

# Motivating Public Sector Workers

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# The public sector and the economy

- ▶ Public sector provides several inputs to economic growth:
  - ▶ human capital (health and education)
  - ▶ physical capital (infrastructure, transport)
  - ▶ property rights and contract enforcement
- ▶ Effectiveness of these factors ultimately relies on the motivation and talent of the agents hired to deliver them – e.g. teachers, health workers, tax collectors, bureaucrats, etc.
- ▶ **How to increase motivation on the job and recruit talented workers to the job?**

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- ▶ Measurement
  - ▶ Inputs
  - ▶ Outputs
  - ▶ Impact

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  - ▶ Impact
- ▶ Improvement
  - ▶ Increasing Productivity on the Job
  - ▶ Recruiting and selecting more Productive Workers
  - ▶ (creating a culture of productivity: non-monetary considerations)

## A note on data and experimentation

- ▶ Any improvements in **administrative data** can have large payoffs in terms of research and practice
  - ▶ Facilitate research on productivity
  - ▶ Feedback to government managers for decision making and to employees for tracking progress

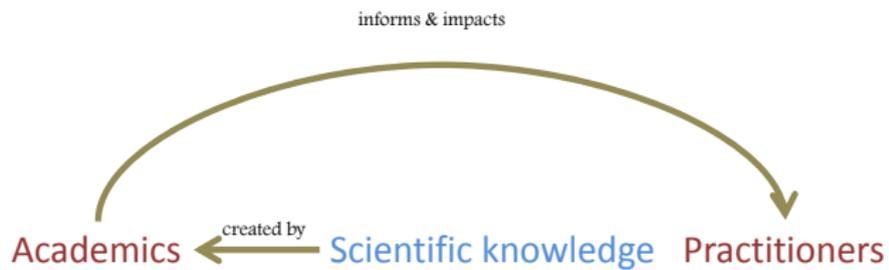
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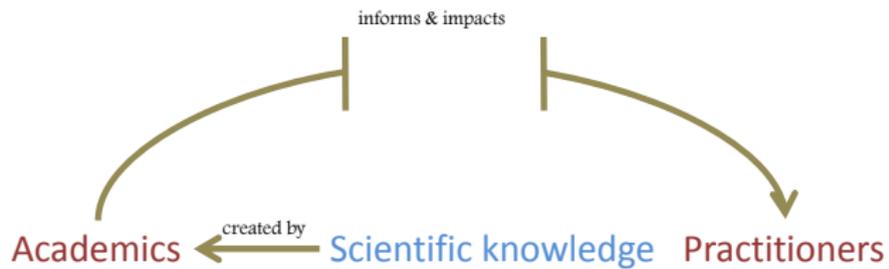
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  - ▶ Feedback to government managers for decision making and to employees for tracking progress
- ▶ **Field experiments:** Researchers collaborate with governments/NGOs to create policy variation
  - ▶ “treatment” group gets the policy, “control” do not
  - ▶ e.g. randomly assign teachers to PP schemes
  - ▶ Variation is uncorrelated with other determinants of the outcomes of interest → identification of causal effects
  - ▶ Collaboration facilitates collection of rich data & builds capacity

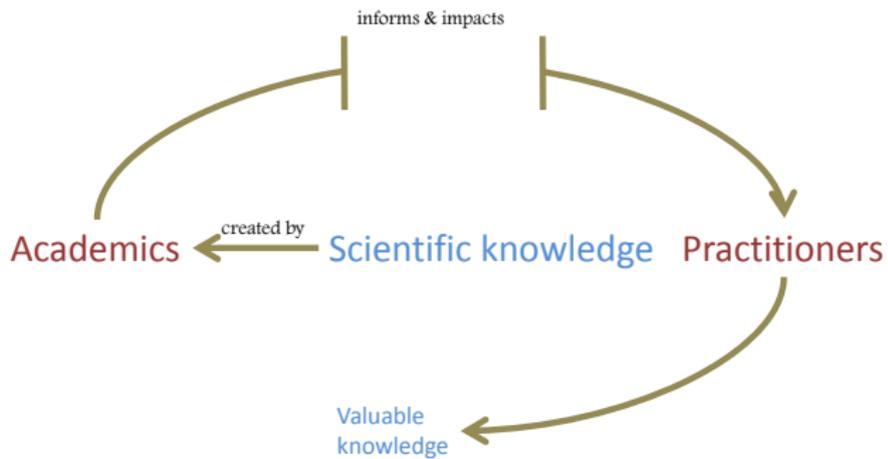
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  - ▶ Collaboration facilitates collection of rich data & builds capacity
- ▶ Best case scenario: allows for co-generation of knowledge

Academics ←<sup>created by</sup> Scientific knowledge









## Scientific knowledge

Academics

Practitioners

Scientific knowledge



Academics

Practitioners

# Public Sector Productivity

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# Standard Principal Agent Model

- ▶ A principal hires an agent to perform a task
- ▶ The success of the task depends on the agent's effort, which is costly to the agent and not observed by the principal
  - ▶ Eg: Government hires a teacher to teach, with objective of improving students' learning.

# Agent's Choice

- ▶ Agents choose effort to maximise their utility
- ▶ This depends on (1) their preferences and (2) the incentive scheme they face

# Preferences

- ▶ Standard model:
  - ▶ agents like money, dislike effort choose effort to equate the marginal benefit (of money) to the marginal cost (of effort)
  - ▶ Richer models allow agents to like:
    - ▶ status
    - ▶ friends
    - ▶ “a mission” (pro-social motivation)
    - ▶ competence: “a job well done”
    - ▶ autonomy
- ▶ But choice of effort is always dictated by  $MB=MC$

# Incentives

- ▶ Determine how agents' effort generates utility e.g. sales bonuses: more effort=higher reward
- ▶ Principal can design incentive schemes to align the interests of agents to his own, so that agent will choose the level of effort that maximises the utility of the principal
- ▶ In the standard model where agents only care about money, incentives take the form of **performance pay**
  - ▶ any form of reward (monetary bonus, promotion, recognition) tied to a performance measure (sales, test scores etc)

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- ▶ “Camera experiment”: rewarding teachers' attendance (verified by photo) reduces absenteeism (incentivised dimension) and improves students' test scores [Duflo et al 12]
- ▶ Rewarding teachers for students' test scores improves test scores and is more cost-effective than providing extra resources [Lavy 02, Muralidharan and Sundararaman 11]

# Do performance rewards improve the agents' performance? motivation crowding-out?

- ▶ In Ashraf et al (14) we test whether performance rewards crowd out the motivation of agents hired by an NGO to sell condoms in Lusaka
- ▶ We find that:
  - ▶ highly motivated agents sell more condoms
  - ▶ performance rewards *crowd in* intrinsic motivation

## But...

- ▶ Agents can improve the incentivised measure only, not overall “performance” [Glewwe et al 10]
- ▶ Schemes that are too complex for agents to know how to get the rewards are ineffective [Fryer 13]
- ▶ Rewarding “box ticking” can reduce bureaucrats performance [Rasul & Rogger 14]
- ▶ Can be easy to manipulate measures [Banerjee et al 08]
- ▶ Incentives can convey information about the nature of the job and attract the “wrong” agents [Deserranno 15]

# Pakistan Performance Pay Project

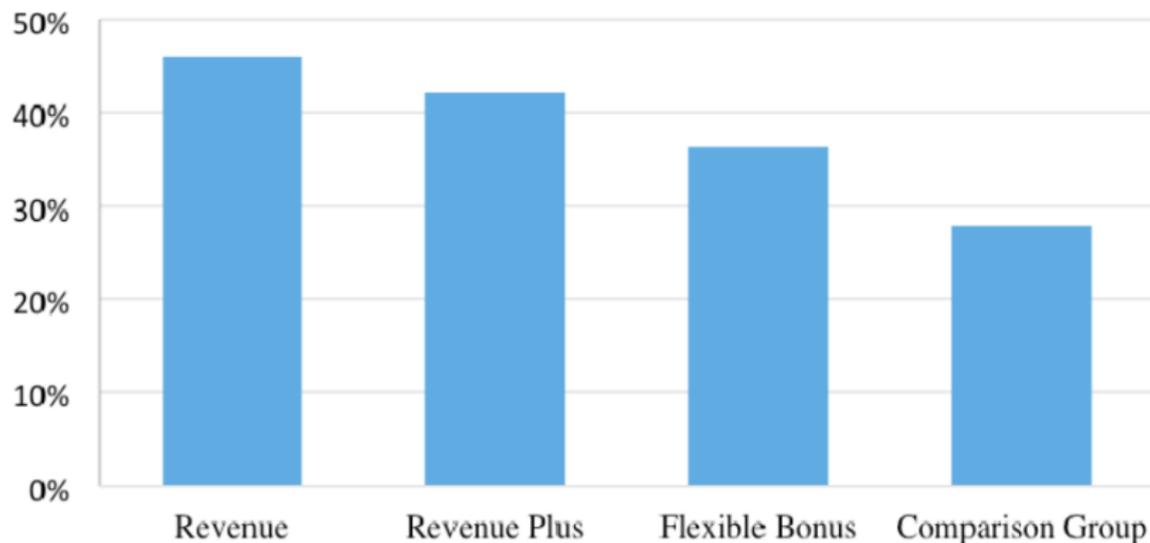
Khan, Khwaja & Olken (2016)

- ▶ RCT in collaboration with the Excise & Taxation Department in Punjab, Pakistan
- ▶ Focus on the local property tax in Punjab
- ▶ Randomly allocate tax officials to different pay for performance incentive schemes:
  - ▶ Revenue
  - ▶ Revenue PLUS (adjusts for accuracy and taxpayer satisfaction)
  - ▶ Flexible Bonus (wider set of criteria, subjective adjustments)
- ▶ Incentives increase revenue by 9.3 log points (increase growth rate by 46%)
- ▶ No change in taxpayer satisfaction or assessment accuracy

# Treatment Effects on Total Tax Collected

Khan, Khwaja & Olken (2016)

Increase in Total Tax collected\*



# Results

Khan, Khwaja & Olken (2016)

- ▶ Overall results mask more subtle differences between two types of taxpayers in treatment circles
  - ▶ For most: tax paid unchanged, and bribes increase
  - ▶ But, for some: tax paid increases substantially, and bribes fall
- ▶ Consistent with standard model of bargaining between tax payers and tax inspectors
  - ▶ Intuition: Performance pay increases “outside option” for tax collector in bargaining w/ taxpayer -> either bargaining break-down (more tax paid) or re-bargaining (bribes increase)
- ▶ Performance rewards can increase corruption by increasing the bargaining power of the agents vs. the citizens

# Do performance rewards improve the agents' performance?

## Assessment

- ▶ Performance rewards can be effective in cases where *performance measures are good*:
  - ▶ capture the effect of individual productivity
  - ▶ capture every relevant dimension of the job
  - ▶ can be easily affected by the individual
  - ▶ cannot be easily gamed

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  - ▶ cannot be easily gamed
- ▶ If not, they are ineffective or detrimental
- ▶ Where to from here?
  - ▶ focus on broader motivators: base salary, autonomy/decentralisation
  - ▶ focus on selecting the right people
    - ▶ “right”= talented? pro-social? is there a trade-off?

# Do higher salaries improve performance?

- ▶ Why would they?
  - ▶ workers might fear losing the well-paid job if they underperform [Becker and Stigler 74]
  - ▶ workers might reciprocate the employer's generosity [Akerlof 82, Fehr and Gächter 00]
- ▶ Evidence from a natural experiment:
  - ▶ UK: lower real wages for hospital staff are associated with worse hospital performance [Propper and Van Reenen 10]
    - ▶ selection or effort?
  - ▶ Zambia [Ashraf, Bandiera and Jack, in progress]: 2013 salary reform throughout the civil service- large wage increases, significant wage compression, effects on education, health.

# Does autonomy improve performance?

- ▶ Decentralisation debate: centralised rules restrict opportunistic behavior but also limit the use of the agents' private information
- ▶ Evidence points to the value of discretion:
  - ▶ inefficiency in procurement mostly driven by excessive rules [natural experiment using Italian data, Bandiera et al 09]
  - ▶ public organisations that give bureaucrats more discretion have higher project completion rates [survey evidence from Nigeria, Rasul and Rogger 14]
  - ▶ giving discretion to environmental inspectors improves targeting and results in the same reduction in pollution at a lower cost [field experiment in Gujarat, Duflo et al 14]

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  - ▶ Talent: ability/skills; ambition; drive
  - ▶ Pro-sociality and connection to the community
- ▶ Particularly important for incentivizing effective services delivery to remote areas
  - ▶ Policy debate on upskilling and professionalizing community-based agents
  - ▶ Potential tension between the dimensions of effectiveness—> policy argument that material rewards should remain low to attract the most dedicated community agents

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- ▶ In Ashraf et al (2014) we run a nationwide field experiment in collaboration with GoZ in the context of their new Community Health Assistant (CHA) program
- ▶ Cadre meant to address shortages in rural areas by formalising community health workers position
  - ▶ work in remote areas, challenges in monitoring and performance measurement rule out performance related pay
- ▶ Career advancement (salary progression) within the civil service can, but does not have to, be used as incentive
  - ▶ *“What will happen now that they see themselves as civil servants? will they retain their connection to the community?” (Mr Mwila, MOH HR director, June 2010)*

# Experimental design

- ▶ First phase of CHA program: recruit 2 CHAs from 165 communities in 48 (out of 58) districts
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- ▶ Key challenge: isolate sorting effects from incentives on the job
- ▶ New cadre, job attributes unknown to potential applicants→our strategy:
  - ▶ vary the salience of career incentives when recruiting agents  
*[opens selection channel]*
  - ▶ provide the same actual incentives to all agents once hired  
*[closes motivation channel]*.
- ▶ Randomise 2 recruitment posters across 48 districts

# Recruitment posters

## REPUBLIC OF ZAMBIA MINISTRY OF HEALTH



| DESIGNATED HEALTH CENTRE: | FOR POSTING AT: |
|---------------------------|-----------------|
|                           |                 |

### TRAINING OPPORTUNITY

#### ONE-YEAR COURSE IN COMMUNITY HEALTH

The Ministry of Health of the Republic of Zambia is launching a new national Community Health Worker (CHW) strategy and invites applicants to participate in the inaugural training of community health workers.

The training will begin on **30<sup>th</sup> August 2010** and will be held at the Provincial level for selected applicants. All participation costs, including transportation, meals and accommodation will be covered by the Ministry of Health.

#### BENEFITS:

- Learn about the most important health issues in your community
- Gain the skills you need to prevent illness and promote health for your family and neighbors
- Work closely with your local health post and health centre
- Be a respected leader in your community

#### QUALIFICATIONS:

- Zambian National
- Grade 12 completed with two "O" levels
- Age 18-45 years
- Endorsed by Neighbourhood Health Committee within place of residence
- Preference will be given to women and those with previous experience as a CHW

#### APPLICATION METHOD:

Submit to the DESIGNATED HEALTH CENTRE indicated above:

- Completed application form with necessary endorsements. If no blank forms are attached to this notice, kindly obtain a blank one at the nearest health centre.
- Photocopy of school certificate documenting completion of Grade 12 and two "O" levels.
- Photocopy of Zambian national registration card.

**For more information:** Contact the designated health centre indicated above.

**CLOSING DATE: 30<sup>th</sup> JULY 2010.**  
Only shortlisted candidates will be contacted for interview.

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- Become a highly trained member of Zambia's health care system
- Interact with experts in medical fields
- Access future career opportunities including:
  - Clinical Officer
  - Nurse
  - Environmental Health Technologist

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# Making social benefits salient (control)

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**Counseling and Support**

**Care and Treatment**

**Health Education**

**How to make ORS**

Water Sugar Salt

**Want to serve your community?  
Become a CHW!**

# Making career benefits salient (treatment)

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**Nursing**

**Environmental & Public Health**

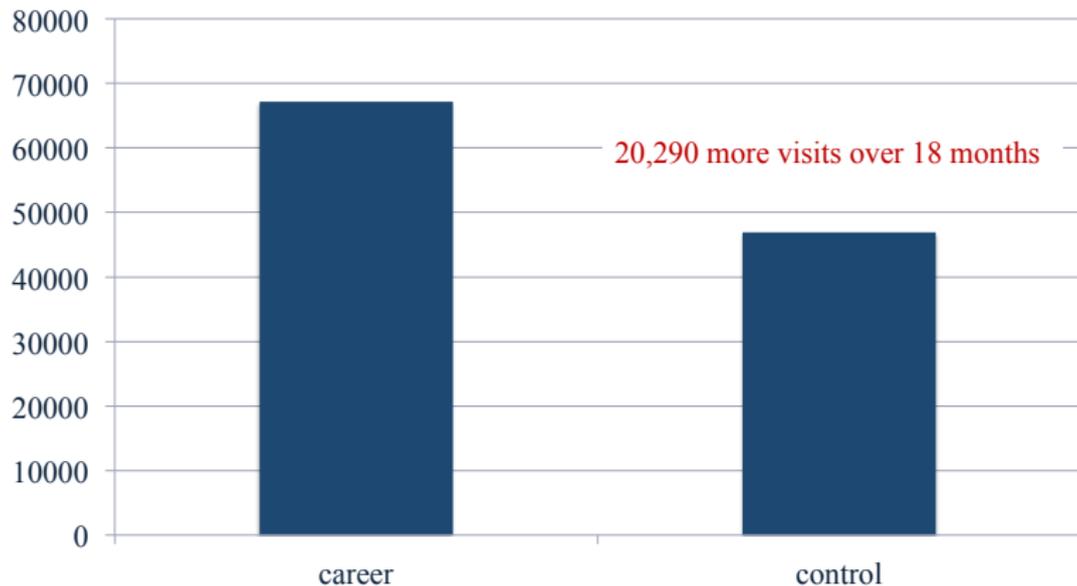
**Clinical Medicine**

**Become a CHW to gain skills and boost your career!**

# Treatment and control districts are similar

- ▶ Same eligible population
  - ▶ 4% eligible, of which 13% unemployed, 8% housework, 30% self-employed (mostly farming), 34% employees
- ▶ Same area characteristics
  - ▶ 1.5 staff at health post, low density
- ▶ Same target population
  - ▶ education, wealth, access to safe water and sanitation

## Career incentives attract agents who do 31% more visits



Source: SMS receipts sent by CHAs

## Do control CHAs outperform on other dimensions?

- ▶ Do more community mobilisation/work at HP?
- ▶ Remain in post longer?
- ▶ Focus on hard-to-reach households?
- ▶ Longer visits?
- ▶ Better targeting within households?
- ▶ Work longer hours doing something else?
- ▶ More responsive to emergencies?

## Do control CHAs outperform on other dimensions?

- ▶ Do more community mobilisation/work at HP? **No**
- ▶ Remain in post longer? **No**
- ▶ Focus on hard-to-reach households? **No**
- ▶ Longer visits? **No**
- ▶ Better targeting within households? **No**
- ▶ Work longer hours doing something else? **No**
- ▶ More responsive to emergencies? **No**

## Impact on facility utilisation

- ▶ Monthly HMIS data (facility level) show that in treatment areas:
  - ▶ institutional deliveries go up by 31%
  - ▶ children visits at HP go up by 24%
  - ▶ children weighted at HP go up by 22%
  - ▶ under 1yr-olds receiving polio vaccination go up by 20%

# Impact on health outcomes

- ▶ HH survey data show that in treatment areas:
  - ▶ breastfeeding goes up by 8%
  - ▶ deworming goes up by 15%
  - ▶ children on track with immunisation go up by 81%
  - ▶ **share of underweight children goes down by 25%**

# Summary

- ▶ First evidence of the impact of selection on public services delivery effectiveness
- ▶ Career incentives attract candidates who perform better and difference cannot be explained by observables
  - ▶ -> importance of incentive design at the recruitment stage
  - ▶ -> existing estimates might understate incentive effects
- ▶ Allay concern that offering material rewards for public service delivery displaces applicants with desirable preferences and worsens performance.
- ▶ Key issues for external validity:
  - ▶ Nature of job is full time service delivery
  - ▶ requirements designed to ensure close link to community
  - ▶ material benefits we offer might not attract selfish types

## Welfare implications

- ▶ wage bill gains might compensate for performance losses (here all CHAs are paid the same) although sign of difference in reservation wages is ambiguous
- ▶ some career CHAs will eventually be promoted  $\rightarrow$  compare having a “good” CHA for  $X$  years vs. a “not so good” CHA for (potentially)  $Y > X$  years
- ▶ depends on what “good” CHA would do after leaving their position, whom they replace, and who they are replaced by
- ▶ in this context personnel shortages at every level of the hierarchy and many potential applicants

## The lessons so far and some speculation

- ▶ **Virtuous Cycles:** Find and harness underutilised talent in the delivery of public services: Health $\leftrightarrow$ Human Capital
- ▶ Leveraging **Monetary vs Non-Monetary Motivation:**
  - ▶ Not the same tradeoff that is often assumed, but can make biggest impact by leveraging what is scarce in the environment: career opportunities vs social impact
- ▶ Possibility of creating organizational culture through selection and incentives?