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Favoritism in promotion decisions

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Abstract

How do managers' personal preferences affect their promotion decisions and their employees' motivation to work hard? I develop a principal-agent model in which a business unit manager within a large organization is altruistic towards both, one or neither of her two employees and decides whom to promote. The employees, in juxtaposition, are conditionally altruistic towards the manager and draw inferences about her preferences based on the promotion decision. I find that an equilibrium in which the manager signals her favoritism, as well as one where she strategically chooses not to, exist. When the manager signals her true preferences, the promoted employee exerts more, while the other employee exerts less effort, compared to before the promotion. Otherwise, the effort remains unchanged. The final outcome is determined by the bonus that the promoted employee receives. Both the manager and the organization may prefer an equilibrium in which favoritism is signaled – especially if the stakes are high – despite a higher required bonus to sustain this equilibrium. However, the manager prefers this equilibrium more often than the organization. This implies that favoritism can occur at the expense of the organization. To prevent this, my model suggests granting less authority to the manager.

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1 Introduction

Imagine working in a business unit with one other colleague. You are both equally good at the very same task and thus equally productive. One day, the manager announces that your colleague is promoted to a more important task in the business unit, while your position remains the same. You might wonder what the reason for this announcement might be, given that both of you have been equally productive. It might have been a random choice by the manager, a coin flip in her office. But what if the decision is due to your manager's personal preference for your colleague? What if the manager cares about your colleague, but not about you after all? If this was the reality, would you have the same feelings towards your manager as before, and as such, the same motivation to work hard and contribute to the organization?

I provide a new theory on the effect of favoritism by managers on their promotion decisions and the workers' effort choice. Existing literature has broadly shown that superiors' performance evaluations can be subject to bias and favoritism (see, e.g., Ittner et al., 2003; Du et al., 2012; Breuer et al., 2013). This means that results of performance evaluations such as bonus payments or promotions can be different from – what would have been otherwise broadly agreed to as – purely merit-based outcomes. This discrepancy, particularly in promotion settings, is observable to all employees and carries signaling value. Employees can learn about the manager's care towards them, and how this compares to the manager's feelings towards other employees. This sparks interest in finding out how employees react to promotion decisions where favoritism might occur. Furthermore, the question becomes under which circumstances the manager would like to signal her true feelings and when she would prefer to keep them to herself. Lastly, it is relevant to study when personal preferences by the manager harm or benefit the organization overall and how it can optimally cope with potential favoritism. These are important questions for organizations. Understanding the distortions due to favoritism is crucial to harness the full potential of promotions as motivation and job assignment tools to maximize overall performance.

To study these questions theoretically, I develop a principal-agent model with one business unit manager who oversees two equally able employees over two periods. The business unit sits within a large organization that is the residual claimant. The manager cares about the profit of the business unit and has personal preferences towards the employees. At the beginning of the first period, nature determines the manager's type which is the manager's private information. The manager either cares about both, one of the two, or none of the employees with a certain probability. At the beginning of the second period, the manager makes a promotion decision. The promoted employee now works on a relatively more important task in terms of contribution to the organization and receives a bonus, while the other employee remains with the same task. The novelty is that the employees are conditionally altruistic towards the manager. This means that they care about the manager as much as they think that the manager cares about them. The crux is that the employees don't know whether the manager cares about them. As a result, they need to form beliefs. Without any signal, the beliefs won't differ from the general knowledge of the probability that the manager cares about the employee. Yet, the manager's promotion decision might be a signal of her true feelings towards the employees. This could allow the employees to update their beliefs.

I find that equilibria where the manager does not signal her true feelings (coin flip equilibrium), as well as those where she does signal them (signaling equilibrium), exist. If the employees believe that the manager always flips a coin and thus, does not signal her preferences, the manager finds it optimal to indeed flip a coin as long as the promoted employee receives a bonus that exactly compensates for the additional effort necessary to perform the more important task. In such an equilibrium, the employees cannot learn about the manager's true feelings towards them. As a result, the employees' effort in both periods is the same. If, however, the employees believe that the manager always promotes whom she cares more about and flips a coin if she is indifferent, then the manager follows this strategy as long as the bonus at least compensates for the differences in effort due to the updated beliefs and due to the more important task. In such an equilibrium the promoted employee provides more effort in the second period, compared to the first period. In contrast, the employee who is not promoted puts in less effort compared to the previous period.[1]

It follows that the final outcome depends on the bonus that is provided, which thus also signals to the employees whether the decision has signaling value or not. To maintain the signaling equilibrium, a higher bonus needs to be set. The optimal equilibrium is highly situation specific. For both the organization and the manager, it depends on three parameters whether the signaling equilibrium is preferred. The probability that the signaling equilibrium is preferred increases if

[1] I later show (also in Appendix D) what happens if the bonus does not compensate sufficiently for the additional effort necessary to perform the more important task. In such an equilibrium the final comparison in effort is ambiguous as the manager promotes whom she cares less about since the bonus is not worth the additional effort in the eyes of the manager, which reverses the updated beliefs. The promoted employee, though discouraged, however still works on the more productive task, which, depending on the specifications, can still mean higher effort. Given that most promotions in the field are desirable, I focus on these equilibria throughout this paper, implying that the bonus at least compensates for the additional effort required.

(1) the task of the promoted employee increases in relative importance compared to the minor task (2) the probability that a manager is altruistic towards a certain employee decreases, and (3) the magnitude of altruism decreases. So, it depends on the manager and the relative importance disparity between the two tasks at hand. If the deciding manager has a low probability of being altruistic towards an employee, with a low magnitude of altruism, both the organization and the manager find it more often optimal to reach an equilibrium where the manager exercises favoritism. The same holds if the stakes of a decision are higher. If the promotion task is much more important, it is more often optimal for both if the manager promotes whom she cares most about. However, the manager prefers the signaling equilibrium more often compared to the organization. This is because she partly benefits from a higher bonus, which the organization does not, due to her altruism. To prevent that favoritism occurs at the expense of the organization, the organization can grant less authority to the manager by deciding on the promotion bonus itself.

These findings add to the existing literature in at least three ways. To start with, Prendergast and Topel (1996) were one of the first to argue that performance evaluations can be subject to favoritism. As such, favoritism creates noise around pay for performance that reduces employees' effort. Thereby, favoritism creates inefficiencies in monitoring. As the authors note, however, the scope of favoritism and its consequences is probably much broader and touches upon more intangible aspects such as fairness and reputational concerns, as well as personal relationships between the manager and her subordinates. My model is the first to study how such personal relationships are affected by favoritism in promotion settings within a principal-agent setting.

At the same time, this also allows me to extend the existing literature on favoritism in promotions. Traditionally, the incentives of promotions are modeled with tournament theory (see, e.g., Rosenbaum, 1979; Lazear & Rosen, 1981). This allows to study effort provision ex-ante of the decision, which is the focus of existing studies that address favoritism in such a setting (see, e.g., Berger et al., 2011; Herbertz & Sliwka, 2013). Yet, promotion decisions also affect effort provision ex-post of the decision (see, e.g., Benson et al, 2019) and existing theories lack explanatory power for this. By adopting a signaling model similar to Kamphorst and Swank (2016), I provide the first theory on how a manager's personal preferences affect employees' effort choices ex-post. Furthermore, managers will probably not always find it optimal to exercise favoritism against the backdrop of the far-reaching consequences. Given the sequential nature of the game, my model also allows for the strategic behavior of the manager, which, allows to predict when a manager will signal her true feelings at all.

Lastly, my model adds to the literature on how organizations can mitigate the adverse effects of favoritism. Prendergast and Topel (1996) suggest introducing more bureaucratic rules in promotions and placing less weight on the performance evaluations by managers. Berger et al. (2011) show how firms can introduce pay for performance for managers which can reduce the adverse effects. My model proposes that as soon as personal relationships play a role, which are usually unobserved by the organization, letting the manager decide on promotions can be very beneficial, given that favoritism motivates the favored employee. However, if it is not beneficial, the organization is indeed best off to reduce adverse effects with bureaucratic rules or by deciding on the promotion compensation package of the business unit itself.

The rest of this paper is structured in a straightforward fashion. In the next section, I lay out the journey of existing literature that is the motivational and conceptual foundation for my theory. This is followed by an explanation of my model's structure including players, preferences, actions, and the timeline. Then, I analyze the model in both periods to solve for equilibrium behavior and to yield predictions. The concluding remarks give a holistic perspective on my findings by including limitations and providing suggestions for future research.

2 Related Literature

Economists have long acknowledged the dual role of promotions. While promotions can incentivize as a form of tournaments (see e.g. Rosenbaum, 1979; Lazear & Rosen, 1981), they in theory also serve to assign roles best suited for the abilities of given employees (see, e.g., Sattinger, 1975; Rosen, 1978). Yet, some of these standard economic theories exclude later discovered important nuances of promotion settings. One of these nuances is the fact that promotions often occur through performance evaluations by managers. An important aspect is that performance evaluations are often based on subjective non-contractible rather than objective data (Prendergast & Topel, 1993). Managers thus base performance evaluations not only on performance-related but also on personal preference-related aspects which allow managers to introduce bias.

Bias can have several different dimensions. Ideally, performance evaluations capture the absolute performance of an employee, as well as the relative performance compared to other employees, as accurately as possible, to let performance-based compensation and promotion decisions work as intended. Well-known biases that complicate these two matters are the leniency bias and the centrality bias (Prendergast, 1999). The leniency bias inflates the absolute performance evaluation since managers leniently give too high performance ratings (see, e.g. Jawahar & Williams, 1997). The centrality bias blurs correct relative performance by compressing the variance in managers' evaluations. Grund and Przemeck (2012) provide a theoretical model that illustrates how both might arise. If the manager cares about her inequality-averse employees, both of these biases arise and their extent depends on the observed variance in performance, as well as the magnitude of inequality aversion. Even under optimal contracts to supervisors, leniency bias can arise (Giebe & Guertler, 2011). Only if repeated interaction is taken into account, optimal contracts can incentivize supervisors to report truthfully in some cases (Tichem, 2013). Beyond these general biases affecting performance evaluations, further complications arise because of bias due to favoritism, where managers treat their employees asymmetrically due to arbitrary personal preferences.

Several papers have documented the occurrence of favoritism in performance evaluations. Ittner et al. (2003) study how subjective rewards systems fare if several different types of performance indicators are weighted by the decision-makers. The authors find that bonus payments were subject to strong favoritism despite the availability of financial indicators. This is because the subjective weighting allowed supervisors to ignore many performance measures, or to change them over time. Another study on the topic was conducted by Du et al. (2012). With data from 63 state-owned enterprises, the authors find evidence for a two-way engagement by both superiors and subordinates. With subjective performance measures, subordinates are motivated to engage in influence activities, which in turn affects the favoritism by superiors. Breuer et al. (2013) use unique data from a call center over 4 years and find that those employees with better social ties towards their manager, on average, receive positively biased performance ratings. These findings urge research on how favoritism by managers affects outcomes such as workers' effort and firm performance. In my view, there are three potential routes to how favoritism can affect these metrics.

The first route is that favoritism, through distorted performance evaluations, can affect monetary incentives such as performance pay and promotion incentives. More than two decades ago, Prendergast and Topel (1996) developed one of the first theories on favoritism in the workplace. In an otherwise standard principal-agent model, they show how favoritism creates inefficiencies that result in lower effort. This is because the manager's personal preferences create noise around performance reviews which results in less efficient monitoring. According to their model, organizations can respond to this by decoupling pay from performance reviews by managers while establishing more bureaucratic rules. Also, theories on how favoritism affects promotion incentives exist. Berger et al. (2011) include favoritism in a promotion tournament and show how employees anticipate that promotions are not entirely performance-based which decreases ex-ante effort. Furthermore, Herbertz and Sliwka (2013) include a superior's preference for favoritism to analyze the relationship between effort choices and tournament prices. Contrary to the findings by standard tournament theory, the authors show that effort can decrease with an increasing promotion price in such a setting. It is more likely that the manager promotes the less able favorite if the price is higher. This is because more is to gain for her favorite.

The second route is that favoritism distorts optimal focus on ability. This is because a person who is favored can be less able, compared to unfavored peers, which can have two consequences. One is that a less able person can be promoted. In their models, Prendergast and Topel (1996), Berger et al. (2011), and Herbertz and Sliwka (2013) all show how not only lower effort is induced, but larger favoritism causes less productive job assignments. As a result, the output after the promotion is potentially lower, compared to a scenario in which no favoritism occurred. As a potential remedy, Berger et al. (2011) find that pay for performance for the managers who are responsible for the promotion can reduce this issue. With employeremployee survey data from 305 firms, the authors show evidence for the theory. In firms where managers receive performance-related pay, the perceived promotion quality appears to be higher. Another interesting case of favoritism in job assignments is nepotism which appears to negatively affect firm performance. Using an IV approach with a unique dataset from Denmark, Bennedsen et al. (2007) find that family CEOs perform substantially worse than non-family-related CEOs. Thus, favoring relatives in such a context has negative consequences on overall firm performance.

The second consequence can be that managers allocate attention and support in a suboptimal manner by not focusing on the ablest but on whom they favor. Bandiera et al. (2009) use personnel data from a large soft fruit producer in the UK to study how workers' and firm performance is affected by social connections between supervisors and workers. They find that managers favor the employees they are socially connected to, instead of the ablest when they receive fix wages. Favoritism is detrimental to overall firm performance even though socially connected workers to the manager perform better. If they receive pay for performance, however, managers focus their attention on the ablest employees without considering social connectedness, which reduces the adverse effects of favoritism.

The third route is that employees can learn about intangible aspects, concerning the manager or the organization overall, that they might care about. If decision outcomes positively or negatively deviate from an outcome that would have been expected based on performance alone, employees can make inferences. For instance, employees can learn whether the manager cares about them. Learning that a manager cares or does not care by itself can either increase or decrease motivation to work hard (Wagner & Harter, 2006). Furthermore, employees learn how the care they receive relates to the care received by other employees, which can alter perceived fairness. An influential theory that helps understand how this can affect motivation is Adams' equity theory (1965). According to this theory, perceived fairness is an important input into the equation of human motivation. Not only is it necessary that individuals feel that the rewards for their contributions are intrinsically fair, but also that these rewards for a given contribution are fair compared to peers. If one of these conditions is not met, the theory predicts that both over- and undercompensated individuals perceive distress. This could also partially explain recent findings by Benson et al. (2019) who find that an employee is, on average, 23 percentage points less likely to stay at the firm, if a co-worker with fewer sales is promoted instead of this employee. Also, sales of the same person are significantly lower three months after not being promoted in the very same position. In addition, perceived fairness seems to be related to other aspects such as organizational commitment which has been shown to impact job satisfaction and job performance (Rhoades & Eisenberger, 2002). Roberts et al. (1999) find that organizational commitment and intent to turnover can be well explained by both perceived external and internal fairness.

While the first and second routes have been explored theoretically, the third route is much less understood, particularly within a standard principal-agent model. Yet, this is indispensable for a comprehensive understanding of promotion decisions in the field. According to Cropazano and Mitchell (2005), social exchange theory belongs to the most important frameworks for the study of workplace behavior and social ties play a large role in that. Thereby, caring for employees and being fair generates effective workplace behavior which improves the overall outcome. Crucially, these social exchanges are governed by rules, such as reciprocity, and interdependent actions. This implies the employees' behavior is contingent on the actions and feelings of the manager. A way to capture such social exchange relationships dynamically is the conditional altruism preference, first suggested by Levine (1998). Thereby, altruism towards another person depends on the altruism received from that person. Including such a preference into standard principal-agent theory has shown to alter predictions more towards findings in the field. For instance, Dur (2009) finds that – contrary to the traditional exchange hypothesis – altruistic can have better social-exchange relationships than egoistic managers although they provide a lower wage. This is because they have other tools at their disposal such as giving attention. Subsequently, Non (2012) studies the relationship between incentive pay and monetary gift exchange with conditional altruism and finds that optimal pay for performance incentives and total compensation differ from what standard theory would predict. My model is the first to include this preference in a promotion setting to study how promotions as a signal of these preferences affect the managers' and workers' choices.

It is closest to the model by Kamphorst and Swank (2016). The authors offer a novel theory on discrimination in promotion settings where promotion decisions have signaling value concerning the ability of the employees. Thereby, a manager assigns a major task to one of two employees. The employees don't know their ability exactly, but the distribution of it and thus need to form beliefs. The manager, on the other hand, has superior information concerning the ability of these employees. The authors find that equilibria sustain where employees believe that discrimination exists, which then leads the manager to discriminate. Not doing so would have severely adverse consequences for the employee who would benefit from the discrimination, since not being promoted signals very weak ability.

Given the thematic focus of this paper, my model differs in three aspects: The preferences of the players, the focus of the information asymmetry, and the heterogeneity of the players. While in this model the manager and the employees care about the output, in my model they care about profit, wages, and crucially, each other. The manager is altruistic towards employees with a given probability. This means that with a certain probability the manager favors an employee over another. The employees, by contrast, are conditionally altruistic. This allows me to focus on the question of how actual personal preferences by managers affect promotion outcomes. Furthermore, the information asymmetry in this model concerns ability, whereas in my model it concerns the manager's preferences. Thus, my model applies in settings where ability is observable, while this model rather applies in settings where this is more difficult. Finally, in this model, the employees are heterogenous in ability and there is one type of manager. In my model the employees are homogenous but there are different types of managers. Still, in both models, the promotion decision allows employees to learn how they compare to each other, in my model in terms of care received by the manager, and in this model in terms of ability.

3 The model

Consider a business unit that consists of one manager and two employees. The business unit sits within a large organization and operates over two periods. In the first period, both employees perform a minor task. In the second period, one of the two employees gets promoted to perform a major task for which a bonus b is granted, while the other employee keeps performing the minor task. In each period, the employees choose how much effort to provide in order to produce output. Employee i, $i \in \{1,2\}$, in period t, $t \in \{1,2\}$, produces output according to the performed task:

$$y_{i,t} = \begin{cases} \varphi a_i e_{i,t} \text{ for the major task} \\ a_i e_{i,t} \text{ for the minor task} \end{cases}$$

where $\varphi \geq 1$ is the major task's relative importance compared to the minor task, a_i denotes employee i's ability and $e_{i,t}$ ($e_{i,t} > 0$) is the effort chosen by the employee in period t. To investigate the effects of favoritism in particular, I assume that the employees are entirely homogenous and that $a_1 = a_2 = 1$ [2].

[2] Clearly, this is a simplification to highlight the main intuition of the model. Employees usually differ in ability and I leave it for future research to lift that assumption.

The manager's task is to make the promotion decision m, $m \in \{1,2\}$, where $m = i$ is the general notation and indicates that employee i gets promoted, at the beginning of period two. The manager is interested in maximizing the unit's profit. In addition, she is altruistic towards both, one or none of the employees which depends on nature. The manager's feeling α_i towards employee i can be formalized as follows

$$\alpha_i = \begin{cases} \tau & if\ altruistic \\ 0 & if\ not\ altruistic \end{cases}$$

where $0 < \tau < 1$. With probability μ, the manager is altruistic towards employee i. This, as well as τ, is known to everyone. Upon the beginning of the unit's operations, the realization of the manager's feelings towards employee 1 (α_1) and employee 2 (α_2) are independently drawn and determined by nature. The realization of the manager's feeling α_i is private information and only known to the manager. The total utility of the manager in a given period t, $t \in \{1,2\}$, is thus characterized by

$$\bar{\pi}_t = \pi_t + \alpha_1 u_{1,t} + \alpha_2 u_{2,t}$$

where $\pi_t = y_{1,t}(e_{1,t}) + y_{2,t}(e_{2,t}) - b_{if\ t=2} - 2w$ denotes the private utility of the manager in period t, α_i is the manager's feeling towards employee i, and $u_{i,t}$ denotes employee i's private utility in period t. I assume that wage w is organization policy and can thus not be influenced or set by the manager herself and is high enough such that the employees' participation constraint is always satisfied. Furthermore, wage w and bonus b are set at the beginning of the first period and cannot change throughout the two periods.

The employees derive utility from the monetary incentives of the organization and suffer the cost of effort. On top of that, they are conditionally altruistic towards the manager. It is conditional in the sense that the employee's altruism towards the manager depends on the altruism of their manager α_i towards the employee. The crux is that the manager's altruism towards employee i is only known to the manager. As a result, the employees need to form beliefs about the manager's altruism towards them, given the general knowledge and observations. Hence, employee i's total expected utility is given by

$$E(\bar{U}_{i,t}) = u_{i,t} + \gamma_i\big(\,E(\alpha_i)\big)\pi_t$$

where $\gamma_i\big(\,E(\alpha_i)\big)$ is the employee's altruism towards the manager as a function of the expected altruism by the manager towards employee i $E(\alpha_i)$. Thereby, the expected altruism can be expressed as $E(\alpha_i) = p * \tau$ where p is employee i's belief concerning the probability that the manager is altruistic towards employee i. Furthermore, $u_{i,t}$ is the employee's private utility and π_t is the manager's private utility[3] in period t. To focus on the most essential aspects, I will assume throughout this paper that the employees' altruism $\gamma_i(\alpha_i)$ is the same for both agents and that $\gamma_i(\,E(\alpha_i)) = E(\alpha_i)$ [4]. This implies that the agents would perfectly reciprocate the manager's altruism if there was perfect information. As such, they perfectly reciprocate the manager's altruism in expected terms. The employee's private utility conditional on being promoted is noted by

$$u_i = \begin{cases} w - c(e_i) \;\; if\ the\ minor\ task\ is\ performed \\ b + w - c(e_i)\ if\ the\ major\ task\ is\ performed \end{cases}$$

where $c(e_i) = \frac{1}{2}e_i^2$ denotes the employee's cost of effort.

To summarize, the timeline is as follows:

1. The organization offers a flat wage contract to both employees and the manager's altruism towards both employees is realized.
2. The employees choose their effort level.
3. The first period ends, and output is realized.
4. At the beginning of period 2, the same flat wage contract is offered to both employees. Furthermore, the manager makes the promotion decision. A flat bonus is offered to the promoted employee accordingly by the organization.
5. The employees choose their effort level.
6. The second period ends, and output is realized

[3] It is important to note in the manager's total utility and the employee's total expected utility that the players are altruistic toward the private utility of the other player only. This follows the specification of Levine (1998) and Dur (2009) and avoids complexities that don't contribute to the main intuition of the model.
[4] It is common in altruism models to allow for heterogeneity in altruism. However, in my model, the effort choice of the employees depends on conditional altruism only. As a result, allowing for spiteful ($\gamma_i < 0$) employees would not make sense. Furthermore, Non (2012) finds that employers can write contracts that screen reciprocal workers.

4 Equilibrium behavior

4.1 First period

The first period is characterized by the effort choice of the employees only. The employees aim to maximize their overall expected utility in this period which depends on their belief p. In the first period, there is no signaling by the manager involved. As a result, the most rational belief by the employees is that $p(\alpha_i = \tau) = \mu$. Maximizing the employee's utility function where both employees work on the minor task yields the following optimal effort provision by employee i

$$e_i^* = E(\alpha_i) = p(\alpha_i = \tau)\tau = \mu\tau$$

Given the timeline of the model, effort choice in period 1 is inconsequential for period 2. As a result, the employee chooses effort solely based on the expected utility function in period 1[5]. The optimal effort provision shows that the only aspect that motivates the employees is their conditional altruism. Without it, both employees would always provide zero effort in this model, given that there is no pay for performance. Wage w is set such that the employees' participation constraint is satisfied. Together the employees thus produce output

$$y_{1,1}(e_{1,1}) + y_{2,1}(e_{2,1}) = 2\mu\tau$$

and both receive the flat wage w. Consequently, both the employees' effort and the output in the first period increase in the probability that the manager is altruistic towards the employee, as well as the magnitude of the altruism. Inserting the optimal effort choice and the private utility of the manager into the expected utility function yields the following expected utility for employee i

$$E(\overline{U}_{i,1}) = \mu\tau\,(2\mu\tau - 2w) + w - 0.5(\mu\tau)^2 = 1.5\mu^2\tau^2 + w(1 - 2\mu\tau)$$

The expected utility of employee i depends on μ, τ, and the wage w. As long as $1 > 2\mu\tau$, the expected utility increases with μ, τ, and the wage w. If $1 = 2\mu\tau$, then the expected utility is independent of the wage and increases in μ and τ. If $1 < 2\mu\tau$, then the expected utility even

[5] This could be extended in future research. As in models by Rosenbaum (1979), Lazear and Rosen (1981), Berger et al. (2011) and Herbertz and Sliwka (2013) promotions usually provide additional incentives ex-ante. This arises because employees compete for promotion which yields a tournament price. I disregard this here, to draw attention to the novel aspects of my model. Here, the promotion decision does not involve the first period and thus, does not provide incentives in the first period. Merging these studies within a comprehensive model should be done in future research.

decreases with increasing wage. This is because the employee's altruism leads to the utility of receiving the wage being smaller than the disutility from the fact that the manager needs to pay these wages to both employees.

There is no action by the manager in the first period. Nonetheless, the utility of the manager is not always the same. It depends on the manager's type which is determined by nature. There are four possible types which are illustrated with the respective probabilities and utilities in Table 1.

Table 1 The manager's types, probability of occurring, and utilities in the first period

Type	**Altruistic towards**	**Probability**	**Utility ($\overline{\pi}_2$)**
1	Both	μ^2	$[2\mu\tau - 2\text{w}] + 2\tau(w - 0.5\ (\mu\tau)^2)$
2	Employee 1	$\mu(1-\mu)$	$[2\mu\tau - 2\text{w}] + \tau(w - 0.5(\mu\tau)^2)$
3	Employee 2	$\mu(1-\mu)$	$[2\mu\tau - 2\text{w}] + \tau(w - 0.5(\mu\tau)^2)$
4	None	$(1-\mu)^2$	$[2\mu\tau - 2\text{w}]$

Notes: This table shows the manager's four different types, the probability that each of the types is occurring, and the respective utilities in the first period.

The utility column of Table 3 shows that the manager's utility keeps decreasing from type 1 to type 4. It is thus increasing in the number of employees she is altruistic towards. She is indifferent between the scenario where she is type 2 or type 3. The probability column of Table 3 illustrates how the probability of occurrence depends intuitively on μ. If $\mu > \frac{2}{3}$, type 1, where the manager is altruistic towards both, is most likely. If $\frac{2}{3} > \mu > \frac{1}{3}$, being altruistic towards one of the two is most likely. If $\mu < \frac{1}{3}$, then not being altruistic at all is most likely. As a result, the expected utility of the manager in period 1, before nature draws the type, is increasing in μ which is exogenous.

4.2 Second period

The choices in the second period are more sophisticated. Now, the manager makes a promotion decision and promotes one of the two employees. Once the employees observe the decision, they choose their effort provision. As this is a sequential game, I solve for perfect Bayesian equilibria using backward induction. This implies starting with the optimal effort choice by the employees which is given by

$$e_i^* = \begin{cases} p(\alpha_i = \tau \mid m \neq i)\tau & if\ minor\ task\ is\ performed \\ \varphi p(\alpha_i = \tau \mid m = i)\tau & if\ major\ task\ is\ performed \end{cases}$$

This differs from the first period in two ways. On the one hand, the promoted employee now takes into account φ, the relative importance indicator of the major task. The larger the relative importance of the task after promotion, the larger the effort provided by the promoted employee, also relative to the other employee. On the other hand, the probability that the manager is altruistic towards the employee is conditional on the promotion decision and not necessarily equal to the prior, μ, anymore. Given that the employees observe the promotion decision, they update their beliefs using Bayesian updating.

The reason they update their beliefs is that the promotion decision can allow them to make inferences about the manager's altruism towards them. Employees start with the prior probability $p(\alpha_i = \tau) = \mu$. Without further evidence, the probability that the manager is altruistic towards this employee is μ. Then, for instance, employee i observes the promotion decision. The probability that the manager is altruistic towards this employee now changes, given the promotion decision. Following Bayes' Rule, the new probability that the manager is altruistic towards employee i, conditional on the observation of the promotion decision, is

$$p\ (\alpha_i = \tau \mid m) = \frac{p\ (m \mid \alpha_i = \tau) * p(\alpha_i = \tau)}{p(m) = p\ (m \mid \alpha_i = \tau) + p\ (m \mid \alpha_i \neq \tau)}.$$

The conditional probability depends on the prior, $p(\alpha_i = \tau)$, the signal accuracy $p\ (m \mid \alpha_i = \tau)$, and the overall probability of the particular observed decision $p(m)$ (e.g., $m = i$). Type 2 and type 3 both benefit from favoring their favorite employee. Thus, being promoted could have occurred because one of these types promoted her favorite. However, the signaling accuracy $p\ (m \mid \alpha_i = \tau)$ and $p(m)$ imply that there are false positives and false negatives. For instance, suppose employee 1 observes being promoted. This does not necessarily mean that the manager is altruistic towards this employee. It could be a false positive, where the manager is not altruistic towards any of the employees. The manager is indifferent in such a case and might have just flipped a coin where employee 1 simply got lucky as a result. It also does not mean that the manager is not altruistic towards employee 2. It could be a false negative, where the manager is altruistic towards both employees and employee 2 just got unlucky. This is what employees take into account when they update their beliefs after observing the promotion decision.

Furthermore, $p\ (m \mid \alpha_i = \tau)$ and $p(m)$ fully depend on each manager type's strategy. The implication is that the posterior beliefs depend entirely on the employees' beliefs about each type's strategy. Solving for all possible equilibria thus implies analyzing the manager's strategies for all possible beliefs. Yet, for brevity, I will reduce the focus on equilibria where employees believe that type 1 and type 4 always flip a coin, which is intuitive. These manager types are either altruistic towards both or none of the employees and thus indifferent[6]. Pooling equilibria are equilibria where each type has the same strategy. Semi-separating equilibria, on the other hand, mean that some but not all types have the same strategy. In this example, it would mean that the employees believe that type 2 and type 3 use different strategies, compared to type 1 and type 4. Separating equilibria would be equilibria where each type has a distinct strategy. Given the focus of my analysis, type 1 and type 4 have the same strategy, and thus no separating equilibria are analyzed further.

To indeed reach an equilibrium, the employees' beliefs about each type's strategy need to be self-confirming. This means that none of the types can have an incentive to deviate from the strategy believed by the employees. Given this reality, I will further analyze this period by using backward induction. First, I start with the proposed equilibrium beliefs by the employees. Then I analyze how these affect the posterior beliefs and optimal effort choice of the employees for any given m. Finally, I determine the manager's utility for each type, dependent on the promotion decision. If the manager follows through with the proposed equilibrium beliefs, then indeed an equilibrium is found.

4.2.1 Pooling equilibria

Suppose that employees believe that each type flips a coin, which implies $p(m = i) = 0.5$ no matter the manager's type. In such a coin flip case, what are the posterior beliefs, $p(\alpha_i = \tau \mid m \neq i)$ and $p(\alpha_i = \tau \mid m = i)$, of employee i? The answer is straightforward. Given that each of the manager's types has the same strategy, the promotion decision has no signaling value since $p\ (m \mid \alpha_i = \tau)$ and $p(m)$ are both equal to 0.5 and cancel out. As a result,

$p(\alpha_i = \tau \mid m \neq i) = p(\alpha_i = \tau \mid m = i) = p(\alpha_i = \tau) = \mu.$

It follows that the employees' effort is

$$\begin{cases} e_i^* = p(\alpha_i = \tau)\tau = \varphi\mu\tau & if\ m = i \\ e_i^* = p(\alpha_i = \tau)\tau = \mu\tau & if\ m \neq i \end{cases}$$

[6] Despite being unintuitive, in principle, equilibria could be sustained where the employees believe that type 1 and type 4 always promote type 1, for example.

as in the first period. The only difference is that one of the employees now works on the major task. The next step is to see how this affects the payoff of each of the manager types. This is illustrated in Table 2.

Table 2 The manager's payoff given the employees' belief that each type flips a coin

Type	Altruistic towards	Probability	Utility ($\overline{\pi}_2$)
1	Both	μ^2	$\begin{cases} if\ m = 1 \mid & [(1+\varphi^2)\mu\tau - 2\text{w}] + \tau(w + b - 0.5(\varphi\mu\tau)^2) + \tau(w - 0.5(\mu\tau)^2) \\ if\ m = 2 \mid & [(1+\varphi^2)\mu\tau - 2\text{w}] + \tau(w + b - 0.5(\varphi\mu\tau)^2) + \tau(w - 0.5(\mu\tau)^2) \end{cases}$
2	Employee 1	$\mu(1-\mu)$	$\begin{cases} if\ m = 1 \mid [(1+\varphi^2)\mu\tau - 2\text{w}] + \tau(b + w - 0.5(\varphi\mu\tau)^2) \\ if\ m = 2 \mid \quad [(1+\varphi^2)\mu\tau - 2\text{w}] + \tau(w - 0.5(\mu\tau)^2) \end{cases}$
3	Employee 2	$\mu(1-\mu)$	$\begin{cases} if\ m = 1 \mid \quad [(1+\varphi^2)\mu\tau - 2\text{w}] + \tau(w - 0.5(\mu\tau)^2) \\ if\ m = 2 \mid [(1+\varphi^2)\mu\tau - 2\text{w}] + \tau(b + w - 0.5(\varphi\mu\tau)^2) \end{cases}$
4	None	$(1-\mu)^2$	$\begin{cases} if\ m = 1 \mid (1+\varphi^2)\mu\tau - 2\text{w} \\ if\ m = 2 \mid (1+\varphi^2)\mu\tau - 2\text{w} \end{cases}$

Notes: This table shows the manager's types, respective probabilities, and respective utilities given the promotion decision m. The employees believe that each type flips a coin.

Proposition 1: A pooling equilibrium where each type flips a coin exists if $b = b^* = 0.5 * (\mu\tau)^2(\varphi^2 - 1)$.

Proof: See Appendix A.

Such an equilibrium only exists if the two types, who favor one of the employees, have no incentive to deviate. The question becomes when such a manager who is altruistic towards only one of the employees would be willing to flip a coin. This fully depends on the differences in the private utilities of the employee. If it is the same regardless of the promotion decision, the manager is indifferent between promoting the preferred or the other employee. The result is that as long as the employee gets compensated exactly for the increased effort due to the more important task, the employee's private utility is the same and the manager is indifferent between promoting the preferred or the other employee. The curiosity arises about what happens if the bonus $b \neq b^*$ which is the focus of the next section.

4.2.2 Semi-separating equilibria

Suppose that the employees believe that type 1 and 4 flip a coin, while type 2 promotes employee 1 and type 3 promotes employee 2 with certainty. Now, the promotion decision allows the employees to update their beliefs.

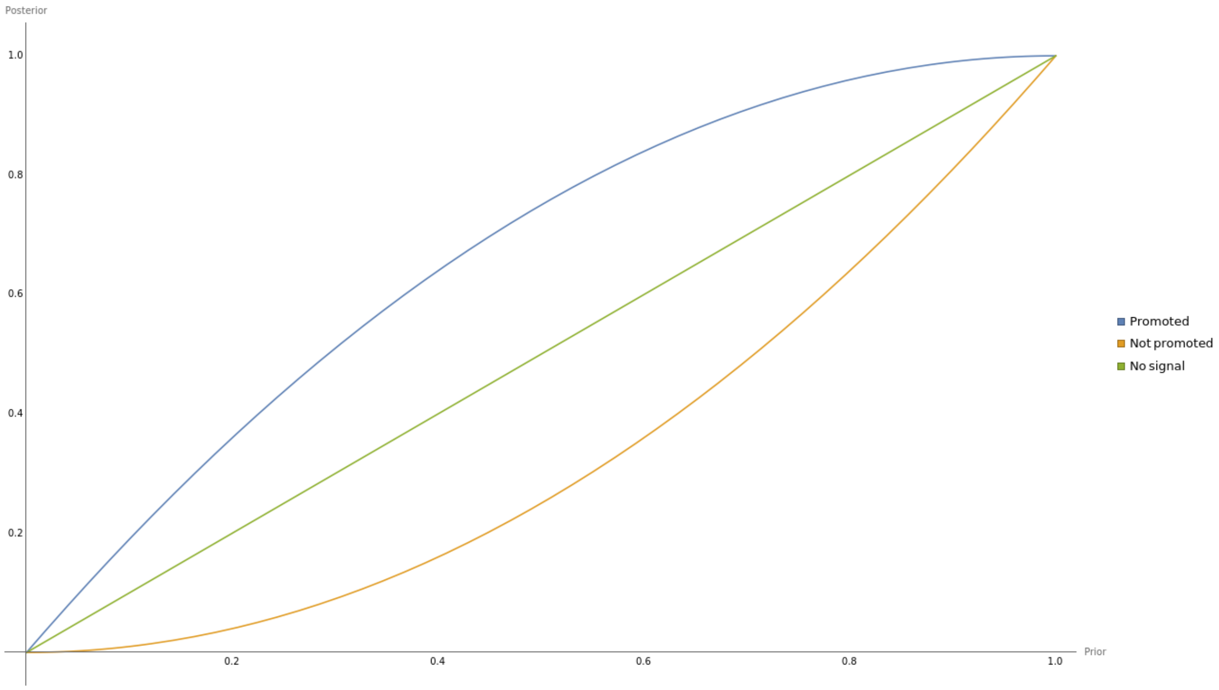

Figure 1 The employees' belief updating

Notes: Figure 1 illustrates how employees update their beliefs once the promotion decision is observed, given the belief that type 1 and 4 flip a coin, while type 2 promotes employee 1 and type 3 promotes employee 2 with certainty. The x-axis shows the prior, μ. The y-axis shows the posterior belief dependent on whether an employee got promoted $(2\mu - \mu^2)$ or not (μ^2). If there was no signal, then there would just be the green line, a straight line through the origin, since the posterior would be equal to the prior. The calculations can be found in Appendix B.

Figure 1 shows that the posterior probability that the manager is altruistic towards employee i is higher than the prior if promoted. It is lower than the prior if the employee is not promoted. The magnitude of probability updating is always exactly the same as $2\mu - \mu^2 + \mu^2 = 2\mu$, so their joint probability remains unchanged.

Given the posterior beliefs, the optimal effort choice of employee i is thus

$$\begin{cases} e_i^* = p(\alpha_i = \tau \mid m = i)\tau = \varphi(2\mu - \mu^2)\tau & if\ m = i \\ e_i^* = p(\alpha_i = \tau \mid m \neq i)\tau = \mu^2\tau & if\ m \neq i \end{cases}$$

The optimal effort choice against the backdrop of Figure 1 yields very interesting insights. Firstly, the employees together provide the same effort, compared to before the decision as long as $\varphi = 1$. However, the promoted employee provides more effort while the other employee provides less effort, compared to the prior scenario. In fact, the promoted employee can provide as much as three times the effort of the not promoted employee. The maximum deviation from the prior is at $\mu = 0.5$ where the promoted employee's posterior is 0.75 and the other employee's posterior probability is 0.25. That the maximum is at $\mu = 0.5$ is no coincidence. It is the point where the occurrence of type 1 or type 2 is most likely. As a result, the signal is stronger at this value of μ compared to at other values of μ. Secondly, if $\varphi \geq 1$ the employees together provide more effort, compared to before the decision. This is because the more motivated promoted employee now also carries out a task that brings more value to the business per unit of effort. This does not one in one translate into more profit since the organization now also pays bonus b. Inserting the optimal effort choice into the utility function of the manager yields the utilities as illustrated in Table 3.

Table 3 The manager's payoff given the employees' belief that type 1 and 4 flip a coin, while type 2 promotes employee 1 and type 3 promotes employee 2 with certainty

Type	**Altruistic towards**	**Probability**	**Utility ($\bar{\pi}_2$)**
1	Both	μ^2	$\begin{cases} if\ m = 1 \mid \pi_2 + \tau(w + b - 0.5(\varphi(2\mu - \mu^2)\tau)^2) + \tau(w - 0.5(\mu^2\tau)^2) \\ if\ m = 2 \mid \pi_2 + \tau(w + b - 0.5(\varphi(2\mu - \mu^2)\tau)^2) + \tau(w - 0.5(\mu^2\tau)^2) \end{cases}$
2	Employee 1	$\mu(1-\mu)$	$\begin{cases} if\ m = 1 \mid \pi_2 + \tau(b + w - 0.5(\varphi(2\mu - \mu^2)\tau)^2) \\ if\ m = 2 \mid \quad \pi_2 + \tau(w - 0.5(\mu^2\tau)^2) \end{cases}$
3	Employee 2	$\mu(1-\mu)$	$\begin{cases} if\ m = 1 \mid \quad \pi_2 + \tau(w - 0.5(\mu^2\tau)^2) \\ if\ m = 2 \mid \pi_2 + \tau(b + w - 0.5(\varphi(2\mu - \mu^2)\tau)^2 \end{cases}$
4	None	$(1-\mu)^2$	$\begin{cases} if\ m = 1 \mid \pi_2 \\ if\ m = 2 \mid \pi_2 \end{cases}$

Notes: This table shows the manager's types, respective probabilities, and respective utilities given the promotion decision m. The employees believe that types 1 and 4 flip a coin while types 2 and 3 promote whom they prefer with certainty. $\pi_2 = \varphi^2(2\mu - \mu^2)\tau + \mu^2\tau - 2w$

Proposition 2: A semi-separating equilibrium where type 1 and 4 flip a coin, while type 2 promotes employee 1 and type 3 promotes employee 2 with certainty, exists if $b \geq b^{**} = 0.5 * (\tau)^2((2\mu - \mu^2)^2\varphi^2 - \mu^4) > b^*$.

Proof: See Appendix C.

This semi-separating equilibrium where type 2 and type 3 play the pure strategy to always promote the employee they are altruistic towards exists if those players have no incentive to deviate from this very strategy. This is the case if the promoted employee's private utility is at least as high as the private utility of the not promoted employee. So, the minimum bonus to sustain the equilibrium again needs to compensate for the additional effort due to the promotion. In this case, however, the additional effort is a product of the higher posterior probability and the higher relative importance of the task, compared to the lower posterior probability of the not promoted employee. The minimum bonus in proposition 2 illustrates just that. Furthermore, $b^{**} > b^{*}$ since even if $\varphi = 1$, the effort of the promoted employee $0.5(2\mu - \mu^2)^2\tau^2$ is always larger than that of the other employee $0.5(\mu^2)^2\tau^2$.

For completeness, let me also elaborate on the semi-separating equilibria that occur if the bonus is not set equal to b^{*} or b^{**} . The full analysis can be found in Appendix D. Thereby, I generalize the employees' equilibrium belief. Suppose that the employees believe that type 2 and type 3 promote their favorite type with a probability of $0.5 < r < 1$ [7]. This implies that now it is more likely than not, that type 2 and 3 promote their favorite. However, it is not certain. Thus, the belief updating is less strong. Again, the bonus needs to be set such that the promoted employee gets compensated sufficiently, which is less compared to the case where the manager promotes her favorite with certainty. As a result, the bonus, in this case, is higher than b^{*} , as the employees update their beliefs, but less than b^{**}, since the updating is less strong.

In principle, however, the employees could also believe that types 2 and 3 promote those whom they do not favor, i.e. $0 \leq r < 0.5$. So, they believe it is more likely than not or even certain, that these types do not promote their favorite. Indeed, these equilibria can only be sustained if the promotion is strictly worse, compared to not being promoted, in the eyes of the manager[8]. This is only the case if the bonus $b < b^{*}$ and does not compensate for the additional effort necessary in the promotion job. In such a case, not being promoted is a signal for altruism. So, the posterior beliefs are reversed compared to what is illustrated in Figure 1. There are two types of scenarios. The first is that the promoted employee still provides more effort since φ is high enough. The bonus is positive, but simply not enough to promote the favorite employee. The second scenario is that the promoted employee promotes less effort than the favorite not promoted employee and the bonus is negative. In such a case, the promoted employee would in fact need to pay a bonus b for this to be an equilibrium. Since scenarios where $0.5 < r < 1$ are unintuitive and rather unlikely to be executed in real promotion decisions and promotion settings where promoting the less preferred employee ($0 \leq r < 0.5$) is preferred are rare, I will

[7] Note that $r = 0.5$ yields the pooling equilibrium (coin flip equilibrium) described earlier. In addition, $r = 1$ describes the semi-separating equilibrium where type 2 and type 3 promote their favorite with certainty.
[8] That means as far as the employee's private utility is concerned.

not consider them as a possible final outcome, but rather focus on the two equilibria demonstrated earlier.

4.2.3 The outcome and predictions

Several equilibria exist. The natural question becomes what the final outcome will eventually be. The previous sections suggested that the bonus is decisive in determining the final equilibrium. Depending on the organizational structure, either the organization decides on promotion bonuses across business units, or the business manager manages the profit center entirely which includes setting the promotion bonus. To start with, suppose that the organization sets the bonus. For the organization, it is always best to provide the minimum bonus necessary to keep an equilibrium. As a result, the organization either provides bonus b^* to establish the coin flip equilibrium or b^{**} to just sustain the equilibrium where types 1 and 4 flip a coin, while the other types, with certainty, promote the employee they are altruistic towards. Of course, the organization could provide a bonus even higher than b^{**}. In terms of profit, however, this is strictly worse than providing b^{**} to reach the same outcome.

Proposition 3: If $\varphi = 1$, the organization always prefers the pooling equilibrium over the semi-separating equilibrium and sets $b = b^*$. If $\varphi > 1$, the organization prefers a pooling equilibrium only if μ and τ are high enough. This threshold for these variables increases as φ increases. Otherwise, it sets $b = b^{**}$and the semi-separating equilibrium is the final outcome.

Proof: See Appendix E.

This suggests three predictions if the organization sets the bonus.

Firstly, the optimal equilibrium depends on the promotion task. As φ increases, the organization prefers the semi-separating equilibrium more often and sets $b = b^{**}$. Only if the tasks are fairly similar, i.e., the stakes are low, the organization prefers if the manager does not signal her personal preferences. This is because signaling is costly to the organization due to the higher bonus. The additional cost is only worth it if the promoted employee is working on a much more productive task which is the case if φ increases. This might offer additional insight to the research on CEO successions, which are promotion decisions with the largest stake for the organization. Many studies on CEO succession find that personal preferences play a very large role in promoting insiders to CEOs (see, e.g., Zajac & Westphal, 1996; Wiersema et al., 2018). The question is whether this is more often optimal in these decisions, compared to lower-level promotion decisions.

Secondly, the optimal equilibrium depends on the manager's expected altruism. This model suggests that the organization is generally better off if the manager has a higher probability of being altruistic towards an employee μ with a higher magnitude τ. If the employees anticipate this (which they can as it is public knowledge), then the joint output of the employees is higher. Interestingly, the optimal equilibrium differs depending on the characteristics of the manager. If both these parameters are very high, then paying the additional bonus to induce a signaling equilibrium is not worth it. The base case is that both employees provide high effort anyways in such a scenario and the difference between b^{**} and b^{*} increases in expected altruism of the manager. However, if the expected altruism of the manager is low, then setting b^{**} is more often optimal. In such a case, the increased joint effort outweighs the additional bonus necessary. This finding suggests that organizations might have a hard time hitting the optimal equilibrium every time. Suppose that managers within the same organization have different leadership styles and differ in their expected altruism. It would be an odd practice to have different bonuses for comparable promotions within the same organization, only because the managers differ within an organization.

Thirdly, when the manager exercises favoritism in equilibrium, both employees reciprocate, which results in higher effort by the promoted employee and lower effort by the passed-over employee. This appears to be well in line with Adams' equity theory (1965). Thereby, both over- and undercompensated individuals adjust their behavior. Overcompensated individuals either raise effort in absence of further rewards or are subject to cognitive distortion where they match their perceptions with reality by for example overestimating their contribution. Undercompensated individuals, on the contrary, adjust their effort level lower, distort their cognitive perceptions, or in some cases even show destructive behavior. My model could also offer a potential rationale for results by Benson et al. (2019). If the best worker is not promoted, then retention is, on average, reduced by 23 percentage points and if the person stays, output is drastically reduced three months after promotion. While not specifically addressed in the paper, favoritism or fairness concerns could play a role here. The authors suggest that, perhaps, firms take into account this demotivation cost, to provide a potential rationale for why this firm promotes the best current performer, instead of the best manager. This model suggests that there is also a motivating effect for the promoted employee which firms might also want to take into account.

In many organizations, however, the business unit manager gets to decide the compensation packages of the profit center. Let me thus also analyze the preferable equilibrium of the manager. Suppose that the manager decides between setting b^{*} and b^{**}.

Proposition 4: If $\varphi = 1$, the manager always prefers the pooling equilibrium over the semi-separating equilibrium and sets $b = b^{*}$. If $\varphi > 1$, the manager prefers a pooling equilibrium only if μ and τ are high enough. Otherwise, it sets $b = b^{**}$and the semi-separating equilibrium is the final outcome. The semi-separating equilibrium is more often optimal for the manager than for the organization.

Proof: See Appendix F.

A comprehensive understanding also requires identifying which of the equilibria is preferred by the employees.

Proposition 5: The employees almost always prefer the semi-separating equilibrium. They prefer the pooling equilibrium only if φ is rather low, while μ and τ are very high.

Proof: See Appendix G.

An overview of propositions 3, 4, and 5 can be found in Table 4. Thereby, I compare the optimality of the pooling equilibrium for different values of φ, μ, and τ for the three players.

Table 4 When is the pooling equilibrium preferred over the semi-separating equilibrium?

$\boldsymbol{\varphi}$	$\boldsymbol{\mu}$	$\boldsymbol{\tau}$ | ***Organisation***	$\boldsymbol{\tau}$ | ***Manager***	$\boldsymbol{\tau}$ | ***Employees***
1	0.25	$0 < \tau < 1$	$0 < \tau < 1$	–
	0.5	$0 < \tau < 1$	$0 < \tau < 1$	–
	0.75	$0 < \tau < 1$	$0 < \tau < 1$	$0.93 < \tau < 1$
1.25	0.25	$0.81 < \tau < 1$	$0.9 < \tau < 1$	–
	0.5	$0.42 < \tau < 1$	$0.48 < \tau < 1$	–
	0.75	$0.28 < \tau < 1$	$0.34 < \tau < 1$	$0.99 < \tau < 1$
1.5	0.25	–	–	–
	0.5	$0.70 < \tau < 1$	$0.86 < \tau < 1$	–
	0.75	$0.49 < \tau < 1$	$0.65 < \tau < 1$	–
2	0.25	–	–	–
	0.5	–	–	–
	0.75	$0.74 < \tau < 1$	$0.98 < \tau < 1$	–
3	0.25	–	–	–
	0.5	–	–	–
	0.75	$0.97 < \tau < 1$	–	–

Notes: This table shows for which specifications of φ, μ, and τ the three players prefer the pooling equilibrium over the semi-separating equilibrium. In the pooling equilibrium, each manager type flips a coin. In the semi-separating equilibrium, types 1 and 4 flip a coin, while types 2 and 3 promote the employee they favor with certainty. A value of $\varphi = 1.25$, for instance, means that the major task is 25% more important than the minor task.

This comparison yields three additional insights additional to the predictions that hold if organizations set the bonus.

Firstly, no matter who sets the bonus, both equilibria can be expected in the field. Both the manager and the organization prefer the same equilibria for a large range of values. This is because both utility functions contain the business unit's profit. Particularly, if $\varphi = 1$ the pooling equilibrium with bonus $b = b^*$ will be sustained. For the organization, this is because in such a case, the output of the two employees in both equilibria is equal to $2\mu\tau$. In a pooling equilibrium $b = b^* = 0$, while in the semi-separating equilibrium $b^{**} > 0$ means higher cost for the same output. For the manager, the same holds. However, the manager also benefits from the higher bonus. The crucial insight is that the manager's utility is in expected terms, given that she does not know the type at first. So, it can be the case that the higher bonus needs to be paid in a situation where she is not altruistic, which makes the pooling equilibrium preferable in this case. Also, as φ increases, the manager prefers the pooling equilibrium just like the organization, however, this is less the case which yields a second additional prediction.

Secondly, semi-separating equilibria where the manager exercises favoritism can be expected more often if the manager sets the bonus herself. For a large range of values, the manager would set the bonus at b^{**}, while the organization clearly prefers b^*. This implies that the manager's personal preferences can come at the cost of the organization. This model thus also contributes to the literature on how organizations can deal with the adverse effects of promotions. Berger et al. (2011) suggest rewarding managers with performance pay. In the context of my model, this would only make sense if the performance pay is less than the additional cost due to favoritism. Prendergast and Topel (1996) find that firms should rely on bureaucratic rules and provide compensation for employees that is less reliant on supervisors' performance evaluations.

In a broader sense, this is exactly what my model suggests too. Bureaucratic rules in Prendergast and Topel (1996) are for example seniority-based rules. In my model's case, it could mean that the organization sets the rule that the manager has to flip a coin at the headquarters if the employees' output in the first period has been the same. If this is not feasible, organizations are best off setting the bonus and thus the promotion compensation themselves. Then, managers only exercise favoritism when it is in the interest of the organization. If the manager is given the authority, she is setting the bonus too often too high. The main reason for this discrepancy between the organization and the manager is that the manager, compared to the organization, also partially benefits from a higher bonus through her expected altruism towards the promoted employee. Yet, this model also shows that in many cases the organization is best off granting full authority to the manager as far as the promotion decision is concerned because only that affects the personal relationships with the employees. The interaction between a much more motivated promoted employee working on a much more important task can be very profitable for the organization.

Thirdly, the semi-separating equilibrium is almost always preferred by the employees in expected terms. This is no surprise given the specification of the model. The manager only cares about the private utility of the employee. As a result, the equilibria can only be sustained if the bonus compensates for the additional effort that the promoted employee provides compared to the other employee such that the private utilities of these two are the same. However, the manager does not take into account that the employees also gain utility due to their conditional altruism. Thus, the employees are most of the time better off in the signaling equilibrium where they receive a higher bonus. The implication of this model is then that employees have serious incentives to engage in influence activity to reach their preferred outcome which could explain findings by Du et al. (2012), for instance. It thus also adds to the large literature on rent seeking by subordinates (see, e.g. Tirole, 1992; Milgrom, 1988; Milgrom & Roberts, 1990) which shows how influence activities create further inefficiencies. These come on top of the fact that the organization would have preferred a coin flip equilibrium. This could be another reason for organizations to grant less authority to their managers.

5 Final Remarks

Ever since Prendergast and Topel (1996), much of the economics literature on favoritism in organizations has focused on the impact on performance pay and promotion tournament incentives. Despite the authors' early awareness of the limitations, very little is understood about how favoritism affects secondary factors such as fairness and reputational concerns or personal relationships between supervisors and employees, particularly in promotion settings. Yet, that social exchange relationships can play a large role in understanding workplace behavior is well established in the economics and management literature alike. Thus, the objective of this paper has been to provide a new theory on whether and how favoritism in promotion decisions can affect those often reciprocity-heavy relationships between a manager and two employees, as well as to elicit the implications for the manager's promotion decision and the organization overall. To show this, I delvelop a simplistic model where the only incentive to provide effort for the employees is conditional altruism towards the manager and the main promotion decision criteria are profit and potential altruism towards the employees. Thereby, I allow for entirely new considerations in this setting that are likely to exist even if matters are complicated further.

Overall, I show that if the manager exercises her favoritism, this can massively affect the employees' effort ex-post. Given that this is known to the manager, the promotion decision becomes strategic, where in some cases the manager signals her true feelings, and in other settings decides to keep them to herself. Ultimately, the bonus that the promoted employee receives is determining the final outcome. My analysis shows that both equilibria can be expected in the field regardless of whether the organization or the manager decides on this bonus. This implies that favoritism can be beneficial to the organization overall. However, the manager more often prefers to set the bonus high, to exercise favoritism. As a result, favoritism can also come at the cost of the organization if the manager sets the bonus. The potential remedy that my model suggests in these cases supports suggestions made by earlier work in the field, namely, to grant less authority to the managers in determining the employees' (promotion) compensation or to establish bureaucratic rules such as enforcing a coin flip decision by organization policy when necessary. This could be even more important as soon as influence activities by employees are taken into account, which appear to be highly beneficial for them given the specification of my model.

The predictions of this model need to be seen in the context of the limitations of this paper which open the doors for several interesting research questions in the future. In my view, there are three ways in which future research can advance from here. One way is to lift some of my assumptions to allow for more accurate predictions in different settings. Particularly, employees usually differ along several dimensions, which alters existing predictions. For instance, heterogeneity in ability will intensify the strategic considerations of the manager. Promoting the preferred, but the less able employee will strongly signal her true feelings. This mirrors the case in Kamphorst and Swank (2016), where not promoting the believed favorite, strongly signals weak ability. As a result, I expect that in such a case not signaling the true feelings and always promoting the more able employee is more often optimal and could be explored in further research. An important assumption is also that the players are only altruistic towards the private utilities of each other. Future research could find out how the predictions change if the players also take each other's altruism into account. This is likely to change the effort provision of the employees and the bonuses necessary to sustain certain equilibria, and thus potentially the preferred equilibria. Lastly, many other assumptions such as the discreteness of the altruism variable of the manager and the employees contribute to the results, which could be further explored.

Another way would be to take into account additional aspects that I have not considered so far. To start with, the manager's altruism towards the employees is usually not exogenous, but rather evolves over time as part of the social-exchange relationship. Thus, the manager's personal preferences could be endogenized in the first period and made subject to behavior by the employees. Furthermore, I don't take into account potential other signals that are in the manager's toolbox such as giving attention (Dur, 2009). This could, for example, prevent false negatives where managers can promote an employee and still show her altruism towards the other employee. In addition, favoritism can affect other preferences by the manager (such as reputational concerns) or by the employees (e.g. inequality aversion or fairness concerns) that are interesting to study. For example, if employees are inequality averse, they likely experience great disutility from some of the unequal signaling equilibria discussed in this paper. Another interesting extension of my model would be heterogeneity in the probability that the manager is altruistic towards an employee. Then, a manager would not only signal favoritism, but also discrimination which could have quite different implications for the organization at large.

Finally, future research can aim at comprehensive analyses of promotion settings. While existing research has focused on the effect of favoritism on incentives ex-ante and optimal job assignment, this paper contributes with an analysis of its potential effect on effort provision ex-post. Yet, all these studies are partial analyses of the entire promotion setting. While the previous two paragraphs have shown that also there is much room for future research which is valuable, it is just as important to consolidate findings and to see how things fit together. Particularly, my model needs to be viewed in conjunction with the effects of promotions on incentives ex-ante and optimal job assignment to get a holistic perspective on the benefits and costs of a certain promotion decision by the manager. The literature is rich in showing how favoritism creates inefficiencies in both optimal job assignment and promotion incentives. Including this in a holistic model is likely to change the predictions of my model about the optimal outcome considerably since the equilibrium where the manager exercises favoritism then also bares the cost of incentive loss in the first period and worse job assignment. This would be a crucial step towards truly understanding under which circumstances favoritism in promotions is optimal and when it is not – all things considered. Only then, organizations can make use of the suggestions provided by my model and previous models to avoid favoritism in promotion decisions when necessary but to incentivize it when optimal.

Appendix

Appendix A

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It is obvious that neither type 1 nor type 4 has an incentive to deviate, since the payoff is exactly the same, no matter who is promoted. Hence, playing each strategy with probability 0.5 yields no incentive to deviate. This is different for type 2 and type 3. The pooling equilibrium only sustains if type 2 and type 3 don't have an incentive to deviate. This is the case if

$$0.5\,[(1+\varphi)\mu\tau - 2\mathrm{w}] + \tau(w - 0.5(\mu\tau)^2) = 0.5\,[(1+\varphi)\mu\tau - 2\mathrm{w}] + \tau(b + w - 0.5(\varphi\mu\tau)^2)$$

This holds iff

$$b^* = 0.5 * (\mu\tau)^2(\varphi^2 - 1)$$

Appendix B

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Table 1B Events and probabilities for the belief that type 1 and 4 flip a coin, while type 2 promotes employee 1 and type 3 promotes employee 2 with certainty

Event	Probability
$\boldsymbol{p(m=1)}$	0.5
$\boldsymbol{p(m=2)}$	0.5
$\boldsymbol{p(\alpha_1=\tau) = p(\alpha_2=\tau)}$	μ
$\boldsymbol{p\ (m=1 \mid \alpha_1=\tau)}$	$0.5\mu + (1-\mu)$
$\boldsymbol{p\ (m=2 \mid \alpha_1=\tau)}$	0.5μ
$\boldsymbol{p\ (m=1 \mid \alpha_2=\tau)}$	0.5μ
$\boldsymbol{p\ (m=2 \mid \alpha_2=\tau)}$	$0.5\mu + (1-\mu)$

Notes: This table shows the events and probabilities for the belief that type 1 and 4 flip a coin, while type 2 promotes employee 1 and type 3 promotes employee 2 with certainty. Those are used to calculate the posterior.

$$p\ (\alpha_1 = \tau \mid m = 1) = \frac{p\ (m = 1 \mid \alpha_1 = \tau) * p(\alpha_1 = \tau)}{p(m = 1)} = 2\mu - \mu^2$$

$$p\ (\alpha_2 = \tau \mid m = 1) = \frac{p\ (m = 1 \mid \alpha_2 = \tau) * p(\alpha_2 = \tau)}{p(m = 1)} = \mu^2$$

$$p\ (\alpha_1 = \tau \mid m = 2) = \frac{p\ (m = 2 \mid \alpha_1 = \tau) * p(\alpha_1 = \tau)}{p(m = 2)} = \mu^2$$

$$p\ (\alpha_2 = \tau \mid m = 2) = \frac{p\ (m = 2 \mid \alpha_2 = \tau) * p(\alpha_2 = \tau)}{p(m = 2)} = 2\mu - \mu^2$$

Appendix C

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As in the previous case, type 1 and type 4 have no incentive to deviate due to the same reasoning. Again, an equilibrium only exists if types 2 and 3 don't have an incentive to deviate. This is the case if

$$\varphi^2(2\mu^2-\mu)\tau+\mu^2\tau-2\text{w}+\ \tau(b+w-0.5(\varphi(2\mu-\mu^2)\tau)^2)$$
$$\geq \varphi^2(2\mu^2-\mu)\tau+\mu^2\tau-2\text{w}+\ \tau(w-0.5(\mu^2\tau)^2)$$

This holds iff

$$b \geq b^{**} = 0.5*(\tau)^2((2\mu-\mu^2)^2\varphi^2-\mu^4) > b^*$$

Appendix D

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Suppose that employees believe that type 1 and 4 flip a coin, while type 2 promotes employee 1 and type 3 promotes employee 2 with probability r. Then the probabilities are as follows:

Table 1D Events and probabilities for the belief that type 1 and 4 flip a coin, while type 2 promotes employee 1 and type 3 promotes employee 2 with probability *r*

Event	Probability
$\boldsymbol{p(m=1)}$	0.5
$\boldsymbol{p(m=2)}$	0.5
$\boldsymbol{p(\alpha_1=\tau)=\ p(\alpha_2=\tau)}$	μ
$\boldsymbol{p\ (m=1\vert\ \alpha_1=\tau)}$	$0.5\mu+r(1-\mu)$
$\boldsymbol{p\ (m=2\ \vert\ \alpha_1=\tau)}$	$0.5\mu+(1-r)(1-\mu)$
$\boldsymbol{p\ (m=1\ \vert\ \alpha_2=\tau)}$	$0.5\mu+(1-r)(1-\mu)$
$\boldsymbol{p\ (m=2\ \vert\ \alpha_2=\tau)}$	$0.5\mu+r(1-\mu)$

Notes: This table shows the events and probabilities for the belief that type 1 and 4 flip a coin, while type 2 promotes employee 1 and type 3 promotes employee 2 with probability *r*. Those are used to calculate the posterior.

$$p\ (\alpha_1=\tau\ \vert\ m=1)=\frac{p\ (m=1\ \vert\ \alpha_1=\tau)*p(\alpha_1=\tau)}{p(m=1)}=(1-2r)\mu^2+2\mu r$$

$$p\ (\alpha_2=\tau\ \vert\ m=1)=\frac{p\ (m=1\ \vert\ \alpha_2=\tau)*p(\alpha_2=\tau)}{p(m=1)}=(2r-1)\mu^2+2(1-r)\mu$$

$$p\ (\alpha_1=\tau\ \vert\ m=2)=\frac{p\ (m=2\ \vert\ \alpha_1=\tau)*p(\alpha_1=\tau)}{p(m=2)}=(2r-1)\mu^2+2(1-r)\mu$$

$$p\ (\alpha_2=\tau\ \vert\ m=2)=\frac{p\ (m=2\ \vert\ \alpha_2=\tau)*p(\alpha_2=\tau)}{p(m=2)}=(1-2r)\mu^2+2\mu r$$

The manager's probabilities dependent on the type are shown in Table 2D.

Table 2D The manager's payoff given the employees' belief that types 1 and 4 flip a coin while type 2 promotes employee 1 and type 3 promotes employee 2 with probability r

Type	Altruistic towards	Probability	Utility ($\overline{\pi}_2$)
1	Both	μ^2	$\begin{cases} if\ m = 1 \mid \pi_2 + \tau(w + b - 0.5(e_{m=i})^2) + \tau(w - 0.5(e_{m\neq i})^2) \\ if\ m = 2 \mid \pi_2 + \tau(w + b - 0.5(e_{m=i})^2) + \tau(w - 0.5(e_{m\neq i})^2) \end{cases}$
2	Employee 1	$\mu(1-\mu)$	$\begin{cases} if\ m = 1 \mid \quad \pi_2 + \tau(b + w - 0.5(e_{m=i})^2) \\ if\ m = 2 \mid \quad \pi_2 + \tau(w - 0.5(e_{m\neq i})^2) \end{cases}$
3	Employee 2	$\mu(1-\mu)$	$\begin{cases} if\ m = 1 \mid \quad \pi_2 + \tau(w - 0.5(e_{m\neq i})^2) \\ if\ m = 2 \mid \quad \pi_2 + \tau(b + w - 0.5(e_{m=i})^2) \end{cases}$
4	None	$(1-\mu)^2$	$\begin{cases} if\ m = 1 \mid \pi_2 \\ if\ m = 2 \mid \pi_2 \end{cases}$

Notes: This table shows the manager's types, respective probabilities, and respective utilities given the promotion decision m. The employees believe that types 1 and 4 flip a coin while types 2 and 3 promote whom they prefer with certainty. $\pi_2 = \varphi^2((1-2r)\mu^2 + 2\mu r)\tau + ((2r-1)\mu^2 + 2(1-r)\mu)\tau - 2\mathrm{w}$; $e_{m=i} = \varphi((1-2r)\mu^2 + 2\mu r)\tau$; $e_{m\neq i} = ((2r-1)\mu^2 + 2(1-r)\mu)\tau$

As in the previous case, type 1 and type 4 have no incentive to deviate due to the same reasoning. Again, an equilibrium only exists if types 2 and 3 don't have an incentive to deviate. This is the case if

$$\pi_2 + \tau(b + w - 0.5(e_{m=i})^2 = \pi_2 + \tau(w - 0.5(e_{m\neq i})^2$$

where $\pi_2 = \varphi^2((1-2r)\mu^2 + 2\mu r)\tau + ((2r-1)\mu^2 + 2(1-r)\mu)\tau - 2\mathrm{w}$ and $e_{m=i} = \varphi((1-2r)\mu^2 + 2\mu r)\tau$ and $e_{m\neq i} = ((2r-1)\mu^2 + 2(1-r)\mu)\tau$

This holds iff

$$b = 0.5((\varphi\mu^2(1-2r)\tau + 2\varphi\mu r\tau)^2 - \mu^2(2 - 2r + \mu(2r-1))^2\tau^2)$$

The main insight is that as r increases, the necessary bonus to maintain the equilibrium increases too.

Appendix E

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In the pooling equilibrium where $b = 0.5 * (\mu\tau)^2(\varphi^2 - 1)$ the organization's profit is given by

$\theta_{pooling} = (1 + \varphi^2)\mu\tau - 2w - 0.5 * (\mu\tau)^2(\varphi^2 - 1)$

In the semi-separating equilibrium where the organization offers the minimum bonus to sustain the equilibrium, the profit is given by

$$\theta_{semi-separating} = \varphi^2(2\mu - \mu^2)\tau + \mu^2\tau - 2w - 0.5 * (\tau)^2((2\mu - \mu^2)^2\varphi^2 - \mu^4)$$

The organization prefers the pooling equilibrium if

$$\theta_{pooling} > \theta_{semi-separating}$$

This holds if

$$f = 1 \; for \; all \; \mu \; and \; \tau$$

Or if

$$f > 1 \;\cap\; \frac{\frac{1}{2}(1 + 3\varphi^2)}{(-1 + \varphi^2)} - \frac{1}{2}\sqrt{\frac{-7 + 22\varphi^2 + \varphi^4}{(-1 + \varphi^2)^2}} < \mu < 1$$

$$\cap \frac{2 - 2\varphi^2}{-\mu - 3\varphi^2\mu - \mu^2 + \varphi^2\mu^2} < t < 1$$

Appendix F

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In the pooling equilibrium where $b = 0.5 * (\mu\tau)^2(\varphi^2 - 1)$ the manager's expected utility is given by

$$\pi_{pooling} = \mu^2\big((1 + \varphi)\mu\tau + \tau(w + b - 0.5(\varphi\mu\tau)^2) + \tau(w - 0.5(\mu\tau)^2)\big)$$
$$+ 2\mu(1 - \mu)(0.5 * ((1 + \varphi)\mu\tau + \tau(w + b - 0.5(\varphi\mu\tau)^2)) + 0.5$$
$$* ((1 + \varphi)\mu\tau + \tau(w - 0.5(\mu\tau)^2))) + (1 - \mu^2)\big((1 + \varphi)\mu\tau\big) - 2w - b$$

In the semi-separating equilibrium where the organization offers the minimum bonus to sustain the equilibrium, the profit is given by

$$\pi_{semi-separating}$$
$$= \mu^2(\varphi^2(2\mu - \mu^2)\tau + \mu^2\tau + \tau(w + b - 0.5(\varphi(2\mu - \mu^2)\tau)^2) + \tau(w$$
$$- 0.5(\mu^2\tau)^2)$$
$$+ 2\mu(1 - \mu)(\varphi^2(2\mu - \mu^2)\tau + \mu^2\tau + \tau(b + w - 0.5(\varphi(2\mu - \mu^2)\tau)^2))$$
$$+ (1 - \mu^2)(\varphi^2(2\mu - \mu^2)\tau + \mu^2\tau) - 2w - b$$

The manager prefers the pooling equilibrium if

$$\pi_{pooling} > \pi_{semi-separating}$$

This holds if

$$f = 1 \; for \; all \; \mu \; and \; \tau$$

Or if

$$1 < f < \sqrt{7} \cap \frac{1}{4}(-3-\varphi^2) + \frac{1}{4}\sqrt{-7+22\varphi^2+\varphi^4} < \mu < 1$$

$$\cap \frac{1+3\varphi^2+\mu-\varphi^2\mu}{4\mu(1+\mu)} - \frac{1}{4}\sqrt{\frac{17-10\varphi^2+9\varphi^4+18\mu-12\varphi^2\mu-6\varphi^4\mu+\mu^2-2\varphi^2\mu^2+\varphi^4\mu^2}{\mu^2(1+\mu)^2}} < t < 1$$

Appendix G

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In the pooling equilibrium where $b = 0.5 * (\mu\tau)^2(\varphi^2 - 1)$ the employee's expected utility is given by

$$\overline{U}_{i_{pooling}} = 0.5\,(b + w + \mu\tau\big((1+\varphi)\mu\tau - 2w - b\big) - 0.5(\varphi\mu\tau)^2) + 0.5(w + \mu\tau\big((1+\varphi)\mu\tau - 2w - b\big) - 0.5(\mu\tau)^2)$$

In the semi-separating equilibrium where the organization offers the minimum bonus $b = 0.5 * (\tau)^2((2\mu-\mu^2)^2\varphi^2 - \mu^4)$ to sustain the equilibrium, the employee's expected utility is given by

$$\overline{U}_{i_{Semi-separating}} = 0.5\,(b + w + (2\mu-\mu^2)\tau(\varphi(2\mu-\mu^2)\tau + \mu^2\tau - 2w - b) - 0.5(\varphi(2\mu-\mu^2)\tau)^2) + 0.5(w + \mu^2\tau(\varphi(2\mu-\mu^2)\tau + \mu^2\tau - 2w - b) - 0.5(\mu^2\tau)^2)$$

The employee prefers the pooling equilibrium if

$$\overline{U}_{i_{pooling}} > \overline{U}_{i_{Semi-separating}}$$

This holds if

$$f = 1 \cap \frac{1}{2} < \mu < 1 \cap \frac{2+2\mu}{8\mu - 4\mu^2} < \tau < 1$$

Or if

$$1 < f < \sqrt{3} \;\cap\; \frac{2\varphi^2}{-1+\varphi^2} - \sqrt{2}\sqrt{\frac{-1+3\varphi^2}{(-1+\varphi^2)^2}} < \mu < 1$$

$$\cap \frac{-2+4\varphi^2+4\mu-2\varphi^2\mu}{2\mu+6\varphi^2\mu+\mu^2-5\varphi^2\mu^2-\mu^3+\varphi^2\mu^3} < \tau < 1$$

References

Adams, J. S. (1965). Inequity in social exchange. In *Advances in experimental social psychology* (Vol. 2, pp. 267-299). Academic Press.

Bandiera, O., Barankay, I., & Rasul, I. (2009). Social connections and incentives in the workplace: Evidence from personnel data. *Econometrica*, *77*(4), 1047-1094.

Bennedsen, M., Nielsen, K. M., Pérez-González, F., & Wolfenzon, D. (2007). Inside the family firm: The role of families in succession decisions and performance. *The Quarterly Journal of Economics*, *122*(2), 647-691.

Benson, A., Li, D., & Shue, K. (2019). Promotions and the peter principle. *The Quarterly Journal of Economics*, *134*(4), 2085-2134.

Berger, J., Herbertz, C., & Sliwka, D. (2011). Managerial incentives and favoritism in promotion decisions: Theory and field evidence. *Available at SSRN 1778887*.

Breuer, K., Nieken, P., & Sliwka, D. (2013). Social ties and subjective performance evaluations: an empirical investigation. *Review of managerial Science*, *7*(2), 141-157.

Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of management*, *31*(6), 874-900.

Du, F., Tang, G., & Young, S. M. (2012). Influence activities and favoritism in subjective performance evaluation: Evidence from Chinese state-owned enterprises. *The Accounting Review*, *87*(5), 1555-1588.

Dur, R. (2009). Gift exchange in the workplace: Money or attention?. *Journal of the European Economic Association*, *7*(2-3), 550-560.

Giebe, T., & Gürtler, O. (2012). Optimal contracts for lenient supervisors. *Journal of Economic Behavior & Organization*, *81*(2), 403-420.

Grund, C., & Przemeck, J. (2012). Subjective performance appraisal and inequality aversion. *Applied Economics*, *44*(17), 2149-2155

Herbertz, C., & Sliwka, D. (2013). When higher prizes lead to lower efforts—The impact of favoritism in tournaments. *Economics letters*, *120*(2), 188-191.

Ittner, C. D., Larcker, D. F., & Meyer, M. W. (2003). Subjectivity and the weighting of performance measures: Evidence from a balanced scorecard. *The accounting review*, *78*(3), 725-758.

Jawahar, I. M., & Williams, C. R. (1997). Where all the children are above average: The performance appraisal purpose effect. *Personnel Psychology*, *50*(4), 905-925.

Kamphorst, J. J., & Swank, O. H. (2016). Don't demotivate, discriminate. *American Economic Journal: Microeconomics*, *8*(1), 140-65.

Lazear, E. P., & Rosen, S. (1981). Rank-order tournaments as optimum labor contracts. *Journal of political Economy*, *89*(5), 841-864.

Levine, D. K. (1998). Modeling altruism and spitefulness in experiments. *Review of economic dynamics*, *1*(3), 593-622.

Milgrom, P. R. (1988). Employment contracts, influence activities, and efficient organization design. *Journal of political economy*, *96*(1), 42-60.

Milgrom, P., & Roberts, J. (1990). The efficiency of equity in organizational decision processes. *The American Economic Review*, *80*(2), 154-159.

Non, A. (2012). Gift-exchange, incentives, and heterogeneous workers. *Games and Economic Behavior*, *75*(1), 319-336.

Prendergast, C. (1999). The provision of incentives in firms. *Journal of economic literature*, *37*(1), 7-63.

Prendergast, C., & Topel, R. (1993). Discretion and bias in performance evaluation. European Economic Review, 37(2-3), 355-365.

Prendergast, C., & Topel, R. H. (1996). Favoritism in organizations. *Journal of Political Economy*, *104*(5), 958-978.

Rhoades, L., & Eisenberger, R. (2002). Perceived organizational support: a review of the literature. *Journal of applied psychology*, *87*(4), 698.

Roberts, J. A., Coulson, K. R., & Chonko, L. B. (1999). Salesperson perceptions of equity and justice and their impact on organizational commitment and intent to turnover. *Journal of marketing theory and practice*, *7*(1), 1-16.

Rosen, S. (1978). Substitution and division of labour. *Economica*, *45*(179), 235-250.

Rosenbaum, J. E. (1979). Tournament mobility: Career patterns in a corporation. *Administrative science quarterly*, 220-241.

Sattinger, M. (1975). Comparative advantage and the distributions of earnings and abilities. *Econometrica: Journal of the Econometric Society*, 455-468.

Tichem, J. (2013). Leniency bias in long-term workplace relationships.

Tirole, J. (1992). Collusion and the Theory of Organizations. *Advances in economic theory*, *2*, 151-206.

Wagner, R., & Harter, J. K. (2006). *12: The elements of great managing* (Vol. 978, No. 1-59992). Simon and Schuster.

Wiersema, M. F., Nishimura, Y., & Suzuki, K. (2018). Executive succession: The importance of social capital in CEO appointments. *Strategic Management Journal*, *39*(5), 1473-1495.

Zajac, E. J., & Westphal, J. D. (1996). Who shall succeed? How CEO/board preferences and power affect the choice of new CEOs. *Academy of Management Journal*, *39*(1), 64-90.