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People Management Skills, Senior Leadership Skills and the Peter Principle *

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Abstract

This study examines the middle-managers' managerial skills that affect the performance of the subordinates and managers themselves, using personnel records from a Japanese management consulting company, which include upward (downward) feedback given by subordinates (superiors). We identify two different sets of skills expected of managers: people management skills (PMSs), which are mainly observed by subordinates and are primarily required of first-line managers; and senior leadership skills (SLSs), which are mainly observed by superiors and are more important for senior managers. We find that (1) only PMSs observed by subordinates positively predict subordinates' performance evaluations; (2) PMSs observed by superiors are not related to the outcomes of subordinates or managers; (3) managers' PMSs and SLSs, including coordination and information gathering skills, predict the retention of subordinates; (4) managers' PMSs predict their own performance evaluations but do not predict their promotions; and (5) managers with higher SLSs tend to be promoted. The results are interpreted using a theoretical model in which firms make a tradeoff between promoting managers with the right qualities and giving managers incentives to work hard in their current positions. We provide additional evidence supporting the key implications from the model.

Keywords: manager, people management skills, Peter Principle, promotion, leadership
JEL classification: J24, J63, M12 M50, M51

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1. Introduction

> *"We don't understand why firms systematically choose promotion-based incentive systems instead of bonus-based systems, and solving this mystery is an exciting direction for future research."—Baker, Jensen and Murphy (1988)*

More than three decades ago, Baker et al. (1988) identified the overwhelming use of promotion-based incentive systems as one of the organizational features that cannot be easily explained by traditional economic theory. Promotion-based incentive systems cannot simultaneously provide optimal incentives and matching. First, promotion-based incentive systems cannot be adjusted for worker heterogeneity. Second, the use of promotions as an incentive system often inhibits the opportunity to match employees to the most suitable jobs. This substitutability between incentives and matching is now recognized as a major cause of the phenomenon known as the *Peter Principle* (Grabner and Moers 2013; Benson et al. 2019).[1]

In this paper, we intend to answer theoretically when a firm adopts bonus-based incentive systems rather than promotion-based incentive systems in the context of promotions in managerial ranks. We then present a case study that seems to embody the situation in which a bonus-based incentive system is optimal. There are two related empirical questions: (1) what

[1] Lazear (2004) provides an alternative explanation using regression to the mean when temporary productivity shocks are uncorrelated across jobs. However, this explanation raises the puzzle of why managers who are mistakenly promoted cannot be demoted after the performance on a higher position is revealed. Some explanations exist based on asymmetric information. See Bernhadt (1995) and Ishida (2006) for example.

are the skills of first-line managers that affect the performance of the team of subordinates? and (2) what are the skills important for senior managers?

Measuring managers' productivity and uncovering the mechanism behind managers' influence on workers has become an important topic in personnel and organizational economics. Although similar questions have been asked in the fields of organizational behavior and management science in general for many years (Dulebohn et al. 2012 and Gottfredson and Aguinis 2017, for example), economists' approach to this topic is unique in its rigor in how they quantify the causal effect of boss behavior on worker performance.

Lazear et al. (2015) is the first pioneering study that measures supervisor productivity. They estimate the extent to which supervisors influence their subordinates' productivity using personnel records from a technical services firm. According to their estimates, replacing a "bad" supervisor in the bottom 10th percentile with a "good" supervisor in the 90th percentile improves subordinates' productivity by 11%. Approximately a quarter of this improvement is due to improvements in the subordinate's skills through training, which remains after the supervisor is replaced. Good supervisors also tend to reduce subordinate turnover; therefore, the long-term impact of productivity is even stronger. Finally, Lazear et al. (2015) show that combining good supervisors with good subordinates leads to value-added maximization since the effect of good supervisors is greater the better their subordinates are. However, this complementarity is not very large.

Other studies have examined the managerial skills that are important and the outcome variables that reflect their impact. Using personnel data from UK retailers, Siebert and Zubanov (2010) find that the most important skill in manager evaluation criteria is commercial awareness, with a 13.9% difference in store sales between store managers with and without commercial awareness skills. Artz et al. (2017) show that a manager with more technical skills is associated with greater subordinates' job satisfaction because technical skills allow the manager to offer appropriate advice to subordinates. Lyle and Smith (2014) and Carter et al. (2019) use personnel data from the U.S. Army and show that officers working for highly competent supervisors with strong leadership have higher promotion probabilities or significantly lower turnover rates. Kurda and Yamamoto (2018) collect two rounds of firm-employee matching data to examine the impact of supervisor competence information on subordinates' mental health. According to the study, subordinates who work with supervisors who are valued for their communication with their subordinates have better mental health. Hoffman and Tadelis (2021) develop an index of supervisors' ability to manage subordinates based on an employee survey. According to the study, measured people management skills significantly increase retention rates but do not affect subordinates' personnel evaluations, salaries, or promotions.

In our research, we investigate what managerial skills affect subordinates' performance and how managers are rewarded for the revealed skills. Using personnel data from

a Japanese management consulting firm that include upward and downward feedback for managers, we identify two different sets of skills—people management skills (PMSs) and senior leadership skills (SLSs). SLSs include performance management skills, coordination skills, communication skills, and information gathering skills. We show that (1) only managers' PMSs observed by their subordinates (PMSs upward) positively predict subordinates' performance evaluations; (2) PMSs observed by their superiors (PMSs downward) are not related to the outcomes of subordinates or managers; (3) managers' PMSs (upward) and SLSs including coordination skills and information gathering skills, predict the retention of subordinates; (4) although managers' PMSs (upward) predict their own performance evaluations, they are not correlated with their promotions; and (5) managers whose SLSs are high tend to be promoted.

The fourth and fifth findings are particularly interesting in that they are inconsistent with the promotion-based incentive systems or the Peter Principle, which implies that when firms decide on promotions, they focus on current job performance at the expense of other observable competencies needed for higher-level jobs. (Peter and Hull 1969). Although managers' PMSs improve their subordinates' and their own performance evaluations, managers with high PMSs are not necessarily promoted. Using microdata on the performance of sales workers at 131 firms, Benson et al. (2019) find that, conversely, firms often promote and pay the cost of promoting high-performing sales workers despite their low managerial potential.

The job assignment literature has been asking why the role of matching individuals with jobs and providing incentives cannot be separated, and offering several explanations based on asymmetric information. Since most performance measures are not verifiable, pay for performance is either infeasible or typically inefficient. Hence, a firm needs to rely on career-based incentives to some extent (Prendergast 1993). Fairburn and Malcomson (2001) argue that misaligned incentives between the employer and managers in the provision of monetary incentives may also distort job assignments. More recent research shows that even when complete contracts are possible, a tradeoff between incentive provision and efficient assignment could arise. For example, Koch and Nafziger (2012) argue that assignments to jobs could be distorted because the informativeness of performance measures regarding worker effort varies across jobs. If it is easy to induce effort at a higher job level, overpromotion arises.

In line with this literature, we develop a model in which the firm can offer pay for performance that can induce the optimal level of effort. The model shows that competency-based promotions rather than performance-based promotions are adopted when the skills required for upper-level jobs are not strongly correlated with those required for lower-level jobs, when the signal of the skills required for upper-level jobs is sufficiently precise, and/or when the cost of effort in lower-level jobs is sufficiently low. Our empirical results are interpreted using the model prediction.

Apart from the job assignment literature, we also contribute to the aforementioned

recent literature on middle managers' impact on subordinates or productivity in the workplace. One strand of the literature measures managers' impact through manager fixed effects (FE) (Lazear et al. 2015; Frederiksen et al. 2020; Adhvaryu et al. 2021; Fenizia 2022; Metcalfe et al. 2023). The other strand further explores the manager skills that are important (Siebert and Zubanov 2010; Artz et al. 2014; Kuroda and Yamamoto 2018; Hoffman and Tadelis 2021). However, in these studies, manager skills often have limited coverage and are mostly evaluated by subordinates. In contrast, we use detailed and comprehensive data on manager skills, which are evaluated by both managers' subordinates and superiors. This rich dataset enabled us to determine that subordinates and superiors observe different manager skills. In particular, we can examine the effects of SLSs, which are mostly observed by superiors, in addition to the effects of PMSs, which are mostly observed by subordinates.[2]

The remainder of this paper is organized as follows. Section 2 presents our model. Section 3 describes our dataset and key variables. Section 4 presents our empirical strategy. Sections 5 and 6 provide the empirical results on the effects of manager skills on subordinate performance (Section 5) and manager outcomes (Section 6). Section 7 concludes.

[2] Our study is most closely related to Hoffman and Tadelis (2021), who find that managers' higher PMSs lead to subordinate retention, and performance evaluations, salary increases, and promotions of manager themselves based on subordinates' evaluation of six aspects of manager skills. Our study is different from theirs in that we measure manager skills evaluated by both subordinates and superiors using detailed and comprehensive information on skills. Consequently, we identify SLSs in addition to PMSs and find that SLSs instead of PMSs are rewarded by manager promotions. We can also exploit the 11-period variation in manager skills, which is much larger than the two-period variation in Hoffman and Tadelis (2021).

2. Model

To derive the empirical implications of how changes in the importance of particular skillsets affect optimal promotion and pay schemes, we use the standard multitask model with the linear pay scheme of Baker (2002) combined with the job assignment model of Waldman (2012) and Prendergast (1993).

Assume that the firm employs a manager who is employed for two periods. She is first assigned to first-line managerial positions and exerts effort to improve her team's output y_1. The manager makes a binary effort decision $e_1 \in \{0,1\}$ at a cost of c. Namely, the manager chooses to either "shirk" ($e_1 = 0$) or "work" ($e_1 = 1$). y_1 takes the value of either R (success) or 0 (failure). The manager always succeeds in producing R when she has high PMSs, denoted by $p = p_H$. When the manager has low PMSs, denoted by $p = p_L$, $Prob(y_1 = R) = q_e$, where $1 > q_1 > q_0 > 0$. y_1 is an objective performance measure observable to the firm that cannot observe p or e directly. When the manager is promoted to a senior management position, she produces the value $V(s)$, where s is her skillset required for the higher-level position. s is either high ($s = s_H$) or low ($s = s_L$). We call this the manager's SLSs. V is also either $V_H = V(s_H)$ or $V_L = V(s_L)$, where $V_H > q_1 R > q_0 R > V_L$, implying that promoting a manager whose senior leadership skill is low is never efficient. Note that the PMSs p affects current performance as the first-line manager, and the SLSs s affects performance as the senior manager. p and s are positively correlated. After the first period, the firm observes the signal

$\tilde{s} \in \{s_L, s_H\}$ of s in addition to y_1. We assume that $\tilde{s} = s$ with probability α ($> \frac{1}{2}$) and $\tilde{s} \neq s$ with probability 1-α. p and s are distributed as follows: $g(p_H, s_H) = g_{HH},\ g(p_H, s_L) = g_{HL},$ $g(p_L, s_H) = g_{LH},\ g(p_L, s_L) = g_{LL}$, where $g(p, s)$ is the probability that the manager's PMSs and SLSs are p and s, respectively. $g_{HH}g_{LL} > g_{HL}g_{LH}$. Let $g_p = g_{HH} + g_{HL}$, which is the probability that the manager has high PMSs.

We first assume that exerting effort is always efficient even when the manager's skill is unknown. Namely, $\big(1 - g_p\big)R(q_1 - q_0) > c$. Therefore, we design an incentive scheme that induces $e = 1$ while achieving the efficient job assignment.

Managers are employed for two periods. Long-term contracts are not available. At the beginning of the first period, as the first-line manager, neither side has any information about the manager's skill levels p and s. Without such information, the firm offers the incentive scheme $w_1 = \beta y_1$ for the periods that the manager is employed as a first-line manager. We assume that managers are liquidity constrained and that $w_1 \geq 0$; thus, β is the bonus for success. The reservation utility u for first-line managers is also assumed to be low enough such that $E[w_1] > u$. In the second period, a manager may be promoted to a senior managerial position or may be kept as the first-line manager. A manager receives $w_s = \gamma E[V(s)|promoted]$ if promoted and $w_2 = \hat{\beta} y_2$ if not promoted. Job assignments are observable to the market; thus, the wages of senior managers depend on the equilibrium promotion policy adopted by the firm. $\gamma (< 1)$ can be interpreted as the measure of the firm

specificity of senior leadership skills. $\hat{\beta}$ is chosen such that the manager chooses $e_2 = 1$ and $w_2 - c \geq u$. From the manager's viewpoint, $\Delta w = w_s - E[w_2]$ is exogenous.

At the beginning of the first period, the manager chooses the first-period effort level e_1 without knowing her PMSs p or SLSs s but expecting that her performance in the first period not only affects her pay in that period but also may influence her chance of promotion in the second period. The firm observes y and $\tilde{s}$ after the first period and decides whether or not to promote her. Note that promoting the manager is *ex post* efficient if and only if $V_L + (V_H - V_L)Prob[s = s_H|y_1, \tilde{s}] \geq E[y_2] - c$. However, since the prospect of promotion could encourage managers to work hard in the first period, the optimal promotion policy may not be efficient *ex post*. In other words, firms make a tradeoff between incentivizing managers in the first period and efficiently assigning positions in the second period.

Note that

$$Pr[s = s_H|y_1 = R, \tilde{s} = s_H] = \frac{g_{HH}\alpha + g_{LH}q_1\alpha}{g_{HH}\alpha + g_{LH}q_1\alpha + g_{HL}(1-\alpha) + g_{LL}q_1(1-\alpha)} \quad (1)$$

$$Pr[s = s_H|y_1 = R, \tilde{s} = s_L] = \frac{g_{HH}(1-\alpha) + g_{LH}q_1(1-\alpha)}{g_{HL}\alpha + g_{LL}q_1\alpha + g_{HH}(1-\alpha) + g_{LH}q_1(1-\alpha)} \quad (2)$$

$$Pr[s = s_H|y_1 = 0, \tilde{s} = s_H] = \frac{g_{LH}\alpha}{g_{LH}\alpha + g_{LL}(1-\alpha)} \quad (3)$$

$$Pr[s = s_H|y_1 = 0, \tilde{s} = s_L] = \frac{g_{LH}(1-\alpha)}{g_{LL}\alpha + g_{LH}(1-\alpha)} \quad (4)$$

Based on these expected probabilities of having high SLSs and the incentive effect of promoting first-period high performers, the optimal promotion policy is determined. The optimal promotion policy should take one of the following four types:

(1) Star: promoted only when $y_1 = R$ and $\tilde{s} = s_H$

(2) Performance-based: promoted when $y_1 = R$

(3) Competency-based: promoted when $\tilde{s} = s_H$

(4) Egalitarian: promoted when $y_1 = R$ or $\tilde{s} = s_H$.

Regarding the correlation between promotion and skills, policies 2 and 3 produce the most pronounced differences. Specifically, the correlation between promotion and SLSs is greatest under the competency-based policy, whereas the correlation between promotion and PMSs is greatest under the performance-based policy.

The star policy is optimal when V_L is very low, i.e., promoting someone with low SLSs is very harmful.[3] However, the egalitarian policy is rarely dominated by both performance-based and competency-based promotion policies. One problem with the egalitarian policy is that it could result in too many managers being promoted. Given that the slots for managers are typically fixed, we assume that the firm adopts either a performance-based or a competency-based policy, which are the two extreme policies among the four.

For each of the two promotion policies, we present the firm's optimization problem. β must be chosen such that the incentive compatibility (IC) is satisfied. Note that the individual rationality constraint is satisfied by definition and assumption.

[3] The star policy is never optimal if

$$V_L \geq \frac{1}{1-\gamma}\frac{g_{HH}+g_{HL}+(g_{LH}+g_{LL})q_1}{g_{HL}+g_{LL}q_1}\left(R-\frac{c}{q_1-q_0}\right)-\frac{g_{HH}+g_{LH}q_1}{g_{HL}+g_{LL}q_1}\frac{1-\alpha}{\alpha}V_H$$

Performance-based Promotion Policy

$$\max_{\beta} \Pi_p$$

$$= \{g_{HH} + g_{HL} + (g_{LH} + g_{LL})q_1\}(1-\beta)R$$

$$+(1-\gamma)(g_{HH} + g_{LH}q_1)V_H + (1-\gamma)(g_{HL} + g_{LL}q_1)V_L$$

$$+\{1 - g_{HH} - g_{HL} - (g_{LH} + g_{LL})q_1\}q_1\left(R - \frac{c}{q_1 - q_0}\right)$$

$$\text{subject to } (q_1 - q_0)(g_{LH} + g_{LL})\big(\beta R + \Delta u_p\big) \geq c \qquad (6)$$

where Δu_p is the utility increase associated with a promotion under the performance-based policy and

$$\Delta u_p = \gamma \frac{g_{HH} + g_{LH}q_1}{g_{HH} + g_{HL} + (g_{LH} + g_{LL})q_1} V_H + \gamma \frac{g_{HL} + g_{LL}q_1}{g_{HH} + g_{HL} + (g_{LH} + g_{LL})q_1} V_L - \frac{q_0 c}{q_1 - q_0}$$

Note that the last term of the profit function, $\left(R - \frac{c}{q_1 - q_0}\right)$, is from the second period piece rate $\widehat{\beta} = \frac{c}{(q_1 - q_0)R}$ for those who were not promoted[4]:

Competency-based Promotion Policy

$$\max_{\beta} \Pi_c$$

$$= \{g_{HH} + g_{HL} + (g_{LH} + g_{LL})q_1\}(1-\beta)R$$

$$+(1-\gamma)(g_{HH} + g_{LH})\alpha V_H + (1-\gamma)(g_{HL} + g_{LL})(1-\alpha)V_L$$

$$+\{(1-\alpha)(g_{HH} + g_{LH}q_1) + \alpha(g_{HL} + g_{LL}q_1)\}\left(R - \frac{c}{q_1 - q_0}\right)$$

$$\text{subject to } (q_1 - q_0)(g_{LH} + g_{LL})\beta R \geq c \qquad (7)$$

Note that Δu_c, the utility increase associated with a promotion, does not appear in the

[4] Note that those who do not get promoted all have low PMSs. Therefore, manager's 2nd period incentive compatibility constraint is $q_1\,\hat{\beta}R - c \geq q_0\,\hat{\beta}R$, which is rearranged to $\hat{\beta} = \frac{c}{(q_1 - q_0)R}$.

incentive compatibility constraint under the competency-based policy because the chance of being promoted $(g_{HH} + g_{LH})\alpha + (g_{HL} + g_{LL})(1 - \alpha)$ does not depend on the manager's effort in the first period. In this case, the first and second period piece rates are $\beta^* = \frac{c}{(g_{LH}+g_{LL})(q_1-q_0)R}$ and $\hat{\beta}^* = \frac{c}{(q_1-q_0)R}$, respectively.[5]

Optimal Promotion Policies

To facilitate a comparison between the two promotion policies, we make one more assumption. Let $g_{HH} = g_{LL} = \frac{k}{2}$ and $g_{HL} = g_{LH} = \frac{1-k}{2}$, where k is the correlation parameter between p and s, and $\frac{1}{2} < k < 1$. We also make two additional assumptions.

Assumption 1

(1) $(1-\gamma)V_H > \{(k + (1-k)q_1\}\left(R - \frac{c}{q_1-q_0}\right)$

(2) $(1-\gamma)V_L < \{(1-k+kq_1)\left(R - \frac{c}{q_1-q_0}\right)$

Assumption 1 simply means that promoting the manager is more profitable if her SLSs are known to be high while doing so is suboptimal if her SLSs are known to be low, *i.e.* $(1-\gamma)V_H > Prob(y_1 = R|s = s_H)\left(1-\hat{\beta}\right)R$ and $(1-\gamma)V_L < Prob(y_1 = R|s = s_L)\left(1-\hat{\beta}\right)R$.

Assumption 2 $q_0 < \frac{1-k}{2-k} < 1-k < q_1$

[5] Under the competency-based promotion policy, the first-line managers who do not get promoted are the mixture of high PMS and low PMS managers but unlike in the first period the managers know their type. The piece rate can be lower because low PMS managers know that their chance of successful production is lower unless they work hard while high PMS managers can produce successfully without effort.

Assumption 2 ensures that the information rent, $\frac{q_0}{q_1-q_0}c$, paid by the firm to managers who are not promoted is sufficiently low. If this assumption is violated, performance-based promotions may not provide sufficient incentive to managers, because if the cost parameter c is high, managers can earn substantial rents without promotion.

Now, the following proposition can be obtained by comparing the firm's profit under the two promotion policies.

Proposition 1 Suppose Assumptions 1-2 hold. Then, a competency-based promotion policy is more likely to be optimal when k is smaller, α is larger, and c is smaller.

The proof is in the Appendix.

Proposition 1 should be quite intuitive. When k is smaller and closer to $\frac{1}{2}$, the manager's PMSs and SLSs becomes less correlated, which implies that promoting a high-performer is more likely to lead to inefficient matching, *i.e.* promoting someone with low SLSs that is required for senior managers. When α is larger, the signal of SLSs becomes more precise, thus promoting based on competency becomes more desirable. When c is smaller, a bonus-based incentive system is more likely to be an adequate and less costly choice for firms, thus eliminating the need for firms to rely on promotions as an additional means of providing incentives. We later use this proposition to interpret the results from our empirical analysis.

3. Data

3.1 Overview of the Dataset

We use personnel records from a Japanese management consulting company, including its group companies. These group companies are mainly engaged in career education services and recruitment and temporary staffing businesses. Our dataset contains semiannual records of upward and downward feedback for middle managers between May 2015 and May 2020. The dataset also contains performance evaluation records and basic employee characteristics for all employees during the periods. The company employs approximately 1,400 people on average during that period.

3.2 Upward and Downward Feedback for Middle Managers' Skills

Every May and November, each middle manager's superiors and subordinates are given a detailed survey of the manager's management skills, the results of which are fed back to the manager. We call superiors' responses "downward feedback" and subordinates' responses "upward feedback." The purpose of the feedback is to cultivate managers' skills, and the results of the survey are not linked directly to their performance evaluations.[6] According to the company, the response rate for this survey is almost 100%.

[6] Managers evaluated in the survey are, in principle, middle managers, excluding executives and top management of group companies. They are ranked 6th from the top or higher out of the company's 12 job grades.

In every survey, the superiors or subordinates are asked 40 questions about the manager. Both surveys ask about various management skills, including performance management, judgment, information gathering, communication, coordination, and support for subordinates, although the detailed contents of the questions are mostly different between the two surveys because the way of interaction with the managers differ between subordinates and superiors.[7] For each question, the superiors or subordinates answer their satisfaction level on a 5-point scale. We have access only to the average scores of superiors and of subordinates for each question and each manager. This is also the unit fed back to managers.[8] We first standardize the average score for each question based on manager × time observations. Then, we compute the average values across all 40 upward feedback items (*UpFB*) and 40 downward feedback items (*DownFB*).[9]

To use the 80 items in greater detail, we also perform an explanatory factor analysis (EFA) on the entire 80 standardized average scores based on 954 manager × time observations. The aim of EFA is to reduce the dimensions of managers' skills from the 80 question items to a few common meaningful factors. We apply the principal factor method with quartimin oblique rotation, which is one of the most common EFA methods (Costello and Osborne

[7] At the company's request, we do not disclose the detailed contents of each question.
[8] For each manager, the number of superiors and subordinates answering the survey is 1–3 and 1–20 persons, respectively. When only one subordinate answers the survey, the results are not fed back to the manager (but included in our dataset).
[9] A similar method is utilized in previous studies, such as Bloom and Van Reenen (2007), who construct a management score index using 18 five-point scale questions.

2005).[10] We extract six factors such that each factor has a meaningful interpretation considering the following two aspects: (i) a scree plot indicating four to six factors and (ii) the traditional Kaiser's rule recommending retaining seven factors with an eigenvalue greater than one.

We interpret the six factors as follows (with their variable names in parenthesis): The first factor represents PMSs mainly reported by subordinates (*PMS_Up*). Although subordinates evaluate managers' skills from various perspectives, all 40 responses are strongly correlated and have the highest factor loadings on the first factor, presumably due to the halo effect (Thorndike 1920), as shown in Appendix Table A1. Following Hoffman and Tadelis (2021), we call this first factor PMSs because these skills are evaluated by subordinates and mainly represent the skills of managing subordinates. Superiors' 40 responses have highest factor loadings on any of the remaining factors. The second factor stands for performance management skills (*PerformMgmt*), which has the highest factor loadings on skills for managing workflow, progress, and quality and for pursuing short-term results. The third factor is coordination skills (*Coordination*), which include skills for coordination and cooperation with other work units and stakeholders and thinking from a company-wide perspective. The fourth factor represents communication skills (*Communication*), which are skills for communicating the situations of customers, competitors, the market, and the industry. The fifth

[10] Quartimin oblique rotation, which is used in studies such as Heckman et al. (2013) and allows the correlations among factors, is appropriate when considering the possible correlations among various management skills.

factor is information gathering skills and insights (*InfoGathering*), which are skills for gathering information, understanding challenges, and reporting problems. Finally, the sixth factor can be interpreted as PMSs mainly reported by superiors (*PMS_Down*) and represents superiors' evaluation of managers' support for subordinates. Interestingly, PMSs reported by subordinates and PMSs reported by superiors are not highly correlated. As Table 1 shows, the correlation coefficient between these two factor scores is 0.236.[11]

Skills reported by superiors, other than *PMS_Down*, have the highest factor loadings on the second (*PerformMgmt*), third (*Coordination*), fourth (*Communication*), and fifth (*InfoGathering*) factors. We take the average of these factor scores and call it SLSs, which includes skills expected of more senior-level managers. During the survey on manager skills, the company also asks about the degree of expectation for the same 80 items on manager skills on a 5-point scale. Using this standardized information, panel (a) of Figure 1 shows that relatively senior-level managers are expected to demonstrate more of these SLSs in this company. In Figure 1, senior-level managers are defined as those with the second highest job title (among the company's seven broad job titles), which includes an executive officer or department head, whereas lower-level managers are defined as those with the third and fourth highest job titles, including area or branch manager and manager, etc. Panel (b) of Figure 1, which reports the satisfaction scores (i.e., our main manager skill variables standardized as

[11] The regression scoring method, which provides the highest correlation between the estimated factors and factor scores (DiStefano et al. 2009), is applied to compute factor scores.

explained in the next paragraph), also shows that these senior managers actually demonstrate higher SLSs.

Finally, we standardize all manager skill variables (*UpFB*, *DownFB*, six factor scores, and the SLS score) to have a 0 mean and a standard deviation (SD) of 1 based on all available manager × time observations. Figure 2 shows the distributions of these variables, most of which are normally distributed.

3.3 Subordinates and Manager Outcome Measures

We examine the following three outcome measures[12]:

- **Performance evaluation** (*Eval, EvalA*, *EvalSG*): The company conducts a performance evaluation of all employees every three months (in January, April, July, and October). We mainly analyze the overall evaluation score (*Eval*), which is the sum of the achievement evaluation *(EvalA*) and stretch goal evaluation (*EvalSG*) scores. For example, the degree of achievement of a sales target is evaluated in *EvalA*, whereas the degree of skill improvement in line with stretch goals is evaluated in *EvalSG*. Employees' short-term productivity can be approximated by *EvalA*, whereas longer-term productivity can be approximated by *EvalSG*. Both *EvalA* and *EvalSG* are rated on a scale ranging from 1 to 9, with 5 representing the expected achievement. Thus, the overall evaluation (*Eval*) ranges

[12] Compensation data are not accessible.

from 2 to 18. The evaluator is the direct superior; however, the evaluation scores are adjusted through the discussions with other evaluators and the head of the same department to ensure fairness. As the outcome measure, we examine the performance evaluation every January and July, which is conducted two months after the manager skill survey every November and May.

- **Retention** (*Work*): We examine whether subordinates were still working at the company six months after the manager skill survey. *Work* is a binary variable that takes the value of 1 if the subordinate continues working at the company and 0 if (s)he has quit during the previous six months.
- **Promotion in terms of job title** (*PromoteJT*): The company has seven broad job titles (such as board member, executive officer or department head, area or branch manager, manager, group leader, special administrator, and ordinal employees). We examine whether the managers were promoted in terms of job title during the six months after the manager skill survey.[13] *PromoteJT* is a binary variable that takes the value of 1 if the manager has been promoted to the highest job title in his or her tenure and 0 otherwise.

3.4 Other Variables and Summary Statistics

We also utilize various employee characteristic information, which includes gender,

[13] In this company, there are opportunities for promotion six months after both the May and November manager skill surveys.

age, tenure, whether hired as new graduates or mid-career, employment type, job grade, job title, affiliation information at the levels of within-group firm and detailed work unit, and size of work unit (number of employees affiliated with the unit). Table 2 reports the summary statistics of our estimation sample when the outcome variable is overall performance evaluation (*Eval*). We analyze an unbalanced panel of 1390 subordinates supervised by 187 managers over 11 periods when analyzing the subordinate sample and that of 182 managers when analyzing the manager sample. In our sample, subordinates experience an average of 2.24 managers. In total, 89 superiors in the subordinate sample (and 87 superiors in the manager sample) report downward feedback to managers.[14]

4. Empirical Strategy

4.1 Subordinate Sample

We use longitudinal data to estimate the impact of manager *m*'s skills (measured with upward and downward feedback) $\mathbf{MS}_{m(i,t)}$ on subordinate *i*'s outcome $Y_{i,t+1}$—performance evaluation (*Eval*, *EvalA*, or *EvalSG*) and retention (*Work*). We estimate the following equations with or without manager fixed effects (FE):

$$Y_{i,t+1} = \mathbf{MS}_{m(i,t)}\beta + \mathbf{X}_{it}\gamma + \theta_i + \varepsilon_{it} \tag{9}$$

$$Y_{i,t+1} = \mathbf{MS}_{m(i,t)}\beta + \mathbf{X}_{it}\gamma + \theta_i + \psi_{m(i,t)} + \varepsilon_{it} \tag{10}$$

[14] The identity of the superiors is missing for 48 observations in the subordinates sample and 10 observations in the manager sample.

where i is a subordinate and t is the period (every May and November from May 2015 to May 2020). $m(i, t)$ is the manager who supervises i at t. θ_i is the subordinate effect that captures the time-invariant productivity and ability of i. $\psi_{m(i,t)}$ is the manager effect that captures time-invariant manager components, including management skills and leniency, when rating subordinates' performance evaluation. Note that the correlation between $\mathbf{MS}_{m(i,t)}$ (or $\psi_{m(i,t)}$) and θ_i, which includes, for example, a tendency to assign a higher-skill manager to higher-ability subordinates does not bias our estimates of β.

For $\mathbf{MS}_{m(i,t)}$, we use three specifications: (1) upward feedback average (*UpFB*) and downward feedback average (*DownFB*); (2) six factor scores; and (3) first and sixth factor scores, which are PMSs reported by subordinates (*PMS_Up*) and those reported by superiors (*PMS_Down*), as well as the aggregate SLS score (see Section 3.2). Note that these variables (those reported by subordinates, in particular) are the average scores reported by the manager's subordinates or superiors.

$\mathbf{X}_{it}$ is a vector of control variables, including age (quadratic), tenure (quadratic), employment type (6 categories), job grade (9), job title (4), number of employees affiliated with i's work unit, within-group firm affiliation dummies (15)[15], and period (11). The vector also includes manager characteristics, such as gender, age, tenure, general career-track position

[15] These are 15 group companies (including the main management consulting company) in this firm. As explained in Section 3.1, most group companies engage in career education services and recruitment and temporary staffing businesses.

dummy[16], job grade, job title, and concurrent post dummy. In some specifications, detailed work unit affiliation dummies are controlled for instead of within-group firm affiliation dummies. ε_{it} is the error term.

4.2 Manager Sample

Regarding the manager sample, we estimate the impact of manager *m*'s skills ($\mathbf{MS}_{mt}$) on his or her outcome $Y_{m,t+1}$, which includes performance evaluation (*Eval*, *EvalA*, or *EvalSG*) and promotion in terms of job title (*PromoteJT*). We estimate the following equations with or without manager FE:

$$Y_{m,t+1} = \mathbf{MS}_{mt}\beta + \mathbf{X}_{mt}\gamma + \varepsilon_{mt} \tag{11}$$

$$Y_{m,t+1} = \mathbf{MS}_{mt}\beta + \mathbf{X}_{mt}\gamma + \psi_m + \varepsilon_{mt} \tag{12}$$

where *m* is the manager and ψ_m is the manager FE. We examine the same three specifications for $\mathbf{MS}_{mt}$ as in the subordinate sample. $\mathbf{X}_{it}$ is a vector of manager characteristics, including gender, age (quadratic), tenure (quadratic), employment type (3 categories), job grade (7), job title (4), number of employees affiliated with *m*'s work unit, within-group firm affiliation dummies (15), and period (11).

[16] The (non) general career-track position dummy takes the value of 1 if the office location, occupation, or tasks are limited and 0 if they are not limited and called "general career-track positions" (*sogo-shoku*, in Japanese). As Table 2 shows, 98% of managers have general career-track positions.

5. Results: Effects of Manager Skills on Subordinates' Performance

5.1 Baseline Results

Table 3 reports the relationships between manager skills and subordinates' overall performance evaluation (*Eval*) and retention (*Work*). Columns (1) and (2) report the estimate of equation (9) without manager FE, whereas columns (3) and (4) report the estimate of equation (10) with manager FE. Columns (2) and (4) control for detailed work unit affiliation dummies instead of within-group firm affiliation dummies. We mainly focus on the results in columns (3) and (4), through which we can examine the effects of changes in the same manager's skills on subordinates' performance, although the results are mostly similar across all columns.

Only PMSs reported by subordinates or "PMSs upward" (*UpFB* or *PMS_Up*) are significant positive predictors of subordinates' productivity as measured by overall performance evaluation. However, this effect is small: a one SD increase in PMSs upward improves subordinate's performance evaluation (*Eval*) by 0.06–0.07, whereas the mean and SD of *Eval* are 9.575 and 0.896, respectively (Table 2). PMSs upward are also positively related to subordinates' retention; however, the relationship is only statistically significant when *PMS_Up* is used and detailed work unit dummies are controlled for (column (2) of specifications 2 and 3). In this case, PMSs upward increase subordinate's retention rate by 1.4–1.6% point, while subordinate's mean turnover rate is 6.1%.

A possible reason for the weak positive correlation between PMSs upward and subordinates' retention is that both positive and negative effects offset each other. Managers with higher PMSs upward may reduce subordinates' turnover by increasing their performance and satisfaction or, alternatively, promote subordinates' turnover by increasing their market value. Furthermore, in Japanese firms, which have prevalent periodical job rotations, subordinates may not quit even if under a manager with low PMSs but, instead, simply wait for the new manager's arrival, which weakens the relationship between PMSs upward and subordinates' retention. Also possible is that the effects of PMSs need time to show up. Table 4 shows that this is indeed the case. In this table, the results in "Same M sample" are based on subordinates whose managers are the same for at least 2 periods, whereas those in the "Different M sample" are based on the remaining subordinates. They show that PMSs upward are always significantly positively related to subordinates' retention (and performance evaluation) in the "Same M sample".

PMSs reported by superiors (*PMS_Down*) have no relationships with subordinates' performance evaluation and retention rate, indicating that manager's subordinate management skills are not well observed by superiors.

Downward feedback average (*DownFB)*, which is reported by superiors, is a significant negative predictor of subordinates' performance evaluations, although its effect is small again. SLSs, particularly communication skills, drive this negative association.

Communication skills mainly include skills for communicating the situations of customers, competitors, the market, and the industry. One possible interpretation of this result is that managers with greater communication skills perform more player duties (i.e., selling/consulting activities for their clients and more decision making in daily operations) such that they have more information about the situations of customers, competitors, the market, and the industry to share with senior managers. Communication skill is also a negative predictor of subordinates' retention rate, which is consistent with the above interpretation in that subordinates under "playing" managers assume less responsibility and fewer opportunities to develop their own skills. A one SD increase in communication skills lowers the retention rate by 1.4−1.5% point. In contrast, either the SLSs or the downward feedback average (*DownFB*) as a whole are positive predictors of retention. This is driven by the positive coefficients of coordination skills and information gathering skills and insights. A manager who can think from a company-wide perspective, has a good understanding of issues and can collaborate with colleagues may be perceived as a role model for subordinates to aspire to in the long term, thereby reducing turnover. Also possible is that a subordinate working under managers with high coordination skills stays on the job to "ride the winning horse" in the hopes that the manager is likely promoted to a more senior position.

Table 5 decomposes the performance evaluation results by achievement and stretch goal evaluation. It shows that the results of the overall performance evaluation in Table 3 are

driven more by achievement evaluation, an indicator of short-term productivity, than by stretch goal evaluation.

Previous studies have mainly measured manager skills by upward feedback from only subordinates. In Table 6, we examine whether adding downward feedback from superiors changes the estimated effects of skills measured by upward feedback. In the performance evaluation regressions, the coefficients of PMSs upward (*UpFB* or *PMS_Up*) increase when skills measured by downward feedback are added as regressors. This is because when SLSs measured by downward feedback—positively correlated with PMSs upward but negatively affect performance evaluation—are omitted, the error term is negatively correlated with PMSs upward, causing its coefficient to be downward biased. Thus, measuring manager's skills by PMSs upward only underestimates its effect. In the retention regressions, the coefficients of PMSs upward are insignificant when only it is included or when both upward and downward feedbacks are included.[17]

5.2 Endogeneity Issues

As noted in Section 4.1, the correlation between $\mathbf{MS}_{m(i,t)}$ (or $\psi_{m(i,t)}$) and θ_i, which includes a tendency, for example, to assign a higher-skill manager to higher-ability subordinates, does not bias our estimates of β (the coefficient of $\mathbf{MS}_{m(i,t)}$). β becomes biased

[17] We find similar results for specification 2, although they are not reported in Table 6.

if $\mathbf{MS}_{m(i,t)}$ and the error term ε_{it} are correlated even after the effects of θ_i (and $\psi_{m(i,t)}$) are purged. In this section, we address this endogeneity issue by performing (i) instrumental variable (IV) estimation and (ii) alternative robustness checks.

5.2.1 Instrumental Variable Estimation

We compute the IV estimator for equation (9) without manager FE. We first restrict the sample to subordinates who experience manager changes. When the manager changes between time (t-1) and t, the IV for each skill variable of the new manager ($\mathbf{MS}_{m(i,t)}$) is the difference in the predicted manager skill between the new manager at t and the old manager at (t-1). The predicted manager skill of manager m is computed as follows. First, using manager× time observations, each manager skill variable is regressed on manager FE, time FE, and manager characteristics, including age, tenure, within-group firm affiliation dummies, general career-track position dummy, job grade, job title, and number of work units supervising. Second, each manager skill at a certain time t is predicted using estimated manager FE and coefficients for age, tenure, and job grade dummies, all of which are regarded as strong predictors of manager skills.

Table 7 reports the IV estimation results. In both specifications 1 and 3, the first-stage F statistic for the IV is always greater than 10, the rule-of-thumb cutoff for weak instruments, except in column (3) in the retention regression. In contrast, in specification 2, the first-stage F

statistic is greater than 10 only in columns (1)–(2) in the performance evaluation regressions. Regarding the performance evaluation regressions, compared with the baseline results of columns (1)–(2) in Table 3, the positive coefficient of PMSs upward (*UpFB* or *PMS_Up*) remains mostly significant, and its magnitude is approximately three times greater. In contrast, the negative coefficients of the downward feedback average (*DownFB)* and SLSs become mostly insignificant in the IV estimation. However, this negative relationship is likely due to the smaller sample size because it is also mostly insignificant when we estimate ordinary least squares (OLS) using the same restricted sample. Regarding the retention regressions, all of the coefficients of the manager skill variables are insignificant in the IV estimation. However, the endogeneity test results show that the null hypothesis that manager skill variables are exogenous is not rejected in all cases for both the performance evaluation and retention regressions, implying that we can trust the baseline OLS results in Table 3. Similar endogeneity test results are observed when examining achievement evaluation and stretch goal evaluation separately (Appendix Table A2).

Because our IV is the difference in predicted manager skills between new and old managers, it is invalid if managers with higher skills are assigned to subordinates with positive (negative) shocks. To check the possibility of such a nonrandom assignment, we regress subordinate *i*'s performance evaluation on the change in predicted manager skills between the current manager and the future manager who will be assigned to *i* in the next period.

Subordinate FE and subordinate characteristics are always controlled for, as in Tables 3 and 5. Depending on the specifications, current manager characteristics and work unit FE are also controlled for.[18] The results in Appendix Table A3 do not provide any robust evidence for the nonrandom assignment of managers to subordinates, supporting the validity of our IV.

5.2.2. Alternative Robustness Checks

We also consider the endogeneity problem when estimating equation (10) with manager FE. β becomes biased (i) when the error term ε_{it} includes manager–subordinate match-specific components or (ii) when a certain trend or shock included in ε_{it} are correlated with $\mathbf{MS}_{m(i,t)}$, following the arguments of Card et al. (2013). Examples of (ii) include the case in which managers with growing $\mathbf{MS}_{m(i,t)}$ are more likely to be assigned to subordinates who receive positive (or negative) productivity shocks.

To address the bias due to manager–subordinate match-specific components (case i), we estimate equation (10) by replacing subordinate FE and manager FE with subordinate×manager FE. Note that this treatment may mitigate bias but also, at the same time, may weaken the estimated relationship because β is identified through only variations in manager skills when a subordinate is matched with a certain manager. However, the results

[18] Note that we cannot examine subordinate retention because if subordinate i quits by time t, no manager is assigned to i at time (t+1). The timing of the performance evaluation variable is seven months before the first match between manager and subordinate, whereas the timing of manager skills and other time-variant control variables is six months before the first match.

reported in Table 8 show mostly similarity to our baseline results for the performance evaluation regression (overall evaluation, in particular). Regarding the retention regression, the positive coefficient of information gathering skills and insights and the negative coefficient of communication skills remain significant with subordinate×manager FE. However, because the positive coefficient of coordination skills becomes insignificant, the positive coefficients of the downward feedback average (*DownFB*) or SLSs as a whole also become insignificant.

Regarding the bias due to case (ii), we examine whether managers with a growing $\mathbf{MS}_{m(i,t)}$ are more likely to be assigned to subordinates with positive (or negative) productivity shocks or trends. Similar to the IV validity checks in the previous section (Appendix Table A3), we regress subordinate *i*'s performance evaluation on the skills of the future manager who is not *i*'s current manager but will be assigned to *i* in the next period. Hoffman and Tadelis (2021) take a similar approach. Subordinate FE, future manager FE, and the time-variant control variables of subordinate and current manager, as in Tables 3 or 5, are also included.[19] The results in Appendix Table A4 (overall performance evaluation result, in particular) show that managers with increased *DownFB*, *PMS_Down*, or *Communication* may be more likely to be assigned to subordinates with positive productivity shocks. This finding indicates that the estimated coefficients of these variables in our baseline results (Table 3) are likely to be upward

[19] The difference from Appendix Table A3 is as follows: In Appendix Table A3, we check whether a new manager with higher skills than that of the previous manager is assigned to subordinates receiving positive (or negative) productivity shocks. In contrast, in Appendix Table A4, which controls for manager FE, we check whether a manager whose skills are improving is assigned to subordinates receiving positive (or negative) productivity shocks.

biased. However, because these coefficients in Table 3 are negative, it suggests that our baseline results underestimate the negative effects of *DownFB*, *PMS_Down*, and *Communication*.

In summary, the analyses in this subsection suggest that our baseline results for performance evaluation (overall score, in particular) are robust in terms of coefficient directions and significance. Regarding retention, the positive coefficient of information gathering skills and insights and the negative coefficient of communication skills seem robust, whereas the positive effects of coordination skills or the SLSs as a whole are less robust.

6. Results: Effects of Manager Skills on Manager Own Performance

6.1 Baseline Results

Table 9 reports the relationship between a manager's skills and own performance indicators, including performance evaluation (*Eval*, *EvalA*, and *EvalSG*) and promotion in terms of job title (*PromoteJT*). Column (1) reports the estimate of equation (11) without manager FE, whereas column (2) reports the estimate of equation (12) with manager FE.

PMSs upward (*UpFB* or *PMS_Up*) are positively rewarded by manager's performance evaluation in terms of both achievement and stretch goal evaluations. A one SD increase in PMSs upward is associated with a 0.21−0.24 increase in overall performance evaluation (*Eval*), whereas the mean and SD of *Eval* are 9.224 and 1.077, respectively (Table 2). In contrast, PMSs reported by superiors (*PMS_Down*) are not related to managers' performance evaluation.

A manager's performance evaluation, particularly achievement evaluation, is strongly linked with the actual performance of the work unit that the manager supervises. Because a higher PMSs upward increase subordinates' performance evaluation score (Tables 3, 5), resulting in higher work unit performance, PMSs upward naturally predict a manager's higher performance evaluation. Also to be noted, however, is that we cannot rule out the possibility that a manager's performance evaluation given by his or her superiors is influenced by the PMSs upward (*UpFB* or *PMS_Up*) given by his or her subordinates two months earlier.

SLSs, mainly observed by superiors, are not rewarded by performance evaluation as a whole, particularly when manager FE are included. However, among SLSs, performance management skills (*PerfomMgmt*), which involve skills for managing workflow, progress, and quality, and pursuing short-term results are positively rewarded and have similar impacts as those of PMSs upward. As mentioned above, because a manager's performance evaluation is strongly linked with the actual performance of the work unit that the manager supervises, performance management skills might positively predict the evaluation score. Other SLSs, such as coordination, communication, and information gathering and insights, are not rewarded in general.

Regarding promotions, all of the coefficients are insignificant when manager FE are controlled for. However, short-term improvements in manager skills of the same manager are naturally not related to promotions, which are determined based on a manager's cumulative

evaluation over time. Also to be noted is that since promotion decisions are made based on relative standing, as suggested by tournament theory (Lazear and Rosen 1981), managers with higher competence than other managers in the same period are promoted. Thus, we focus on the results in column (1) without manager FE. Unlike the results of performance evaluations, PMSs upward (*UpFB* or *PMS_Up*) are not rewarded with a promotion. In contrast, SLSs, performance management skills and coordination skills in particular increase managers' promotion probability. A one SD increase in SLSs improves the promotion probability by 2.8% point, whereas the manager's mean promotion rate is 7.5% (Table 2).

The results indicate that if SLSs, including performance management and coordination skills, are the most important qualities of a senior manager, as suggested by Figure 1, promotion decisions are not distorted by the need to encourage frontline managers to be good bosses (i.e., those with high PMSs upward). This competency (SLS)-based promotion is different from the Peter Principle or performance (PMS)-based promotion, which predicts that employers prioritize current job performance in their promotion decisions at the expense of observed competency relevant for higher-level positions.

6.2 Robustness Checks

In this subsection, we provide two robustness checks. First, the baseline results in Table 9 (promotion results, in particular) might reflect superior's favoritism or preference for

yes-man type managers rather than competency-based promotion. In other words, the results might be driven by superiors who give better subjective ratings (i.e., SLSs) to their favored subordinates and try to promote them further. However, this is unlikely for two reasons. First, among manager skills, *Communication* and *InfoGathering* include reporting skills to superiors. *InfoGathering* also includes skills for sincerely accepting superiors' suggestions and advice. These two skills might partly capture the yes-man nature of managers. However, neither skill is rewarded by either performance evaluation or promotion (Table 9). *InfoGathering* tends to be even negatively rewarded by performance evaluation. Second, we directly control for a variable called *Supportive*, which approximates superior favoritism towards a manager or a manager's yes-man nature. *Supportive* is the superior's overall satisfaction score (on a 5-point scale) for the close support from a manager. In the manager skill survey, this score is also collected in addition to 40 manager skill items. The results in Appendix Table A5 show that the baseline results in Table 9 are mostly robust even after controlling for *Supportive*. Furthermore, *Supportive* is not rewarded by promotion, although it tends to be rewarded by performance evaluation.

Second, the possible nonrandom assignment of tasks to managers may bias the results. For example, superiors may not assign SLS-required tasks to managers who do not have the desire to be promoted or whom superiors do not intend to promote. This is likely to result in lower SLS scores for these managers. Considering this possibility, we control for the

expectation score for each manager skills variable, assuming that the skills required by the tasks actually assigned and the skills expected to be demonstrated are highly correlated. The results in Appendix Table A6 show that the baseline results in Table 9 are mostly robust and are not affected by task assignment.

6.3 Interpreting the Results using the Model's Predictions

We have shown that (1) managers' PMSs predict their own performance evaluations but not their promotions, and (2) managers with higher SLSs tend to be promoted. These findings are consistent with competency-based promotions and differ from the prediction of the Peter Principle or performance-based promotion. Proposition 1 in Section 2 indicates that a competency-based promotion policy is more likely to be optimal when (i) the correlation between PMSs (upward) and SLSs is low, (ii) the signal for SLSs is precise (large α), and (iii) the effort cost c is small. In this subsection, we discuss whether these conditions hold for this company.

Low correlation between PMSs upward and SLSs: Notably, the observed SLSs of managers *before* promotion are signals for SLSs demonstrated *after* a promotion. Thus, we should focus on the correlation between PMSs upward *before* the promotion and SLSs *after* the promotion of the same manager. Table 10 reports that this correlation is actually low (0.15 between *PMS_Up* and aggregate *SLS*) and statistically insignificant. The correlation between PMSs upward (*PMS_Up* or *UpFB*) and each skill that constitutes aggregate SLSs

(*Coordination*, *Communication*, and *InfoGathering*) is also low and insignificant, although a somewhat weak positive correlation exists between PMSs upward and *PerformMgmt*.

Precise signal for SLSs: SLSs evaluated before promotions to senior managerial positions should be imprecise because first-line managers have limited opportunities to reveal their SLSs. Thus, we interpret SLSs *before* promotions as signals for SLSs, and SLSs *after* promotions as true SLSs. The correlations shown in Table 10 are relatively high (0.52) and statistically significant at the 1% level. The correlation coefficient of each skill that constitutes aggregate SLSs between time t before promotion and time (t+1) after promotion is also approximately 0.5. This intertemporal correlation is much stronger than that between PMSs upward and the SLSs of promoted managers mentioned above.

Small effort cost: Measuring effort costs directly is difficult. However, inducing high team performance is expected to be easier when sales growth rate and profit rate are higher, which captures industry growth or the demand for a firm's services. The average sales growth rate and operating profit margin of the company analyzed in this study are approximately 18% and 6%, respectively, during 2010–2020. These figures are much higher than the average of all industries in Japan (0.0% and 3.6%), non-manufacturing (0.2% and 3.5%), service (-1.2% and 5.4%), and "other scientific research, professional and technical services" industries that include consulting businesses (3.0% and 4.2%).[20]

[20] The figures for Japan are based on the "Financial Statements Statistics of Corporations by Industry" released by the Ministry of Finance, Japan. "All industries" exclude finance and insurance industries.

7. Conclusions

Using personnel data from a Japanese management consulting firm, we find that (1) only PMSs of managers observed by their subordinates (PMSs upward) positively predict the performance of the latter; (2) PMSs observed by superiors (PMSs downward) are not related to the outcomes of subordinates or managers; (3) managers' PMSs (upward) and their SLSs including coordination skills and information gathering skills, predict subordinate retention; (4) although managers' PMSs (upward) predict their own performance evaluations, they are not correlated with their promotions; and (5) managers whose SLSs are high tend to be promoted.

The fourth and fifth results may imply two points. First, the skills required by first-line and senior managers are very different. For first-line managers, PMSs are a primary requirement, whereas SLSs, such as performance management skills and coordination skills, are much more important for senior managers. The literature on managerial talent development seems to support this view (Matsuo 2019; Lord and Hall 2005; Charan et al. 2001). Second, the Peter Principle, or performance-based promotion, is not an inevitable consequence, and competency-based promotion is possible. Our model predicts that competency-based promotion is more likely to be optimal when the level of the skills that are valuable before and after a promotion are not sufficiently correlated, when the skills required after a promotion can

be evaluated relatively precisely before a promotion, and when the manager's effort cost is low. We find that these characteristics generally apply to managerial employees in the company analyzed in this paper.

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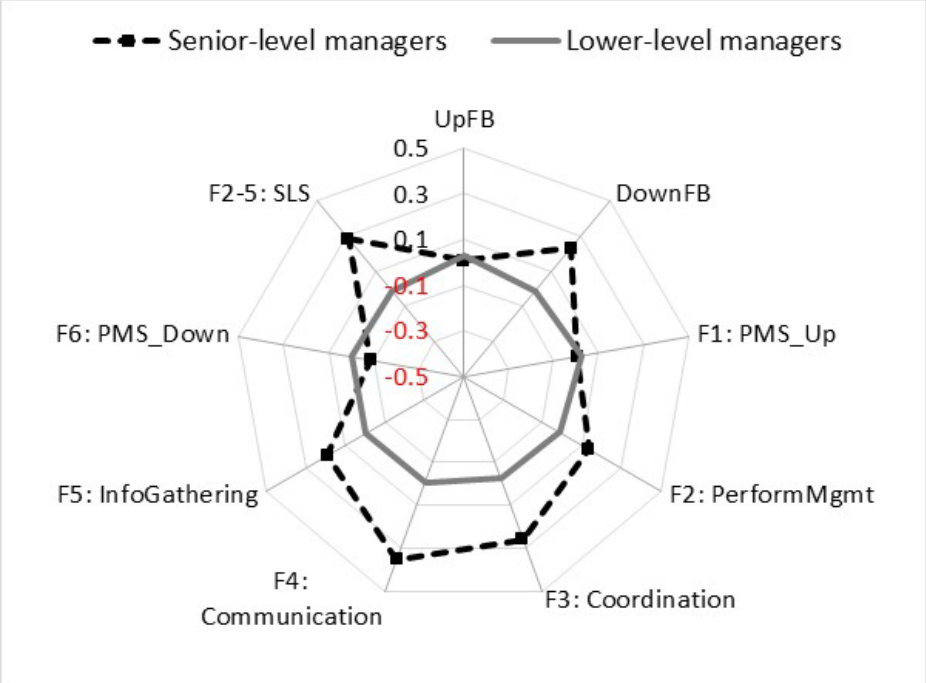
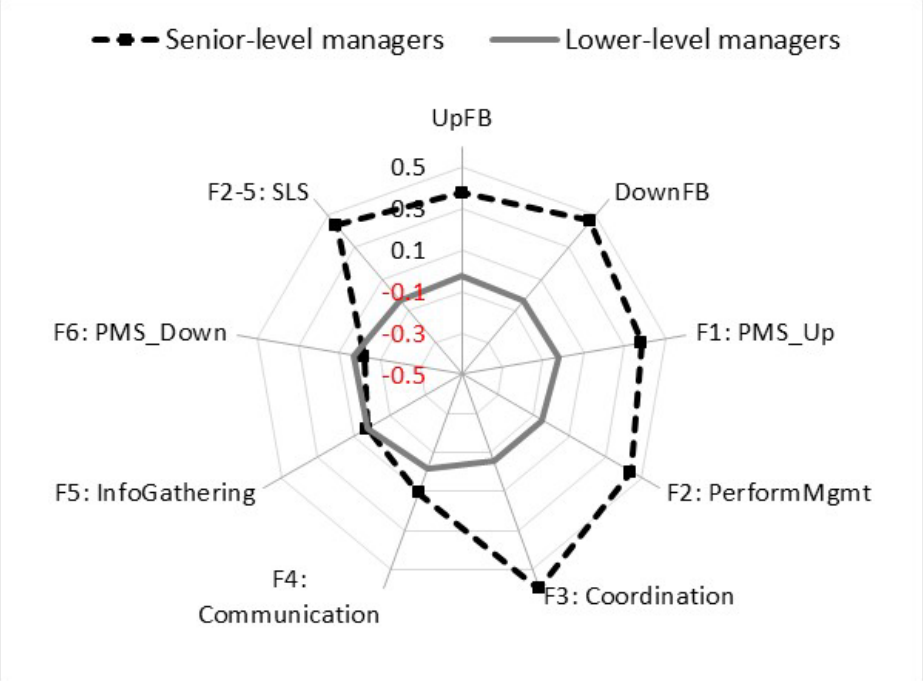
Figure 1. Skills by Senior- and Lower-level Managers

(a) Average of Standardized Expectation Score

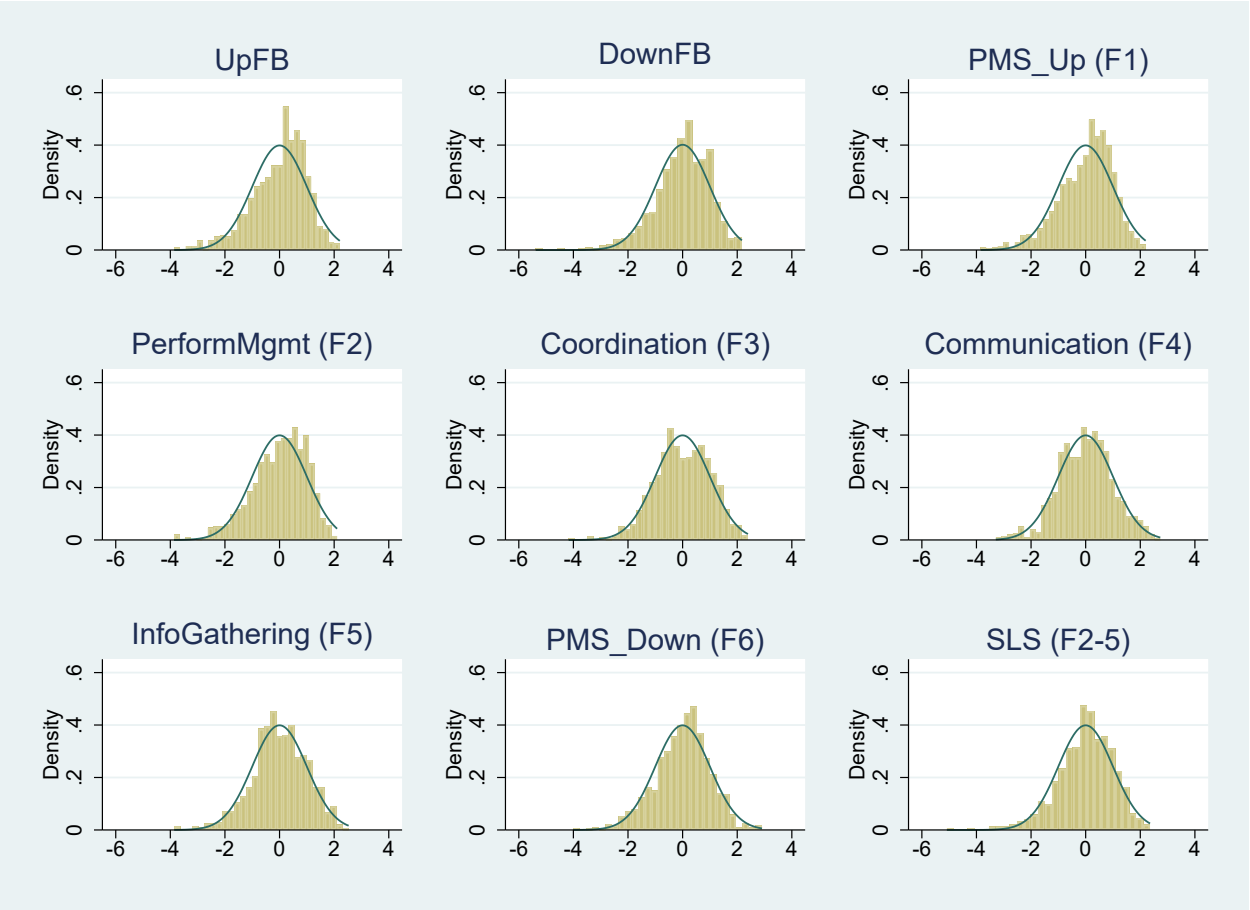


(b) Average of Standardized Satisfaction Score



Notes: Senior-level managers are those with the second highest job title and include executive officers or department heads. Lower-level managers are those with the third and fourth highest job titles and include area or branch managers and managers. For the construction of satisfaction scores, see Section 3.2. The five-point scale for the degree of expectation in addition to satisfaction is asked for the same 80 items on manager skills. Then, expectation scores for six factors are computed as follows. First, we assume that each of the 80 questions is classified into the factor group with the highest factor loadings in Table A1. The average of the standardized expectation scores across all questions within the same factor group is regarded as the expectation score for the corresponding group. Expectation scores for *UpFB*, *DownDB*, and *SLS* are similarly computed as satisfaction scores.

Figure 2. Distribution of Manager Skills



Notes: The unit of observation is manager × 11 periods (954 observations). All skills scores are standardized (mean = 0, SD = 1). Normal density is added to all graphs. For a description of the variables, see Section 3.2.

Table 1. Contemporaneous Correlations among Manager Skills

	UpFB	***DownFB***	***F1***	***F2***	***F3***	***F4***	***F5***	***F6***	***SLS***
UpFB	1.000								
DownFB	0.401	1.000							
F1: PMS_Up	0.999	0.385	1.000						
F2: PerformMgmt	0.260	0.651	0.258	1.000					
F3: Coordination	0.188	0.755	0.179	0.314	1.000				
F4: Communication	0.157	0.548	0.145	0.202	0.314	1.000			
F5: InfoGathering	0.188	0.621	0.175	0.239	0.300	0.170	1.000		
F6: PMS_Down	0.258	0.330	0.236	0.022	0.150	-0.095	0.226	1.000	
F2-5: SLS	0.298	0.967	0.285	0.659	0.725	0.640	0.636	0.111	1.000

Notes: All correlations (except for that between F2 and F6) are statistically significant at the 1% level. Based on 954 (manager × 11 periods) observations.

Table 2. Summary Statistics

	Subordinate sample		Manager sample	
	Mean	Std. Dev.	Mean	Std. Dev.
Outcomes:				
Eval: Overall performance evaluation score after two months (= ***EvalA*** + ***EvalSG***, range: 2-18)	9.575	0.896	9.224	1.077
EvalA: Achievement evaluation score after two months	4.673	0.704	4.459	0.811
EvalSG: Stretch goal evaluation score after two months	4.902	0.564	4.768	0.640
Work: Continue working after six months (0/1)	0.939	0.240	0.977	0.150
PromoteJT: Promoted in terms of job title within six months (0/1)	0.032	0.177	0.075	0.264
Manager skills:				
UpFB: Average of upward feedback reported by subordinates	-0.002	0.934	-0.002	0.995
DownFB: Average of downward feedback reported by superiors	-0.021	0.961	0.005	0.981
F1: PMS_Up: People management skills reported by subordinates	-0.004	0.932	-0.003	0.995
F2: PerformMgmt: Performance management skills	0.103	0.934	-0.014	0.984
F3: Coordination: Coordination skills	-0.079	1.009	-0.011	0.997
F4: Communication: Communication skills	-0.067	0.924	-0.010	1.005
F5: InfoGathering: Information gathering skills and insights	-0.032	0.981	0.036	0.981
F6: PMS_Down: People management skills reported by superiors	0.015	0.896	0.029	0.988
SLS: Senior leadership skills	-0.028	0.960	0.000	0.992
Other characteristics:				
Female (0/1)	0.467	0.499	0.252	0.434
Hired mid-career (0/1)	0.470	0.499	0.516	0.500
Age	35.023	9.446	40.286	6.843
Tenure	4.408	2.826	7.068	3.532
Work unit size (number of employees)	6.161	4.733	4.328	3.562
Manager: female (0/1)	0.295	0.456	-	-
Manager: age	40.793	6.572	-	-
Manager: tenure	6.899	3.060	-	-
Manager: not general career-track position (0/1)	0.016	0.125	-	-
Manager: concurrent post (0/1)	0.208	0.406	-	-

Notes: Subordinate sample = *Eval* regression sample in column (3) in Table 3. Manager sample = *Eval* regression sample in column (2) in Table 9. Manager skill variables are standardized (mean=0, SD=1) based on all available manager × time observations. For a description of the variables, see Section 3.

Table 3 Manager Skills and Subordinate Performance: Overall Performance Evaluation and Retention

Dependent var.	*Eval* (overall performance evaluation)				*Work* (retention)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Specification 1								
UpFB	**0.066*** **	**0.086*** **	**0.068** **	**0.058***	0.008	0.013	0.011	0.012
	(0.025)	(0.027)	(0.034)	(0.033)	(0.008)	(0.009)	(0.009)	(0.009)
DownFB	**-0.050** **	**-0.043** **	**-0.059** **	**-0.062** **	**0.011** **	**0.010** **	**0.009***	**0.010***
	(0.021)	(0.020)	(0.026)	(0.024)	(0.005)	(0.005)	(0.005)	(0.005)
Specification 2								
PMS_Up	**0.063*** **	**0.080*** **	**0.070** **	**0.057***	0.010	**0.016***	0.014	**0.015***
	(0.025)	(0.029)	(0.033)	(0.034)	(0.007)	(0.008)	(0.009)	(0.009)
PerformMgmt	0.015	-0.018	0.036	-0.019	-0.001	**-0.008***	-0.005	-0.006
	(0.021)	(0.023)	(0.029)	(0.027)	(0.004)	(0.005)	(0.006)	(0.006)
Coordination	**-0.046** **	-0.037	-0.039	-0.037	**0.012*** **	**0.015*** **	**0.014*** **	**0.011** **
	(0.021)	(0.022)	(0.025)	(0.023)	(0.004)	(0.005)	(0.005)	(0.006)
Communication	-0.023	**-0.043** **	**-0.060** **	**-0.049***	**-0.012** **	-0.009	**-0.015** **	**-0.014***
	(0.019)	(0.021)	(0.025)	(0.029)	(0.005)	(0.007)	(0.006)	(0.007)
InfoGathering	-0.002	**0.041***	-0.006	0.030	**0.015*** **	**0.013*** **	**0.016*** **	**0.019*** **
	(0.020)	(0.021)	(0.027)	(0.029)	(0.004)	(0.004)	(0.005)	(0.006)
PMS_Down	-0.027	-0.001	-0.034	-0.027	-0.004	-0.002	-0.003	-0.003
	(0.019)	(0.024)	(0.024)	(0.027)	(0.004)	(0.004)	(0.005)	(0.005)
Specification 3								
PMS_Up	**0.067*** **	**0.080*** **	**0.071** **	**0.059***	0.009	**0.014***	0.013	0.014
	(0.025)	(0.029)	(0.033)	(0.034)	(0.007)	(0.008)	(0.009)	(0.009)
PMS_Down	-0.027	0.004	-0.027	-0.023	-0.001	0.000	-0.001	-0.001
	(0.019)	(0.024)	(0.024)	(0.027)	(0.004)	(0.004)	(0.005)	(0.005)
SLS	**-0.039** **	**-0.039***	**-0.049***	**-0.049***	**0.011** **	**0.010***	**0.009***	0.010
	(0.019)	(0.021)	(0.026)	(0.026)	(0.004)	(0.005)	(0.005)	(0.006)
Subordinate FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE			Yes	Yes			Yes	Yes
Work unit FE		Yes		Yes		Yes		Yes
Observations	7,320	7,320	7,320	7,320	6,705	6,705	6,705	6,705
Subordinates	1,390	1,390	1,390	1,390	1,349	1,349	1,349	1,349
Managers	187	187	187	187	175	175	175	175

Notes: In all specifications, a subordinate's age (quadratic), tenure (quadratic), employment type, job grade, job title, number of employees affiliated with the subordinate's work unit, and period are controlled for. Manager characteristics such as gender, age, tenure, general career track position dummy, job grade, job title, and concurrent post dummy are also controlled for. In addition, within-group firm affiliation dummies are controlled for in columns (1) and (3), whereas more detailed work unit affiliation dummies are controlled for in columns (2) and (4). Robust standard errors clustered by subordinate and manager are in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 4. Manager Skills and Subordinate Performance: Whether or Not Under the Same Manager for at Least Two Periods

	***Eval* (overall performance evaluation)**				***Work* (retention)**			
	Same M sample		**Different M sample**		**Same M sample**		**Different M sample**	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Specification 1								
UpFB	**0.154*** **	**0.141*** **	0.016	-0.015	**0.034** **	**0.034*** **	0.005	0.011
	(0.046)	(0.042)	(0.044)	(0.051)	(0.013)	(0.012)	(0.009)	(0.014)
DownFB	**-0.080** **	**-0.090** **	0.003	0.047	0.003	0.008	0.005	0.006
	(0.033)	(0.037)	(0.042)	(0.043)	(0.006)	(0.007)	(0.009)	(0.009)
Specification 2								
PMS_Up	**0.161*** **	**0.144*** **	0.014	-0.022	**0.035*** **	**0.036*** **	0.009	0.010
	(0.046)	(0.043)	(0.046)	(0.058)	(0.013)	(0.013)	(0.009)	(0.014)
PerformMgmt	0.016	-0.028	0.051	-0.009	-0.004	-0.009	-0.014	**-0.020***
	(0.044)	(0.045)	(0.043)	(0.048)	(0.008)	(0.008)	(0.009)	(0.012)
Coordination	-0.028	-0.015	0.017	0.024	0.006	0.010	**0.022*** **	**0.021***
	(0.032)	(0.036)	(0.039)	(0.042)	(0.008)	(0.009)	(0.009)	(0.012)
Communication	**-0.066***	-0.048	-0.055	0.007	**-0.015***	**-0.019***	**-0.026*** **	**-0.027** **
	(0.036)	(0.038)	(0.042)	(0.048)	(0.008)	(0.010)	(0.009)	(0.013)
InfoGathering	-0.010	-0.012	-0.010	0.009	**0.016** **	**0.026*** **	0.013	0.018
	(0.039)	(0.045)	(0.047)	(0.054)	(0.007)	(0.008)	(0.009)	(0.013)
PMS_Down	-0.049	-0.040	-0.007	0.063	0.001	-0.001	0.003	0.015
	(0.034)	(0.041)	(0.047)	(0.039)	(0.006)	(0.007)	(0.008)	(0.012)
Specification 3								
PMS_Up	**0.157*** **	**0.141*** **	0.022	-0.025	**0.033** **	**0.033*** **	0.006	0.008
	(0.046)	(0.042)	(0.046)	(0.055)	(0.013)	(0.013)	(0.009)	(0.014)
PMS_Down	-0.043	-0.035	-0.002	0.060	0.004	0.004	0.005	0.014
	(0.034)	(0.040)	(0.047)	(0.040)	(0.006)	(0.007)	(0.008)	(0.013)
SLS	**-0.058***	**-0.067***	-0.003	0.024	0.003	0.007	0.003	0.002
	(0.033)	(0.039)	(0.040)	(0.041)	(0.007)	(0.008)	(0.009)	(0.010)
Subordinate FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Work unit FE		Yes		Yes		Yes		Yes
Observations	3,470	3,470	2,743	2,743	3,191	3,191	2,313	2,313
Subordinates	922	922	874	874	898	898	784	784
Managers	157	157	166	166	149	149	155	155

Notes: The results in "Same M sample" are based on subordinates whose managers are the same for at least two periods, whereas those in "Different M sample" are based on the remaining subordinate sample. Other control variables are the same as those in columns (3) or (4) in Table 3. Robust standard errors clustered by subordinate and manager are in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 5. Manager Skills and Subordinate Performance: Achievement Evaluation and Stretch Goal Evaluation

Dependent var.	*EvalA* (achievement evaluation)				*EvalSG* (stretch goal evaluation)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Specification 1								
UpFB	**0.032***	**0.040****	**0.045****	0.030	**0.035****	**0.046*****	0.024	0.028
	(0.018)	(0.020)	(0.023)	(0.024)	(0.015)	(0.017)	(0.018)	(0.019)
DownFB	-0.022	-0.018	**-0.035***	**-0.039****	**-0.027***	-0.025	-0.022	-0.023
	(0.016)	(0.017)	(0.019)	(0.019)	(0.014)	(0.016)	(0.017)	(0.017)
Specification 2								
PMS_Up	**0.031***	**0.038***	**0.044***	0.027	**0.034****	**0.042****	0.027	0.031
	(0.017)	(0.021)	(0.022)	(0.025)	(0.015)	(0.017)	(0.019)	(0.019)
PerformMgmt	0.026	0.005	0.032	-0.004	-0.010	**-0.023***	0.005	-0.016
	(0.017)	(0.018)	(0.023)	(0.024)	(0.012)	(0.014)	(0.016)	(0.017)
Coordination	**-0.031***	-0.028	-0.021	-0.029	-0.015	-0.007	-0.018	-0.007
	(0.016)	(0.018)	(0.019)	(0.020)	(0.013)	(0.015)	(0.014)	(0.015)
Communication	-0.008	-0.018	**-0.041****	-0.031	-0.016	**-0.027***	-0.019	-0.020
	(0.015)	(0.018)	(0.019)	(0.022)	(0.013)	(0.016)	(0.016)	(0.019)
InfoGathering	-0.010	0.021	-0.018	0.010	0.010	0.020	0.014	0.020
	(0.016)	(0.017)	(0.021)	(0.023)	(0.012)	(0.012)	(0.015)	(0.016)
PMS_Down	-0.017	-0.005	-0.010	-0.007	-0.011	0.005	**-0.024***	-0.019
	(0.015)	(0.018)	(0.019)	(0.021)	(0.011)	(0.012)	(0.013)	(0.014)
Specification 3								
PMS_Up	**0.035****	**0.040***	**0.045****	0.028	**0.033****	**0.040****	0.028	0.031
	(0.018)	(0.021)	(0.023)	(0.025)	(0.014)	(0.017)	(0.019)	(0.019)
PMS_Down	-0.018	-0.002	-0.005	-0.004	-0.009	0.007	-0.022	-0.018
	(0.015)	(0.018)	(0.018)	(0.021)	(0.011)	(0.012)	(0.013)	(0.014)
SLS	-0.017	-0.015	**-0.035***	**-0.036***	-0.021	-0.024	-0.012	-0.014
	(0.015)	(0.017)	(0.018)	(0.019)	(0.013)	(0.015)	(0.016)	(0.018)
Subordinate FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE			Yes	Yes			Yes	Yes
Work unit FE		Yes		Yes		Yes		Yes
Observations	7,345	7,345	7,345	7,345	7,345	7,345	7,345	7,345
Subordinates	1,397	1,397	1,397	1,397	1,397	1,397	1,397	1,397
Managers	187	187	187	187	187	187	187	187

Notes: The same as in Table 3, except that the dependent variable is either achievement evaluation or stretch goal evaluation score. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 6. Manager Skills and Subordinate Performance: Comparison of Upward Feedback Only and Both Feedbacks Included

Dependent var.	***Eval* (overall performance evaluation)**				***Work* (retention)**			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Specification 1								
UpFB	**0.055****	**0.066*****	**0.062***	**0.068****	0.010	0.008	0.012	0.011
	(0.025)	(0.025)	(0.033)	(0.034)	(0.008)	(0.008)	(0.009)	(0.009)
DownFB		**-0.050****		**-0.059****		**0.011****		**0.009***
		(0.021)		(0.026)		(0.005)		(0.005)
Specification 3								
PMS_Up	**0.057****	**0.067*****	**0.067****	**0.071****	0.010	0.009	0.012	0.013
	(0.025)	(0.025)	(0.033)	(0.033)	(0.007)	(0.007)	(0.009)	(0.009)
PMS_Down		-0.027		-0.027		-0.001		-0.001
		(0.019)		(0.024)		(0.004)		(0.005)
SLS		**-0.039****		**-0.049***		**0.011****		**0.009***
		(0.019)		(0.026)		(0.004)		(0.005)
Subordinate FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE			Yes	Yes			Yes	Yes
Work unit FE		Yes		Yes		Yes		Yes
Observations	7,320	7,320	7,320	7,320	6,705	6,705	6,705	6,705
Subordinates	1,390	1,390	1,390	1,390	1,349	1,349	1,349	1,349
Managers	187	187	187	187	175	175	175	175

Notes: Columns (1) and (3) use PMSs upward (*UpFB* or *PMS_Up*) only as the manager skill variable. Columns (2) and (4) are reprints of columns (1) and (3) in Table 3, respectively. Control variables are the same for columns (1) and (2) and for columns (3) and (4), and the same as in Table 3. Robust standard errors clustered by subordinate and manager are in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 7. Manager Skills and Subordinate Performance: IV Estimation Based on Subordinates Experiencing Manager Changes

Dep. Var.	***Eval*** **(overall performance evaluation)**			***Work*** **(retention)**		
	(1)	(2)	(3)	(1)	(2)	(3)
Specification 1						
UpFB	**0.227*** **	**0.237*** **	**0.215** **	0.014	0.012	0.034
	(0.078)	(0.082)	(0.101)	(0.019)	(0.019)	(0.023)
DownFB	-0.085	**-0.136***	-0.117	-0.001	-0.009	-0.029
	(0.071)	(0.082)	(0.090)	(0.018)	(0.023)	(0.029)
Endog. p-value	0.130	0.156	0.330	0.736	0.643	0.323
1st stage F-stat.	47.639	35.858	18.124	35.091	18.938	8.389
Specification 2						
PMS_Up	**0.195*** **	**0.197*** **	0.132	0.006	0.004	0.022
	(0.072)	(0.073)	(0.088)	(0.017)	(0.017)	(0.019)
PerformMgmt	-0.028	-0.034	-0.038	-0.006	-0.001	-0.004
	(0.045)	(0.055)	(0.061)	(0.009)	(0.013)	(0.022)
Coordination	-0.067	**-0.141***	-0.081	0.005	-0.012	-0.055
	(0.055)	(0.084)	(0.111)	(0.016)	(0.024)	(0.041)
Communication	-0.018	0.011	-0.009	-0.005	0.003	0.039
	(0.064)	(0.065)	(0.092)	(0.014)	(0.017)	(0.031)
InfoGathering	0.055	0.044	0.088	0.010	0.008	-0.007
	(0.057)	(0.057)	(0.060)	(0.014)	(0.016)	(0.020)
PMS_Down	-0.006	-0.025	0.020	0.013	0.014	0.020
	(0.053)	(0.061)	(0.067)	(0.011)	(0.015)	(0.025)
Endog. p-value	0.420	0.491	0.659	0.746	0.872	0.627
1st stage F-stat.	10.224	10.809	4.214	9.245	7.704	4.149
Specification 3						
PMS_Up	**0.208*** **	**0.224*** **	**0.183***	0.008	0.007	0.027
	(0.074)	(0.077)	(0.094)	(0.018)	(0.018)	(0.023)
PMS_Down	0.004	-0.032	0.022	0.015	0.014	0.006
	(0.050)	(0.060)	(0.070)	(0.012)	(0.014)	(0.019)
SLS	-0.072	-0.117	-0.086	-0.001	-0.005	-0.024
	(0.068)	(0.076)	(0.081)	(0.017)	(0.022)	(0.026)
Endog. p-value	0.252	0.316	0.510	0.412	0.405	0.359
1st stage F-stat.	30.931	20.634	10.680	22.843	10.968	5.134
Subordinate FE	Yes	Yes	Yes	Yes	Yes	Yes
Manger FE						
Manager Controls		Yes	Yes		Yes	Yes
Work Unit FE			Yes			Yes
Observations	4,385	4,385	4,385	3,845	3,845	3,845
Subordinates	883	883	883	850	850	850
Managers	157	157	157	144	144	144

Notes: The IV for each skill variable of the new manager is the difference in predicted manager skills between the new manager at *t* and the old manager at *t-1* (see Section 5.2.1 for more details). Other control variables are the same as those in columns (1) or (2) of Table 3, except that a manager's characteristics ("Manager Controls") are not included in column (1) of the above table. The endogeneity test is the chi-squared statistic, which jointly tests the exogeneity of manager skill variables (the null hypothesis). The first-stage *F* statistic is the Kleibergen–Paap–Wald rk *F* statistic. Robust standard errors clustered by subordinate and manager are in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 8. Manager Skills and Subordinate Performance with Subordinate×Manager FE

	(1)	(2)	(3)	(4)
Dependent var.	***Eval***	***EvalA***	***EvalSG***	***Work***
Specification 1				
UpFB	**0.078****	0.040	**0.039***	0.013
	(0.040)	(0.026)	(0.023)	(0.010)
DownFB	**-0.080*****	**-0.047****	**-0.033***	0.006
	(0.027)	(0.020)	(0.018)	(0.004)
Specification 2				
PMS_Up	**0.080****	**0.043***	0.037	0.014
	(0.039)	(0.026)	(0.023)	(0.010)
PerformMgmt	0.005	0.010	-0.006	-0.004
	(0.034)	(0.028)	(0.019)	(0.007)
Coordination	-0.044	-0.021	-0.022	0.007
	(0.027)	(0.022)	(0.018)	(0.005)
Communication	**-0.062****	**-0.059****	-0.004	**-0.015****
	(0.029)	(0.023)	(0.018)	(0.007)
InfoGathering	0.000	0.007	-0.007	**0.016*****
	(0.033)	(0.028)	(0.018)	(0.006)
PMS_Down	-0.039	-0.026	-0.012	0.001
	(0.028)	(0.021)	(0.016)	(0.005)
Specification 3				
PMS_Up	**0.080****	0.042	**0.038***	0.013
	(0.040)	(0.026)	(0.023)	(0.010)
PMS_Down	-0.031	-0.018	-0.012	0.003
	(0.028)	(0.020)	(0.016)	(0.005)
SLS	**-0.067****	**-0.041****	-0.026	0.004
	(0.027)	(0.019)	(0.018)	(0.005)
Subordinate*Manager FE	Yes	Yes	Yes	Yes
Observations	5,878	5,900	5,900	5,577
Subordinates	1,250	1,256	1,256	1,244
Managers	153	153	153	152

Notes: Other control variables are the same as in column (3) in Tables 3 or 5. Robust standard errors clustered by subordinate and manager are in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 9. Manager Skills and Manager's Own Performance: Performance Evaluation and Promotion

Dep. Var.	*Eval*		*EvalA*		*EvalSG*		*PromoteJT*	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Specification 1								
UpFB	**0.215*** **	**0.224*** **	**0.061***	0.071	**0.154*** **	**0.155*** **	0.004	-0.017
	(0.043)	(0.053)	(0.035)	(0.045)	(0.026)	(0.036)	(0.010)	(0.016)
DownFB	**0.098** **	-0.007	0.031	-0.020	**0.072*** **	0.021	**0.030*** **	0.015
	(0.045)	(0.059)	(0.035)	(0.043)	(0.027)	(0.035)	(0.009)	(0.011)
Specification 2								
PMS_Up	**0.213*** **	**0.234*** **	0.054	**0.074***	**0.159*** **	**0.163*** **	0.008	-0.015
	(0.041)	(0.053)	(0.034)	(0.044)	(0.026)	(0.037)	(0.010)	(0.015)
PerformMgmt	**0.258*** **	**0.234*** **	**0.179*** **	**0.173*** **	**0.082*** **	**0.066***	**0.018***	0.016
	(0.052)	(0.069)	(0.037)	(0.057)	(0.028)	(0.036)	(0.010)	(0.015)
Coordination	-0.006	-0.088	-0.030	**-0.089***	0.023	0.000	**0.024** **	0.010
	(0.048)	(0.062)	(0.039)	(0.051)	(0.028)	(0.034)	(0.011)	(0.016)
Communication	-0.035	-0.063	-0.018	-0.020	-0.015	-0.042	-0.009	-0.018
	(0.042)	(0.047)	(0.032)	(0.038)	(0.026)	(0.031)	(0.012)	(0.018)
InfoGathering	**-0.085** **	-0.053	**-0.096*** **	**-0.068***	0.016	0.020	0.009	0.010
	(0.043)	(0.054)	(0.037)	(0.040)	(0.021)	(0.029)	(0.009)	(0.014)
PMS_Down	0.001	-0.042	0.004	-0.011	-0.001	-0.029	-0.002	0.006
	(0.044)	(0.054)	(0.039)	(0.046)	(0.026)	(0.034)	(0.010)	(0.016)
Specification 3								
PMS_Up	**0.234*** **	**0.235*** **	**0.072** **	**0.077***	**0.162*** **	**0.161*** **	0.007	-0.017
	(0.042)	(0.054)	(0.034)	(0.045)	(0.026)	(0.037)	(0.010)	(0.016)
PMS_Down	-0.019	-0.046	-0.018	-0.020	0.000	-0.024	0.001	0.009
	(0.045)	(0.055)	(0.039)	(0.044)	(0.026)	(0.034)	(0.010)	(0.016)
SLS	**0.090** **	0.000	0.026	-0.017	**0.069*** **	0.025	**0.028*** **	0.012
	(0.043)	(0.057)	(0.033)	(0.041)	(0.025)	(0.033)	(0.009)	(0.012)
Manager FE		Yes		Yes		Yes		Yes
Observations	905	905	909	909	909	909	809	809
Managers		182		182		182		170

Notes: In all specifications, a manager's gender, age (quadratic), tenure (quadratic), employment type, job grade, job title, number of employees affiliated with his or her work unit, within-group firm affiliation dummies, and period are controlled for. Robust standard errors clustered by manager are in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 10. Intertemporal Correlation between Manager Skills Before and After Promotion

		PMSs upward before promotion		SLSs before promotion				
		UpFB	***PMS_Up***	***SLS***	***F2***	***F3***	***F4***	***F5***
SLSs after pro-*motion*	***F2-5: SLS***	0.1572	0.1539	0.5221***	0.3909***	0.4673***	0.2375	0.2400
	F2: Perform -Mgmt	0.3476**	0.3553**	0.1365	0.5313***	-0.0117	-0.0426	-0.0752
	F3: Coordi -nation	0.1454	0.1368	0.4344***	0.1489	0.5747***	0.2743*	0.0762
	F4: Commu -nication	0.0018	-0.0065	0.4984**	0.2085	0.3950***	0.4657***	0.1046
	F5: Info- Gathering	-0.0952	-0.0936	0.2437*	0.1025	0.2320	-0.1567	0.5544***

Notes: Based on 47 observations. ***p < 0.01, **p < 0.05, *p < 0.1.

Appendix

Proof of Proposition 1

By substituting $g_{HH} = g_{LL} = \frac{k}{2}$ and $g_{HL} = g_{LH} = \frac{1-k}{2}$ into equations (6) and (7),

$$\Pi_p = \frac{1+q_1}{2}(1-\beta_p)R + (1-\gamma)\frac{k+q_1-kq_1}{2}V_H + (1-\gamma)\frac{1-k+kq_1}{2}V_L + \frac{(1-q_1)q_1}{2}\left(R - \frac{c}{q_1-q_0}\right)$$

$$\Pi_c = \frac{1+q_1}{2}(1-\beta_c)R + (1-\gamma)\frac{\alpha}{2}V_H + (1-\gamma)\frac{1-\alpha}{2}V_L + \frac{(1-\alpha)(k+q_1-kq_1)+\alpha(1-k+kq_1)}{2}\left(R - \frac{c}{q_1-q_0}\right)$$

where β_p and β_c are the optimal piece rates for the performance- and competency-based promotion policies, respectively.

Then,

$$\Pi_p - \Pi_c = \frac{1+q_1}{2}(\beta_c-\beta_p)R + (1-\gamma)\frac{k+q_1-kq_1-\alpha}{2}V_H + (1-\gamma)\frac{\alpha-k+kq_1}{2}V_L + \frac{(1-q_1)q_1-(1-2\alpha)k(1-q_1)-\alpha(1-q_1)-q_1}{2}\left(R - \frac{c}{q_1-q_0}\right)$$

We conduct comparative statics analysis with respect to k, α and c.

$$\frac{\partial}{\partial k}(\Pi_p - \Pi_c) = \frac{1+q_1}{2}\left(\frac{\partial}{\partial k}\beta_c - \frac{\partial}{\partial k}\beta_p\right)R + (1-\gamma)\frac{1-q_1}{2}(V_H - V_L) + \frac{(2\alpha-1)(1-q_1)}{2}\left(R - \frac{c}{q_1-q_0}\right) \quad (A1)$$

Note that the IC constraint for optimization under the competency-based promotion policy $(q_1 - q_0)\frac{1}{2}\beta_c R = c$ is always binding; thus, $\beta_c = \frac{2c}{q_1-q_0}\frac{1}{R}$. Therefore, $\frac{\partial}{\partial k}\beta_c = 0$. The IC constraint for the optimization under the performance-based promotion policy $(q_1 -$

$q_0)\frac{1}{2}(\beta_p R + \Delta u_p) \geq c$ may or may not be binding. When it is not binding, $\beta_p = 0$ and $\frac{\partial}{\partial k}\beta_p = 0$. When it is binding, $\beta_p = (\frac{2c}{q_1 - q_0} - \Delta u_p)\frac{1}{R}$. Thus, $\frac{\partial}{\partial k}\beta_p = -\frac{1}{R}\frac{\partial}{\partial k}\Delta u_p$, where $\Delta u_p = \gamma\frac{k+(1-k)q_1}{1+q_1}V_H + \gamma\frac{1-k+kq_1}{1+q_1}V_L - \frac{q_0 c}{q_1 - q_0}$. Then, $\frac{\partial}{\partial k}\Delta u_p = \gamma\frac{1-q_1}{1+q_1}(V_H - V_L) > 0$, which leads to $\frac{\partial}{\partial k}\beta_p < 0$. Therefore, $\frac{\partial}{\partial k}\beta_p \leq 0$ regardless of whether it is binding or not. With all the results substituted into equation (A1), we obtain $\frac{\partial}{\partial k}(\Pi_p - \Pi_c) > 0$, which means that the competency-based promotion policy is more likely when k is smaller.

Next,

$$\frac{\partial}{\partial \alpha}(\Pi_p - \Pi_c) = \frac{1+q_1}{2}\left(\frac{\partial}{\partial \alpha}\beta_c - \frac{\partial}{\partial \alpha}\beta_p\right)R - \frac{1-\gamma}{2}(V_H - V_L) + \frac{(2k-1)(1-q_1)}{2}\left(R - \frac{c}{q_1 - q_0}\right) \quad (A2)$$

As before, $\frac{\partial}{\partial \alpha}\beta_c = 0$. When the IC constraint for the optimization under performance-based pay is not binding, $\frac{\partial}{\partial \alpha}\beta_p = 0$. When it is binding, $\frac{\partial}{\partial \alpha}\beta_p = -\frac{1}{R}\frac{\partial}{\partial \alpha}\Delta u_p = 0$. Therefore, $\frac{\partial}{\partial \alpha}(\Pi_p - \Pi_c) = -\frac{1-\gamma}{2}(V_H - V_L) + \frac{(2k-1)(1-q_1)}{2}\left(R - \frac{c}{q_1 - q_0}\right)$. By combining the two inequalities in Assumption 1, $(1-\gamma)(V_H - V_L) > (2k-1)(1-q_1)\left(R - \frac{c}{q_1 - q_0}\right)$. Therefore, $\frac{\partial}{\partial \alpha}(\Pi_p - \Pi_c) < 0$ regardless of whether the IC constraint is binding or not, which implies that a competency-based promotion policy is more likely to be optimal when α is larger.

Finally,

$$\frac{\partial}{\partial c}(\Pi_p - \Pi_c) = \frac{1+q_1}{2}\left(\frac{\partial}{\partial c}\beta_c - \frac{\partial}{\partial c}\beta_p\right)R + \frac{\{\alpha - (2\alpha - 1)k\}(1-q_1) + q_1^2}{2(q_1 - q_0)} \quad (A3)$$

Furthermore, from $\beta_c = \frac{2c}{q_1 - q_0}\frac{1}{R}$, $\frac{\partial}{\partial c}\beta_c = \frac{2}{q_1 - q_0}\frac{1}{R}$. When the IC is not binding for the performance-based promotion policy, $\beta_p = 0$ and $\frac{\partial}{\partial c}\beta_p = 0$. Then, $\frac{\partial}{\partial c}(\Pi_p - \Pi_c) =$

$\frac{2(1+q_1)+\{\alpha-(2\alpha-1)k\}(1-q_1)+q_1^2}{2(q_1-q_0)} \geq \frac{2(1+q_1)+(1-k)(1-q_1)+q_1^2}{2(q_1-q_0)} > 0$. When it is binding, $\beta_p = (\frac{2c}{q_1-q_0} - \Delta u_p)\frac{1}{R}$, $\frac{\partial}{\partial c}\beta_p = (\frac{2}{q_1-q_0} - \frac{\partial}{\partial c}\Delta u_p)\frac{1}{R}$, where $\Delta u_p = \gamma\frac{k+(1-k)q_1}{1+q_1}V_H + \gamma\frac{1-k+kq_1}{1+q_1}V_L - \frac{q_0 c}{q_1-q_0}$. Hence, $\frac{\partial}{\partial c}\beta_p = \frac{2+q_0}{q_1-q_0}\frac{1}{R}$. Therefore,

$\frac{\partial}{\partial c}(\Pi_p - \Pi_c) = \frac{1+q_1}{2}\left(\frac{2}{q_1-q_0}\frac{1}{R} - \frac{2+q_0}{q_1-q_0}\frac{1}{R}\right)R + \frac{\{\alpha-(2\alpha-1)k\}(1-q_1)+q_1^2}{2(q_1-q_0)} =$

$\frac{\{\alpha-(2\alpha-1)k\}(1-q_1)+q_1^2-q_0(1+q_1)}{2(q_1-q_0)} \geq \frac{(1-k)(1-q_1)+q_1^2-q_0(1+q_1)}{2(q_1-q_0)} \geq 0$. The last inequality can be easily shown by Assumption 2. This implies that a competency-based promotion policy is more likely to be optimal when c is lower. This concludes the proof.

Table A1. Factor Loadings of 80 Survey Questions on Manager Skills on the Extracted Factors

Survey respondents	Manager skill (question number)	**F1: PMS _Up**	**F2: Perfo-rmMg-mt**	**F3: Coordi-nation**	**F4: Comm-unica-tion**	**F5: InfoGa-thering**	**F6: PMS _Down**
Subordinates	Q8	**0.863**	-0.007	0.126	-0.033	-0.052	-0.086
Subordinates	Q36	**0.849**	-0.008	0.117	0.019	-0.068	-0.076
Subordinates	Q6	**0.846**	0.003	0.075	-0.025	-0.020	-0.074
Subordinates	Q11	**0.838**	-0.005	-0.038	-0.037	0.046	-0.001
Subordinates	Q23	**0.836**	0.060	-0.072	0.013	0.068	-0.023
Subordinates	Q4	**0.830**	0.016	0.168	-0.050	0.012	-0.157
Subordinates	Q18	**0.829**	0.010	-0.083	-0.005	0.053	0.029
Subordinates	Q21	**0.828**	0.080	0.044	-0.001	-0.019	0.031
Subordinates	Q5	**0.823**	0.101	-0.028	0.040	-0.010	-0.150
Subordinates	Q20	**0.821**	0.013	-0.173	0.012	0.077	0.089
Subordinates	Q12	**0.814**	0.031	0.007	0.025	0.003	-0.064
Subordinates	Q30	**0.813**	-0.008	0.030	0.010	-0.014	0.031
Subordinates	Q9	**0.812**	0.083	-0.008	-0.045	-0.000	-0.034
Subordinates	Q16	**0.811**	0.027	0.015	0.017	-0.008	-0.128
Subordinates	Q2	**0.807**	-0.007	0.058	0.023	-0.032	-0.137
Subordinates	Q22	**0.807**	0.028	0.005	0.020	-0.028	0.076
Subordinates	Q24	**0.805**	0.042	-0.086	0.002	0.007	0.081
Subordinates	Q28	**0.789**	-0.021	0.066	-0.020	-0.056	0.094
Subordinates	Q15	**0.788**	0.060	0.100	-0.078	0.048	-0.083
Subordinates	Q13	**0.779**	-0.102	-0.004	0.009	0.038	0.213
Subordinates	Q32	**0.774**	0.032	-0.038	0.059	-0.053	0.096
Subordinates	Q17	**0.768**	0.046	-0.171	-0.042	0.070	-0.036
Subordinates	Q35	**0.765**	0.008	0.050	0.099	-0.090	0.103
Subordinates	Q37	**0.758**	-0.036	0.104	0.040	-0.052	0.084
Subordinates	Q19	**0.756**	0.061	-0.079	-0.048	0.070	0.016
Subordinates	Q14	**0.746**	-0.158	0.013	-0.013	0.062	0.236
Subordinates	Q10	**0.744**	0.052	-0.013	-0.031	0.136	-0.043
Subordinates	Q25	**0.744**	-0.169	-0.012	-0.012	0.057	0.184
Subordinates	Q33	**0.742**	0.017	0.026	0.088	-0.067	0.128
Subordinates	Q31	**0.736**	-0.049	-0.003	-0.036	0.031	0.234
Subordinates	Q7	**0.730**	0.009	-0.019	-0.042	0.168	-0.187
Subordinates	Q27	**0.729**	0.054	0.066	-0.041	-0.043	0.040
Subordinates	Q26	**0.688**	0.256	0.052	0.047	-0.125	-0.059
Subordinates	Q34	**0.684**	-0.104	-0.077	0.004	0.102	0.247
Subordinates	Q1	**0.669**	-0.009	0.059	0.252	-0.098	-0.264
Subordinates	Q40	**0.656**	-0.053	-0.005	-0.014	-0.084	0.131
Subordinates	Q29	**0.649**	0.235	-0.119	0.009	0.010	-0.136
Subordinates	Q3	**0.639**	-0.046	-0.070	0.290	-0.008	-0.210
Subordinates	Q39	**0.635**	-0.088	-0.039	-0.040	0.088	0.282
Subordinates	Q38	**0.478**	-0.324	0.054	-0.024	0.021	0.361
Superiors	Q28	0.102	**0.633**	-0.006	-0.032	0.020	0.039
Superiors	Q30	0.116	**0.603**	0.050	-0.071	0.109	0.056

Superiors	Q27	0.064	**0.482**	-0.028	-0.027	0.254	0.023
Superiors	Q23	0.041	**0.460**	0.097	0.122	0.018	0.050
Superiors	Q29	0.032	**0.457**	0.209	0.154	-0.108	0.106
Superiors	Q22	0.099	**0.435**	0.236	0.024	0.192	0.024
Superiors	Q24	0.147	**0.408**	0.007	0.168	-0.007	0.048
Superiors	Q31	0.211	**0.378**	0.207	-0.154	0.029	0.254
Superiors	Q40	0.058	**0.356**	0.194	-0.043	0.045	0.222
Superiors	Q25	-0.006	0.059	**0.626**	0.083	-0.032	0.004
Superiors	Q36	-0.020	0.107	**0.571**	-0.086	-0.042	0.109
Superiors	Q13	0.046	-0.090	**0.560**	0.169	0.104	-0.043
Superiors	Q17	0.008	-0.014	**0.545**	0.092	0.141	0.036
Superiors	Q12	-0.033	0.052	**0.467**	0.175	0.200	-0.079
Superiors	Q21	0.118	0.100	**0.442**	-0.094	0.204	0.083
Superiors	Q37	0.052	0.225	**0.442**	-0.059	0.064	0.078
Superiors	Q14	-0.029	0.145	**0.412**	0.138	0.110	-0.006
Superiors	Q15	0.075	0.003	**0.266**	0.060	0.201	-0.054
Superiors	Q1	-0.011	0.018	-0.009	**0.796**	-0.015	0.011
Superiors	Q2	0.024	-0.033	-0.042	**0.796**	-0.016	0.014
Superiors	Q4	-0.045	-0.095	0.020	**0.753**	0.063	0.052
Superiors	Q3	0.005	0.038	0.055	**0.708**	0.117	-0.010
Superiors	Q5	0.032	0.163	0.187	**0.416**	-0.079	0.040
Superiors	Q9	0.038	-0.054	0.079	**0.400**	0.350	0.039
Superiors	Q26	-0.004	0.277	0.317	**0.380**	-0.216	0.047
Superiors	Q19	0.075	0.120	0.281	**0.296**	-0.045	0.023
Superiors	Q7	0.027	0.337	-0.105	0.164	**0.547**	-0.055
Superiors	Q16	0.018	-0.088	0.341	0.038	**0.526**	-0.045
Superiors	Q18	-0.030	-0.049	0.301	0.096	**0.489**	0.004
Superiors	Q8	0.019	0.095	0.040	0.035	**0.470**	0.115
Superiors	Q10	-0.059	0.159	0.045	0.114	**0.453**	0.287
Superiors	Q11	0.079	-0.042	0.394	0.081	**0.448**	-0.045
Superiors	Q20	0.021	0.068	0.133	-0.125	**0.421**	0.095
Superiors	Q6	0.014	0.369	-0.020	0.206	**0.374**	-0.077
Superiors	Q32	0.095	0.285	0.078	0.012	0.071	**0.520**
Superiors	Q38	0.148	0.149	0.087	0.049	0.142	**0.485**
Superiors	Q34	0.077	0.387	0.137	0.061	-0.009	**0.417**
Superiors	Q33	0.075	0.165	0.091	-0.007	0.259	**0.406**
Superiors	Q35	0.118	0.147	0.091	0.185	-0.032	**0.331**
Superiors	Q39	0.047	-0.098	0.286	-0.175	0.180	**0.293**

Notes: The highest factor loading for each question is indicated in bold. Exploratory factor analysis was performed based on 954 manager × time observations. The principal factor method with quartimin oblique rotation is applied. At the company's request, we cannot disclose the content of each question; however, based on this content, we explain below the manager skills that each factor primarily measures:

F1: PMSs upward: people management skills (PMSs) mainly observed by subordinates

F2: Performance management skills: skills for managing workflow, progress, quality, and pursuing short-term results

F3: Coordination skills: skills for coordinating and cooperating with other work units/stakeholders and thinking from a company-wide perspective

F4: Communication skills: skills for communicating the situations of customers, competitors, the market, and the industry
F5: Information gathering and insights: skills for gathering information, understanding challenges, and reporting problems
F6: PMSs downward: PMSs (supports for subordinates) mainly observed by superiors

Table A2. Manager Skills and Subordinate Performance (Achievement and Stretch Goal Evaluations): IV Estimation Based on Subordinates Experiencing Manager Changes

Dep. Var.	***EvalA*** **(achievement evaluation)**			***EvalSG*** **(stretch goal evaluation)**		
	(1)	(2)	(3)	(1)	(2)	(3)
Specification 1						
UpFB	**0.125****	**0.140****	0.102	**0.103***	**0.097***	0.110
	(0.059)	(0.061)	(0.072)	(0.057)	(0.057)	(0.078)
DownFB	-0.023	-0.023	0.047	-0.062	**-0.112***	**-0.158****
	(0.054)	(0.060)	(0.057)	(0.053)	(0.059)	(0.075)
Endog. p-value	0.173	0.165	0.090	0.465	0.308	0.114
1st stage F-stat.	47.778	35.984	18.104	47.778	35.984	18.104
Specification 2						
PMS_Up	**0.108***	**0.119****	0.052	**0.087***	0.079	0.079
	(0.058)	(0.060)	(0.069)	(0.051)	(0.049)	(0.068)
PerformMgmt	-0.019	-0.004	-0.008	-0.006	-0.026	-0.030
	(0.033)	(0.041)	(0.047)	(0.031)	(0.038)	(0.054)
Coordination	-0.023	-0.065	0.013	-0.047	-0.078	-0.088
	(0.047)	(0.063)	(0.092)	(0.040)	(0.053)	(0.082)
Communication	-0.001	0.028	0.067	-0.018	-0.021	-0.074
	(0.043)	(0.046)	(0.068)	(0.046)	(0.046)	(0.077)
InfoGathering	**0.069***	0.067	**0.103***	-0.015	-0.023	-0.013
	(0.042)	(0.043)	(0.053)	(0.038)	(0.042)	(0.057)
PMS_Down	-0.004	-0.003	0.059	-0.004	-0.023	-0.038
	(0.040)	(0.047)	(0.052)	(0.031)	(0.036)	(0.053)
Endog. p-value	0.206	0.186	0.128	0.932	0.819	0.656
1st stage F-stat.	10.312	10.814	4.215	10.312	10.814	4.215
Specification 3						
PMS_Up	**0.118****	**0.138****	0.082	**0.090***	**0.087***	0.098
	(0.058)	(0.060)	(0.069)	(0.052)	(0.052)	(0.073)
PMS_Down	0.003	-0.006	0.058	0.000	-0.026	-0.035
	(0.039)	(0.046)	(0.052)	(0.028)	(0.035)	(0.051)
SLS	-0.015	-0.014	0.064	-0.057	**-0.103***	**-0.145****
	(0.050)	(0.054)	(0.053)	(0.051)	(0.056)	(0.070)
Endog. p-value	0.249	0.288	0.079	0.709	0.490	0.226
1st stage F-stat.	31.185	20.807	10.680	31.185	20.807	10.680
Subordinate FE	Yes	Yes	Yes	Yes	Yes	Yes
Manger FE						
Manager Controls		Yes	Yes		Yes	Yes
Work Unit FE			Yes			Yes
Observations	4,402	4,402	4,402	4,402	4,402	4,402
Subordinates	889	889	889	889	889	889
Managers	157	157	157	157	157	157

Notes: The same as in Table 7, except that the dependent variable is either achievement evaluation or stretch goal evaluation score. ***p < 0.01, **p < 0.05, *p < 0.1.

Table A3. IV Validity Checks for Random Assignment: Whether New Managers with Higher Skills are Assigned to Subordinates with Positive (Negative) Shocks

	Eval			*EvalA*			*EvalSG*		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Specification 1									
Change in predicted UpFB	0.022	0.036	0.042	0.014	0.018	0.009	0.009	0.018	**0.034***
	(0.025)	(0.027)	(0.030)	(0.022)	(0.024)	(0.028)	(0.016)	(0.017)	(0.019)
Change in predicted DownFB	-0.044	-0.041	-0.041	-0.028	-0.029	0.003	-0.017	-0.012	**-0.044****
	(0.027)	(0.028)	(0.037)	(0.023)	(0.024)	(0.031)	(0.017)	(0.018)	(0.021)
Specification 2									
Change in predicted PMS_Up	0.021	0.028	0.031	0.018	0.019	0.020	0.003	0.008	0.011
	(0.025)	(0.026)	(0.029)	(0.021)	(0.023)	(0.025)	(0.015)	(0.016)	(0.019)
Change in predicted PerformMgmt	**-0.054*****	-0.023	-0.026	**-0.036***	-0.025	-0.032	-0.018	0.002	0.006
	(0.021)	(0.022)	(0.025)	(0.018)	(0.020)	(0.027)	(0.014)	(0.015)	(0.017)
Change in predicted Coordination	-0.014	**-0.041***	-0.037	-0.009	-0.024	0.003	-0.005	-0.017	**-0.040****
	(0.024)	(0.025)	(0.033)	(0.021)	(0.022)	(0.031)	(0.016)	(0.016)	(0.019)
Change in predicted Communication	0.044	**0.052***	0.040	**0.040***	**0.044***	0.051	0.004	0.007	-0.011
	(0.027)	(0.029)	(0.039)	(0.023)	(0.024)	(0.033)	(0.018)	(0.018)	(0.023)
Change in predicted InfoGathering	-0.027	-0.044	-0.025	-0.036	-0.043	-0.015	0.009	-0.001	-0.010
	(0.029)	(0.032)	(0.039)	(0.025)	(0.026)	(0.032)	(0.016)	(0.017)	(0.019)
Change in predicted PMS_Down	-0.004	0.012	0.035	-0.011	-0.004	0.001	0.007	0.016	**0.033****
	(0.023)	(0.024)	(0.028)	(0.020)	(0.021)	(0.024)	(0.012)	(0.012)	(0.016)
Specification 3									
Change in predicted PMS_Up	0.020	0.028	0.027	0.017	0.019	0.012	0.002	0.009	0.014
	(0.025)	(0.025)	(0.030)	(0.022)	(0.023)	(0.027)	(0.015)	(0.016)	(0.018)
Change in predicted PMS_Down	-0.017	0.003	0.029	-0.022	-0.011	-0.007	0.005	0.015	**0.037****
	(0.023)	(0.025)	(0.028)	(0.020)	(0.022)	(0.025)	(0.011)	(0.013)	(0.016)
Change in predicted SLS	-0.041	-0.037	-0.037	-0.029	-0.029	0.002	-0.012	-0.007	**-0.039****
	(0.025)	(0.027)	(0.035)	(0.021)	(0.022)	(0.029)	(0.016)	(0.017)	(0.019)
Subordinate FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manger FE									
Current manager controls		Yes	Yes		Yes	Yes		Yes	Yes
Work Unit FE			Yes			Yes			Yes
Observations	2,508	2,416	2,416	2,508	2,416	2,416	2,508	2,416	2,416
Subordinates	749	731	731	749	731	731	749	731	731
Future managers	159	157	157	159	157	157	159	157	157

Notes: Subordinate *i*'s performance evaluation variables are regressed on the IV for the skills of the future manager who is not *i*'s current manager but will be assigned to *i* in the next period. The IV for each skill variable of the future manager is the difference in predicted manager skills between future and current managers (see Section 5.2.1 for more details). "Current manager controls" are the manager characteristics mentioned in Table 3. Other control variables (subordinate characteristics) are the same as those in Table 3. Robust standard errors clustered by subordinate and future manager are in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

Table A4. Checks for Assignment Bias: Whether Managers with Increased Skills are Assigned to Subordinates with Positive (Negative) Shocks

	Eval		*EvalA*		*EvalSG*	
	(1)	(2)	(1)	(2)	(1)	(2)
Specification 1						
UpFB (future)	-0.010	0.006	0.000	0.010	-0.009	-0.004
	(0.047)	(0.046)	(0.039)	(0.039)	(0.024)	(0.024)
DownFB (future)	0.052	**0.080****	**0.073****	**0.080****	-0.021	0.000
	(0.038)	(0.038)	(0.033)	(0.033)	(0.024)	(0.024)
Specification 2						
PMS_Up (future)	-0.018	0.000	0.005	0.015	-0.023	-0.015
	(0.049)	(0.048)	(0.040)	(0.040)	(0.026)	(0.026)
PerformMgmt (future)	0.036	0.044	0.013	0.013	0.024	0.031
	(0.046)	(0.045)	(0.041)	(0.040)	(0.026)	(0.026)
Coordination (future)	-0.004	0.014	0.025	0.032	-0.029	-0.018
	(0.051)	(0.053)	(0.041)	(0.044)	(0.027)	(0.027)
Communication (future)	0.051	**0.083***	**0.079***	**0.095****	-0.028	-0.013
	(0.045)	(0.044)	(0.044)	(0.042)	(0.024)	(0.024)
InfoGathering (future)	-0.027	-0.053	-0.027	-0.046	0.000	-0.007
	(0.037)	(0.038)	(0.032)	(0.032)	(0.023)	(0.025)
PMS_Down (future)	0.059	**0.091****	0.046	**0.069***	0.013	0.022
	(0.043)	(0.042)	(0.039)	(0.037)	(0.025)	(0.026)
Specification 3						
PMS_Up (future)	-0.018	-0.005	-0.002	0.004	-0.016	-0.010
	(0.047)	(0.047)	(0.040)	(0.041)	(0.025)	(0.024)
PMS_Down (future)	0.058	**0.085****	0.041	0.059	0.018	0.026
	(0.044)	(0.042)	(0.039)	(0.037)	(0.025)	(0.026)
SLS (future)	0.032	0.053	**0.060***	**0.063****	-0.028	-0.010
	(0.036)	(0.035)	(0.032)	(0.032)	(0.024)	(0.024)
Subordinate FE	Yes	Yes	Yes	Yes	Yes	Yes
Future manager FE	Yes	Yes	Yes	Yes	Yes	Yes
Current manager controls		Yes		Yes		Yes
Work Unit FE						
Observations	2,431	2,314	2,431	2,314	2,431	2,314
Subordinates	759	723	759	723	759	723
Future managers	161	155	161	155	161	155

Notes: Subordinate *i*'s performance evaluation variables are regressed on the skills of the future manager who is not *i*'s current manager but will be assigned to *i* in the next period. "Current manager controls" are manager characteristics mentioned in Table 3. Other control variables (subordinate characteristics) are the same as those in Table 3. Robust standard errors clustered by subordinate and future manager are in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

Table A5. Manager Skills and Manager Performance: Controlling for Superiors' Overall Satisfaction with Close Support from Manager (*Supportive*)

	Eval		*EvalA*		*EvalSG*		*PromoteJT*	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Specification 1								
UpFB	**0.199*** **	**0.209*** **	0.051	0.060	**0.148*** **	**0.151*** **	0.003	-0.018
	(0.043)	(0.054)	(0.034)	(0.045)	(0.026)	(0.038)	(0.010)	(0.016)
DownFB	0.045	-0.039	-0.003	-0.043	**0.052***	0.011	**0.029*** **	0.011
	(0.051)	(0.065)	(0.041)	(0.049)	(0.029)	(0.038)	(0.010)	(0.012)
Supportive	**0.114*** **	**0.094***	**0.072** **	0.067	**0.043***	0.028	0.004	0.011
	(0.043)	(0.054)	(0.034)	(0.043)	(0.026)	(0.031)	(0.010)	(0.013)
Specification 2								
PMS_Up	**0.207*** **	**0.225*** **	0.052	0.069	**0.155*** **	**0.159*** **	0.008	-0.017
	(0.042)	(0.055)	(0.034)	(0.045)	(0.027)	(0.039)	(0.010)	(0.016)
PerformMgmt	**0.240*** **	**0.217*** **	**0.174*** **	**0.162*** **	**0.069** **	0.059	0.017	0.012
	(0.055)	(0.072)	(0.043)	(0.060)	(0.030)	(0.038)	(0.012)	(0.016)
Coordination	-0.012	-0.092	-0.032	**-0.092***	0.019	-0.002	**0.024** **	0.010
	(0.049)	(0.063)	(0.039)	(0.051)	(0.028)	(0.034)	(0.011)	(0.016)
Communication	-0.039	-0.068	-0.019	-0.023	-0.019	-0.044	-0.009	-0.019
	(0.043)	(0.048)	(0.032)	(0.040)	(0.026)	(0.031)	(0.012)	(0.018)
InfoGathering	**-0.082***	-0.051	**-0.096** **	-0.066	0.018	0.021	0.009	0.010
	(0.043)	(0.054)	(0.037)	(0.041)	(0.021)	(0.029)	(0.009)	(0.014)
PMS_Down	-0.002	-0.045	0.003	-0.013	-0.003	-0.030	-0.002	0.005
	(0.043)	(0.054)	(0.039)	(0.047)	(0.026)	(0.035)	(0.010)	(0.016)
Supportive	0.038	0.048	0.011	0.029	0.028	0.019	0.001	0.010
	(0.046)	(0.055)	(0.038)	(0.044)	(0.027)	(0.031)	(0.011)	(0.014)
Specification 3								
PMS_Up	**0.212*** **	**0.217*** **	**0.058***	0.064	**0.154*** **	**0.156*** **	0.006	-0.019
	(0.042)	(0.055)	(0.033)	(0.045)	(0.027)	(0.039)	(0.010)	(0.016)
PMS_Down	-0.023	-0.050	-0.021	-0.023	-0.001	-0.025	0.001	0.008
	(0.044)	(0.054)	(0.038)	(0.044)	(0.026)	(0.034)	(0.010)	(0.016)
SLS	0.040	-0.029	-0.006	-0.038	**0.050***	0.016	**0.026*** **	0.008
	(0.048)	(0.062)	(0.037)	(0.045)	(0.027)	(0.035)	(0.010)	(0.012)
Supportive	**0.115*** **	**0.094***	**0.073** **	0.067	**0.043***	0.028	0.004	0.011
	(0.043)	(0.054)	(0.034)	(0.043)	(0.026)	(0.031)	(0.010)	(0.013)
Manager FE		Yes		Yes		Yes		Yes
Observations	905	905	909	909	909	909	809	809
Managers		182		182		182		170

Notes: The same as in Table 9, except that *Supportive*, which is superiors' overall satisfaction score for close support from managers, is controlled for. ***p < 0.01, **p < 0.05, *p < 0.1.

Table A6. Manager Skills and Manager Own Performance: Controlling for Expectation Scores for Manager Skills

	Eval		*EvalA*		*EvalSG*		*PromoteJT*	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Specification 1								
UpFB	**0.213*** **	**0.221*** **	0.063	**0.078***	**0.149*** **	**0.144*** **	0.008	-0.009
	(0.048)	(0.059)	(0.039)	(0.046)	(0.028)	(0.041)	(0.011)	(0.016)
DownFB	**0.116** **	0.018	0.036	-0.015	**0.086*** **	0.042	**0.030*** **	0.017
	(0.048)	(0.062)	(0.038)	(0.046)	(0.029)	(0.037)	(0.010)	(0.012)
Specification 2								
PMS_Up	**0.218*** **	**0.228*** **	0.060	**0.075***	**0.158*** **	**0.154*** **	0.011	-0.008
	(0.046)	(0.057)	(0.038)	(0.045)	(0.028)	(0.041)	(0.011)	(0.016)
PerformMgmt	**0.239*** **	**0.224*** **	**0.169*** **	**0.172*** **	**0.073*** **	0.057	0.016	0.011
	(0.051)	(0.069)	(0.038)	(0.058)	(0.027)	(0.035)	(0.011)	(0.015)
Coordination	-0.001	-0.073	-0.027	-0.083	0.026	0.009	**0.021***	0.009
	(0.048)	(0.064)	(0.039)	(0.051)	(0.029)	(0.036)	(0.011)	(0.017)
Communication	-0.027	-0.059	-0.014	-0.019	-0.012	-0.039	-0.009	-0.017
	(0.043)	(0.047)	(0.032)	(0.037)	(0.026)	(0.031)	(0.012)	(0.017)
InfoGathering	**-0.071***	-0.038	**-0.091** **	**-0.073***	0.025	0.041	0.006	0.012
	(0.041)	(0.055)	(0.036)	(0.042)	(0.022)	(0.031)	(0.010)	(0.015)
PMS_Down	0.004	-0.039	0.000	-0.017	0.006	-0.020	-0.002	0.008
	(0.044)	(0.054)	(0.038)	(0.047)	(0.026)	(0.034)	(0.010)	(0.015)
Specification 3								
PMS_Up	**0.237*** **	**0.238*** **	**0.076** **	**0.084***	**0.160*** **	**0.155*** **	0.011	-0.009
	(0.047)	(0.058)	(0.038)	(0.046)	(0.028)	(0.041)	(0.011)	(0.016)
PMS_Down	-0.013	-0.038	-0.018	-0.021	0.007	-0.014	0.000	0.009
	(0.046)	(0.055)	(0.039)	(0.045)	(0.027)	(0.034)	(0.010)	(0.015)
SLS	**0.105** **	0.022	0.029	-0.013	**0.081*** **	0.043	**0.027*** **	0.014
	(0.045)	(0.059)	(0.035)	(0.043)	(0.026)	(0.035)	(0.009)	(0.013)
Manager Skill Expectation Scores	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE		Yes		Yes		Yes		Yes
Observations	905	905	909	909	909	909	809	809
Managers		182		182		182		170

Notes: The same as in Table 9, except that expectation scores for each manager skill are controlled for. For the computation of expectation scores, see the notes in Figure 1. ***p < 0.01, **p < 0.05, *p < 0.1.