

Organizational mission, financial rewards and performance of bureaucrats ^{*}

Muhammad Yasir Khan [†]

June 17, 2020

Abstract

Motivating bureaucrats to exert effort on their job is a central problem for many public sector organizations. In partnership with the health department in Pakistan, we study if bureaucracies can use the organizational mission to incentivize workers and compare the effectiveness of this strategy with a performance-based bonus scheme. We record four main results that shed light on how the public sector should design personnel policies. First, communicating the organizational mission is a viable strategy to motivate workers. Those who receive the mission treatment are five percentage points more likely to perform their duties and those that receive a performance-based bonus improve by nearly 10 percentage points, compared to control. The improvement in performance on extensive margin also leads to better health outcomes for children. Second, mission improves performance along multiple dimensions including teamwork and multiple tasks while bonus only improves it along the dimension linked directly to rewards. Third, providing a bonus in the presence of a mission lowers the effectiveness of bonus. Workers in this group serve 11 extra households, as opposed to 16 extra households in just the bonus group. Finally, the main channel for the mission to motivate workers is through their beliefs about the importance of mission for their work, and workplace norms do not appear to be strong drivers of behavior.

^{*}This is a preliminary draft. I would like to thank Ernesto Dal Bo, Fred Finan, Reed Walker, Raul Sanchez de la Sierra, Guo Xu, Ted Miguel, Ned Augenblick, Dmitry Taubinsky, Michael Callen, Saad Gulzar, Aprajit Mahajan, Noam Yuchtman and Karrar Hussain for their useful comments. This research has been funded by International Growth Centre, Institute for Business Innovation, Center for Effective Global Action, Weiss Family Fund and Oliver Williamson Fund.

[†]PhD Candidate, Haas School of Business, University of California, Berkeley. Email: yasir.khan@berkeley.edu

1 Introduction

Getting agents to exert optimal effort is a central challenge for all organizations. Many rely on financial incentives, such as pay for performance, to get optimal effort from agents (Holmström 2017). But incompleteness of contracts due to multiplicity of tasks and principals, especially in bureaucracies and public sector organizations, compound the challenges of incentivizing workers using purely financial instruments (Dixit 2002). However public sector organizations have an opportunity to address the challenge using features of their organizational design. One such feature is the motivation of people who become bureaucrats Cowley and Smith (2014).

Personnel that join the public sector are more likely to be driven by the idea of what they do (Francois 2000; Prendergast 2008; Cassar and Meier 2018) and who they work for (Akerlof and Kranton 2005), providing an opportunity to use organizational mission as incentive for workers (Besley and Ghatak 2005a). But emphasizing the mission also presents a challenge to the design of incentives due to the *crowding-out* of motivations when financial rewards are mixed with pro-social signals about the job Deci et al. (1999); Gneezy et al. (2011); Cassar (2018). Further, we do not have a good grasp of whether the mission faces the same pitfalls as the ones faced by performance linked-monetary incentives, such as the problem of multi-tasking (Glewwe et al. 2010) or effort in teams (Holmstrom 1982). In this paper, we explore the question of whether bureaucracies can use organizational mission as an incentive for workers, how does it interact with performance based financial incentives, and what dimensions of effort does it influence?

We partner with District Health Officer (DHO) in Haripur Pakistan to develop and introduce an organizational mission for the community health workers in the district. Workers are introduced at random to the mission through a short video of the DHO describing it. This is followed by three monthly *reflection* sessions with a facilitator to discuss the mission and share experiences that relate to it. A second set of workers are given an opportunity to earn a performance-based financial bonus every month for three months. These two treatments are also cross-randomized. Lastly, provide a placebo treatment to some workers in the form of refresher trainings, also part of the mission treatment, to rule out alternative explanations such as learning and socialization.

We measure how these treatments influence on the job behavior of workers with an independent survey of households in their communities. Independent teams visit ten randomly selected households in each community every month to ask if the workers had visited them during the calendar month and, what did they do on the visit? As the treatment continues for three months, we collect performance information simultaneously during these three

months. We also undertake a survey a month after the treatment is shutdown to study the persistence of any effects.

When a worker is introduced to the mission they respond by adjusting effort to improve their performance along the lines of the mission statement. Over three waves of the survey, workers in the mission treatment are 5 percentage points more likely to visit a household in their community, over a baseline rate of 35.5 percent in the control condition. In the pure financial incentives group, workers are 10.1 percentage points more likely to visit a household. Even though the effect of the mission is smaller than the effect of financial incentives, it is still economically and statistically significant. This provides evidence that a resource-constrained public sector organization can get the workers to improve their performance if it invests in signals about the mission of the organization.

We also investigate what happens when the two types of incentives are provided together. This is important to understand because the mission and financial incentives are jointly adopted in many organizations. We study this by including treatment with both mission and performance-based bonus in the experiment. We find evidence for crowding out motivations (Gneezy et al. 2011; Deci et al. 1999), however, surprisingly the crowding-out appears to be of financial motivations. We find that workers in this group improve their performance by 6.7 percentage points. This is significantly higher than the control condition and marginally higher than the workers in the mission group. However, it is 3.5 percentage points lower than the group that receives just the bonus. This suggests that financial incentives may not be as efficient in a mission-driven organization as in an organization without a mission.

Adoption of a mission by managers can spur change in the behavior of workers in two primary ways. One, it may lead to workers getting more motivated to perform their jobs due to mission itself. For example, the workers now draw utility from the working for an organization that cares about the larger mission instead of just following bureaucratic rules (Besley and Ghatak 2005b). Second, the adoption of a pro-social mission may influence norms of effort attached to the organization. Workers may expect that with the mission, their co-workers may become motivated and exert more effort on their tasks. This will change the norms of acceptable effort.

We explore if any of these mechanisms are at play as a result of the mission by randomizing the mission treatment to be delivered in private or a group setting. Providing treatment in private limits the expectation about co-workers, that is, private delivery of treatment does not influence the expectation of changes in norms whereas public meetings influence both preferences and norms. We find that private treatment leads to a 4.7 percentage point increase in the probability of a household being visited by a worker. When the treatment is delivered in public, we get an effect size of 5.2 percentage points. However, we cannot tell

apart the two channels as the difference between public and private treatment groups is not significant.

This paper provides evidence of a causal link between organizational mission and performance of workers. It develops on (Besley and Ghatak 2005a)’s idea that organizations can use the mission as an incentive to attract mission-driven labor by showing that even workers who have already selected into a public organization respond if their organization orients itself as mission-driven from a purely bureaucratic organization. The study is closely related to Ashraf et al. (2018) but contrasts from it by studying the role of the mission against a status-quo of bureaucratic organization and also by focusing on workers who are already part of the organization.

It has been established in the literature that workers shirk and under-perform in many developing countries (Chaudhury et al. 2006). Several studies have tried to address the problem using strategies such as increasing financial incentives (Khan et al. 2016; Muralidharan and Sundararaman 2011; De Ree et al. 2018; Dal Bó et al. 2012; Duflo et al. 2012) or making workers more accountable through investments in monitoring systems (Callen et al. 2016; Banerjee et al. 2008). We contribute to this literature by moving beyond the financial incentives and monitoring debate. We argue that how an organization communicates with workers can be a motivating factor for its workers.

Lastly, the paper contributes to the literature on crowding-out behavior (Frey and Jegen 2001; Deci et al. 1999; Gneezy et al. 2011) by providing evidence that such behavior can be observed in public organizations. It points to the importance of taking into account the motivation of workers when designing performance-based financial incentives, as this could lead to potential wastage of resources.

In the rest of the paper, we first explain the context and our subject population followed by details of the experiment. In the section before the conclusion, we discuss the main results and possible mechanisms before wrapping up the discussions in the conclusion section.

2 Context

2.1 Community Health Workers

Community health workers, called Lady health workers (LHWs), are the backbone of preventive and basic health care in Pakistan. This cadre of workers was established as a special program in 1993 with a strength of 96000 workers across the country (Jalal 2011). In the province of Khyber Pakhtunkhwa, the status of the program was changed from a special program in 2014 thereby regularizing 13500 workers to become permanent employees of the

Health Department¹. This regularization provided service structure to the workers with a path to retirement and pension, but most importantly protection against firing from the job as is afforded to all public servants.

Responsibilities: Workers' primary responsibility is to provide preventive and primary health care services to the households at their door step. They live in the community and work out of their house to provide these services. A lynch pin of the preventive service delivery is the requirement that the LHW visit each household at least once a month. A bulk of their core duties are focused on providing basic services to new and expecting mothers, and their children. Besides the basic duties, the workers are also tasked with ad-hoc responsibilities such as screening households for tuberculosis, coordinating with staff of immunization program for organizing vaccination camps in their communities, and implement Dengue prevention strategies. They are also called upon to perform duties that are not directly linked to health service provision.

Even though every household in the community is required to be visited once a month by the LHW, and on paper that appears to be the case, in practice the probability of a visit is much lower. This means many in the rural areas miss out on basic and preventive health services, leading to dismal health indicators for the country. ²

Organization: Health Department is headed by a Secretary at the province level. At the operational level, the program is organized along district lines. The department is headed by a District Health Officer (DHO) in each district. The DHO office manages the clinics, hospitals and all the staff of the department within the district. Each public hospital acts as the mother facility for 18 LHWs, on average. The LHWs report once a month to the clinic to submit their data and collect the stock of medicine. In the field, they are monitored by a supervisor who validates that households are being visited by them.

Due to bureaucratic nature of the organization, senior managers' (DHO) communications to the staff are focused on procedural requirements that emphasizes paperwork.³ This leads to a situation where despite having a very pro-social task to perform, the workers are focused

¹Zahir Shah shirazi, "KP regularizes the services of 13500 Lady Health Workers", Dawn, 20 September 2014, <https://www.dawn.com/news/1133176>

²Pakistan has a maternal mortality rate of 178 and under-five mortality rate of 81 (Unicef Country Profile), and only 55% children are fully immunized in Khyber Pakhtunkhwa.

³Appendix Figure A2 shares a publicly available picture where the senior most government official in a district is supposedly monitoring a mass , door-to-door, vaccination campaign by examining the paperwork in an office that can not be verified without visiting households.

on making sure the paperwork is complete first and foremost. This disheartens several workers who figure out that their managers care more about procedural compliance compared to the actual health service provision, this adversely affects their motivation for the job reflected in their performance.

3 Details of Experiment

We design an experiment to study the role of organizational mission in motivating workers and compare it with more traditional financial incentives. The experiment is implemented in partnership with the Health Department in Haripur Pakistan for three months. In this section, we provide details of the experiment.

3.1 Treatments

This study has two main treatments: organizational mission and financial incentives, that are further divided into sub-treatments based on how they are delivered or interacted. Besides the two main treatments, we also have placebo conditions and pure control. In this section, we briefly describe each of them.

3.1.1 Organizational Mission

We develop a mission statement for the workers in partnership with the district health officer. The statement is narrated and endorsed by the DHO in a short video clip. This video is shown to the workers in the treatment. They are asked to discuss and dissect the mission as per their understanding, and deliberate over how it relates to their daily tasks. A facilitator helps the workers in this discussion, ensuring that these treatment sessions are participatory to give workers an opportunity to internalize the organization mission and their relation to it. The facilitators meet workers three times over the course of the project, once every month for sessions lasting about three hours.

In the first meeting, the mission is introduced through the video of the DHO ,and in the subsequent meetings workers are facilitated to deliberate over it and share personal experiences to contextualize the mission in their job. The facilitator complements these mission sessions by providing a refresher training that reviews basic concepts of preventive health care. These topics relate to the services that LHWs provide in daily duties, and that are routinely organized by the department itself. Inclusion of refresher training helps us to include a placebo treatment to rule out alternative explanations for any effect that we see.

We further divide the main mission treatment in to three sub-treatments to explore some mechanisms. The first group receives the mission treatment in a public setting. Workers are gathered at one location where the facilitator introduces the mission in group setting and facilitates a discussion as described above. The facilitator also makes an announcement that the sessions are not about individual performance rather they are an avenue to discuss what the Lady Health Worker program stands for. This announcement is made to explicitly shut their expectation about any performance related image concerns that they may have. In the second group, the workers in receive the same treatment as public treatment outlined above. But the facilitator makes an announcement that the group will discuss performance of the workers during the third meeting. This announcement is made to explicitly open a channel of image concern for the workers. In the third group, the treatment is delivered in private to each worker. Contents of the treatment are the same as the public group but without the variation in announcement about observability and it is delivered in a one-on-one session with the facilitator.

For main analysis, we will discuss the treatments as one mission treatment and only return to the sub-treatments when we discuss the mechanisms in section 4.5.

3.1.2 Performance based Bonus:

We provide an opportunity to selected workers to complement their income by earning a monthly performance based bonus. Workers are informed at the start of the project that they have been selected for this opportunity by the department on pilot basis. The bonus amount is linked to the number of households the worker visits in a month. They can earn Rs. 25 per household per month for every additional household visited over and above their routine visits (in baseline), up to 20 additional households. We use the month of November 2018 as a baseline. Workers can get the maximum bonus of Rs. 500 if they visit 20 additional households or run out of households in their area, that is, they visit all households assigned to them.

$$w_{ij} = \begin{cases} 25 * x & x < 20 \\ 500 & x \geq 20 \\ 500 & x + h = H \end{cases}$$

w is bonus earned by worker i in month j when they visit x households over and above the number of households visited in baseline h , out of total assigned households H .

Bonus and Mission Sessions: In this sub-treatment we pair mission public sessions and financial bonus to the workers. Workers are informed that they have been selected for a

bonus program and are invited to the public mission sessions. The bonus payments are made after the public session ends.

3.1.3 Placebos and Control:

In order to rule out alternative explanations we include placebo treatments and a pure control group in the experiment.

Placebo: A basic group meets in a public setting and receive refresher training on the basic services the workers provide to the communities. The refresher training contents are the same as those delivered in the mission treatments. We also divide this treatment in sub-groups based on whether an announcement about performance is made or not. Following the mission treatments, in one group we explicitly announce that there will be no discussion on the performance of workers related to the refresher training and in a second groups, workers are informed that the group will discuss their performance in the third meeting.

Control: The pure control workers do not receive any visits or participate in group sessions.

3.2 Sample and Design:

We randomized 710 Lady Health workers into treatment conditions as shown in figure 5. The randomization was done at the individual level but block stratified at the facility level. Table 5 reports the number of workers in each condition, all except “placebo training, observability” treatment group had 89 workers.

3.3 Data Sources:

We use a combination of household surveys, worker surveys and administrative data to trace the effect of treatments on performance. Our main outcome of interest is whether a worker visits a house. This is followed by non-visit outcomes and finally if the experiment had any meaningful impact on the health of the communities.

Household Surveys: We surveyed 10 randomly selected households in the target community of each worker. The households were selected through a randomization carried out in the field. The survey was administered to women respondents by female enumerators. Each household was asked if the LHW visited them in the previous calendar month. We also collect information on the health of children, their vaccination status and other activities of the worker. The households were re-sampled after the first follow-up survey. The surveys

were administered every month from April to June 2019, while the baseline was administered in November 2018.

Worker Surveys: A baseline survey was administered to the LHWs in January 2019. This survey collected socio-economic information of workers before the experiment started. An endline survey of workers was administered in June 2019. This survey collected information on beliefs of workers regarding mission, its importance and their identification with their organization. Finally, a post-endline survey was administered a year after completion of the project. This survey collected information on further beliefs of workers as well as allowed us to administer a lab in the field experiment with them.

Administrative Data: To trace the effect of treatments on the health outcomes of the communities, we rely on administrative data. One year after the treatment we collect data on child mortality and weight-for-age data of children workers.

3.4 Randomization Balance

Table 5 reports the balance of randomization along multiple variables. Second part of the table reports various hypotheses, starting with a joint orthogonality test which confirms that treatment does not predict performance or community characteristics at the baseline. We also report a t-test of coefficients of all treatment conditions against pure control.

The table also provides a snapshot of how the performance of workers look like in the absence of intervention. Workers are assigned on average 156 households to serve. They visit roughly 38 percent of the households in a given month by walking up to about 15 minutes from their own residence. Every third household has a pregnant women and every second household has a child.

4 Analysis

In this section we report the analysis of the experiment, focusing on the questions of whether organizational mission improves performance and how it compares to financial incentives. We first describe the estimation strategy to study these questions and then move to the results section.

4.1 Estimation

We use the probability of a household being visited by a worker as the main outcome. The data used is collected through a survey of households as described in 3.3. The survey was administered in communities of 710 workers. We run the following regression to estimate the effects.

$$V_{ijm} = \beta_0 + \beta_1 * Mission_j + \beta_2 * Bonus_j + \beta_3 * Bonus + Mission_j + \beta_4 * Placebo + K + M \quad (1)$$

Equation 1 presents the baseline estimation to be used in this paper. V_{ijm} is a dummy that takes a value of 1 if household i is visited by worker j in period m . *Mission* and *Bonus* represent dummies for the two main treatments. *Placebo* takes a value of one for the placebo treatments. We include strata K dummies to absorb strata specific variation in the data and baseline performance control M . In this estimation we pool all different sub-treatments of the mission into one treatment, and also pool the two placebos into one.

β_2 will provide us the effect of mission on performance of workers in comparison to pure control. It gives percentage point increase (or decrease) in the probability of visiting a household in the mission treatment group over and above the pure control. Similarly β_3 gives the effect of bonus on performance of workers as measured through the probability of visiting a household. β_4 gives the effect of two treatments combined (note: it is not an interaction term rather takes bonus+mission as a separate treatment). The design enables us to study whether mission and financial incentives work as substitutes or complements by looking at the combined effect of the treatment for the interacted group.

$$\begin{aligned} V_{ijm} = & \beta_0 + \beta_1 * MissionPublic, NoObs_j + \beta_2 * MissionPublic, Obs_j \\ & + \beta_3 * MissionPrivate_j + \beta_4 * Bonus_j + \beta_5 * Bonus * Mission_j \\ & + \beta_6 * Placebo_j + \beta_7 * Placebo_j, Obs + K + M + \epsilon \end{aligned} \quad (2)$$

We further explore the mechanisms through which a worker may change her behavior in response to the introduction of mission, by exploiting sub-treatments in the experimental design. We use equation 2 for estimation. *MissionPublic, NoObs* is an indicator for the public mission treatment where performance of worker is not to be discussed, and *MissionPublic, Obs* is an indicator for public delivery of treatment that also varied the perception of workers about observability of their performance. These two treatments together provide the effect of changes in preferences and beliefs about common knowledge of the mission. The common

knowledge of mission is essential if workplace norms change that can influence how workers respond to the mission. The response can be influenced just by the knowledge that norms may be changing (coefficient β_2 of *MissionPublic, NoObs*) and by a combination of knowledge about norms plus the desire to have an image that conforms to these norms (coefficient β_3 of *MissionPublic, Obs*). If we shut down the common knowledge path of influence we are left with a change in preferences as the only reason for change in behavior. This is given by β_4 of *MissionPrivate*, where only workers expectation about common knowledge are controlled through private delivery of treatment.

4.2 Effects on Household Visits

We study whether mission acts as an incentive for workers to improve their performance in terms of visiting more households, and if it does, how do the traditional incentives in the form of bonus perform in this same environment.

Table 4.2 presents the main results based on estimating equation 1. Each column in Panel A presents results of a separate regression. We control for block and survey wave fixed effects. Since we have data on ten households per community in each wave of survey but the communities are of different sizes making some workers responsible for more or less households compared to the average, the regressions use probability weights to make the data representative of the sample. Column (1) reports the results of estimating equation 1 without controlling for the baseline performance of workers. Whereas column(2) controls for the baseline performance to achieve higher precision.

The mission treatment, improves workers performance by 5.1 percentage points if we don't control for the baseline performance as shown in row A of Column (1). The effect of mission changes only slightly when we add baseline controls to the regression, as shown in Column (2). These workers improve visits by 5.7 percentage points over the control. This shows that organizational mission does indeed work like an incentive and senior managers can motivate workers to exert extra effort on their job if they clearly communicate the mission. This extra effort translates into about eight additional visits over the control condition in a given month.

Performance-based financial incentives also strongly influence the performance of workers. The effect size is almost double that of the mission treatment, at 10.1 percentage points when not controlling for baseline performance and 9.8 percentage points when we control for the baseline. This result suggests that workers visit about 16 additional households when they can earn a bonus based on their performance.

Based on these two main results so far, not surprisingly, financial rewards extract more

effort from workers compared to the non-financial, mission treatment. However, introduction of a relatively cheaper pro-social mission manages to get almost half of the effort as financial incentives. Also, going by the low performance rates there is room for improvement even after the large effects of financial incentives. Given this, and the fact that organizations may combine financial incentives with emphasis on the pro-social mission of organization, the natural next question is what happens if an organization were to provide both types of motivations? that is, provide a performance based incentive and adopt a pro-social mission.

Table 1: Effect on Household Visits

<i>Panel A</i>	Dep. Var: Household Visit	
	(1)	(2)
A: Mission Treatment	0.051*** (0.012)	0.057*** (0.011)
B: Bonus Treatment	0.101*** (0.015)	0.098*** (0.014)
C: Mission + Bonus	0.068*** (0.014)	0.069*** (0.013)
D: Placebo	0.013 (0.012)	0.012 (0.012)
Control Mean	0.353	0.353
# of Households	21327	21327
# of Workers	710	710
Block & Wave F.E.	✓	✓
Controls	-	✓
<i>Panel B</i>	p-Values of Hypotheses	
A - D = 0	0.000	0.000
A - C = 0	0.128	0.228
B - C = 0	0.029	0.025

Notes: Standard Errors are clustered at the worker level. Each regression uses randomization block and survey wave fixed effects. Results in column (1) do not control for the baseline performance, while column (2) does include it as a control. Panel A reports the effect of each treatment on performance of workers in terms of probability of a household visit, while Panel B reports the p-values of hypotheses that test for the effects of two treatments to be the same.

Row “C” of Table 4.2 shows the effect on probability of a household visit when workers are provided financial incentives along with the mission treatment. The effect of combining

the two treatments is large and statistically different from the control condition. These workers improve by 6.8 percentage points above the control condition. However, despite the treatment motivating workers to improve performance, the effect is smaller than the group that received just the financial incentives. This result suggests that organizations can not use two treatments to compliments each other.

Magnitude of the coefficient on Mission+Bonus suggests a crowding-out effect on the motivations of the workers. However, unlike the traditional expectation of financial incentives crowding out the non-financial motivations, it appears that provision of financial incentives on top of organization adopting a pro-social mission reduces the effectiveness of the bonus. The effect of receiving two treatments is higher than just receiving the mission but it blunts the effect of financial incentives by almost 3 percentage points and this difference is statistically significant.

It is note worthy that the difference between the bonus and the bonus+mission treatment is not driven by a ceiling effect. If the ceiling effect was at play, the workers in group receiving both mission and bonus would have improved by as much as the bonus only group. Instead, their performance is lower than the bonus only group rejecting the possibility of a ceiling effect.

In summary, these changes in performance of workers due to all treatments are not only statistically significant but they also translate in to valuable services being extended to sizable number of households.

4.2.1 Sustainability of Effects

We next explore whether workers internalize the message conveyed through the treatment about their mission? It is entirely possible that workers stay motivated as long as the managers keep the communication channels open with them and as soon as the managers turn attention to something else, the previously achieved motivation from organizational mission disappears.

To study whether the effect of mission treatments is sustainable, we announce at the end of three months that the workers will not be meeting again to discuss the organizational mission, and that they will also not receive any bonus for working harder. However, we still tracked their performance through a survey of households to see if they continued their visits. This can be considered a strong test of sustainability because we did not quietly stopped the treatments instead it was done with a very clear announcements.

Appendix Table A shows the effect of treatment on the probability of a household visit a month after the treatments were ended. We find that workers who received the mission continued to serve their communities with a higher effort. Their performance was higher

than the pure control by 3.8 percentage points. The effect of financial incentives, not surprisingly, went down significantly from 9.8 percentage points (as reported in Table 4.2) to 1.2 percentage point. Lastly, the effect of both treatments combined also went down but it stayed above the effect of just the bonus treatments at 2.7 percentage points.

4.2.2 Alternate Explanations:

We have established that introducing a pro-social mission to workers of a public sector organization motivates them to improve their performance. However, it is possible that the reason for improved performance is not the mission but something else that also changed for the treatment workers.

There are three main alternate explanations for the improved performance in the treatment groups. First, the treatment may act as a reminder to the workers. Since the facilitators talk about the duties of community health workers, it may remind them the main tasks and responsibilities. Second, since they work independent of each other in their communities, bringing workers together in groups for treatment may result social learning from each other. The group setting may also result in more social interaction between workers (Feigenberg et al. 2013) and also create goodwill towards the organization. This can lead the workers to become more inclined towards dispensing of their duties by virtue of having more goodwill towards the organization and its people.

We test for these alternative explanations by including in the design of the experiment placebo treatments. We have a treatment group that receives the refresher training just like the public mission treatment but do not get the mission treatment as explained in section 3.1. This treatment group is the same in every aspect to the public mission group, mimicking the discussion on key concepts and socialization but it does not discuss the mission. If these alternate reasons were behind the change in performance of workers, we would see no difference between the placebo treatment and the mission treatment.

Table 4.2 row D reports co-efficients of placebo treatments in the regressions. It is clear that the observed effects of mission are not driven by these alternate explanations, otherwise we would have see similar magnitudes between the mission and the placebo treatments. We formally test for the difference between mission and placebo treatments in Panel B of the table. We can comfortably reject the null hypothesis that the effect of mission is driven entirely but these alternative explanations.

There is an additional alternative explanation that mission treatment simply acts as a reminder about monitoring. If workers in this group were now worried more than the pure control group that they are being monitored by the Health Department, then we should see them increase their effort. During the end line survey we ask all workers to tell us whether

they think they have been monitored more intensely recently or not. We plot the mean response and confidence intervals of responses for all treatment groups in appendix Figure A5. It is clear that there is no difference in perception of workers regarding their monitoring so that can not be the main explanation for the effect of mission.

Based on results in this section, we can confidently state that the effects of mission observed in Table 4.2 are indeed due to the mission treatment only, and are not driven by other factors that are part of the treatment delivery process.

4.3 Multidimensional Performance: Team Work, Multi-Tasking, And Working in Hazardous Conditions

One of the key critics of financial incentives is the difficulty to design all encompassing rewards that takes in to account the complexity of work in most organizations, especially bureaucracies and the public sector. In this section, we explore whether organizational mission also suffers from similar issues.

We collect information from worker and household surveys to understand how mission influences performance on tasks that requires the workers to go beyond their core duties of visiting the household and may also require working as a team member with other staff. Table 4.3 reports the effect of treatments on these multiple dimensions of performance.

Team Work: In column (1), we explore the treatments influenced number of days workers dedicate to organizing immunization camps by work in team with *Vaccinators* who are trained to immunize children against preventable diseases using intravenous vaccines. These personnel work in the health facilities, however they also work with the Community Health Workers to organize immunization camps in the community to facilitate families that can not take their children to the facilities. In a survey of workers, we asked them how many days did they spend on organizing these camps during the life of the project. Workers on average, report to spend 5.9 days over three months to organize the camps in control condition. However, those in the mission treatment group spent almost half a day more on organizing the camps. In comparison, the workers who received a bonus treatment only increased their effort by 0.17 days. Combining the two treatments achieved 0.47 extra days of effort, almost the same as just the mission.

Multitasking: As mentioned in the section 2, the community workers are also given duties in addition to the main responsibilities of serving mothers and children. One such duty is to screen households for potential presence of Tuberculosis and referring them to doctors for

medical diagnosis. In order to perform this duty, the workers have to ask about presence of any person experiencing coughing in the household. In our survey, we ask respondents to confirm if the worker did indeed ask them? Column (2) in Table 4.3 reports the effect of treatment on the probability of performing these additional tasks. Here again we find that mission and mission+bonus treatments motivated workers to exert additional effort on multi-dimensional tasks as they are 3.8 and 2.9 percentage points more likely to screen the households for Tuberculosis.

Effort in the Context of Covid-19: One year after the experiment, we conducted a survey of workers. This survey was done during the time of Covid-19 spread in Pakistan. We asked the workers if they have been informing the community about the pandemic and how to prevent the spread? The result of this analysis is reported in Column (3) of the table. We do not find the treatment to have any effect on performance related to Covid-19. There are two possible interpretations: first, these are self-response data related very directly to the duties of workers which is why we do not see any effect. Second, it is possible that workers have selflessly been exerting effort to protect their communities in the times of unprecedented health crises. We believe this second interpretation, given how the health service providers from around the world, including Pakistan, have been performing their duties at great personal risk.

Table 2: Effects on Group Work and Multi-Tasking

Dep. Var:	Vaccination Camps (Days)	Tuberculosis Screening	Covid-19 Visits
	(1)	(2)	(3)
A: Mission Treatment	0.468* (0.266)	0.038*** (0.012)	-0.009 (0.026)
B: Bonus Treatment	0.167 (0.326)	0.011 (0.015)	0.002 (0.032)
C: Mission+Bonus	0.476 (0.326)	0.029* (0.015)	0.008 (0.032)
D: Placebo	-0.290 (0.282)	0.009 (0.013)	-0.021 (0.027)
Control Mean	5.939	0.360	0.710
# of Observations	702	21327	707
# of Workers		710	
Data Source	Worker Survey	HH Survey	Worker Survey

Notes: Each column reports effect on outcome mentioned in the column header. Columns (1) use data from household surveys. Columns (2) and (3) use data from the workers. These two are self reported measures. Each regression uses randomization block fixed effects and Column (1) uses wave fixed effects as it uses data from multiple waves of survey.

4.4 Health Outcomes

In the previous sections, we showed that workers increase their effort on the job in response to mission treatment and the bonus. While the workers who received performance based bonus did so only on the core job linked to the bonus, those that participated in the mission improved effort along multiple dimensions. We now trace if this increase in effort also led to an improvement in the health outcomes in the communities of health workers. We examine results on four measures of outcomes that include incidence of diarrhea, vaccination rates of children, weight-for-age of children, and child mortality.

We study diarrhea because that is the most basic preventable disease that the community health workers can influence through focus on transferring knowledge about prevention (such as importance of clean drinking water) and cure (such as using dehydration solutions). Our focus on vaccination rates help us understand if the multidimensional effort of workers translate in better protection for children against deadly but preventable disease. Data for these two outcomes was collected directly from the households through the surveys conducted during the experiment.

We also explore effects on the more standard measure of health outcome in the form of weight-for-age and under-five child mortality. To study these outcomes, we rely on administrative data reported by the workers to their supervisors.⁴

Incidence of Diarrhea: In the end line survey of households, we ask the respondents to tell us whether children under the age of two had faced any bouts of diarrhea during the last three months. We record construct a dichotomous variable taking value of one if they answered non-zero incidences and zero otherwise. Column (1) in table 4.4 reports the effect of treatment on the incidence diarrhea in the households. Mission and bonus treatments substantially reduce the incidence of diarrhea in the communities.

Vaccinations: In the monthly survey of households, we collect information on the proportion of children, under the age of two, who have been vaccinated according to the schedule of vaccinations recommended by the Health Department. Vaccinations are not a direct output of the workers, rather they are the result of the demand from parents and supply of vaccination services from the health department. This outcome is linked to the teamwork effort discussed in section 4.3, since workers can influence the vaccination rates by making sure that parents are educated about the need for vaccination and that there is a service available

⁴Our original plan was to collect complete information to estimate stunting and malnutrition through a survey of households. However, due to the global pandemic caused by Covid-19 we could not undertake the survey and instead, decided to use the available administrative data.

in the form of immunization camps if they wish to vaccinate their children. Column (2) in table 4.4, reports that mission and mission+bonus treatment had a significant effect on the proportion of children getting vaccinated as per the recommended schedule. Importantly, the bonus treatment did not influence this outcome. This indicates that the effect of mission on vaccination rates may have been channeled through the additional effort that the workers in the mission group exerted in teamwork with the vaccinators as discussed in section 4.3.

Weight-for-age and Child Mortality: Column (3) reports the effect on weight-for-age and child mortality respectively. We follow the WHO guidelines on measuring the proportion of children who have a weight less than 2 standard deviation below the reference population to measure moderate under-weight. This data is available for 543 workers only but the distribution of availability is not correlated with treatments. We find that all treatments reduced the proportion of children that are underweight compared to the control conditions.

Column (4) reports the mortality rate of children. This is calculated by counting the number of children under the age of reported dead during the year since the start of the experiment as a proportion of total children born. The effect of all treatments appear to be in the direction of reducing mortality of children. However, they are not large enough to be statistically significant.

Table 3: Effects on Health Outcomes

Dep. Var:	Incidence of Diarrhea	Timely Vaccinations	Weight ≥2 SD	Child Mortality
	(1)	(2)	(3)	(4)
A: Mission Treatment	-0.069* (0.035)	0.029*** (0.011)	-0.050** (0.020)	-0.003 (0.002)
B: Bonus Treatment	-0.093** (0.039)	0.012 (0.012)	-0.045* (0.024)	-0.001 (0.003)
C: Mission+Bonus	-0.073* (0.039)	0.030** (0.012)	-0.050** (0.024)	0.001 (0.003)
D: Placebo	0.000 (0.036)	0.009 (0.011)	-0.010 (0.022)	-0.001 (0.002)
Control Mean	0.164	0.889	0.145	0.003
# of Observations	2296	5144	2715	703
# of Workers	685	710	543	703
Data Source	HH Survey	HH Survey	Admin	Admin

Notes: Each column reports effect on outcome mentioned in the column header. Columns (1) and (2) use survey data collected during the experiment. Columns (3) and (4) use administrative data collected one year after the completion of experiment. Each regression uses randomization block fixed effects and Column (2) uses wave fixed effects as it uses data from multiple waves of survey.

4.5 Mechanisms:

We now examine what could be the possible channels through which organizational mission may influence behavior of workers. First, we examine if the main channel is through social norms in the organization or through direct preferences, especially regarding importance of the mission.

4.5.1 Social Norms

When an organization adopts a pro-social mission and the managers convey it to the workers, it is possible that the workers' change behavior due to their preferences of working for a mission-driven organization. That is, they now care more about their work and draw utility from performing their tasks without getting an explicit financial incentive. But it is also possible that workers may take the introduction of an organizational mission as a signal for new norms in their workplace. Even though organizational mission may not directly feature in their preferences, they can update behavior in accordance with the dictates of the new workplace norm. This will also result in an improved performance if the expectation of the new norm is to increase effort.

We try to disentangle these channels through the design of the experiment. As discussed in section 3.1, we deliver the mission treatment in two different ways. One set of workers receive the treatment in private, one-on-one, interactions with a facilitator. With this treatment we restrict the knowledge about others receiving the treatment. This helps us shut down the channel of expectations about workplace norms. Since workers are based in communities and work out of their homes, we are confident that private treatment limits common knowledge about mission. However, given that this is not a laboratory study, we cannot completely rule out that workers form expectation about common knowledge of organizational mission.

A second set of workers receive the treatment in public groups, where we try to establish that mission is common knowledge. The effect of mission on this group will be a combination of changes in preferences and expectation about the new norms. Differencing the effect of private treatment from public should give us the marginal effect of changes in expectations about norms.

Table 4.5.1 reports the result of regression using equation 2 for estimation with inverse probability weights. Column (1) pools the two public mission treatments. First thing to note is that, both public and private treatments lead to very similar effect. We test for the difference between the two to get the effect of mission through changes in social norms. The test is reported in the second part of the table in Column (1). We cannot reject the

Table 4: Mechanism: Preferences and Norms

Dependant Var: LHW Visit		
	(1)	(2)
A: Mission-Public	0.052*** (0.012)	
B: Mission-Public, No Observability		0.057*** (0.014)
C: Mission-Public, Observability		0.047*** (0.014)
D: Mission-Private	0.047*** (0.015)	0.047*** (0.015)
Control Mean	0.353	0.353
# of Households	21319	21319
# of Clusters	710	710
p-Values of Hypotheses Tests		
Workplace Norms Vs Preferences		
$A-D=0$	0.679	
Intrinsic Norms Adherence Vs Image		
$B-C=0$		0.487

Notes: Standard Errors are clustered at the worker level. Each column reports selected co-efficient from a full regression as per equation 2. In the regression reported in column (1), the public sub-treatments are pooled in one and in the results reported in column (2) they are treated as separate treatments. Second half of the table reports hypothesis tests of no difference between the sub-treatments.

null that coefficients on private treatment (pure preference change) and public treatment (combination of preference change and norms) are the same. This does not mean that the norms do not play any rule, just that we cannot rule out the effect of changes in preferences to be the same as effect of changes in norms.

Expectations about changes in norms can influence a worker through further two channels. First, expecting that everyone will update their effort, a worker may change behavior without any concern for appearing to be adhering to the norm. Instead, take they take it just as a signal of how things are done or take it as a signal of what is the optimal level of effort. . But it is equally possible that workers may care about their social image. With the expectation about advent of new norms, the workers may want to appear to conform with those norms through their performance.

In column (2) of Table 4.5.1 we breakdown the public treatments into the two sub-treatments that are similar in the message about mission but control the expectations about shock to the image of workers by publicly discussing performance. Row “B: Mission-Public, No Observability” shuts down any expectation about risk to the social image of workers if they do not comply with the new norm. Estimate in row “C: Mission-Public, Observability” is the effect of mission when the workers are primed to think about their social image, and if they care, the risk to it due to non-compliance with the new norms.

While the sub-treatment have a significant effect on the performance of workers, increasing the probability of visiting a household by 5.7 percentage points in the case of no threat to image and 4.7 percentage points in the case of a perceived threat to image, the difference between the two is not significant as shown in second panel of the table against the hypothesis “B-C=0”. We cannot reject the null that both conditions have the same effect, though we cannot argue for or against the existence of image concerns and its potential role in a mission driven organization.

4.5.2 Importance of Mission

We ask workers to rank the importance of their organizational mission. Their response is recorded on a scale of 1-10, with 1 being least important and 10 standing for most important. We standardize the responses around mean response in the pure control group.

Figure 4.5.2, plots the response of workers by treatment relative to control. It is clear from the figure that one of the channels through which the mission influenced the performance of workers is that they now believe the mission to be of higher importance for their work. Taken together with the discussion in section 4.5.1, it suggests that communication from the senior managers made the workers internalize the importance of the mission, possibly through a change in their preferences.

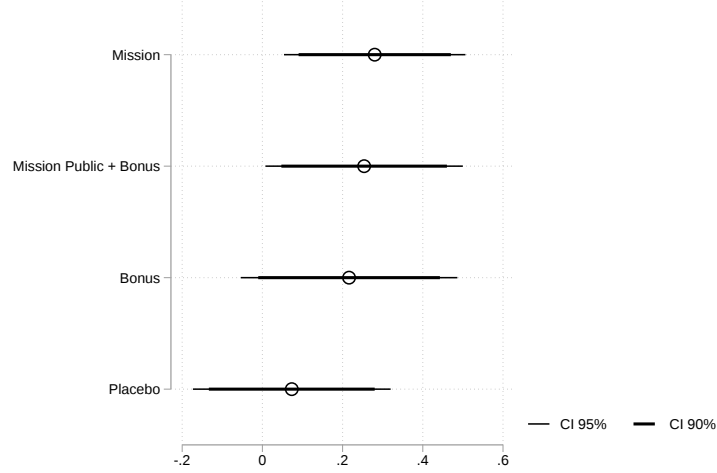


Figure 1: Importance of Mission for Workers

5 Conclusion

A significant number of people living in developing countries rely on state to provide them basic services such as health, education, and sanitation, making the service providers and front line workers one of the most important link in the development chain. Ample evidence suggest that this link is not working as well as it should have been, resulting in a wastage of resources at minimum and outright breakdown of the state at worst.

In an environment where contracts could be fully enforced, a performance linked financial incentives could potentially solve the problem. However, public sector is not suitable for a pure performance linked financial incentives (?). With this paper, we show that public sector organizations can get more effort from the workers by explicitly adopting a pro-social mission (Besley and Ghatak 2005a). We also show that the mission should not be coupled with financial incentives, as providing both incentives may lead to a crowding out of motivation.

The findings presented in this paper are relevant to many developing economies that face resource constraints and a slacking public sector workforce. It highlights the role that mid-range managers, at the level of a district, can play in mobilizing the workforce without incurring large financial outlays. But it requires the organization to invest time in adopting and communicating a clear mission to the workers. For this the public sector organizations have to shed their identity of not being driven by emotions and instead embrace the inherent *pro-socialness* in the services it provides.

References

- Akerlof, George A and Rachel E Kranton**, “Identity and the Economics of Organizations,” *Journal of Economic Perspectives*, 2005, 19 (1).
- Ashraf, Nava, Oriana Bandiera, Scott Lee et al.**, “Losing prosociality in the quest for talent? Sorting, selection, and productivity in the delivery of public services,” *American Economic Review*, 2018.
- Banerjee, Abhijit V, Esther Duflo, and Rachel Glennerster**, “Putting a Band-Aid on a Corpse: Incentives for Nurses in the Indian Public Health Care System,” *Journal of the European Economic Association*, 2008, 6 (2-3), 487–500.
- Besley, Timothy and Maitreesh Ghatak**, “Competition and incentives with motivated agents,” *American Economic Review*, 2005, 95 (3), 616–636.
- and —, “Competition and Incentives with Motivated Agents,” *The American Economic Review*, 2005, 95 (3), 616–636.
- Callen, Michael, Saad Gulzar, Syed Ali Hasanain, and Yasir Khan**, *The Political Economy of Public Sector Absence: Experimental Evidence from Pakistan* 2016.
- Cassar, Lea**, “Job mission as a substitute for monetary incentives: Benefits and limits,” *Management Science*, 2018, 65 (2), 896–912.
- and **Stephan Meier**, “Nonmonetary Incentives and the Implications of Work as a Source of Meaning,” *Journal of Economic Perspectives*, 2018, 32 (3).
- Chaudhury, Nazmul, Jeffrey Hammer, Michael Kremer, Karthik Muralidharan, and F Halsey Rogers**, “Missing in action: teacher and health worker absence in developing countries,” *The journal of economic perspectives : a journal of the American Economic Association*, 2006, 20 (1), 91–116.
- Cowley, Edd and Sarah Smith**, “Motivation and mission in the public sector: Evidence from the World Values Survey,” *Theory and Decision*, 2014, 76 (2), 241–263.
- Dal Bó, Ernesto, Frederico Finan, and Martin Rossi**, “Strengthening State Capabilities: The Role of Financial Incentives in the Call to Public Service,” 2012.
- Deci, Edward L, Richard Koestner, and Richard M Ryan**, “A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation,” *Psychological bulletin*, 1999, 125 (6), 627.
- Dixit, Avinash**, “Incentives and Organizations in the Public Sector : An Interpretative Review,” *The Journal of Human Resources*, 2002, 37 (4), 696–727.
- Duflo, Esther, Rema Hanna, and Stephen P Ryan**, “Incentives Work : Getting Teachers to Come to School,” *American Economic Review*, 2012.

- Feigenberg, Benjamin, Erica Field, and Rohini Pande**, “The economic returns to social interaction: Experimental evidence from microfinance,” *Review of Economic Studies*, 2013, 80 (4), 1459–1483.
- Francois, Patrick**, “Public service motivation’ as an argument for government provision,” *Journal of Public Economics*, 2000, 78 (3), 275–299.
- Frey, Bruno S ; and Reto Jegen**, “Motivation crowding theory a survey of empirical evidence Motivation Crowding Theory,” *Journal of Economic Surveys*, 2001, 15 (5), 589–611.
- Glewwe, Paul, Nauman Ilias, and Michael Kremer**, “Teacher incentives,” *American Economic Journal: Applied Economics*, 2010, 2 (July), 49.
- Gneezy, Uri, Stephan Meier, and Pedro Rey-biel**, “When and Why Incentives (Don ’ t) Work to Modify Behavior,” *Journal of Economic Perspectives*, 2011, 25 (4), 191–210.
- Holmstrom, Bengt**, “Moral hazard in teams,” *The Bell Journal of Economics*, 1982, pp. 324–340.
- Holmström, Bengt**, “Pay for performance and beyond,” *American Economic Review*, 2017, 107 (7), 1753–77.
- Jalal, Sabeena**, “The lady health worker program in Pakistana commentary,” *European Journal of Public Health*, 01 2011, 21 (2), 143–144.
- Khan, Adnan Q., Asim I. Khwaja, and Benjamin A. Olken**, “Tax farming redux: Experimental evidence on performance pay for tax collectors,” *Quarterly Journal of Economics*, 2016, 131 (1).
- Muralidharan, K and V Sundararaman**, “Teacher performance pay: Experimental evidence from India,” *Journal of Political Economy*, 2011, 119 (1), 39–77.
- Prendergast, Canice**, “Work incentives, motivation, and identity: intrinsic motivation and incentives,” *The American economic review*, 2008, 98 (2), 201–205.
- Ree, Joppe De, Karthik Muralidharan, Menno Pradhan, and Halsey Rogers**, “Double for nothing? Experimental evidence on an unconditional teacher salary increase in Indonesia,” *Quarterly Journal of Economics*, 2018, 133 (2), 993–1039.

Table A1: Number of Workers per Treatment Condition

	No Bonus	Bonus
Mission Public, No Observability	89	89
Mission Public, Observability	89	-
Mission Private	89	-
Placebo Training	89	-
Placebo Training, Observability	88	-
No Session	-	89
Control	89	-

Notes: Each cell represents the number of workers in that treatment condition.

Table A2: Balance Table

	Total HH Assigned	No. of Preg. Women	No. of Child. Under two	No. of Vacc. Children	LHW Visit	TB Check	Distance in mins
A. Control	155.625 (3.833)	0.276 (0.020)	0.516 (0.031)	0.502 (0.032)	0.385 (0.023)	0.297 (0.018)	15.963 (0.611)
B. Group Mission	154.326 (3.559)	0.281 (0.018)	0.493 (0.032)	0.480 (0.032)	0.361 (0.022)	0.289 (0.019)	16.275 (0.459)
C. Group Mission + Observability	157.966 (3.697)	0.280 (0.022)	0.484 (0.032)	0.479 (0.032)	0.354 (0.021)	0.281 (0.018)	16.269 (0.828)
D. Private Mission	158.517 (3.624)	0.264 (0.019)	0.474 (0.036)	0.469 (0.035)	0.344 (0.023)	0.271 (0.019)	16.373 (0.740)
E. Group Mission + Bonus	155.438 (3.833)	0.299 (0.019)	0.508 (0.035)	0.497 (0.035)	0.382 (0.024)	0.306 (0.021)	16.924 (1.315)
F. Bonus	156.213 (3.716)	0.284 (0.020)	0.565 (0.039)	0.552 (0.038)	0.391 (0.022)	0.298 (0.018)	16.691 (0.599)
G. Socialization	153.303 (3.707)	0.298 (0.021)	0.492 (0.032)	0.485 (0.032)	0.394 (0.023)	0.297 (0.019)	16.416 (0.616)
H. Socialization + Observability	156.352 (3.656)	0.278 (0.020)	0.534 (0.036)	0.520 (0.036)	0.353 (0.018)	0.265 (0.017)	16.119 (0.544)
Hypothesis tests Joint orthogonality p-value	0.98	0.94	0.71	0.79	0.59	0.74	0.99
A-B=0	0.80	0.86	0.61	0.62	0.45	0.77	0.68
A-C=0	0.66	0.90	0.48	0.60	0.32	0.53	0.77
A-D=0	0.58	0.66	0.37	0.48	0.21	0.32	0.67
A-E=0	0.97	0.41	0.87	0.91	0.93	0.74	0.51
A-F=0	0.91	0.77	0.32	0.32	0.86	0.96	0.39
A-G=0	0.66	0.46	0.59	0.71	0.78	1.00	0.60
A-H=0	0.89	0.94	0.70	0.70	0.29	0.20	0.85
# of Households	7099	7099	7099	7099	7099	7099	7099
# of Workers	710	710	710	710	710	710	710

Notes: Standard Errors clustered at the worker level.

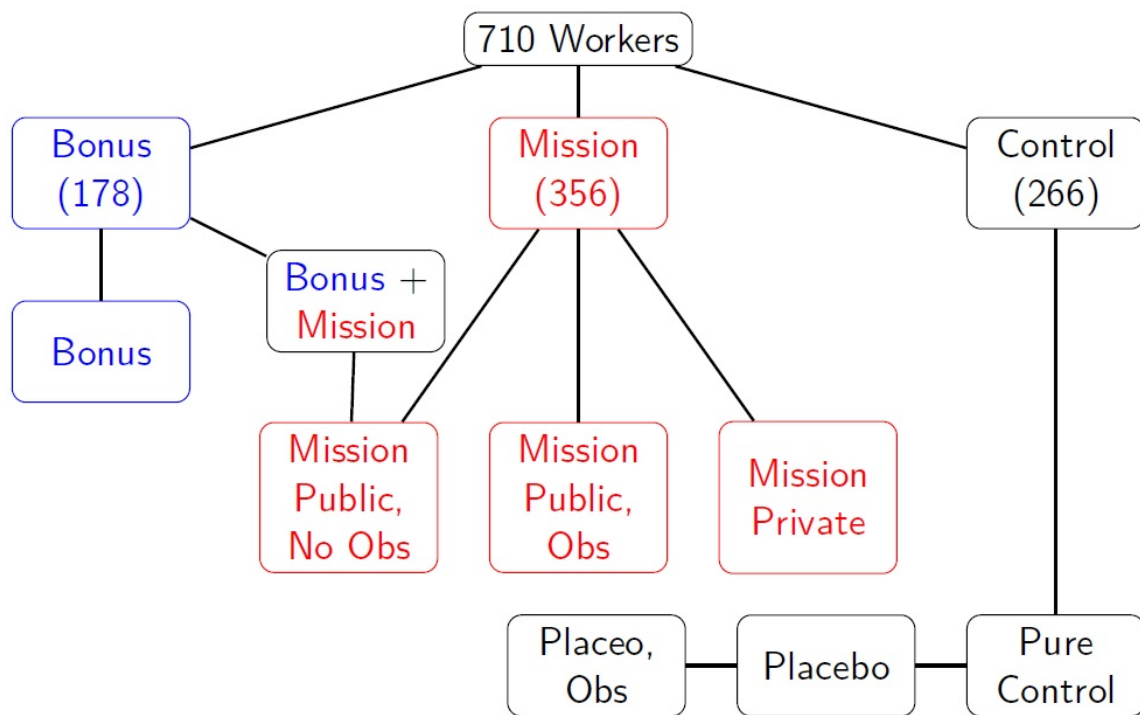


Figure A1: Design of the Experiment

Figure A2: Senior Official Checking a Mass Vaccination Campaign



Figure A3: Training Activities



Figure A4: Survey Activities



A Appendix for Effects on Visits

Table A3: Persistence of Effects

	Mission	Bonus	Mission + Bonus
Dep Var: LHW Visit (se1)	0.038* (0.021)	0.012 (0.026)	0.027 (0.026)
Control Mean	0.298	0.298	0.298
# of Households	7110	7110	7110
# of Workers	710	710	710
Block F.E.	✓	✓	✓
Baseline Control	✓	✓	✓

Notes: This table uses data from a survey of household conducted one month after the end of the project to trace the effect of treatments on household visits. Regressions control for randomization block fixed effects and standard errors are clustered at the worker level. The regression also controls for baseline performance of workers.

Figure A5: Perception of Workers About Being Monitored

