

Promotions and Productivity: The Role of Meritocracy and Pay Progression in the Public Sector

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Promotions and Productivity

- ▶ Many organizations rely on **promotion incentives** to motivate employees [Prendergast 1999, Milgrom 1988]
 - ▶ Especially when they face constraints to dismiss workers or to offer them performance pay [Bertrand et al. 2019]
- ▶ The success of promotion incentives depends on two distinct but interrelated components:
 1. Extend to which the promotion rule is based on performance (**meritocracy**)
 2. Size of the prize associated with the promotion (**pay progression**)

The Role of Meritocracy and Pay Progression

$$u_i(e_1, e_2) = \underline{w} + P_i^b[\bar{w} - \underline{w}] - c_i(e_i)$$

$$P_i^b = P_i(e_1 + b_1, e_2 + b_2) = \begin{cases} 0 & \text{if } e_i + b_i < e_{-i} + b_{-i} \\ \frac{1}{2} & \text{if } e_i + b_i = e_{-i} + b_{-i} \\ 1 & \text{if } e_i + b_i > e_{-i} + b_{-i} \end{cases}$$

- ▶ Promotions increase worker effort if:
 1. $P^b = (P_1^b, P_2^b)$: promotion rule is meritocratic enough
→ low $|b_1 - b_2|$
 2. $\bar{w} - \underline{w}$: pay progression is steep enough
- ▶ This paper estimates the causal effect of more meritocracy ($\downarrow |b_1 - b_2|$) and more pay progression ($\uparrow \bar{w} - \underline{w}$) on worker productivity, in isolation and combined

Experiment in the Public Sector

- ▶ Field experiment with the Ministry of Health and Sanitation in Sierra Leone
- ▶ 2x2 design with exogenous variation in:
 - (1) **meritocracy** by varying extent to which promotions from a health worker to a supervisor job are linked to performance
 - (2) **perceived pay progression** from health worker to supervisor job by varying whether health workers are informed about supervisor's pay

Bridge Between Two Literatures

1. Literature on promotions:

- ▶ Mostly theoretical [Lazear & Rosen 1981, Harris & Holmstrom 1982, Gibbons & Murphy 1992, Gibbons & Waldman 1999]
- ▶ Recent empirical evidence on upward mobility and worker performance [Nieddu and Pandolfi 2022, Bertrand et al. 2019]
- ▶ Little evidence on changing promotion criteria *holding upward mobility fixed* + interaction with pay progression

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2. Literature on pay inequality:

- ▶ Mostly on **horizontal** rather than **vertical** pay inequality [Breza et al. 2018, Card et al. 2012, Mas 2017, Cullen & Perez-Truglia 2020]
- ▶ Vertical pay inequality = career incentive

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⇒ We study meritocracy, pay progression and the interplay of the two within the same context

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Context and Research Design

The Effect of Meritocratic Promotions

The Effect of Pay Progression

The Community Health Worker (CHW) Program

- ▶ Increases access to health services in rural Sierra Leone
- ▶ Organized into Peripheral Health Units (PHUs), each composed of
 - ▶ 7-10 CHWs (low-tier position)
 - ▶ 1 peer supervisor (PS) (high-tier position)
- ▶ CHWs are trained and monitored by the PS to provide household visits in their village
 - ▶ provide info about health, conduct pre- and post-natal checks, treat diseases and refer to health facility

Pay Progression

- ▶ Pay progression
 - ▶ CHWs and PSs work part-time and earn a fixed monthly wage of SLL 150k (\$17) and SLL 250k (\$29), respectively
 - ▶ Lack of pay transparency: <1/3 of the CHWs know the exact PS pay

Promotions

- ▶ Promotions from CHW to PS within a PHU
 - ▶ Status-quo: decision made by PHU in-charge (local health authority) who has limited knowledge of CHW performance
 - ▶ When promoted, 70% of the PSs had more connections to PHU in-charge than the other candidates but only 20% had highest performance

2x2 Research Design

372 PHUs cross-randomized into:

1. T_{merit} : new promotion system based on CHW performance (measured through household surveys)
 - ▶ CHWs in $T_{merit} = 1$ are informed about the new system
 - ▶ CHWs in $T_{merit} = 0$ are reminded of the status-quo system

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2. T_{pay} : info about PS pay, which \uparrow pay progression if prior $<$ truth or \downarrow pay progression if prior $>$ truth
 - ▶ CHWs in $T_{pay} = 1$ are informed about PS pay + reminded about own pay
 - ▶ CHWs in $T_{pay} = 0$ are reminded about own pay

Research Design: Key Role of Perceptions

- ▶ T_{pay} shifts CHW perception of pay progression
- ▶ T_{merit} shifts CHW perception of meritocracy in *anticipation* of future promotions
 - ▶ no need of *actual* promotion for CHWs to react to the new promotion system
 - ▶ does not assess effect of more meritocracy on CHW performance due to better PS selection

Peer Supervisors (PSs)

- One PS per PHU: N=372
- Surveyed at baseline (May 2018) and endline (Sept 2019) on background, experience, ranking of CHW performance



Community Health Workers (CHWs)

- One CHW per village: N=2,009
- Surveyed at baseline (May 2018) and endline (Sept 2019) on background, experience
- Surveyed 2 weeks before & after treatments (Nov-Dec 2018) on beliefs about meritocracy and pay progression



Beneficiaries/Households (HHs)

- Random 3 (~7%) per village: N=6,027
- Surveyed at endline (Sept 2019) on number and quality of services received from the CHW

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Context and Research Design

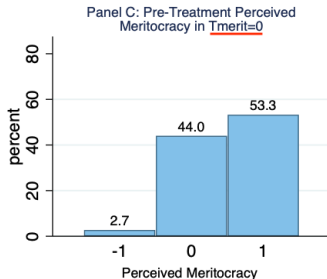
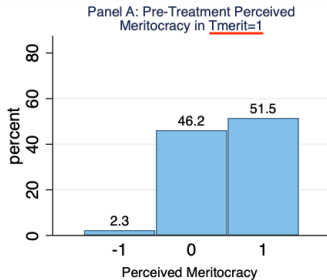
The Effect of Meritocratic Promotions

The Effect of Pay Progression

Survey Question About Meritocracy

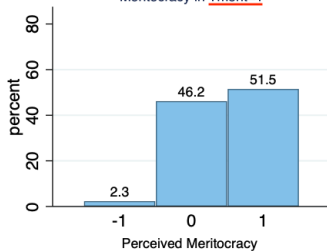
- ▶ “A PHU needs a new PS. Whom of the following two CHWs is most likely promoted to PS?”
 1. a “non-connected” CHW with performance rank 1/10
 2. a “connected” CHW with rank X where $X = \{2, 5, 10\}$
- ▶ Perceived meritocracy is measured on scale -1 to 1:
 - ▶ -1 if the connected CHW is always promoted even if she is the worse-performing
 - ▶ 0 if the connected CHW is promoted only if she is good enough (second-best or fifth-best)
 - ▶ +1 if the best-performing CHW is always promoted

Belief Updating About Meritocracy

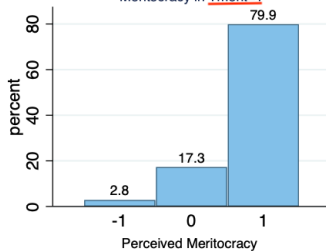


Belief Updating About Meritocracy

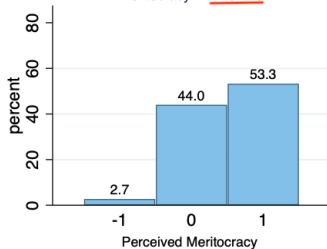
Panel A: Pre-Treatment Perceived Meritocracy in Tmerit=1



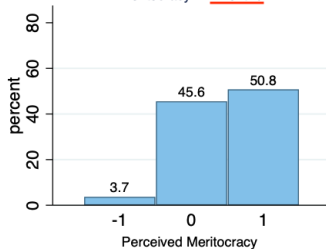
Panel B: Post-Treatment Perceived Meritocracy in Tmerit=1



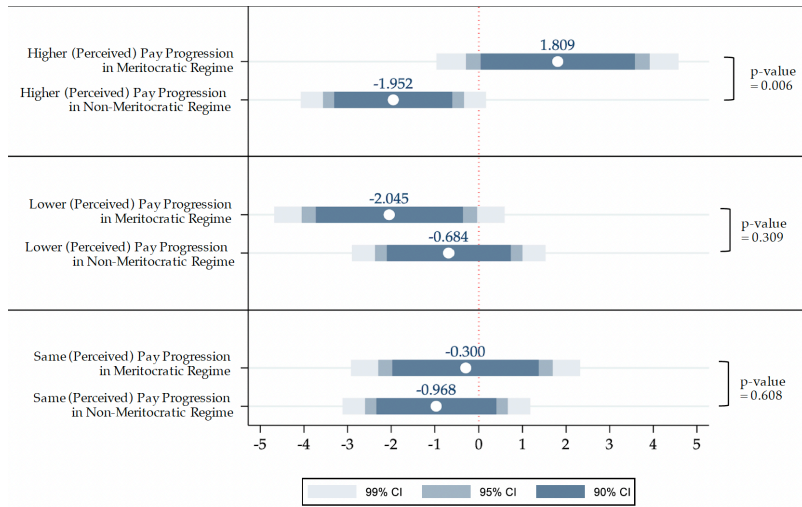
Panel C: Pre-Treatment Perceived Meritocracy in Tmerit=0



Panel D: Post-Treatment Perceived Meritocracy in Tmerit=0



Effect of Meritocracy on Number of Visits



Effect of Meritocracy - More Results

- ▶ No reduction in visit length
- ▶ No change in household targeting

Mechanisms

- ▶ Meritocratic promotions \uparrow productivity of workers with ...
 - ▶ high ranking \Rightarrow higher chance of promotion under new promotion system
 - ▶ promotion soon or high perceived pay progression \Rightarrow more interested in promotion
- ▶ Alternative stories we can reject:
 - ▶ workers with high rank/perceived pay progression update perceived meritocracy more strongly

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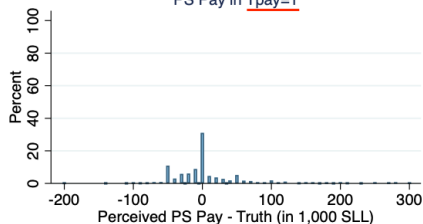
The Effect of Meritocratic Promotions

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Belief Updating About PS Pay

“How much do you think the PS earns per month?”

Panel A: Pre-Treatment Perceived
PS Pay in Tpay=1



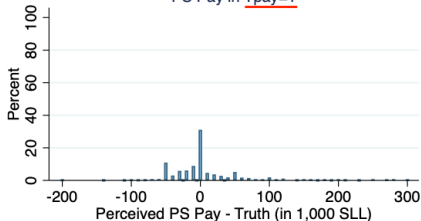
Panel C: Pre-Treatment Perceived
PS Pay in Tpay=0



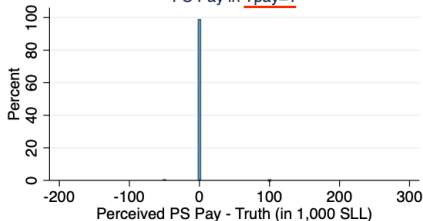
Belief Updating About PS Pay

“How much do you think the PS earns per month?”

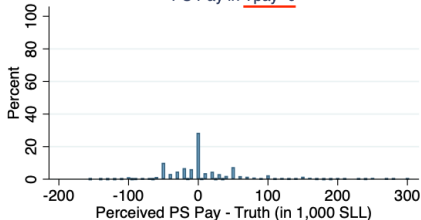
Panel A: Pre-Treatment Perceived
PS Pay in Tpay=1



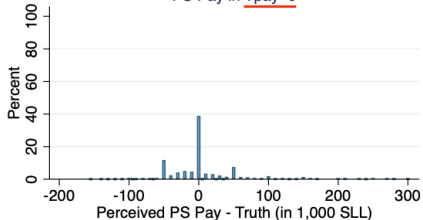
Panel B: Post-Treatment Perceived
PS Pay in Tpay=1



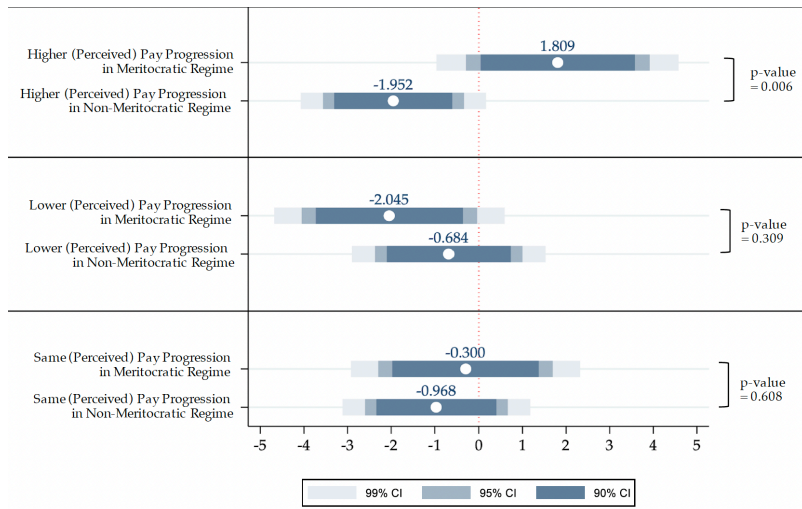
Panel C: Pre-Treatment Perceived
PS Pay in Tpay=0



Panel D: Post-Treatment Perceived
PS Pay in Tpay=0



Pay Progression and Number of Visits



Moral Concerns vs. Lobbying

- ▶ Higher pay progression ↓ worker productivity (visits) in non-meritocratic regime
- ▶ Potential mechanisms
 1. **morale concerns**: workers perceive steep pay progression in non-meritocratic system as unfair and get demotivated
 2. **lobbying**: workers substitute time away from health services into lobbying

Moral Concerns vs. Lobbying

- ▶ Higher pay progression ↓ worker productivity (visits) in non-meritocratic regime
- ▶ Potential mechanisms
 1. **morale concerns**: workers perceive steep pay progression in non-meritocratic system as unfair and get demotivated
 2. **lobbying**: workers substitute time away from health services into lobbying
- ▶ Evidence consistent with morale concerns:
 - ▶ no effect on whether CHW talked to PHU in-charge or on time devoted to non-patient activities

Conclusion

- ▶ Manager-worker pay ratio has grown exponentially around the world in recent years
 - ▶ x10 in the US private sector and x2 in public sector of low-income countries
- ▶ Steeper pay progression boosts performance of lower-tier workers if combined with meritocratic system
- ▶ ... but can backfire in non-meritocratic system
 - ▶ can ↓ performance of lower-tier workers through greater pay inequality

Conclusion

- ▶ Many organizations combine steep pay progression and non-meritocracy
 - ▶ public sector: patronage/nepotism or strict seniority based rules [Sheperd 2003, World Bank 2016]
 - ▶ private sector: lower women promotion rates across all ranks of firm hierarchy [Kunze and Miller 2017, Cullen and Perez-Truglia 2020, Benson et al. 2021, Azmat et al. 2021]
- ▶ Organizations should combine ↑ in pay progression with more meritocratic promotions
 - ▶ e.g., by collecting more reliable data on performance and promoting based on that