the idea that managerial involvement can either harm or help employees depending on whether the manager intervenes because of incentive conflict with the employee or because the manager is more knowledgeable than the employee.[10]

The manager has two ways to reduce her level of managerial involvement, meaning reduce

[9]Similarly, in the equilibrium described in Aghion and Tirole (1997), the agent proposes only ideas that give both parties a non-negative expected benefit.

[10]In practice, the parties' roles are sometimes reversed: the manager proposes an idea and the employee then collect information about its payoffs. Inspired by the design unit and Steve Jobs at Apple, we label the proposer "agent" and collector "principal" and so consider "delegation" from the collector to the proposer. An alternative interpretation of our model begins with the roles and derives the authority structure: the parties are a proposer and a collector, and the design choice is who should be the boss.

how often she intervenes in decision making. First, the manager can delegate the decision right to the employee. Second, as we detail in Section 3, the manager can informally delegate to the employee, meaning the manager accepts more of the employee's suggestions in equilibrium.

3 Analysis:

We proceed in three steps: First, we analyze the motivational consequences of formal delegation, and we consider how these consequences influence when formal delegation is profit-maximizing. Second, we introduce informal delegation and perform a parallel analysis. We conclude with managerial insights. The following definitions of alignment will facilitate the analysis.

Definition 1. *The alignment between the agent's (respectively, principal's) interests and the principal's (respectively, agent's) decision rule, α_a (respectively, α_p), is defined as*

$$\alpha_a := \frac{\mathbf{E}(v_a \mathbf{1}_{v_p<0})}{\mathbf{E}(v_a \mathbf{1}_{v_a<0})} \quad \textit{and} \quad \alpha_p := \frac{\mathbf{E}(v_p \mathbf{1}_{v_a<0})}{\mathbf{E}(v_p \mathbf{1}_{v_p<0})}. \tag{1}$$

Intuitively, the alignment between the agent's interests and the principal's decision rule, α_a is the ratio of the total expected payoff (to the agent) of ideas the informed principal would reject to the total expected payoff of the ideas the informed agent would reject. The support of these alignments are $(-\infty, 1)$ and reflect the correlation in the signs of v_a and c_p. As the alignment approaches its maximum value of one, the benefit to the agent of the informed principal's use of the decision rule approaches the benefit to the agent of the informed agent's use of the decision rule (where the benefit of information is compared to an uninformed principal or agent approving all ideas). Parallel reasoning applies to the alignment between the principal and the agent's decision rule.

3.1 Formal Delegation and Agent Motivation

We proceed by backwards induction, first considering the implementation decision before solving for the principal and agent's effort, respectively. Because $\mathbf{E}(v_a), \mathbf{E}(v_p) > 0$, either potential decision maker would implement a discovered idea if the principal does not discover additional information. When information is discovered, the idea is implemented only if it brings the decision maker positive value. Below we give the maximization problem for the principal's effort choice, with $\tilde{U}$ denoting an interim utility conditional on an idea being discovered and the superscript denoting if the organization is centralized or decentralized.

$$\tilde{U}_p^d = \max_{e_p} \quad (1 - e_p)\mathbf{E}(v_p) + e_p\mathbf{E}\big(v_p\mathbf{1}_{v_a \geq 0}\big) - c_p(e_p) \tag{2}$$

$$\tilde{U}_p^c = \max_{e_p} \quad (1 - e_p)\mathbf{E}(v_p) + e_p\mathbf{E}\big(v_p\mathbf{1}_{v_p \geq 0}\big) - c_p(e_p) \tag{3}$$

Because the principal and agent disagree about decisions only in the face of new information, the lone difference between the utility functions above is in the indicator functions denoting the differential acceptance thresholds. Given the assumptions on $c_p(\cdot)$, the first-order condition characterizes any non-zero equilibrium effort levels as follows:

$$c_p'(e_p^d) = -\max\{0, \alpha_p\} \cdot \mathbf{E}\big(v_p\mathbf{1}_{v_p<0}\big) \qquad \text{(Principal Effort-Delegation)}$$

$$c_p'(e_p^c) = -\mathbf{E}\big(v_p\mathbf{1}_{v_p<0}\big). \qquad \text{(Principal Effort-Centralization)}$$

Under centralization, the principal always uses information to her benefit, implying a positive marginal benefit to her effort. By contrast, the agent may use the information to harm the principal under delegation, yielding a potentially negative effort value as the solution to the first-order condition leading to a kinked solution. Because information is most valuable to the principal when she chooses how to use it, we have the following result:

Lemma 1. *The principal's effort is weakly higher under centralization than delegation.*

Now, we solve for the agent's effort incentives given the principal's forecasted effort.

When the agent discovers an idea, the implementation decision is as above, with the agent receiving zero utility otherwise. As a result, the agent's expected utility is given by:

$$\tilde{U}_a^d = \max_{e_a} \quad e_a\Big((1-e_p^d)\mathbf{E}(v_a) + e_p^d\mathbf{E}\big(v_a\mathbf{1}_{v_a\geq 0}\big)\Big) - c_a(e_a) \tag{4}$$

$$\tilde{U}_a^c = \max_{e_a} \quad e_a\Big((1-e_p^c)\mathbf{E}(v_a) + e_p^c\mathbf{E}\big(v_a\mathbf{1}_{v_p\geq 0}\big)\Big) - c_a(e_a). \tag{5}$$

The allocation of the decision right changes the agent's utility in two ways. First, as with the principal, the different indicator functions represent different acceptance thresholds. Second, now the agent's utility depends on the principal's effort, which depends on governance structure. Given the assumptions on $c_a(\cdot)$, the first-order condition characterizes any non-zero equilibrium effort levels as follows:

$$c_a'(e_a^d) = \mathbf{E}(v_a) - e_p^d \cdot \mathbf{E}\big(v_a\mathbf{1}_{v_a<0}\big) \qquad \text{(Agent Effort-Delegation)}$$

$$c_a'(e_a^c) = \max\{0, \mathbf{E}(v_a) - \alpha_a \cdot e_p^c \cdot \mathbf{E}\big(v_a\mathbf{1}_{v_a<0}\big)\}. \qquad \text{(Agent Effort-Centralization)}$$

Under decentralization, ideas are implemented only when ex-ante beneficial to the agent, implying a positive first-order condition that characterizes the solution. In this case, information always helps the agent because he chooses how to use it. By contrast, the informed principal may primarily approve ideas that harm the agent, yielding a potentially negative marginal benefit of effort and a kinked solution under centralization. This solution informs our understanding of how the principal's forecasted effort changes agent effort incentives, as proven below.

Lemma 2. *The equilibrium effort of the agent is:*

(a) weakly increasing in the principal's effort under delegation.

(b) weakly increasing in the principal's effort under centralization if and only if $\alpha_a > 0$, i.e., the alignment between the agent's interests and the principal's decision rule is positive.

Similar to Lemma 1, the intuition behind (a) is that additional information (and thus principal effort) helps the agent when he chooses how to use the information. By contrast, (b) highlights that, under centralization, information helps the agent only when the informed principal tends to reject ideas that harm the agent in expectation, or equivalently if $\alpha_a > 0$.

Combining the principal and agent's effort incentives, we consider how formal delegation influences the agent's effort incentives in Proposition 3.

Proposition 3. *Let $h(\cdot) := c_p'^{-1}(\cdot)$ be the inverse of the derivative of the principal's effort cost. The equilibrium effort of the agent is higher under centralization than under delegation if and only if:*

$$\alpha_a \geq \frac{h\big(-\max\{\alpha_p, 0\} \cdot \mathbf{E}(v_p \mathbf{1}_{v_p<0})\big)}{h\big(-\mathbf{E}(v_p \mathbf{1}_{v_p<0})\big)}. \tag{6}$$

As a result:

(a) If $h(\cdot)$ is linear (equivalently, $c_p(\cdot)$ is quadratic) and both α_a and α_p are positive, then the agent's effort is higher under centralization if and only if $\alpha_a > \alpha_p$.

(b) If the alignments are equal and positive (i.e., $\alpha_a = \alpha_p > 0$) and $h(\cdot)$ is strictly convex (respectively, concave), then delegation increases (respectively, decreases) agent effort relative to centralization.

(c) If $\alpha_a < 0$, then the agent's effort is lower under centralization. Further, if $\alpha_p < 0 \leq \alpha_a$, then the agent's effort is higher under centralization.

Regardless of who owns the decision right, the agent's effort incentives are influenced by both (i) the ratio of the probabilities the principal produces information under delegation and centralization (i.e., principal effort, reflected in $h(\cdot)$, on both the numerator and the denominator, respectively) and (ii) the relative value of that information to the agent under centralization and delegation respectively (reflected by α_a). When (i) is greater than (ii), the agent prefers delegation at the cost of having less information because this information

is comparatively more useful for the agent under delegation. In contrast, centralization incentivizes agent effort when centralization is especially motivational for the principal to produce information that is nearly as valuable to the agent as it would be under delegation (i.e, (ii) is large). The intuition behind part (a) of the lemma is that a linear $h(\cdot)$ allows α_p to represent (i) and α_a to represent (ii). Similarly, for (b), when the principal's cost of information is sufficiently convex, the principal's effort is relatively inelastic, meaning (ii) dominates (i), and delegation increases effort incentives

To understand (c), consider that, under either governance structure, the agent's effort incentives are $\mathbf{E}(v_a)$ absent additional information. From Lemma 2, centralization induces more than $\mathbf{E}(v_a)$ in effort incentives only if the informed principal tends to reject projects that harm the agent ($\alpha_a > 0$). Similarly, delegation induces more than $\mathbf{E}(v_a)$ in effort incentives only when the principal exerts effort, which happens when the agent tends to use information to reject projects harming the principal ($\alpha_p > 0$). Combining these results, centralization reduces effort incentives when α_a is negative, and it strengthens effort incentives when both α_a is positive and α_p is negative.

Finally, we consider the relationship between the motivational consequences of delegation and the principal's choice to delegate in Proposition 4.

Proposition 4. *There exists an increasing function $f(\cdot)$ where*

$$f(\alpha_p) < \frac{h\big(-\max\{\alpha_p, 0\} \cdot \mathbf{E}(v_p \mathbf{1}_{v_p<0})\big)}{h\big(-\mathbf{E}(v_p \mathbf{1}_{v_p<0})\big)}, \tag{7}$$

and the principal chooses to centralize if and only if $\alpha_a \geq f(\alpha_p)$.

The principal naturally delegates when delegation is especially demotivational (low α_a) and centralization is especially motivational (high α_p). Furthermore, because the principal prefers centralization for fixed agent effort, she delegates only when it incentivizes agent effort, which is guaranteed by the bound on $f(\alpha_p)$.

In this section we showed that delegation demotivates a principal to discover information

about the benefits of an agent's idea, with delegation being especially demotivating when the informed agent tends to reject projects the principal likes (low α_p). Delegation demotivates the agent when (i) it demotivates the principal (low α_p), and (ii) the informed principal tends to reject ideas that the agent dislikes (high α_a). In such a case, the agent is more motivated by having her 'bad' ideas discovered and killed than she is demotivated by having her 'good' ideas killed. Finally, the principal delegates only when delegation motivates the agent.

Contractible Decisions Consistent with the large literature on delegation (c.f. Aghion and Tirole, 1997), we assumed that the decision rights are contractible but decisions are not. Many of our insights do not rely on the latter assumption. Similar to Grossman and Hart (1986), we now assume that the principal and agent can determine the implementation decision and contractual transfers via Nash Bargaining with equal bargaining weights where the owner of the decision right controls the decision in the event no agreement is made. Such bargaining results in the players implementing a project if and only if the expected total surplus is positive with the player controlling the decision endogenously receiving a larger share of the expected surplus. Giving the decision right to the principal increases the principal's incentive to discover information. This increased incentive to discover information may be sufficiently valuable that the agent would prefer to receive a smaller share of the surplus.

3.2 Informal Delegation and Agent Motivation

In practice, managers may be unable to formally delegate decision rights. Instead, managers informally delegate decisions to employees by sustaining an equilibrium where the manager rarely intervenes against the employee's interests.

Often, managers sustain such an equilibrium by learning less information that would incentivize them to intervene in decision making (Aghion and Tirole, 1997). In this vein, Rantakari (2012) models a principal who can informally delegate to the agent by increasing

her own cost of effort to acquire information. This type of informal delegation might be accomplished in practice by a manager taking on additional responsibilities. Here, we add this form of informal delegation to our model and discuss (i) when informal delegation is, and is not, motivational, and (ii) when the principal chooses to informally delegate.

In the adjusted model, the principal can no longer formally delegate decision rights. Instead, she chooses her cost of acquiring information before the agent exerts effort. More specifically, the principal pays $g(\mu)$ to choose an amplification of her effort cost $\mu \geq 0$, meaning the principal's effort cost is $\mu c_p(e_p)$. We assume that $g(\mu)$ diverges to infinity to ensure the principal's problem is well defined.

A high μ represents informal delegation because it disincentivizes the principal from acquiring information that might compel her to intervene in decision making. Applying Lemma 2, informal delegation disincentivizes effort, namely $\frac{\partial e_a^c}{\partial \mu} < 0$, if and only if $\alpha_a > 0$. When $\alpha_a > 0$, higher μ *directly* harms the principal by causing her to acquire less information, and it *indirectly* harms her by disincentivizing agent effort due to the complementarity of the principal's and the agent's efforts.

The principal's optimization problem is thus,

$$\mu^*(\alpha_a) = \arg\max_{\mu \geq 0} e_a^c(\mu, \alpha_a) \cdot \tilde{U}_p^c(\mu) - g(\mu) \tag{8}$$

$$\text{where } \tilde{U}_p^c(\mu) = \max_{e_p} (1 - e_p)\mathbf{E}(v_p) + e_p \mathbf{E}\big(v_p \mathbf{1}_{v_p \geq 0}\big) - \mu c_p(e_p). \tag{9}$$

Here, the principal's profit is the product of the agent's effort multiplied by the principal's payoff conditional on an idea being discovered by the agent, less the cost of choosing a given μ. At this level of generality, μ^* may be set-valued and the following proposition provides comparative statics.

Proposition 5. *The profit-maximizing cost of information as a function of alignment, $\mu^*(\alpha_a)$, is weakly decreasing in the strong set order in α_a.*

Stated differently, the principal informally delegates (chooses high μ), when the agent is

poorly aligned with the principal's decision rule (low α_a).

Next, we add additional structure to $g(\cdot)$, which will help characterize different managerial styles in Section 3.3. More specifically, suppose there is a status quo cost of effort, μ_g, and it is costly to adjust the cost of effort away from the status quo.

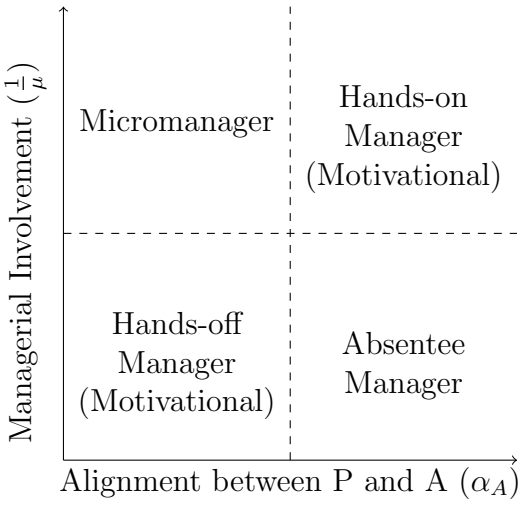
Proposition 6. *If $g(\mu)$ is differentiable with a minimum at $\mu_g > 0$, then every element of $\mu^*(0)$ is strictly less than μ_g.*

Because the principal's effort does not influence the agent's effort incentives when $\alpha_a = 0$, the principal is strictly incentivized to decrease μ because doing so decreases her cost of acquiring information. Combining these two results implies that there are qualitatively three regions of interest. When $\alpha_a > 0$, the agent prefers the principal to reduce her cost and the principal does so. When $\alpha_a < 0$, but is not too negative, the principal reduces her cost and doing so demotivates the agent. Finally, when α_a is sufficiently negative, the principal increases her cost and doing so motivates the agent. As with formal delegation, the principal informally delegates (i.e., chooses $\mu < \mu_g$) only when doing so is motivational to the agent. In the following section, we discuss the managerial implications of these findings.

3.3 Managerial Implications

Our results help us define four managerial styles among managers who do not formally delegate, composed of a Cartesian product of high vs low managerial involvement (in the model, the inverse of μ^*) and high vs low alignment (in the model, α_a). When the agent prefers little managerial involvement (low alignment), we call an uninvolved manager a *hands-off manager* and an involved manager a *micromanager*, a perjorative term for a manager who will not give employees the space they want. When the agent prefers more managerial involvement (high alignment), we call an involved manager a *hands-on manager* and an uninvolved manager an *absentee manager* manager, a perjorative term for a manager who will not give employees the guidance they want.

Figure 1: Categorizing Managerial Styles



Proposition 6 rationalizes three of the four managerial styles depicted in Figure 1. In the case of extremely low alignment, the manager informally delegates and is a hands-off manager. In the case of moderately low alignment, the manager intervenes and becomes a micromanager, demotivating the employee. Finally, in the case of high alignment, the manager always intervenes to become a hands-on manager.

Our model predicts that there will be no absentee managers.[11] As a result, the organization informally delegates (low managerial involvement) only when doing so is motivational. However, in the cases where managers are most actively involved in decision-making (high α_a), informal delegation would be demotivational. Stated differently, the existing literature's claim that informal delegation is motivational is true in contexts where companies choose to informally delegate but false in contexts with the highest managerial involvement.

Finally, our results speak to how managers can better empower employees to motivate them. Empowered employees are definitionally powerful, but the question remains: what type of power motivates employees? Much of the applied theory literature in organizational

[11]One might imagine that absentee managers are managers who are not as involved as employees would like because it is very costly to decrease μ. This might be the case if a manager has many other obligations to fulfill. However, the important point is that such a manager is willing to pay a cost to decrease μ (though not as much as the employee would prefer).

economics points to motivating employees by giving them more power over decision making, through either formal or informal delegation. This line of reasoning often portrays managers as adversarial gatekeepers whose primary involvement in the decision-making process is to prevent employees from making decisions that harm the firm but help the employee. In such a context, giving decision-making power to an employee is indeed motivational.

However, in many cases, such as Apple, managers empower employees while giving them little power over decision making. At Apple, the designers were instead powerful in the sense that they knew that their efforts to design beautiful products would likely result in beautiful products. Steve Jobs often intervened against the designers' wishes, but the designers also knew that Jobs would recognize and discard many designs that the designers did not realize were bad (Isaacson, 2011). Stated differently, because of Jobs' meticulous attention to detail, the designers' efforts would rarely result in unattractive products because of Jobs' attention to detail.

More generally, the most motivational form of power is definitionally for the employee to have powerful effort, meaning he can influence outcomes he cares about by exerting high effort. Henceforth, we say that an employee is empowered when he has this form of power. By this view, managers empower employees by facilitating an equilibrium with certain features rather than by making a governance decision to cede decision-making power.

In this paper we show when formal and informal delegation are, and are not, empowering. As in the previous literature, both forms of delegation are empowering when the principal's and agent's efforts are strategic substitutes from the agent's perspective (in our model, when the principal and agent are poorly aligned). However, both forms of delegation are disempowering when the principal and agent exert especially complementary efforts.

These findings are consistent with the Apple example, where Jobs' intervention was motivational precisely because (i) Steve Jobs was able to discover flaws in designs that the designers did not see and (ii) his tastes were sufficiently aligned with the designers' to make his oversight complementary to the designers' efforts. Now, imagine if Jobs could not

discover flaws in designs that designers could not see. If this were the case, Jobs could not make the designers better off by intervening, so intervention would be demotivational. Similarly, imagine if Jobs had a passion for cost-cutting (which he did not have), causing him to also reject well designed products if he thought they could be made less expensively. Here, the designers would not benefit enough from having the bad designs rejected by Jobs to compensate them for having many good designs be rejected to cut costs. Jobs' attention to detail would thus disempower the designers, and he would be called a micromanager.

4 Conclusion

We show that managerial intervention in decision making can be motivational in collaborative contexts. Because the existing delegation literature primarily focuses on non-collaborative environments, it consistently finds that managers motivate employees by committing to not intervene through either formal or informal delegation. Indeed, we show that delegation is motivational for agents when managers choose to delegate. However, when managers most actively intervene in decision making, delegation would be demotivational to employees.

These results speak to the relationship between managerial practices and empowerment. While much of the existing literature focuses on managers who empower employees by giving them power over decision making, managers can also empower employees by facilitating an equilibrium where employees can induce desired outcomes by exerting effort. In collaborative environments, managers can thus empower employees by actively intervening in decision making rather than by passively delegating to employees.

To compare our model with the existing literature on delegation, we imposed several restrictions that may be relaxed in future work. For instance, we assumed the principal and agent only interact once. Upon repeating the interaction between the principal and the agent, an analysis similar to Baker et al. (1999) is necessary. This analysis necessitates both

the agent and the principal to make compromises over the types of projects that get accepted. An additional assumption is that the principal interacts with a lone employee. Finally, we assumed that there are no objective performance contracts, and therefore assumed away any interaction between the formal incentives and the ideas which are implemented. We hope to explore these and other possibilities in future work.

5 Appendix

Proof of Lemma 1. The proof follows from the first-order conditions in the text. □

Proof of Lemma 2 and Proposition 3. The agent's effort incentives under delegation are,

$$e_p^d \mathbf{E}(v_a \mathbf{1}_{v_a>0}) + (1 - e_p^d)\mathbf{E}(v_a). \tag{10}$$

Increasing e_p^d increases the agent's effort incentives by $\mathbf{E}(v\mathbf{1}_{v_a>0}) - \mathbf{E}(v_a)$, which is always weakly positive by monotonicity of the integral. In contrast, under centralization, the effort incentives are,

$$e_p^c \mathbf{E}(v_a \mathbf{1}_{v_p>0}) + (1 - e_p^c)\mathbf{E}(v_a). \tag{11}$$

Increasing e_p^c changes the agent's effort incentives by $\mathbf{E}(v\mathbf{1}_{v_p>0}) - \mathbf{E}(v_a) = \mathbf{E}(v_a\mathbf{1}_{v_p<0})$. Finally, agent effort under centralization is greater than under delegation if and only if

$$e_p^c \mathbf{E}(v_a \mathbf{1}_{v_p>0}) + (1 - e_p^c)\mathbf{E}(v_a) \geq e_p^d \mathbf{E}(v_a \mathbf{1}_{v_a>0}) + (1 - e_p^d)\mathbf{E}(v_a) \tag{12}$$

$$\iff e_p^d \mathbf{E}(v_a \mathbf{1}_{v_a<0}) \geq e_p^c \mathbf{E}(v_a \mathbf{1}_{v_p<0}). \tag{13}$$

Substituting the principal's effort and the definitions of alignment generates the expression in the proposition. When $h(\cdot)$ is linear, the (a) follows immediately. Further, noting that the right hand side is always positive proves (c). The proof for result (b) is that Equation

(6) reduces to

$$h\big(-\alpha\mathbf{E}(v_p\mathbf{1}_{v_p<0})\big)\mathbf{E}(v_a\mathbf{1}_{v_a<0}) \leq h\big(-\mathbf{E}(v_p\mathbf{1}_{v_p<0})\big)\alpha\mathbf{E}(v_a\mathbf{1}_{v_a<0}) \tag{14}$$

$$\iff h\big(-\alpha\mathbf{E}(v_p\mathbf{1}_{v_p<0})\big) \geq \alpha h\big(-\mathbf{E}(v_p\mathbf{1}_{v_p<0})\big), \tag{15}$$

when $\alpha_a = \alpha_p = \alpha$. Observe that $h(0) = 0$ by assumption that $c'(0) = 0$. Thus a sufficient condition for the above inequality to hold (respectively, fail) is that $h(\cdot)$ is convex (respectively, concave). Further $h(\cdot)$ is monotonically increasing implying that $h(\cdot)$ is convex if and only if its inverse is concave (and vise versa).

These results imply a sufficient condition for the inequality to hold is that $c_p'''(\cdot)$ is positive and a sufficient condition for the inequality to fail is that $c_p'''(\cdot)$ is negative. □

Proof of Proposition 5 and Proposition 6. To prove the result it suffices to show that the function in Equation (8) is sub-modular in μ and α_a. A sufficient condition for which is that the cross partial of Equation (8) is negative, which is computed below:

$$\frac{\partial}{\partial\mu}\Big(\frac{\partial e_a^c(\alpha_a,\mu)}{\partial\alpha_a}\tilde{U}_p^c(\mu)\Big) = \frac{\partial^2 e_a^c(\alpha_a,\mu)}{\partial\alpha_a\partial\mu}\tilde{U}_p^c(\mu) + \frac{\partial\tilde{U}_p^c(\mu)}{\partial\mu}\frac{\partial e_a^c(\alpha_a,\mu)}{\partial\alpha_a} \tag{16}$$

Note that $\tilde{U}_p^c(\mu) > 0$ as the principal can always choose zero effort and then accept the idea. Further, $\tilde{U}_p^c(\mu)$ is always decreasing in μ by the envelope theorem. Finally, recall e_a is determined by:

$$c'(e_a) = \mathbf{E}(v_a) - \alpha_a\mathbf{E}(v_a|v_a<0)e_p^c(\mu). \tag{17}$$

As a result,

$$\operatorname{sign}\Big(\frac{\partial^2 e_a^c(\alpha_a,\mu)}{\partial\alpha_a\partial\mu}\Big) = \operatorname{sign}\Big(\frac{\partial e_p^c(\mu)}{\partial\mu}\Big) < 0 \tag{18}$$

where the final inequality comes from the envelope theorem. Finally,

$$\operatorname{sign}\Big(\frac{\partial e_a^c(\alpha_a,\mu)}{\partial \alpha_a}\Big) = \operatorname{sign}\Big(e_p^c(\mu)\Big) > 0. \tag{19}$$

As a result, the expression in Equation (16) is negative. Finally, that $\mu^*(0) < \mu_g$ follows from observing that when $\alpha_a = 0$ the agent's effort is independent of μ. □

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