Call and Response: The Business Impacts of Systems to Improve Worker Voice

Achyuta Adhvaryu* Smit Gade† Teresa Molina‡ Anant Nyshadham§

April 14, 2021

Contents

*University of Michigan, NBER, BREAD; adhvaryu@umich.edu
†Good Business Lab, gade@goodbusinesslab.org
‡University of Hawaii at Manoa, tmolina@hawaii.edu
§University of Michigan & NBER, nyshadha@bc.edu

1 Motivation

The garment manufacturing industry in many low-income countries is characterized by low wages and high turnover. Workers in these settings are typically limited in their ability to voice their concerns and grievances related to their jobs. Albert Hirshman's seminal work – Exit, Voice, and Loyalty (1970) – posits that voice and exit are intimately related. Given that exit is a major problem in this labor market setting, voice has the potential not only to improve workers' wellbeing in the workplace, but also to address this core business issue.

Previous studies in economics have carried out indirect tests of Hirschman's exit-voice hypothesis, based on associations between measures of voice and firm outcomes (Batt et al., 2002; Beard et al., 2009; Cottini et al., 2011; Freeman, 1980; Gans et al., 2017; Watkins and Hyclak, 2011). In a recent study, we provided the first field experimental test of the exit-voice hypothesis by randomly assigning Indian garment workers to an employee satisfaction survey after a disappointing wage hike (Adhvaryu et al., 2019). We find that the satisfaction survey indeed reduced quit rates, particularly among workers most disappointed by the wage hike.

In the present study, we expand on this work by examining whether a technology-based worker voice tool (which is easily scalable) can reduce exit and improve worker wellbeing throughout the year (not necessarily around particularly disappointing events). Unlike the employee satisfaction survey in Adhvaryu et al. (2019), the worker voice tool we study here allows for two-way anonymous communication between workers and management. We therefore also examine whether the effectiveness of this worker voice tool depends on the incentives faced by the HR teams assigned to deal with worker grievances.

We conduct this study in partnership with Shahi Exports, the largest ready-made garment exporter in India, which employs more than 100,000 workers across several Indian states.

2 Intervention

This study investigates the effects of two interventions: a phone-based worker voice tool that allows workers to communicate their grievances to HR and an incentive scheme for HR workers

assigned to address these grievances. Specifically, we are interested in the effects of the worker voice tool on its own, the effects of the worker voice tool with HR incentives, and the differential effect of the worker voice tool with and without HR incentives. We randomly assign factories to one of three groups: a tool-only group, a tool-plus-incentives group, and a control group. We describe these two interventions in this section and details of the randomization in section 4.

2.1 Worker Voice Tool

The phone-based worker voice tool allows workers to send an anonymous SMS or a voice note containing their grievances or suggestions. The HR team from that factory then works to solve the grievance. The HR team is selected by the factory head based on their roles in the factory. For example, the HR staff who handles payroll for the factory is made responsible for the payroll related grievances. The tool allows for two-way communication, where the HR team asks for further information and feedback after resolution, all the while maintaining anonymity. In addition to allowing workers to reach out to management, this tool also allows management to provide information and make announcements to all workers via SMS. Once a case is registered via SMS or voice call, the case goes through the following steps:

- Inital case report filing: A Case Reporter (CR) is assigned in each factory to review the new case coming via SMS or voice call and enter the details in the tool. The CR then passes the case to the Case Manager (CM).

- Case assignment: The Case Manager (usually the HR manager in the factory) assigns the case to a Case Troubleshooter (CT) taking into account the type of the case.

- Case Resolution: The Case Troubleshooter (CT) sends the first response to the worker via an SMS through the tool dashboard. The first response makes the worker who has filed the case aware that that the process of resolution has started. CT interacts with the worker anonymously via SMS if any additional information is required. The CT closes the case in the dashboard after the resolution of the issue raised in the case.

- Case Review: A staff member external to the factory reviews how the case was handled, based on (1) the tone of the SMS response to workers, (2) the interaction between the CR, CM, and CTs in the case log, and (3) evidence uploaded on the case file in the tool. If the reviewer judges that the case was not handled appropriately, the case is reopened.

2.2 HR Incentives

A subset of factories with the worker voice tool also implement a monthly incentive scheme for the HR team of the factories. In these factories, the HR team receives monthly rewards based on performance in tool-based grievance redressal. The incentives are at factory level (i.e., if the factory is eligible for the incentive, all the members of the HR team working on the tool receive the same incentive). All of the incentives will be in-kind gifts with an approximate value of Rs 400 (USD 5.75).

Factories that that fulfill all of the following criteria will receive the incentives.

- Initial case report filing: After receipt of a worker's message via the tool, the Case Reporter (CR) prepares a case report and assigns it to the Case Manager (CM) within 1 working day for at least 90% of cases.

- Case allocation: After receipt of a report from the CR, the CM assigns the case to a Case Troubleshooter (CT) within 1 working day for at least 90% of all cases they receive.

- First response: After receipt of assignment from the CM, the CT sends a first response to the worker, assigning them a case number, within 1 working day for at least 90% of cases.

- Quality of response: Quality of response is deemed appropriate for at least 90% of all cases.

In addition to a prize for all factories that satisfy the above criteria, there will be a grand prize awarded to the unit that performs the best according to those indicators (share of timely case reports, share of timely first responses, share of timely case resolutions, and share of cases deemed to be of appropriate quality). To incentivize continued good performance, there will be

an additional reward to units who have satisfied the reward critera continuously for the past 3 months, a bigger reward for continuously satisfying the criteria for 6 months, and so on.

3 Research Questions

3.1 Primary Research Questions

Our goal is to understand how the enhancement of worker voice affects worker outcomes. Specifically, we are interested in the effects of the worker voice tool (alone), the worker voice tool with HR incentives, and the differential effect of the worker voice tool with and without incentives. Our primary research questions can therefore be summarized as follows:

1. What is the effect of the worker voice tool (without HR incentives) on worker outcomes?
2. What is the effect of the worker voice tool (with HR incentives) on worker outcomes?
3. How do HR incentives alter the effect of the worker voice tool on worker outcomes?

Our primary outcomes of interest include: retention, attendance, productivity, perceptions of HR/management, and workplace satisfaction.

3.2 Secondary Research Questions

We are also interested in answering the same three questions listed above for several secondary outcomes: worker loyalty, individual worker satisfaction, and attitudes towards reporting issues.

We also seek to understand whether the effects of worker voice vary across workers with varying levels of firm loyalty.

4 Randomization and Timeline

The study sample consists of all Shahi factories in South India, excluding three factories that were used to pilot the tool. In August of 2019, we randomly assigned each of these 43 factories

to one of three groups (tool-only, tool-plus-incentives, or control). Shahi Exports divides its operations into three divisions which operate as independent business units. These are Men's and Boys (MnB), Ladies (LSD) and Knits. We stratified the factories by these business units for randomization. We checked for and confirmed balance using two sets of variables: variables from administrative data and variables from primary surveys conducted in March-May of 2019 for a different project (variables listed in section A.1). Baseline surveys were administered in November, 2019.

The tool was rolled out in two phases in order to ensure sufficient administrative capacity. Half of the treatment units introduced the tool in November 2019, and the other half in February 2020. A month prior to the launch of the tool in a given factory, HR teams were trained in the use of the Single Person Of Contact (SPOC) software. Additionally, upper levels of management were also made aware of the introduction of the tool. During the launch, a ceremony was hosted in presence of factory heads, to help ensure the engagement of upper management.

After the launch, supervisors and workers were briefed on the process of filing a grievance, asking for feedback, and features of anonymity. The training of phase 1 workers, which started in November 2019, involved the use of posters and flip-books accompanied by a live demonstration of tool usage, in groups of 20-25 workers. The training of phase 2 workers, which was interrupted by and took place after the COVID-19 government lockdown in March 2020, was conducted primarily via the public address (PA) system to follow social distancing protocol.

Following the rollout of the tool, the incentive program was launched at the same time across all tool-plus-incentive factories in June 2020 (delayed a few months due to the COVID-19 pandemic). Prior to the launch, HR employees involved in the incentive program attended training sessions, during which participants were made aware of the incentive criteria and date of launch. Training was conducted in batches of 20 by an ex-labor commissioner, who explained best practices in resolving grievances and conducted some simulation cases. Due to the COVID-19 pandemic, some of these training sessions were conducted online via Zoom.

The tool is also used by Shahi management to reach out to workers using the "Broadcast SMS" feature of the tool, which sends out messages to all workers in a factory. One wave

Event	Start Date	End Date
Randomization	August 2019	-
Baseline Surveys	November 2019	-
Phase 1 HR Tool Training	1 November, 2019	7 November, 2019
Phase 1 Tool Roll-out & Worker Training (in person)	25 November, 2019	-
Phase 2 HR Tool Training	7 January, 2020	8 January, 2020
Phase 2 Tool Roll-out	1 February, 2020	-
Incentive Program Training	12 March, 2020	28 April, 2020
Phase 2 Worker Training (PA system)	May, 2020	-
Incentive Program Roll-out	1 June, 2020	-

Table 1: Timeline

of broadcast messages was sent during the COVID-19 lockdown (early April 2020). The second wave of broadcast messages was sent after the COVID-19 lockdown ended and factories reopened (mid-May 2020), and the third wave of broadcast messages were sent mid-August, wishing all workers a happy Independence Day.

Shahi plans to roll the tool out to control factories around May 2021, which will mark the end of the experiment. The timeline of events is summarized in Table 1. We note that by December of 2019, two tool-only units had closed, at which point their workers were moved into two different tool-plus-incentives units. We switched one of the surviving units to the tool-plus-incentives group to maintain balance before the incentives were rolled out. Two additional units were closed around the beginning of July 2020 but they are included in most of our analysis.

5 Data

As part of its normal business operations, Shahi collects administrative data on worker attendance, line-level productivity, and worker quit dates, which we will be using to generate our attendance, productivity, and retention outcome variables of interest. For retention and attendance, our sample consists of all workers employed by Shahi as of November 30, 2019 (approximately 76,000 workers). For productivity, our sample consists of all production lines operating in Shahi as of November 30, 2019 (approximately 600).

In addition, we will conduct a total of three repeated cross-sectional surveys to collect data

on the following outcomes: worker perceptions of HR, workplace satisfaction, worker loyalty, individual worker satisfaction, and attitudes toward reporting issues. The baseline was completed using in-person surveys while the follow-up rounds will primarily be conducted over the phone due to COVID-19 restrictions.

Each variable is constructed by combining responses to several related questions. Section A.2 lists all of the questions associated with each variable. We normalize each response within a category to have a mean of zero and standard deviation of one, and average across all questions in the category.

6 Empirical Analysis

For the following regressions, we define two indicator variables of interest. T_{1jt} is an indicator variable equal to 1 if the tool is available in factory j at time t. Similarly, T_{2jt} is an indicator variable equal to 1 if the incentive program is in place in factory j at time t. In all regressions, we cluster standard errors at the unit level.

6.1 Retention

The last day that a worker was present in the factory is taken as her quit date. We obtain quit dates from administrative records in the last month of the experiment (i.e. the last month before Shahi rolls out the programs to control units). We use a Cox proportional hazard model to estimate the impact of treatment on retention by estimating following equation.

$$\lambda_{ij}(t) = \lambda_0(t) \exp\left(\beta_1 T_{1jt} + \beta_2 T_{2jt} + \gamma X_{ij} + \epsilon_{ijt}\right) \tag{1}$$

$\lambda_{ij}(t)$ is the hazard at time t (i.e. instantaneous quit rate, where t represents days since the beginning of the experiment) for a worker i in unit j. $\lambda_0(t)$ is the baseline hazard. In addition to T_{1jt} and T_{2jt}, we include a vector of controls X_{ij}: treatment group dummies (control, tool-only, and tool-plus-incentives), phase dummies, division (randomization strata) dummies, and

demographic controls. β_1 provides the effect of the tool, and β_2 provides the differential impact due to the HR incentives.

For these retention regressions only, we completely drop the two units that closed after the start of the experiment. The remainder of the analysis includes workers from these units (until their respective closure dates).

6.2 Absenteeism

A worker is defined as absent if they were not present for work on a given working day. We calculate monthly absenteeism as the share of total work days a worker was absent in a given month, starting from six months prior to the start of the experiment to the last month of the experiment. We calculate absenteeism for each worker i in unit j in month t and estimate the following panel specification.

$$A_{ijt} = \beta_1 T_{1jt} + \beta_2 T_{2jt} + \gamma X_{ijt} + \epsilon_{ijt}. \tag{2}$$

Here, in addition to treatment group dummies, phase dummies, division dummies, and demographic controls, X_{ijt} includes time fixed effects. Because observing the attendance of a worker is conditional on them still being employed at the factory, we use dynamic inverse probability weighting, where each observation is weighted by the inverse of the predicted probability of still being employed by the firm in a particular month (predicted using the time-invariant covariates in X_{ijt}).

6.3 Productivity

Productivity is calculated at the production line level, as the ratio of actual pieces produced to the target number of pieces. Similar to the attendance regression above, we estimate the following panel specification (for the time period starting six months before the start of the experiment to

the last month of the experiment).

$$P_{ijt} = \beta_1 T_{1jt} + \beta_2 T_{2jt} + \gamma X_{ijt} + \epsilon_{ijt}. \tag{3}$$

where P_{ijt} is the productivity of line i in factory j on the day t. X_{ijt} contains treatment group dummies, phase dummies, division dummies, and time fixed effects.

6.4 Survey Outcomes

All survey outcome variables are indices generated by normalizing each component of the index to mean zero and standard deviation one, and then averaging across all components. We estimate the following regression for worker i in unit j and survey wave t, noting that different workers are present in different rounds (because we use a repeated cross-section).

$$Y_{ijt} = \beta_1 T_{1jt} + \beta_2 T_{2jt} + \gamma X_{ijt} + \epsilon_{ijt} \tag{4}$$

X_{ijt} includes treatment group dummies, phase dummies, division dummies, demographic controls, and survey wave fixed effects.

6.5 Heterogeneity

For all outcomes, we investigate heterogenous effects by tenure (a proxy for loyalty) and our survey loyalty index.

6.6 Power Calculations

We use pre-intervention data from these garment factories to conduct power simulations for retention, absenteeism, and productivity. Specifically, we use administrative data from the 24-month period preceding the start of the experiment and estimate the regressions described above, using the actual treatment assignments used in the experiment but shifting all dates back by one year (for example, we take the start of phase 1 tool rollout to be November 25, 2018). We

multiply the standard errors of the estimated β_1 and β_2 by 1.96 to calculate the MDE for the estimate of interest for $\alpha = 0.05$. MDEs are summarized in Table 2.

Outcome	MDE for β_1 (Tool Effect)	MDE for β_2 (Incentive Effect)	Outcome Average
Quitting (Hazard Model)	11%	18%	0.53
Productivity	.025	.035	0.54
Absenteeism	0.004	0.008	0.06

Table 2: Power Calculations for Administrative Data

In order to conduct power simulations for our survey outcomes, we use the baseline survey to generate two hypothetical follow-up survey waves, sampling with replacement from each unit. We then estimate the regression specification described above, and use the standard errors of β_1 and β_2 to calculate the MDE, which we report in Table 3.

Outcome	MDE for β_1 (Tool Effect)	MDE for β_2 (Incentive Effect)	Outcome SD
Perceptions of HR/Management	0.14	0.23	0.98
Workplace Satisfaction	0.05	0.08	0.49
Confidence Reporting Issues	0.11	0.19	1.01
Individual Worker Satisfaction	0.05	0.09	0.54
Worker Loyalty	0.06	0.11	0.45

Table 3: Power Calculations for Survey Outcomes

References

Adhvaryu, A., T. Molina, and A. Nyshadham (2019). Expectations, wage hikes, and worker voice: Evidence from a field experiment. Technical report, National Bureau of Economic Research.

Batt, R., A. J. Colvin, and J. Keefe (2002). Employee voice, human resource practices, and quit rates: Evidence from the telecommunications industry. *ILR Review 55*(4), 573–594.

Beard, T. R., J. T. Macher, and J. W. Mayo (2009). "can you hear me now?" exit, voice and loyalty under increasing competition. *Journal of Law and Economics 58*(August 2015), 717–745.

Cottini, E., T. Kato, and N. Westergaard-Nielsen (2011). Adverse workplace conditions, high-involvement work practices and labor turnover: Evidence from danish linked employer–employee data. *Labour Economics 18*(6), 872–880.

Freeman, R. B. (1980). The exit-voice tradeoff in the labor market: unionism, job tenure, quits, and separations. *The Quarterly Journal of Economics* (June), 643–674.

Gans, J. S., A. Goldfarb, and M. Lederman (2017). Exit, tweets and loyalty. Technical report, National Bureau of Economic Research.

Hirschman, A. O. (1970). *Exit, voice, and loyalty: Responses to decline in firms, organizations, and states*, Volume 25. Harvard university press.

Watkins, T. A. and T. Hyclak (2011). Why are quit rates lower among defense contractors? *Industrial Relations: A Journal of Economy and Society 50*(4), 573–590.

A Appendix

A.1 Balance Test Variables

The administrative variables we use for the balance tests include:

- Production efficiency
- Quit rates of workers
- Absenteeism
- Share of of Kannada (native language) speakers
- Average tenure of workers
- Share of skilled workers

The survey questions used for the balance test, which are taken from a survey collected from the same factories for another project, include:

- In the past 3 months, have you had any interpersonal conflict with your current supervisor? (1 – Yes, 2- No)
- How satisfied/happy or dissatisfied/ unhappy are you with your current job/position? (5-Very Satisfied, 1- Very Unsatisfied)
- How satisfied/happy or dissatisfied/unhappy are you with your supervisor? (5-Very Satisfied, 1- Very Unsatisfied)
- How satisfied/happy or dissatisfied/unhappy are you with your overall workplace environment? (5-Very Satisfied, 1- Very Unsatisfied)
- In 6 months, how likely do you think it is you will still be working for Shahi? (5-Very Satisfied. 1- Very Unsatisfied)
- In the last 6 months, have you ever faced any issue in factory? (For example, issues related to salary, attendance, workplace environment, safety etc. (1 – Yes, 2- No)
- How aware is the HR/management about issues on the floor? (5 - Aware about all issues, 1-Not aware at all)

- How responsive is the HR/management about issues on the floor? (5 - Extremely responsive 1- Not responsive at all)
- Do you own a mobile phone? (1- Yes, 2-No)

A.2 Survey Questions

1. Perceptions of HR/Management
   (a) How aware is the management about the issues workers face?
      - Fully aware
      - Sometimes aware
      - Never aware
2. Workplace Satisfaction
   (a) How do you feel about the cleanliness of your physical surroundings at workplace?
      - Satisfied - 3
      - Medium (Neither satisfied nor unsatisfied) -2
      - Unsatisfied - 1

   (b) How do you feel about the hygiene of toilets at Shahi?
      i. Satisfied - 3
      ii. Medium (Neither satisfied nor unsatisfied) -2
      iii. Unsatisfied - 1

   (c) How do you feel about your travel to work?
      - Satisfied - 3
      - Medium (Neither satisfied nor unsatisfied) -2
      - Unsatisfied - 1

   (d) How do you feel about the cleanliness of canteen?
      - Satisfied - 3
      - Medium (Neither satisfied nor unsatisfied) -2
      - Unsatisfied - 1

   (e) How do you feel about the temperature in the factory around your work place?
      - Satisfied - 3
      - Medium (Neither satisfied nor unsatisfied) -2
      - Unsatisfied - 1

   (f) Canteen food is worth the price
      - Agree - 3
      - Medium (Neither agree nor disagree) - 2
      - Disagree - 1

   (g) Lunch break is long enough for you to relax before getting back to work.

- Agree - 3
- Medium (Neither agree nor disagree) - 2
- Disagree - 1

(h) There are unpleasant sounds that hamper attention.

- Agree - 1
- Medium (Neither agree nor disagree) - 2
- Disagree - 3

(i) There are unpleasant smells that hamper attention.

- Agree - 1
- Medium (Neither agree nor disagree) - 2
- Disagree - 3

3. Confidence Reporting Issues

(a) Do you feel comfortable in reporting all issues to the management?

- Yes - 1
- No - 0

(b) Have you or your friend ever experienced some negative repercussion after reporting a complaint?

- Yes - 0
- No - 1

4. Individual Worker Satisfaction

(a) How do you feel about the work you do at Shahi?

- Satisfied - 3
- Medium (Neither satisfied nor unsatisfied) -2
- Unsatisfied - 1

(b) You manage your work and personal life satisfactorily.

- Agree - 3
- Medium (Neither agree nor disagree) - 2
- Disagree - 1

(c) You are satisfied with yourself

- Agree - 3
- Medium (Neither agree nor disagree) - 2
- Disagree - 1

(d) At times, you think you are no good at all.

- Agree - 1
- Medium (Neither agree nor disagree) - 2
- Disagree - 3

(e) In the last four weeks, you felt depressed
- Agree - 1
- Medium (Neither agree nor disagree) - 2
- Disagree - 3

(f) In the last four weeks, you felt restless or fidgety
- Agree - 1
- Medium (Neither agree nor disagree) - 2
- Disagree - 3

(g) you sometimes feel inferior compared to others
- Agree - 1
- Medium (Neither agree nor disagree) - 2
- Disagree - 3

5. Worker Loyalty

(a) You are proud to tell others that you are part of Shahi
- Agree - 3
- Medium (Neither agree nor disagree) - 2
- Disagree - 1

(b) You wait patiently for issues to resolve at workplace.
- Agree - 3
- Medium (Neither agree nor disagree) - 2
- Disagree - 1

(c) You feel very little loyalty towards Shahi
- Agree - 1
- Medium (Neither agree nor disagree) - 2
- Disagree - 3

(d) You search for jobs outside Shahi
- Agree - 1
- Medium (Neither agree nor disagree) - 2
- Disagree - 3

(e) When unhappy with your supervisor or workplace, you make errors on job and deliberately do not correct them.
- Agree - 1
- Medium (Neither agree nor disagree) - 2
- Disagree - 3

(f) You request a transfer to another area within your department.
- Agree - 1
- Medium (Neither agree nor disagree) - 2
- Disagree - 3