Pre-analysis Plan: Fostering Organizational Citizenship Behavior: The Role of Public Recognition

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1 Introduction

Organizations commonly rely on their members to perform supportive tasks and behaviors that go beyond their formal employment contract and are not readily monitored or enforceable (Katz & Kahn, 1966). While supportive behaviors of employees – both directed towards colleagues but also the organization itself – have been found to come with a range of positive outcomes such as an increase in employee retention, individual well-being and organizational effectiveness (Podsakoff et al., 2009), firms continuously struggle to strategically manage and stimulate such behavior.

While research has shown that monetary incentives are one potential way to align individual goals with collective outcomes, recent studies indicate that they can also undermine their primary objectives (Sliwka et al., 2021; Ashraf et al., 2020). Specifically, extant work studying incentives for prosocial behaviors, such as supporting others at the workplace, has found that monetary rewards can sometimes backfire (Gneezy et al., 2011; Wagner et al., 2020).

In this paper, we aim to test a particular non-monetary lever of employees' supportive behavior at the workplace, that is, the influence of public recognition. Doing so, we draw on literature on organizational citizenship behavior (hereafter OCB) and employee recognition and rewards.

Originating from early organizational behavior research, OCB represents discretionary behaviors that employees exhibit, which are commonly not formally contractible, but which contribute significantly to the organization's effective functioning. Examples include employees who help other coworkers, or voluntarily attending work-related events that help the organization (Podsakoff & MacKenzie, 2014). While OCB has been found to come with a range of positive outcomes such as a lower employee turnover intentions, a decrease in workplace absenteeism and an increase organizational effectiveness (Podsakoff et al., 2009), there is still a lack of clarity on how firms can strategically manage and stimulate employees' OCB.

We posit that managerial recognition can serve as a potential tool to foster OCB by signaling its value to both the firm and colleagues. To test this assumption we introduce a symbolic managerial recognition for OCB - a certificate of recognition awarded by management. Certificates can serve as a tool embodying a firm's recognition and acts as a managerial signal (Gallus et al., 2020), emphasizing the importance of OCB within the firm.

2 Testable Hypothesis

In this section, we derive testable hypotheses on how the awards affect the main outcomes of employees, namely, organizational citizenship behavior, knowledge sharing, well-being, and productivity. Our empirical predictions on the intervention – recognizing employees' supportive behavior at the workplace – are as follows:

1. The intervention increases organizational citizenship behavior
2. The intervention promotes knowledge sharing among employees
3. The intervention affects employee productivity
4. The intervention affects employee well-being

As potential mechanism, we hypothesize that:

1. The intervention improves organizational culture
2. The intervention fosters social interactions
3. The intervention increases employee willingness to ask for knowledge

3 Experimental Design

We will study the effect of unannounced, public recognition of supportive behavior on employee OCB. Following the terminology of Bénabou & Tirole (2003, p. 504), unannounced, public recognition corresponds to "discretionary" or "ex post" rewards, as opposed to "promised" or "ex ante" contingent incentives (e.g., innovation prizes).

More specifically, we introduce a symbolic managerial recognition for OCB - a certificate of recognition awarded by management. Non-monetary rewards such as certificates and awards differ from monetary rewards mainly in that they impose little material cost on the giver; they do not require an exact definition and measurement of performance; they are less likely to crowd out the recipient's intrinsic motivation; and they are more suitable for establishing special ties of loyalty and respect between the giver and the recipient (Frey, 2007).

In this project, we will introduce a certificate that will recognize employees at the bank's branches for their supportive behaviors - both towards colleagues as well as the firm itself. Awardees will be selected based on both the evaluations of co-workers and supervisors. Details on the dimensions and exact criteria will be given bellow in section 3.3.

The primary objective of this research is to causally identify and quantitatively assess the impact of publicly recognizing supportive behaviors at the workplace on employee OCB. By symbolically rewarding supportive behaviors of employees, our study aims to investigate how making such voluntary contributions visible and appreciated affects various workplace outcomes. This includes examining changes in employee motivation, well-being, knowledge sharing, overall support to others, and on the long term, productivity. The intent is to understand whether and how valuing these traditionally undervalued behaviors influences both the individuals who perform them and the broader workplace environment.

3.1 Setting

We run our study in collaboration with one of the largest national banking institutions in East Africa, which encompasses 79 branches strategically located throughout one of its countries. Each branch consists of two sections: credit, and banking. In our experiment we will focus on the credit section, since it represent the largest number of employees within branches.

Since we use one branch to pre-test our survey metrics, we will exclude it from our experiment. We carefully selected this branch which is located at the country's major university and which differs from the other branches of the bank on a number of dimensions. Our experiment will hence involve all remaining 78 branches of the bank. It's important to note that within the bank's operational framework, employee salaries are directly tied to individual productivity metrics. This distinct compensation model will be a key consideration in our analysis, as it directly influences employee behavior and performance.

Data collection will be conducted via Qualtrics. The research team in consultation with HR and the bank's Microfinance Strategy team will design a comprehensive survey focused on evaluating various aspects of staff productivity, organizational citizenship behavior and other outcome variables specified in Section 4. Our survey will be disseminated by the General Manager of Human Resources at the bank to all eligible branches, with an emphasis on encouraging active participation. The communication will frame the survey as part of a significant research initiative titled 'Research on Staff Productivity.' Participants will be allotted a 4-5 week period to complete the survey depending on response rates and in consultation with management. Any subsequent surveys will be scheduled and distributed in coordination with the bank's management to ensure timely and efficient data collection, aligning with the ongoing operations of the branches

3.2 Intervention–Recognition of OCB

Organizational Citizenship Behavior (OCB) usually falls outside of the incentive scheme of firms as OCB represents discretionary behaviors that employees exhibit, which are not formally contractible but which can be beneficial for firms. Due to their specific nature, such behaviors commonly go unseen and remain in the realm of *non-promotable tasks*.

In this project, we propose that signaling to employees the value of OCB by publicly recognizing such behavior can foster a more collaborative workplace culture in which OCB becomes more frequent and which comes with a range of accompanying positive consequences for the firm. To do so, we test the influence of providing certificates to employees.

We randomize branches to two treatment groups: Certificate, and No certificate. In the treated branch "Certificate", we roll out an award program that aims to symbolically recognize the most supportive employees in the branch. In the untreated branch "No Certificate", the employees will continue working as usual and do not get informed about the award program.

1. No Certificate: Employees in these untreated branches do not get exposed to the certificate program on OCB. They will answer our surveys, however, they are not informed about the program.

2. Certificate: Employees in these treated branches will experience the awarding of at least one certificate in their branch. The details on the procedure of the program are provided in Section 3.3.

3.3 Provision of Certificate

The primary objective of the provision of the certificate is to recognize and appreciate employees for their supportive behaviors and to send a signal from the management of the organization underscoring the importance of these behaviors.

Certificates will be handed to employees through their respective managers. This approach ensures that the recognition is both formal and has the endorsement of the managerial staff from the branch. The certificate will be signed by the Managing Director of the bank and the General Manager of Human Resources.

The certificate will be printed on A4 and framed. In the text, the certificate will specifically "honor outstanding support to colleagues and exemplary dedication to the bank". Further, it will also bear information on the year and branch.

Number of certified employees: We certify 20 percent of employees in the credit team of each branch in our treatment group. If teams are very small, we certify at least one person. By certifying a relative amount of members per team we can ensure that in every branch in

our treatment employees have an equal opportunity for being recognized for their supportive behavior, irrespective of actual team size.

Selection procedure: To select the 20 percent of employees of each branch that are considered most supportive we will combine both peer and supervisor rating information on employees' supportive behaviors at the workplace.

For the supervisor rating we will use survey information derived from the following question: "The bank closely tracks credit officers' productivity metrics. However, beyond these metrics, officers often engage in invaluable activities that are not outlined in their formal job descriptions. For example, they mentor junior staff, assist peers, or voluntarily attend events that help *(name of firm)*'s image. While not directly measured, these contributions can significantly impact the bank's success and team cohesion. For each credit officer under your supervision, please indicate how frequently they voluntarily take on these beneficial activities." Supervisors are then asked to rate each of their supervised employees on a scale from 0 (Very rarely) to 100 (very frequently).

For the peer rating we will rely on two types of distinct information derived from our survey. First, we access information on employees' help network. To do so, we ask the following question: "From which credit officers (in your team) do you receive frequent personal or professional help?". Employees can select from a list of colleagues in their credit team to answer this question (multiple selection allowed). Second, we use information on employees' most supportive colleague. Doing so, we rely on participants' answers to the following question: "Of the colleagues selected, who is the most supportive and always ready to help?". Employees can choose a single colleague from the list of names selected in the answer to the help network question mentioned above.

After obtaining both supervisor and peer ratings, we will calculate an overall supportive score for each employee. To do so, we first normalize supervisor ratings by dividing them by 100. The result is a number between 0 and 1. We then normalize both peer rating dimensions for each employee by first counting 1. the absolute number of times an employee has been mentioned helpful (help network question); and 2. the absolute number of times and employee has been mentioned most supportive (most supportive question). We divide both numbers by the number of colleagues in the credit team (i.e. credit team size subtracted by 1) for each branch. Again, the result are two numbers ranging between 0 and 1. Lastly, we combine supervisor and peer rating information by equally weighing all three to come up with a single supportive score for each employee.

Distribution of certificates: Once the selection of certified employees is finished the certificate will be awarded to the respective employee(s) by the manager in a formal meeting where all branch members or members of the credit section (depending on the branch size) of the branch are supposed to be present.

3.4 Sampling

In the credit section of the bank, employees can occupy one of three different roles, each corresponding to their level in the hierarchy. At the base level, employees serve as credit officers. Within this designation, they may specialize as either personal bankers or business bankers. Whereas personal bankers are responsible for handling credits by ordinary customers, business bankers are designated to focus particularly on those customers with high volume loans. Given the high overlap of tasks executed by both role designations, we pool personal bankers and business bankers into the role of "officers". Second, each credit officer reports to one supervisor. Supervisors usually supervise 5-6 employees. Third, depending on branch size, supervisors report either to a Manager Business Banking (MBB) or the branch manager (BM). In our study, we aim to target credit officers and their workplace behavior in particular.

3.5 Randomization

We implement matched-pair cluster randomization (MPCR), with the defining clusters being the bank branches where our units of interest (i.e. the employees) work. When researchers are unable to randomize treatment assignment to individuals and instead randomize treatments to clusters of individuals, estimation efficiency can decrease.

Focusing on the case of small samples in particular, Abadie & Imbens (2011) show that matched-pair randomization can increase power. Both Bruhn & McKenzie (2009)as well as Imai et al. (2009) support these findings. Taking into account the fact that we have only a limited number of branches (n=78), we apply MPCR to improve covariate balance for many variables at the same time and substantially increase the efficiency and power of our causal effect estimation.

Whereas Greevy et al. (2004) describe the application of optimal multivariate matching, we implement a less computationally intensive "optimal greedy algorithm" first described in King et al. (2007) and implemented by Bruhn & McKenzie (2009). The algorithm first forms pairs in such a way as to minimize the Mahalanobis distance between the values of all preselected covariates within pairs. Subsequently, one unit in each pair is randomly assigned to treatment and the other to control.

To match pairs, we will use information obtained from both the firms administrative data, as well as baseline survey data on the workplace behavior of employees in branches before our treatment takes place.

More specifically, we match branch-pairs based on the following covariates:

- Recent productivity metrics (Variance in NPR, Dispersion Volume);

- Branch size, gauged by credit officers and supervisors count in the credit section of a given branch;
- The share of business bankers in each branch;
- The gender composition of the branch's workforce;
- Employee perception on how much their workplace behavior is already recognized by management;
- Employee perception on how much branch members help and trust each other already.

Overall, we will have 39 pairs of branches that will be balanced across the above specified variables.

3.6 Procedures

To implement our experiment and collect the respective data, we adhered to the following procedure.

Pre-Treatment Baseline Survey: To capture employees' workplace experiences and sentiments before the start of our intervention, we will run a baseline survey. The survey will be administered to all credit employees in the month of November of 2023 until the first week of December of 2023. Depending on employees' respective role, we will administer different versions of the survey. On average the survey will take employees 10 minutes to finish. Participation will be voluntary. Participants who successfully finish the survey will receive a compensation of 10,000 UGX.

The baseline survey will have will measure employees' perception of their current workplace climate, of the leadership at the firm, and their personal and professional networks. It will finish with questions on employees' demographics.

Treatment: Our treatment consists of an unannounced public recognition for employees' extraordinary supportive behavior at the workplace. To do so, we introduce a certificate to the 20 percent most supportive employees in the credit section of each branch. The roll out of our treatment will take place in calendar week 3-5 2024. Overall, 39 branches will be treated. Certificates will be awarded to employees in a public, branch-internal ceremony, whereby the management of the branch will hand out the certificate to the respective winners.

Post-Treatment Endline Survey: To be able to measure the effect of our treatment on employees' subsequent OCB and workplace behavior in more general, we will run a post-treatment survey. We will run the outcome survey in March 2024. Similar to the baseline survey, it will be administered to all credit employees and, again, include questions on employees' perception of their current workplace climate, leadership and their personal and professional networks. Further, we will include a section with an additional outcomes that

only will be measured at endline such as employees' knowledge sharing intentions (see section 4.2).

3.7 Power Calculations

For our main outcome, OCB of employees, we aim to apply a double difference estimator, i.e. we estimate the difference in average outcome in the treatment group before and after treatment minus the difference in average outcome in the control group before and after treatment. To ensure that our study is adequately powered to detect a meaningful difference between our treatment and control groups, we conducted power calculations.

3.7.1 Assumptions

- **Effect Size:** The detectable effect size will be denoted as d.
- **Alpha Level:** We set our significance level (α) to 0.05.
- **Power:** We aim for a power ($1 - \beta$) of 0.80, indicating an 80% chance of detecting a true effect.
- **Intra-cluster Correlation (ICC):** We assume an ICC of ρ, which represents the proportion of the total variance that is attributable to the clustering.
- **Design Effect:** Given by $1 + (m - 1) \times \rho$, where m is the average cluster size. For our study, $m = 15$, leading to a design effect of $1 + (15 - 1) \times \rho$.
- **Adjusted Sample Size:** Due to the cluster design, the effective sample size is adjusted by the design effect. The required adjusted sample size per group is n_{adj}.

3.7.2 Calculation Method

We used the [specific method/tool/software] for our power calculations. The formula for the adjusted sample size, considering the cluster design, is:

$$n_{adj} = n \times \text{Design Effect} = n \times (1 + (m - 1) \times \rho)$$

Where:

- n is the sample size calculated as if individual randomization was used.
- m is the average cluster size (15 in our study).
- ρ is the intra-cluster correlation.

Steps for Power Calculation:

1. **Determine the Design Effect (DE):**
   The design effect accounts for the clustering in the design. It is calculated as:

$$DE = 1 + (m - 1) \times \rho$$

2. **Determine the Effective Sample Size (ESS):**
   The effective sample size adjusts the total sample size for the design effect:

$$ESS = \frac{n}{DE}$$

   Where n is the total number of individuals in the study.

3. **Determine the Variance for Matched Pairs:**
   The variance for the difference in means between matched pairs, taking into account the ICC and the cluster sizes, is:

$$\sigma^2 = 2 \times \rho \times (\text{standard deviation})^2$$

4. **Calculate Power:**
   Using the effective sample size, the variance for matched pairs, and the expected effect size (difference in means), the power can be calculated using:

$$\text{Power} = \Phi\left(\frac{\text{Effect Size} \times \sqrt{ESS}}{\sigma} - \Phi^{-1}(1 - \alpha)\right)$$

   Where Φ is the cumulative distribution function of the standard normal distribution, α is the significance level (0.05), and Effect Size is the expected difference in means between the treatment and control groups.

3.7.3 Adjusting for Varying Cluster Sizes

When cluster sizes vary, the design effect (DE) needs to be adjusted. The adjusted design effect, DE_{adj}, can be calculated using the coefficient of variation of cluster sizes (CV):

$$CV = \frac{\text{Standard Deviation of Cluster Sizes}}{\text{Mean Cluster Size}}$$

The adjusted design effect is then:

$$DE_{adj} = 1 + (m - 1) \times \rho \times (1 + CV^2)$$

Where:

- m is the average cluster size.
- ρ is the intra-cluster correlation.
- CV is the coefficient of variation of cluster sizes.

Steps to Adjust for Varying Cluster Sizes:

(a) **Calculate the Coefficient of Variation (CV) of Cluster Sizes:**
First, determine the standard deviation of the cluster sizes and divide it by the average cluster size.

$$CV = \frac{\text{Standard Deviation of Cluster Sizes}}{m}$$

(b) **Determine the Adjusted Design Effect DE_{adj}:**
Using the coefficient of variation, calculate the adjusted design effect.

$$DE_{adj} = 1 + (m - 1) \times \rho \times (1 + CV^2)$$

(c) **Determine the Adjusted Effective Sample Size ESS_{adj}:**
The adjusted effective sample size takes into account the adjusted design effect:

$$ESS_{adj} = \frac{n}{DE_{adj}}$$

Where n is the total number of individuals in the study.

(d) **Recalculate Power Using ESS_{adj}:**
Using the adjusted effective sample size, recalculate the power. The formula remains the same, but replace ESS with ESS_{adj}.

$$\text{Power} = \Phi\left(\frac{\text{Effect Size} \times \sqrt{ESS_{adj}}}{\sigma} - \Phi^{-1}(1 - \alpha)\right)$$

4 Outcomes

4.1 Organizational Citizenship Behavior

Organizational Citizenship Behavior captures all behaviors of employees that go beyond their tasks formally described in their job descriptions. Although these behaviors that employees

exhibit are not formally contractible and incentivized, these extra roles can be beneficial for peers and firms.

Following the validated metrics first introduced by Podsakoff et al. (1990), we measure two main dimensions of OCB: interpersonal and organizational. The interpersonal dimension of OCB refers to the supportive and collaborative behaviors that employee endeavor in the interpersonal relationships with their peers, supervisors, and managers, e.g., mentoring juniors, supporting managers. The organizational dimension of OCB captures the extra miles that employee is willing to take to signal the organizational commitment and loyalty, e.g., attending events that promote company's image.

We therefore adjust the validated metrics to capture these two dimensions:

- Interpersonal Support:
  - *Officers and supervisors frequently assist other officers facing challenges, even if it is not part of their job description*
  - *I consider how my actions might affect other colleagues and their work.*
  - *In this branch, other officers often assist me with challenges, even if it is not part of their job description.*
- Organizational Commitment:
  - *Other officers in this branch attend events or meetings that are not mandatory but enhance (add firms name)'s image*
  - *Officers and supervisors obey company regulations even when they are not being observed or supervised*

To capture a 360-view on the OCB in the branch, we elicit employee's OCB from different perspectives at different hierarchical levels: 1) employees' perception of their own OCB; 2) employees' perception of their colleagues' OCB; 3) direct supervisors' perception of their subordinates' OCB; and 4) managers' perception of employees' OCB.

4.2 Knowledge Sharing

One main outcome of our study is to assess the extent that employees are willing to share information among their peers and the quality of the shared information. Thus, we further focus on one important component of OCB: Horizontal knowledge sharing.

To gauge this, as the midline and endline survey, we will probe participants' willingness to invest their time—a valuable resource—in sharing knowledge with their colleagues. Specifically, we will present employees with a choice: either to extend the survey by contributing additional information that could benefit others or to conclude their participation. Opting

to continue and provide further insights will be interpreted as a positive inclination towards contributing to the collective knowledge pool, serving as our primary metric on the extensive margin of knowledge sharing.

To measure the intensive margin of knowledge, we will follow Sandvik et al. (2020) and ask participants the following open-ended questions:

1. Think about the **most successful** performance[1] you've had in the **last 3 months**. What did you do that made it successful?

2. Think about the **least successful** performance you've had in the **last 3 months**. How could you have done better

3. If you were to give advice to your colleagues in your branch so that they can improve their performance, **what advice would you offer to your colleagues**?

First, we will ask employees to share information on tips and suggestions that could help their colleagues improve their productivity. The third question is our main metric to measure the intensive margin of knowledge sharing. Following Schreiber (2021), we analyze treatment effects on three outcomes, i.e., quantity, quality and variety of suggestions:

- The quantity of suggestions is the total number of suggestions or advice that each worker gives per round, where round is the time in which the award ceremony was given. If the employee did not submit any suggestions, we code the quantity as zero. The number of suggestion will be based on an (blinded) expert's anonymous evaluation, in which the identity of the author of the suggestion is not displayed.

- The quality of suggestions will be evaluated using both continuous and categorical variables. Firstly, each suggestion will be assessed on a scale of zero to one hundred for its "helpfulness," ranging from 0 (unhelpful/incoherent) to 100 (extremely helpful). These points will be based on anonymous evaluations by experts, where the identity of the suggestion's author is not revealed. Additionally, the experts will categorize the suggestions according to their content. They will first evaluate the type of suggestion from six possible types:

    i. **Incoherent:** The tip is unclear or disjointed, making it difficult to understand how it relates to productivity improvement.

    ii. **General Observation:** The tip offers a general observation about productivity but does not provide specific advice or actionable steps.

[1] By performance we refer to loan disbursement to a client in our context; or also the appraisal of a new client

iii. **Vaguely Helpful:** The tip identifies a broad area for productivity improvement but lacks detail or specific guidance.

iv. **Clearly Helpful:** The tip clearly identifies a specific area or method for improving productivity, offering practical and actionable advice.

v. **Innovative Idea:** The tip provides a novel or creative suggestion for enhancing productivity, though it may be somewhat vague or require further development.

vi. **Actionable Solution:** The tip offers a well-defined and innovative strategy or tool for increasing productivity, with clear steps or methods that can be readily implemented.

To examine the trade-off between quantity and quality, we consider two methods to handle missing. Method 1: If employee did not submit any suggestions, we code the quality as missing. In this first method, we compare the quantity and quality of submitted suggestions for the employees who agreed to share knowledge. Method 2: If employees did not submit any suggestions, we code the quality as zero. In the second method, we compare the quantity and quality of submitted suggestions for all employees, where an incoherent suggestion is evaluated as a better outcome than no suggestions at all.

Lastly, the employee's time investment will be considered using two variables. Firstly, the number of characters written will serve as a proxy for the extent of the time investment. Secondly, the duration that the employee spends on the suggestion page will also be taken into account as measured by Qualtrics.

To add more nuances to our analysis, we will introduce a variation concerning the intended audience of the knowledge contributions in the endline survey. A sub-sample of the employees will be randomly assigned to one of the three groups: Manager, Peer, and Control. In the endline survey, participants of each group will be informed that their names and the fact that they contributed in knowledge sharing might be made known to:

- Control: No additional information about the publicity of the knowledge contributions will be provided.
- Peer: "**Your colleagues** will be informed that you have contributed by sharing your knowledge."
- Manager: "**Your managers and your colleagues** will be informed that you have contributed by sharing your knowledge."

This distinction aims to discern any potential differences in knowledge-sharing behavior based on the perceived audience and will help us understand different mechanisms at play. This last

part is still under revision by the firm management and the implementation on the survey will depend on their approval.

4.3 Employee Productivity, Subjecive Well-Being, and Recognition

We examine the effects of the award on employee productivity and subjective well being. The employee productivity comes from the administrative data and the employee well-being is elicited in survey data. Here is a non exhaustive summary of our primary outcomes obtained through survey questions and administrative data:

- Productivity: Individual performance indicators [loan disbursement number, NPR, disbursed volume, etc][2]
- Recognition (scale 0-100): *I believe that in [company name] my contributions are recognized*
- Job satisfaction (scale 0-100): *Working in [company name] excites me*
- Turnover intention (scale 0-100): *I consider quitting my job here in the next 12 months*
- Subjective Well-Being WHO-5 index:

  Over the last two weeks,

  a. I have felt cheerful and in good spirits
  b. I have felt calm and relaxed
  c. I have felt active and vigorous
  d. I woke up feeling fresh and rested
  e. My daily life has been filled with things that interest me

  Responses are measured on a five-point scale (at no time [0], some of the time [1], less than half of the time [2], more than half of the time [3], most of the time [4], all of the time [5]).

4.4 Secondary Outcomes

To comprehensively understand the impact of our intervention, we have collected a diverse array of metrics. These will be utilized to deepen our analysis and illuminate the hypotheses emphasized earlier.

[2]We depend on what information the partner firm will decide to share as the study progresses.

- **Psychological Safety**: This metric evaluates the extent to which individuals feel comfortable expressing their views without fear of negative consequences, encapsulated by the sentiment: *"I feel free to speak up without fear of negative repercussions."*

- **Incentivized Willingness to Ask for Knowledge**: At the end of the knowledge survey, we ask participants for their willingness to pay for the knowledge shared by their colleagues ("*How much are you willing to give for the knowledge shared by your colleagues? Please choose a number between 0 to 10.000 Shillings.*") We incentivize the answer by informing participants that if their answer is above a number randomly chosen between 0-1000, they will receive the shared knowledge. Following Enke (2020), we will randomly choose a number between 0-10000 with a large support at 0. This constitutes an incentive-compatible mechanism in such a setup (Azrieli et al., 2018).

- **Organizational Culture**: Following Azulai et al. (2020), we measure organizational culture at the branch level.

  - Work-life balance (scale 0-100): "*I regularly have time for hobbies outside of work*"
  - Teamwork climate: "*Other officers at the branch only work for themselves*"
  - Performance climate 1: "*Frequently approach managers and request feedback on performance*"
  - Performance climate 2: "*Communicate to managers the challenges employee face*"
  - Performance climate 3: "*Adequate training and support to improve team's performance*"
  - Trust in Management: "*I trust the management team at my branch*"
  - Feedback climate 1: "*Feel safe to discuss and learn from their own mistakes as well as the mistakes of others*"
  - Feedback climate 2: "*I know whom to ask for advice when facing challenges*"

Additional metrics

We will have information for employee characteristics such as gender, age, risk attitude, tenure at the branch, and tenure at the company.

5 Econometric Approach

5.1 Comparison of Means

To assess the main predictions regarding the effects on outcome variables, we conduct mean comparisons and simple unpaired t-tests between outcomes in our treatment and control arms (i.e. Certificate vs. No Certificate). Similarly, we use simple unpaired t-tests to compare the means of outcomes on knowledge sharing in three groups: Control, Peer, and Manager as explained in Section 4.2[3]

5.2 Regression Analysis

In the following we present the specifications of the regression equations we will use to test our hypotheses. We cluster our standard errors at our level of randomization, the branch, following Abadie et al. (2022).

Basic Model: Test of Hypothesis 1 and 3

We test Hypothesis 1 and 3 using the following basic regression model:

$$y_{itb} = \alpha + \beta_1 treat_b + \beta_2 treat_b \times after_t + \beta_3 after_t + \Phi X_i + \epsilon_{itb} \tag{1}$$

where y_{itb} is our outcome of interest for individual i, time t, and branch b, i.e. organizational citizenship behavior (Hypothesis 1), or employee productivity (Hypothesis 3), $treat_b$ is an indicator that takes on the value 1 if the individual belongs to a branch that has been treated and 0 otherwise, $after_t$ is a time indicator which takes on the value 1 for observations after the intervention, where X_i represents a vector of employee controls collected at baseline (such as gender, tenure, baseline level of recognition and baseline trust in management). Since β_2 depicts our treatment effect, the model predicts $\beta_2 > 0$ for Hypothesis 1; while the predicted sign for the effect in Hypothesis 3 is unclear. When looking at productivity, including FE will be crucial. So a second specification is outlined below.

Basic Model: Test of Hypothesis 2 and 4

We test Hypothesis 2 and 4 using the following basic regression model:

$$y_{itb} = \alpha + \beta_1 treat_b + \Phi X_i + \epsilon_{itb} \tag{2}$$

[3]This second part will be used only if approved by the leadership of the bank, it is still under review at the time of the submission of this pre-analysis plan

where y_{itb} is our outcome of interest, i.e. knowledge sharing (Hypothesis 2), or employee well-being (Hypothesis 4), and $treat_b$ is an indicator that takes on the value 1 if the individual belongs to a branch that has been treated and 0 otherwise, and X_i represents a vector of employee controls collected at baseline (such as gender, tenure, baseline level of recognition and baseline trust in management) . The variables are specified for individual i, and branch b, respectively. Since β_1 depicts our treatment effect, the model predicts $\beta_1 > 0$ for Hypothesis 2; while the predicted sign for the effect in Hypothesis 4 is unclear.

Additionally Specified Model: Test of Hypothesis 1 and 3

An alternative, preferred specification to test Hypothesis 1 and 3 includes fixed effects for time invariant variables, including matched-pair fixed effects. The resulting regression equation is:

$$y_{itb} = \alpha + \beta_1 treat_b + \beta_2 treat_b \times after_t + \beta_3 after_t + \Phi X_i + \gamma_s + \theta_p + \epsilon_{itb} \qquad (3)$$

where X_i represents a vector of employee controls, γ_s denotes the time-invariant fixed effects (for example, for the productivity metrics this variables will be the branch, the designation (PB or BB) and type of loans that the credit officer deals with (micro, salary, agric.), and θ_p represents the matched-pair fixed effects (Fryer Jr, 2014). For the regression equation on employee productivity, we will also include month fixed effects to control for any seasonal effects.

Additionally Specified Model: Test of Hypothesis 2 and 4

Similar to equation (3) we also propose an alternative specification to test Hypotheses 2 and 4. This specification includes fixed effects for time invariant variables, including matched-pair fixed effects. The resulting regression equation is:

$$y_{itb} = \alpha + \beta_1 treat_b + \Phi X_i + \gamma_s + \theta_p + \epsilon_{itb} \qquad (4)$$

where X_i represents a vector of employee controls, γ_s denotes fixed effects for the time invariant variables, and θ_p represents the matched-pair fixed effects.

5.3 Covariate Adjustment

Controlling for baseline variables when estimating treatment effects can improve precision. Since outcomes are likely to have some correlation with variables that can be measured before assignment into treatment and control, including these variables into the specified model helps in isolating the effect of our treatment on our respective

outcomes with greater precision and power.

In our analysis, the adjustment for covariates is crucial, especially when these covariates are highly predictive of the outcomes. However, determining which covariates to include in our model beforehand can be challenging without access to the actual data. To address this, we will control for specific baseline variables, namely the levels of trust in management and the overall recognition variables, as detailed earlier. For the sake of transparency and to ensure robustness, we will also conduct a simpler regression analysis. This simpler analysis will assess the impact of the treatment on the outcome without including any covariates. This step will serve as a robustness check. Meanwhile, our main analysis will retain a more comprehensive approach, using a fully specified model that incorporates all the pre-identified covariates

5.4 Heterogeneity Analysis

We plan to conduct a detailed examination of the heterogeneity in the primary treatment effect across various subgroups. Specifically, our analysis will focus on understanding the differences in treatment effects in the following categories:

- Comparison between employees who received awards and those who did not.
- Analysis of treatment effect variations between female and male employees, and under female and male leadership.
- Investigation into the role of social proximity between employees and managers, including factors such as gender and local language, in influencing the treatment effect.

5.5 Other Analyses

- **Randomization Check**: To determine whether randomization was successful, we compare the pre-treatment means of our treatment and control group along several baseline variables which were not included in the set of covariates we base our matching on (see also 3.5).
- **Robustness Check** As described in 5.2 in our main specification we will control for baseline correlated metrics. Adjusting for a covariate that is highly correlated with the outcome can induce a finite-sample bias if the treatment effect is heterogeneous and correlated with the square of the covariate introduced. We will therefore compare the point estimate with and without our controls.

5.6 Multiple Hypothesis Testing

We will use the FDR to correct for Multiple Hypothesis Testing.

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