Expectations, Wage Hikes, and Worker Voice[*]

Achyuta Adhvaryu[†]   Teresa Molina[‡]   Anant Nyshadham[§]

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Abstract

Enabling worker voice could improve worker retention and effort by providing workers the chance to improve their situation or an outlet to express discontent. We provide a test of this hypothesis via a randomized controlled trial in Indian garment factories. Just after what proved to be a disappointing wage hike, workers were chosen at random to participate in an anonymous survey in which they were asked for feedback on job conditions, supervisor performance, and overall job satisfaction. Enabling voice in this manner reduced turnover and absenteeism after the hike, particularly for the most disappointed workers.

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[†]University of Michigan, NBER, BREAD, Good Business Lab; adhvaryu@umich.edu
[‡]University of Hawaii at Manoa, tmolina@hawaii.edu
[§]University of Michigan, NBER, Good Business Lab; nyshadha@umich.edu

1 Introduction

The way in which firms manage workers has profound implications for performance by way of worker attendance, retention, and productivity (Bloom et al., 2010; Bloom and Van Reenen, 2007, 2011; Lazear and Oyer, 2007; Lazear and Shaw, 2007). For example, studies have documented the importance of the structure of incentives (Bandiera et al., 2007, 2013; Gosnell et al., 2019); the allocation of workers to teams and tasks (Adhvaryu et al., 2019a,b; Amodio and Martinez-Carrasco, 2018; Hjort, 2014); monitoring, learning about, and evaluating performance (Frederiksen et al., 2017; Gosnell et al., 2019; Kahn, 2013; Kahn and Lange, 2014; Lange, 2007); and interpersonal skills and relationships among co-workers (Adhvaryu et al., 2020; Bandiera et al., 2009, 2010; Hoffman and Tadelis, 2018).

Another important component of the worker-firm relationship is the extent to which workers feel their voices are valued and accounted for in managerial decision-making. Providing workers with voice could improve the employment relationship through two channels. First, dissatisfied workers might be less likely to quit if they have the opportunity to voice their discontent to create improvement. We refer to this as the "instrumental" value of voice, which was first championed by Hirschman's 1970 seminal work on exit and voice. While indirect tests of Hirschman's theory, based on associations between measures of voice and firm outcomes, abound in the economics literature (see, e.g., Batt et al. (2002); Beard et al. (2009); Cottini et al. (2011); Freeman (1980); Gans et al. (2017); Watkins and Hyclak (2011)), direct rigorous evidence on the impacts of increased voice on worker turnover is quite limited.[1]

In addition to instrumental value, voice also has inherent value (Ong et al., 2012). That is, simply being able to communicate dissatisfaction to one's employer might increase a worker's utility. Due to its instrumental and inherent value, voice could essentially function as non-wage compensation, resulting in lower turnover and increased worker effort. Our study provides a test of this hypothesis via a randomized controlled trial in which we enabled greater voice for workers just after what proved to be a disappointing scheduled wage hike.[2]

The State Governments of India revise their wage floors each year; the increase in the minimum wage is generally linked to expected inflation (Anand et al., 2014). In low-skill industries, in which wages for a majority of workers are often closely benchmarked to the (sector- and locality-specific) minimum wage, the annual wage hike is highly anticipated by both employers and workers. The period of time leading up to and following the annual hike is often marked by

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[1]Experiment-based analyses from psychology have reached similar findings confirming Hirschman's theory in the realm of consumer relationships (see, e.g., Divett et al. (2003); Maute and Forrester Jr (1993)). On the other hand, evidence from a natural experiment in Finland reveals no effect of the representation of workers on boards on separation rates (Harju et al., 2021).

[2]In a related recent paper Cai and Wang (2020) investigate the degree to which voice contributes to improved workplace outcomes after a randomized change in manager incentives to reflect worker evaluations.

widespread labor unrest (ILO, 2018; Justino, 2006).[3]

To understand the impacts of increasing voice on worker turnover, and in particular the role of voice in mitigating the effects of wage-related disappointment, we partnered with the largest ready-made garments firm in India. Just before the 2016 minimum wage schedule was announced by the Karnataka State Government, data were collected on a random sample of workers regarding their current wages; expectations about changes due to the upcoming wage increment; and other opportunities available to them in the labor market. These data reveal that workers' expectations were substantially higher than the realized wage hike: workers expected a hike that was roughly three times the size of the realized increase.

Directly following the wage hike, the firm randomized half of the surveyed sample to an intervention designed to enhance workers' voice. Workers in the treatment group were invited to take part in a survey asking about their job satisfaction (related to various components of the job), and their opinions on various statements about the work environment. The results of this survey are themselves telling. Many workers used the survey to express their dissatisfaction with various aspects of their jobs. On average, satisfaction with wage levels was particularly low, highlighting the salience of wages as a potential driver of exit.

We find that this voice intervention reduced the probability of quitting by 20% in the months following the wage hike. This effect is strongest for the most disappointed workers, whose expectations were farthest from the realized wage hike. We also see a similar pattern in absenteeism, a proxy for effort provision on the job. The negative interaction between voice and disappointment persists even when we allow for heterogeneous voice effects across individuals with different outside options and other worker-level characteristics.

This paper provides a field-experiment-based evaluation of Hirschman's seminal thesis on exit and voice as it pertains to the employment relationship. Work in labor economics on this issue has focused on the effects of voice through collective action (e.g., Freeman (1980)). Our paper is most closely related to the recent work of Coviello et al. (2020), who examine the incidence of counterproductive worker behavior and exit (employee turnover) after an unexpected reduction in pay for sales workers, and Cai and Wang (2020), who study the impacts of the incorporation of worker feedback into manager incentive pay in a Chinese automobile factory. Our study complements these papers by demonstrating the impacts of a randomized voice treatment (independent of managerial incentives) on worker turnover, and specifically the way in which access to voice mitigates disappointment.

Our study is also among the first to examine voice as it relates to low-income workers in manufacturing contexts, where voice tends to be particularly limited and exit is common (Dundon and J., 2007; Macey and Schneider, 2008; Rees et al., 1991). As the low-skill workforce in many

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[3]The popular press has widely reported on this phenomenon; see, for example, Reuters (2016) and Bengali (2016).

developing countries transitions rapidly from agriculture to industrial work, employers often face high worker turnover due to poor working conditions, low pay, and restricted worker rights (Bossavie et al., 2019; Boudreau, 2019; Boudreau et al., 2018). Our study affirms the value of providing voice to vulnerable workers in exactly these high intensity environments.

2   Context and Intervention

2.1   Context

We partnered with Shahi Exports, Private Limited, the largest ready-made garments (RMG) exporter in India. As is the case in many manufacturing firms in low-income contexts, turnover is high at Shahi: 5% of our study sample quits by the end of the first month of the study and 18% quits by the end of the fifth month. The costs of turnover, as emphasized by Shahi's upper management, pose a significant challenge, leading to persistently high recruitment and training costs and underutilization of capital.

In the RMG sector, wages for frontline workers are influenced heavily by government minimum wage policy, which is largely determined at the state level. In the state of Karnataka, where the majority of Shahi's factories (and the entirety of this study's sample) are located, the minimum wage schedule specifies different minimum wages across geographic areas, industries, and skill levels within each industry.

The minimum wage is comprised of two parts – a "basic" portion and a "dearness allowance," which is intended to allow for cost of living adjustments. Every year, the state government makes adjustments to minimum wage schedules by changing the dearness allowance to account for inflation. In addition, adjustments to the "basic" wage level are made every five years or so, commonly resulting in larger increases than the more frequent inflation adjustments. The last such increase preceding our study period was in 2014. As shown in Appendix Figure A1, the tailoring industry's minimum wage increased substantially more in 2014 than in subsequent years, due to the basic wage hike that happened in that year.[4]

After the wage hike announcement made by the government every year, Shahi revises its wages to comply with the stated increases. Firms have discretion, however, and Shahi can choose to raise wages by more than the minimum wage policy requires (though this is rare). Overall, there is substantial uncertainty about the size of these annual wage increases from the point of view of workers, due to the fact that both government as well as firm decision-making is not predictable.

Anecdotal evidence suggests that worker dissatisfaction is especially high after these annual firm-wide wage increases, a fact that may in part be explained by disappointment brought about

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[4]This was also true for other industries with large female shares, but the 2014 increase was much larger in tailoring than in other industries because the baseline tailoring wage was lower compared to comparable sectors.

by wage-related uncertainty. Even though minimum wage changes are determined by the government, employees are aware that the firm has discretion in wage-setting.[5] The knowledge that the firm does not always have to pay exactly the minimum wage could lead to workers to blame the firm for lower-than-expected wage increases.

2.2 Intervention

The intervention we consider is an employee satisfaction survey. The survey questions, copied in full in appendix section A.1, created an opportunity for respondents to express their (dis)agreement with various statements about their job: whether it is difficult to ask others for help and whether supervisors encourage learning, for example. Respondents were also asked about their general satisfaction with their job, wage, supervisor, and overall work environment.

In the consent script read to each respondent before each survey was administered (copied in full in appendix section A.1), several important points were made clear. First, respondents knew that their individual responses were confidential. Second, respondents were aware that the survey was being conducted because Shahi was interested in learning about the satisfaction of its workers. Therefore, they knew that the survey results would be communicated in some way to the firm, even though the surveys were not being conducted by Shahi employees. Finally, they were told that their names had been selected at random, which should have minimized the potential for respondents to perceive themselves as singled out by their employer.

An employee satisfaction survey could embody both the instrumental and inherent value of voice. The work of Hirschman (1970) and many others emphasizes the instrumental value of voice, based on the basic premise that individuals have two main options in unsatisfactory situations: they can quit without trying to improve their situation at work (exit), or they can stay, speak up, and try to remedy the situation (voice). The workers in our study context do not typically have many opportunities to voice concerns about their working conditions and may therefore have no option but to exit, which may in part explain the firm's high turnover. An employee satisfaction survey, by providing a way for workers to communicate dissatisfaction about their jobs, could reduce exit by making the voice channel a possibility.

In addition to the instrumental value of voice, evidence from lab experiments demonstrates that voice also has inherent value (Ong et al., 2012). In our setting, an employee satisfaction survey demonstrates that the firm is interested in worker satisfaction and allows respondents to communicate their (dis)satisfaction, both of which could directly provide utility to workers.[6]

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[5]Because the state minimum wage schedule specifies a different wage level for different skill levels, the firm can (and does) raise wages for individual workers by promoting them to a higher skill level: median salary for the lowest skill level in our sample is 137 USD, while median salary for the highest skill level is 155 USD. In addition, even within skill levels, we still do see some variation in wage levels. For example, for the workers in our sample in the highest skill level, the 25th and 75th percentile monthly salaries are 150 and 159 USD. For workers in the lowest skill level, the corresponding values are 132 and 139.

[6]Although both treatment and control workers were surveyed at baseline, the statement that the firm was

This voice instrument, therefore, has the potential to reduce exit not only by creating expectations of constructive changes in the work environment (instrumental value), but also by directly improving a worker's utility (inherent value).

The responses to this employee survey instrument reveal that many workers did in fact use it to express dissatisfaction with various aspects of the job. As we show in Table A1, over 20% of workers agreed with the statements that mistakes were held against them and that asking for help was difficult. Smaller proportions (ranging between 6% and 16%) provided negative evaluations of their supervisor, indicating their supervisor was not encouraging, not someone they could trust, or indifferent about helping solve problems. Over 50% of the sample responded negatively to at least one of the six statements.

Though average satisfaction levels with respect to the job, supervisor, and workplace environment were quite high (over half reported being extremely satisfied), satisfaction with wage levels was much lower – with over half either somewhat or extremely dissatisfied. This highlights the salience of wages as a potential driver of exit.

3 Data

3.1 Baseline and Intervention Surveys

In May 2016, before workers were made aware of how the annual minimum wage hike would translate into an increase in their take-home pay at Shahi, a baseline survey was conducted to elicit worker expectations about the pending wage hike. Workers were asked how much they expected take-home wages to increase next month, along with questions about wages at their best outside option – the job they would most likely have if they did not work at Shahi. A randomly selected sample of approximately 2,000 workers from 12 factory units located in the Indian state of Karnataka were surveyed.

Using these data, we construct a measure of disappointment, which combines data on *ex ante* worker expectations and *ex post* wage increases. Specifically, we calculate the difference between the wage hike an individual was expecting to receive in June and the wage hike she actually received, which turned out to be a 398 rupee increase (approximately 6 USD in 2016 dollars) for all individuals in our sample.[7] Another important variable is the outside option wage. Workers

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interested in the responses was only made prior to the employee satisfaction survey and therefore only read to treatment workers. For this reason, the "intervention" should be thought of as one that informed workers of the firm's interest in their satisfaction and also provided a way to express their (dis)satisfaction.

[7]The size of the wage increase is not always the same for all workers because the government sometimes dictates different wage increases for workers of different skill levels and across different geographic zones. Shahi also has the discretion to raise wages more for different workers as long as it complies with the new minimum wage laws. It is not uncommon, however, for Shahi and other firms to implement a uniform wage increase for all workers in all factories across the state of Karnataka.

were first asked what job they would most likely have or would be easiest to get if they did not work at Shahi, and then asked for the wage they would earn at the specified job.

Of the baseline sample, approximately half were randomly selected for the voice intervention. We stratified by factory unit and job type (there are 12 factory units and 5 different job types: tailor, checker, helper, operator, or other). Individuals assigned to treatment were given the satisfaction survey described in section 2.2, after the wage hikes were implemented at the beginning of June 2016. These surveys were administered from the end of June to the beginning of July 2016.

3.2 Administrative Data

From the firm's administrative data, we are able to observe the dates that an individual joins and leaves the firm. Due to stringent labor laws, firing is very uncommon in this setting, which means that almost all job separations are due to quitting rather than firing. We also observe daily attendance and can calculate the share of days (in a given time period, during which a worker was still employed by the firm) a worker was absent. We also obtain a set of individual-level controls, including tenure at the firm, gender, education, hometown, department, and job type.

3.3 Summary Statistics

Table 1 reports summary statistics for our study sample: starting with the full sample, the treatment group, the control group, and then differences between the two.[8] Wage disappointment, defined as the difference between expected and actual monthly wages after the hike, is high. On average, individuals were expecting to earn 16.9 USD more (which is approximately 17% of average monthly wages) than they actually ended up earning after the hike. In other words, workers were expecting a wage hike of approximately 23 USD on average (approximately 22% of monthly salary), a value that lies in between the 2014 minimum wage hike (which corresponded to a 35% increase) and the 2015 wage hike (which corresponded to a 7% increase), both depicted in Figure A1.

The sample is balanced on important observables, like salary, outside option salary, tenure, education, and job type across treatment and control.[9] Language is the only variable for which there is a (small) statistically significant difference across treatment and control. The joint test, however, cannot reject the null that all covariates are balanced across treatment and control

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[8]Our sample includes individuals in the baseline survey who were present at the firm when the intervention took place (in June 2016) and who were not missing any demographic covariates.

[9]While it may seem counterintuitive that average outside option salary is higher than monthly salary, this is likely because respondents' outside options include agricultural jobs that are seasonal, or factory jobs at smaller firms with worse amenities (i.e., unregulated hours, no pension, etc.)

groups (with a p-value of 0.676).[10]

Wage disappointment, a key variable in this analysis, is correlated with many individual characteristics, like education and tenure (see Table A2 and section A.2 for a longer discussion). Interestingly, it also appears to be influenced by previous experience with wage hikes. Specifically, workers who were present for the large wage hike in 2014, and those who work on the same line as workers who were present during this hike, report higher levels of disappointment.

4 Empirical Strategy

We base our empirical strategy on the conceptual framework described in section A.3, which is an extension of the canonical model of reference-dependence set in the context of wage determination (Barberis, 2013; Kőszegi and Rabin, 2006; Tversky and Kahneman, 1991).[11] Summarizing briefly, this framework proposes that, after learning about the size of a wage hike, a worker will choose to quit if the utility at her current job (after the wage increase) is lower than the utility she would have at her next best option. This decision, therefore, depends on her wage prior to the hike (inclusive of job-specific amenities), the realized wage hike at her current job, the wage and amenities at her best outside option, and the realized wage hike at her best outside option.[12] Importantly, one variable that factors into her utility at her current job and therefore her quit decision is the wage hike she *expected* from her current firm prior to the announcement.[13] The discrepancy between the realized wage hike and the worker's expected wage hike is what we refer to as wage disappointment, which is captured in our data.

A voice intervention could affect the quit decision independently of disappointment or by mitigating disappointment. Therefore, we model quitting as a function of current wages, outside wages, disappointment, and exposure to the voice intervention. We estimate a Cox proportional hazard model of the following form:

$$\lambda_i(t) = \lambda_0(t) \exp\left(\kappa_1 W_i + \kappa_2 \underline{W}_i + \kappa_3 D_i + \kappa_4 T_i + \kappa_5 D_i T_i + \gamma X_i\right), \tag{1}$$

where $\lambda_i(t)$ denotes the instantaneous probability of individual i quitting at time t (measured in days relative to her start date) conditional on being still employed at time t. W_i is the individual's

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[10]We perform this Wald test of joint significance by estimating a system of equations, regressing each characteristic onto treatment status, using seemingly unrelated regression (SUR).

[11]A large body of empirical work shows the importance of reference points in determining a wide range of outcomes in the real world (see, e.g., Adhvaryu et al. (2018); Backus et al. (2017); Bartling et al. (2015); DellaVigna et al. (2017); Ockenfels et al. (2015); O'Donoghue and Sprenger (2018)). Lab-experimental evidence confirms that reference points can be determined by expectations of future outcomes (Marzilli Ericson and Fuster, 2011).

[12]We later assume that the difference between the wage hike in the current job and outside option is approximately 0 or exogenous to other regressors.

[13]Though relative pay (inequality between own wages and peer wages) has been shown to be an important driver of job separations in the United States (Dube et al., 2019), we abstract away from that here because the wage hike we study resulted in a uniform increase in wages across workers.

current wage, $\underline{W}_i$ is the outside option wage given in the survey, D_i is disappointment, and T_i is an indicator for those assigned to the voice intervention treatment.[14]

Although random assignment ensures the exogeneity of T_i, wage disappointment is not exogenous. In fact, Table A2 illustrates that wage disappointment is correlated with several potentially important drivers of quitting. We therefore include a vector of controls, X_i: gender, years of tenure indicators, years of education, an indicator for speaking Kannada, an indicator for being from Bangalore, and an indicator for being part of the sewing department. We estimate the model with and without fixed effects for job type and factory unit (our stratification variables).

The inclusion of the interaction between voice and disappointment allows for the intervention to have heterogeneous effects by the level of disappointment. If providing workers with voice helped mitigate their disappointment, we should expect to see a negative coefficient on the disappointment-voice interaction (κ_5).

The potential endogeneity of disappointment, discussed above, complicates the interpretation of κ_5 in equation (1), even with controls for covariates. For example, a statistically significant κ_5 could be an indication that the effect of voice varies by salary (or some other correlate of disappointment) and not actually by disappointment. We therefore also estimate several specifications that control for T_i interacted with a host of other covariates. Even in these specifications, we acknowledge that disappointment could still be correlated with other qualities – like loyalty – that we do not measure. However, given that we directly measure disappointment, we argue this is likely to be the primary factor driving any effects we find, especially in our most rigorous specifications (which control for interactions with observed covariates). It is also reassuring to note that disappointment does appear to be driven by quasi-exogenous factors – for example, whether a worker happens to be working on the same production line as people who experienced the large wage hike in 2014 (see Table A2).

Finally, we also run OLS regressions using the same independent variables as in equation (1); dependent variables we consider include separate indicators for having quit by the end of July, August, and every month until November, as well as rates of absenteeism across various combinations of months.

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[14]Of those assigned to the treatment group, 90% actually completed the employee satisfaction survey. Compliers and non-compliers are similar across observable characteristics, except that compliers had significantly lower disappointment and higher salary. We use the random assignment dummy variable to estimate Intent-to-Treat effects in all specifications. Unsurprisingly, given that the vast majority of treatment workers complied, our results are preserved when we drop non-compliers.

5 Results

5.1 Retention

In Figure 1, we plot the cumulative share of the sample that has left the firm, starting in July 2016 (the first month after the voice intervention treatment) until the end of November. The dashed line (representing the treatment group), starts separating from the solid line (the control group) after about two weeks, and remains lower than the solid line throughout the entire time period. By the end of November, quit shares are approximately 2 percentage points lower in the voice intervention group than in the control group.

In Table 2, we begin by estimating the hazard model described in equation (1), excluding the interaction term in column 1. A negative coefficient of -0.23 on the voice intervention indicator indicates that those in the treatment group are on average 20% less likely to quit than those in the control group. To put this magnitude in perspective, the voice intervention effect is equivalent to the change in retention associated with a 30 USD increase in monthly salary.

In column 2, we allow for the treatment to interact with wage disappointment. The coefficient on this interaction is negative and significant. The main effect of voice, now representing the impact of voice on those whose expectations were exactly met by the wage hike, is small in magnitude and not significant. In addition, the main effect of wage disappointment is positive and significant: in the control group, more disappointed workers are more likely to quit. The sum of the coefficients on the disappointment main effect and the disappointment-voice interaction captures the relationship between disappointment and quitting for the voice group. While this sum is negative, the p-value reported at the bottom of the table shows it is not statistically significant. In columns 3 and 4, we show that the inclusion of factory unit and job type fixed effects have little effect on the coefficient estimates.

In short, individuals who were disappointed by the wage hike were more likely to quit, but the voice intervention was particularly able to lower quit rates among the disappointed. At the average level of wage disappointment (17 USD), treatment workers were 16% less likely to quit than control. For those who were not disappointed at all, the intervention had no statistically significant effect. Appendix Table A4 shows that the differential effects of treatment appear to be driven by workers in the top quartile of the disappointment distribution.

Because the model in section A.3 predicts that current wages and outside option wages should be important determinants of quitting, the preferred specification we present in Table 2 controls for both of these variables, which do affect quitting in the expected directions.[15] However, we show in Appendix Table A3 that coefficient estimates for voice and disappointment are very

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[15]These coefficients also have the expected signs in the vast majority of the regressions in the remainder of the paper, though they are not always statistically significant in regressions that control for many additional correlated variables (e.g., job type fixed effects, which explain 14% of the variation in the monthly salary variable and outside option wage variable).

similar when these variables are excluded (columns 1 and 2). This table also shows that our results are robust to other specifications of the model. Columns 3 and 4 show results without any individual-level controls.[16] In columns 5 and 6, we allow for factory unit-level frailty, which allows for a factory unit-specific random effect that enters multiplicatively in the hazard function.

In Table 3, we investigate *when* the effects of the voice intervention started to kick in, and how persistent these effects were. We run OLS regressions using the same set of independent variables as in the hazard models above. The five dependent variables of interest are dummy variables for having quit by July, August, September, October, and November. In Table 3, we show that the main effect of disappointment is small in column 1, but larger and significant in the remaining columns. Disappointment effects do not kick in until August, perhaps because workers – many of whom are migrants – need time to discuss quit decisions with their families, or save enough money for the trip home. August is also when the effect of the voice intervention on these disappointed individuals is first observed. The magnitudes of the wage disappointment main effect and the disappointment-voice interaction are similar in the remaining columns, suggesting that the voice intervention did more than just temporarily delay quitting (at least within our window of analysis) – the effects of the voice intervention persisted for several months after the wage hike. Appendix Table A5 reports specifications that exclude the interaction term, add unit and job fixed effects, and drop monthly salary and outside option controls.

5.2 Absenteeism

Next, we examine absenteeism – a less extreme version of exit and potential proxy for reduced on-the-job effort. We repeat our regressions above using absenteeism as our outcome variable – specifically, the share of days (over various time periods) that an individual did not attend work, conditional on still being employed at the firm.[17] In all of these regressions, we adopt an ANCOVA specification which controls for the share of days in the months of April and May (prior to the June voice treatment) that an individual was absent from work.

For individuals in the control group, disappointment drives up absenteeism. This is clear in columns 1 through 3 of Table 4, which suggests these effects start kicking in immediately, unlike in the quit regressions in Table 3. However, as was the case for quitting, the voice intervention mitigates these effects entirely (starting in August).

Appendix Figure A2 plots treatment-control differences in absenteeism in the months leading

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[16]While the interaction specification (column 4) is almost identical to previous results, the treatment dummy coefficient in the basic specification (column 3) is slightly smaller and no longer statistically significant. Additional analyses (available on request) reveal that the coefficient magnitude reduction is driven by the exclusion of the tenure dummies, specifically. We argue that their inclusion is important given that the quitting hazard likely varies for different levels of tenure.

[17]Each absenteeism variable calculates the share of days absent divided by the number of days the worker was still employed at the firm, over a time period starting in June until the specified month. Days after a worker quits are not included in the calculation. This ensures that we maintain the full sample in all regressions.

up to the experiment, separately for those below and above the 75th percentile of disappointment. There are no significant pre-trends in absenteeism for either group. In addition, we report additional specifications in Appendix Table A6: excluding the interaction term, adding unit and job fixed effects, and dropping monthly salary and outside option controls.

5.3 Threats to Identification and Alternative Interpretations

Although the voice intervention was assigned randomly, wage disappointment might be endogenously determined. In appendix section A.4, we conduct additional analyses to ensure that other correlates of disappointment are not responsible for the negative interaction term reported in previous tables. When we include interactions between the treatment dummy and other worker characteristics (demographics as well as outside options), the estimate of the disappointment-treatment interaction remains unchanged (see Tables A7 and A8).

We also provide evidence that the firm did not differentially reward treatment and control workers via promotion or salary increases (Table A9), which could have provided an alternate explanation for the treatment effects. This is consistent with the fact that the survey was anonymous and suggests it was unlikely that the firm discovered the identity of workers through informal channels.

Finally, because this experiment was not registered with a pre-analysis plan prior to its implementation, we conduct additional robustness checks to show that disappointment is indeed one of the most important sources of heterogeneity in treatment effects. In section A.5, machine learning methods provide evidence that disappointment is the main driver of heterogeneity.

5.4 Mechanisms

How did the employee satisfaction survey change worker behavior? One key possibility is the inherent value of voice. Workers who took the survey could have simply appreciated being given the opportunity to voice their opinions. An improved perception of the firm, or a feeling of satisfaction after taking the survey, could have led to lower quit rates and absenteeism.

Summary results of the survey were not shared with firm management until after the evaluation period, i.e., the period in which retention and attendance data were compiled on the experimental sample. This means that the effects we document could not have been driven by any action taken by the firm in response to the surveys specifically. This does not, however, rule out the possibility that general actions taken by the firm or supervisors (not in direct response to the survey results) could have been perceived differently by treatment and control workers. Specifically, treatment workers could have interpreted positive changes as a result of their survey responses.

Finally, the satisfaction survey could have changed behavior by generating expectations of

future improvements among the treatment group. As Hirschman (1970) hypothesized, workers who have limited opportunities for voice have no choice but to exit. By providing a potential channel for communication and future improvements, the survey could have given workers a voice alternative, preventing them from exercising their exit option.

In sum, the effects we find are likely driven by a combination of the following mechanisms: treatment workers having higher firm-specific utility (due to the inherent value of voice), interpreting changes differently from control workers, or being more optimistic about improvements to come.

6   Conclusion

In this study, we provide real-world experimental evidence on the effect of voice on worker retention and effort. A randomly assigned employee satisfaction survey, administered to Indian garment workers shortly after a disappointing wage hike, reduced quit rates by 20%. Importantly, the effects of this voice intervention were strongest among those most disappointed by the wage hike. The same pattern of results is apparent when we look at worker absenteeism.

A conservative cost benefit analysis, which only takes into account the direct retention benefits (money saved on recruitment and training costs), reveals a very high return on investment for this intervention.[18] The survey cost USD 3.75 per respondent and was administered to 916 workers. It also cost about 15 minutes of productive time for each worker, which corresponds to .09 USD in lost profits per worker,[19] yielding a total cost of USD 3517. In terms of the benefits, the firm estimates that recruitment and training costs are approximately USD 300 per worker. By the end of November, attrition was 2.8 percentage points lower in the treatment than the control group,[20] which translates to 25 fewer workers that needed to be recruited and trained – a total discounted benefit of USD 7246,[21] which is more than double the total cost. Not including the benefits of reduced absenteeism and not incorporating the lower productivity of new workers (which would make total cost of recruitment, and therefore the benefits of the intervention, even higher), this implies a net return on investment of 106%.

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[18]Although the firm may have suspected that lower-than-expected wage increases could have demotivating effects, lack of data on the magnitudes of these effects could be why the firm typically benchmarked their wage hikes close to the minimum wage schedule.

[19]In one 8-hour work day, an average worker makes about 8.2 garments per day, which sell for 7 USD, of which the firm earns 5% in profit.

[20]This is the coefficient on the voice treatment dummy in a regression excluding the disappointment-treatment interaction: see Table A5, column 5.

[21]This assumes an annual interest rate of 7% and that all of the benefits are realized six months after the intervention, which is a conservative assumption because some recruitment likely had to happen earlier than this.

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Tables & Figures

Figure 1: Quit Rates by Treatment Status
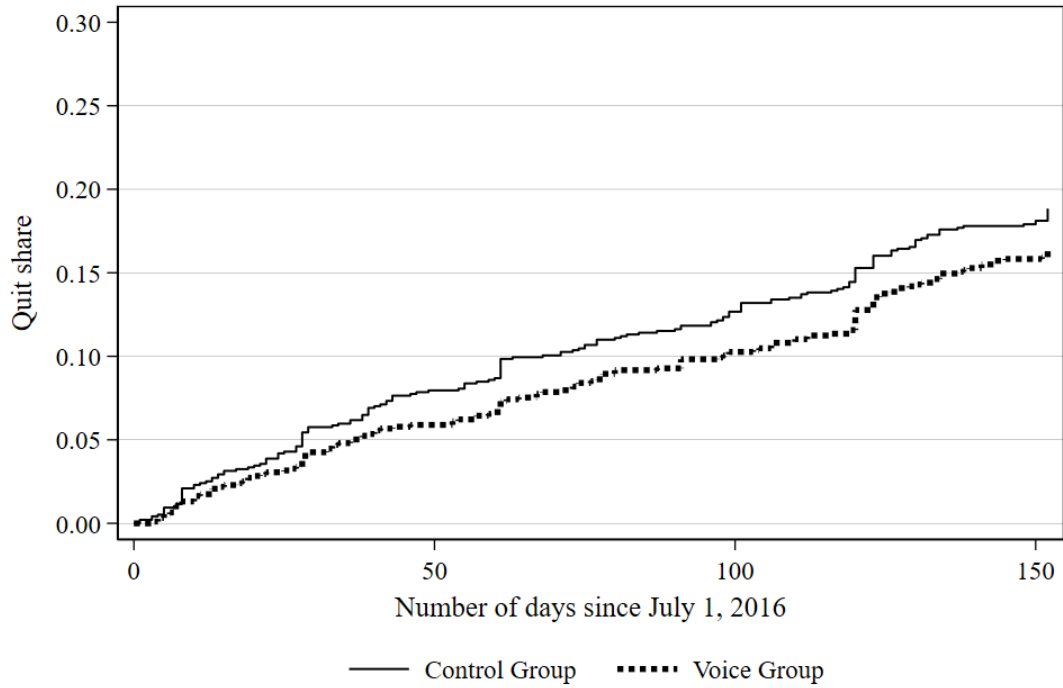
Table 1: Summary Statistics

	(1) Full sample mean/sd	(2) Voice Group mean/sd	(3) Control mean/sd	(4) Difference diff/se
Disappointment	1.69	1.69	1.70	0.018
	(2.37)	(2.38)	(2.38)	(0.11)
Monthly Salary	10.4	10.2	10.5	0.28
	(4.69)	(4.26)	(5.06)	(0.22)
Outside Option Salary	15.2	15.1	15.2	0.11
	(7.36)	(7.12)	(7.58)	(0.34)
Tenure (in years)	1.92	1.90	1.94	0.038
	(1.68)	(1.62)	(1.74)	(0.078)
Female	0.71	0.71	0.70	-0.0038
	(0.46)	(0.45)	(0.46)	(0.021)
Years of Education	8.54	8.62	8.46	-0.16
	(3.57)	(3.49)	(3.65)	(0.16)
Speak Kannada	0.68	0.66	0.71	0.047**
	(0.47)	(0.47)	(0.46)	(0.022)
Bangalore	0.68	0.67	0.68	0.0060
	(0.47)	(0.47)	(0.47)	(0.022)
Sewing Dept	0.54	0.54	0.54	-0.0086
	(0.50)	(0.50)	(0.50)	(0.023)
Tailor	0.42	0.43	0.42	-0.0080
	(0.49)	(0.49)	(0.49)	(0.023)
Checker	0.072	0.072	0.072	0.00020
	(0.26)	(0.26)	(0.26)	(0.012)
Helper	0.13	0.12	0.13	0.0076
	(0.33)	(0.33)	(0.34)	(0.015)
Operator	0.043	0.045	0.042	-0.0029
	(0.20)	(0.21)	(0.20)	(0.0094)
Other Job	0.34	0.34	0.34	0.0031
	(0.47)	(0.47)	(0.47)	(0.022)
Pre-Treatment Absenteeism	0.11	0.12	0.11	-0.0062
	(0.13)	(0.13)	(0.13)	(0.0061)
Joint Test p-value				.676
Observations	1871	916	955	1871

Notes: * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$. Wage disappointment is the difference between expected and actual wages after the wage hike, reported in 10 USD increments. Monthly salary and outside option salary are also reported in 10 USD increments. For the 4% of respondents who are missing the outside option salary variable, we assign them with the mean value. After doing this, all variables are non-missing for all 1871 individuals.

Table 2: Hazard Model Estimates of the Effects of Disappointment and Voice on Quitting

	(1)	(2)	(3)	(4)
Voice Group	-0.23**	0.046	-0.23**	0.036
	(0.11)	(0.14)	(0.11)	(0.14)
Disappointment	0.038	0.087***	0.051*	0.096***
	(0.025)	(0.027)	(0.027)	(0.029)
Disappointment x Voice		-0.13***		-0.13***
		(0.044)		(0.045)
Monthly Salary	-0.077***	-0.079***	-0.079***	-0.082***
	(0.024)	(0.024)	(0.028)	(0.028)
Outside Option Salary	0.021**	0.023**	0.017	0.019*
	(0.010)	(0.010)	(0.011)	(0.011)
Observations	1871	1871	1871	1871
Fixed Effects	None	None	Unit & Job	Unit & Job
p-value of sum		0.28		0.48

Notes: Robust standard errors are in parentheses. * $p< 0.1$ ** $p< 0.05$ *** $p< 0.01$. Coefficients (not hazard ratios) from a Cox proportional hazard model are reported. All regressions control for years of tenure indicators, years of education, and indicators for Kannada (language), Bangalore (hometown), and sewing department. Individuals who are missing the outside option salary variable are assigned the sample average, and an indicator for those missing this variable is included. The last row reports the p-value of the test of the null that the sum of the Disappointment and Disappointment-Voice coefficients is equal to zero.

Table 3: Effects of Disappointment and Voice on Quitting by Month

	Quit by the end of...				
	(1) Jul	(2) Aug	(3) Sep	(4) Oct	(5) Nov
Voice Group	-0.0044	0.0028	0.015	0.012	0.025
	(0.013)	(0.016)	(0.017)	(0.019)	(0.022)
Disappointment	0.0069	0.018***	0.021***	0.020***	0.022***
	(0.0047)	(0.0058)	(0.0063)	(0.0065)	(0.0066)
Disappointment x Voice	-0.0077	-0.019***	-0.023***	-0.025***	-0.031***
	(0.0056)	(0.0069)	(0.0075)	(0.0079)	(0.0085)
Monthly Salary	-0.0038**	-0.0059**	-0.0071***	-0.0083***	-0.011***
	(0.0016)	(0.0023)	(0.0025)	(0.0026)	(0.0027)
Outside Option Salary	0.0016	0.0021	0.0026*	0.0012	0.0030*
	(0.00098)	(0.0013)	(0.0014)	(0.0015)	(0.0016)
Observations	1871	1871	1871	1871	1871
Mean of Dependent Var.	0.050	0.086	0.11	0.14	0.18
Fixed Effects	None	None	None	None	None
p-value of sum	0.84	0.80	0.70	0.38	0.11

Notes: Robust standard errors are in parentheses. * p< 0.1 ** p< 0.05 *** p< 0.01. All regressions control for years of tenure indicators, years of education, and indicators for Kannada (language), Bangalore (hometown), and sewing department. Individuals who are missing the outside option salary variable are assigned the sample average, and an indicator for those missing this variable is included. The last row reports the p-value of the test of the null that the sum of the Disappointment and Disappointment-Voice coefficients is equal to zero.

Table 4: Effects of Disappointment and Voice on Absenteeism

| | Share of Days Absent in... | | | | |
| | (1) | (2) | (3) | (4) | (5) |
	Jul	Jul-Aug	Jul-Sep	Jul-Oct	Jul-Nov
Voice Group	0.0055	0.0081	0.0086	0.0081	0.0076
	(0.0092)	(0.0087)	(0.0085)	(0.0084)	(0.0085)
Disappointment	0.0064*	0.0078**	0.0061*	0.0054	0.0047
	(0.0037)	(0.0036)	(0.0037)	(0.0036)	(0.0035)
Disappointment x Voice	-0.0064	-0.0081*	-0.0083**	-0.0092**	-0.0090**
	(0.0042)	(0.0041)	(0.0041)	(0.0039)	(0.0039)
Monthly Salary	-0.00078	-0.00075	-0.0015	-0.0016	-0.0020*
	(0.0010)	(0.0011)	(0.0011)	(0.0011)	(0.0011)
Outside Option Salary	0.00034	0.00018	0.00069	0.00051	0.00069
	(0.00067)	(0.00066)	(0.00066)	(0.00065)	(0.00066)
Pre-Treatment Absenteeism	0.19***	0.16***	0.21***	0.23***	0.24***
	(0.049)	(0.048)	(0.048)	(0.046)	(0.045)
Observations	1871	1871	1871	1871	1871
Mean of Dependent Var.	0.100	0.11	0.12	0.12	0.13
Fixed Effects	None	None	None	None	None
p-value of sum	1.00	0.90	0.42	0.16	0.12

Notes: Robust standard errors are in parentheses. * $p< 0.1$ ** $p< 0.05$ *** $p< 0.01$. The dependent variable is the share of work days in the specified period that an individual was reported absent, out of all days an individual was still employed at the firm. All regressions control for years of tenure indicators, years of education, and indicators for Kannada (language), Bangalore (hometown), and sewing department. Individuals who are missing the outside option salary variable are assigned the sample average, and an indicator for those missing this variable is included. The last row reports the p-value of the test of the null that the sum of the Disappointment and Disappointment-Voice coefficients is equal to zero.

A Online Appendix

A.1 Employee Satisfaction Survey

Respondents were asked to respond on a five-point scale (strongly disagree to strongly agree) to the following statements:

1. If I make a mistake in this job, it is often held against me.

2. It is difficult to ask others in this line for help.

3. My supervisor often encourages me to take on new tasks or to learn how to do things I have never done before

4. If I was thinking about leaving this company to pursue a better job elsewhere, I would talk to my supervisor about it.

5. If I had a problem in this company, I could depend on my supervisor to be my advocate.

6. Often when I raise a problem with my supervisor, s/he does not seem very interested in helping me find a solution

Respondents were asked to respond on a five-point scale (extremely dissatisfied to extremely satisfied) to the following questions:

1. How satisfied/happy or dissatisfied/ unhappy are you with your current job/position?

2. How satisfied/happy or dissatisfied/ unhappy are you with your current wage?

3. How satisfied/happy or dissatisfied/unhappy are you with your supervisor?

4. How satisfied/happy or dissatisfied/unhappy are you with your overall workplace environment?

Before the survey was administered, the following script was read to each respondent.

Namaskara, my name is (surveyor name), I am here today to talk to you because Shahi is very interested in learning what it can do to ensure the satisfaction of its workers. Your truthful responses will be very helpful in this goal. 2500 names were chosen in a random lottery and yours was one of them. I would like to ask you a few questions for the next 10 to 15 minutes. There are no right or wrong answers to our questions – we are only interested in your opinion. Everything that you share in this interview is confidential. table:absent Participating in this interview is voluntary – there is no compulsion. However, your participation will be much appreciated and useful. If there is any question that you do not want to answer, please feel free to tell us. Can we proceed? Do you have any questions or concerns before we begin?

A.2 Correlates of Disappointment

In Table A2, we investigate the correlates of wage disappointment, a key variable in this analysis. All three columns show that wage disappointment is higher for men, Kannada speakers, and workers from Bangalore. It is also negatively correlated with education and firm tenure. In column 2, when we add salary variables, we see that disappointment is negatively correlated with Shahi salary and positively correlated with outside option salary. Column 3 shows a strong relationship between disappointment and work effort: workers with higher absenteeism in April and May (the two months prior to the June voice treatment) have significantly higher wage disappointment levels.

Disappointment is not only driven by individual characteristics; it is also shaped by workers' previous experiences with wage increases at this firm. As described in section 2.1, the wage increase that took place in 2014 was much larger than those in 2015 and 2016. We therefore investigate whether workers who were already at Shahi in April 2014 expected a higher wage hike. Columns 4 and 5 of Table A2 show that this was indeed the case. Those present during the 2014 wage hike report significantly higher levels of disappointment, while presence during the 2015 wage hike has the opposite-signed though insignificant effect. We also show that peers' experiences with previous wage hikes play a role. In the regression in column 5, we control for the share of co-workers in an individual's production line who were present for the 2014 and 2015 wage hikes. We find that having more fellow line members who were present for the large wage hike in 2014 is associated with significantly higher levels of disappointment, while the opposite is true for presence for the smaller wage hike in 2015.

A.3 Conceptual Framework

This section provides a conceptual framework for understanding the relationship between wage increases, wage expectations, and the effects of a voice intervention. The turnover decision of a worker, after she learns about the size of an (anticipated) wage hike, depends on her wage prior to the hike, inclusive of job-specific amenities (w), the wage and amenities at her best outside option ($\underline{w}$), the realized wage hike at her current job (y), the realized wage hike at her best outside option ($\underline{y}$), and the wage hike she *expected* from her current firm prior to the announcement ($\hat{y}$).

A worker will choose to quit if and only if the utility at her current job (after the wage increase) is lower than the utility she would have at her next best option – that is, if and only if

$$w + y - d(\hat{y} - y) + \epsilon < \underline{w} + \underline{y}. \tag{2}$$

Here, ϵ is an idiosyncratic (individual-specific) error term, and the function $d(.)$ captures the utility loss (or gain, if $\hat{y} - y$ is negative) resulting from the discrepancy between the realized wage hike and the worker's expected wage hike. When $\hat{y} - y$ is positive, this term represents the

disappointment resulting from receiving a lower wage increase than expected.

In equation (2), it is assumed that this disappointment is specific to her current firm: a worker will only experience this utility loss if she stays at the current job. This is because she attributes the utility loss from a lower-than-expected wage increase to her current firm, which makes working for that firm less desirable. As argued in section 2.1, it is plausible that workers blame the firm for disappointing wage increases because the firm does exercise discretion in setting wages, which employees can observe.

For similar reasons, we omit expectations about the size of the wage hike at the worker's outside option – over-estimating the outside option wage hike should not lead to disappointment at the worker's current job (which has no control of this hike) or at her outside option (to which she has no existing attachment).

Assuming that $y - \underline{y}$ (the difference between the wage hike in the current job and outside option) is approximately 0 or is random noise,[22] the condition specified by equation (2) can be rewritten as the following (where $\tilde{\epsilon} = \epsilon + (y - \underline{y})$):

$$\tilde{\epsilon} < d(\hat{y} - y) - (w - \underline{w}). \tag{3}$$

Therefore, the probability of quitting can be expressed as a function of current wages, outside wages (both inclusive of job-specific amenities), and wage disappointment, as shown below in equation (4). Data on all of these variables are available and thus are able to estimate this equation directly in our empirical analysis.

$$\Pr(\text{Quit}) = F\left(d(\hat{y} - y) - (w - \underline{w})\right). \tag{4}$$

Equation (4) demonstrates how quits may rise after a wage hike if workers are on average disappointed by the size of the realized hike (i.e., if $\hat{y} - y > 0$). Within this framework, the voice intervention used in this paper might be able to reduce quitting in two ways, as we show in the equation below:

$$\Pr(\text{Quit}) = F\left(d(\hat{y} - y, v) - (w(v) - \underline{w})\right), \tag{5}$$

where the voice intervention v enters in two ways. First, a voice intervention might amount to an increase in amenities at her current job ($w'(v) > 0$), by improving a worker's perception of the firm or generating expectations of future improvements (regardless of her level of disappointment). Second, a voice intervention could also mitigate the disappointment generated by the lower-than-expected wage hike, which would lead to an effect that interacts with wage disappointment

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[22]This assumption is supported by Figure A1, which shows similar wage hikes in other female-dominated industries, and by Appendix Table A7, which shows that controlling for outside options does not change our main coefficient estimates.)

$(d_{12} < 0)$. If workers express their disappointment by either exiting or by voicing their opinions, providing workers with the ability to voice their opinions should weaken the relationship between disappointment and exit.

A.4 Threats to Identification and Alternative Interpretations

Although the voice intervention was assigned randomly, wage disappointment is, of course, potentially endogenously determined. Table A2 revealed several statistically significant relationships between wage disappointment and various worker characteristics. Heterogeneity in the effect of the voice intervention across any of those characteristics could in theory be driving the significant interactions reported in Tables 2, 3, and 4. To ensure that the interaction effect we estimate is not being driven by other sources of heterogeneity, we include various sets of interaction controls to the hazard model in (1). In columns 1 and 4 of Table A7, we add interactions between the voice intervention dummy and each of the salary and demographic controls included in Table 2: monthly salary, outside option salary, years of tenure indicators, years of schooling, language, hometown, and department. We also add the main effect of and the voice interaction with the worker's absence rate in the months prior to the intervention (April and May). While the effect of voice varies significantly across salary, tenure, and pre-treatment absenteeism,[23] the disappointment interaction effect remains negative, statistically significant, and is of slightly larger magnitude than in Table 2. In short, the voice intervention does appear to be operating through disappointment, and not one of these other channels.

In the conceptual framework outlined in section A.3, equation (2) makes it clear that the quit decision also depends on the wage hikes that take place at an individual's outside option. If workers who expected large wage hikes at Shahi (and who were therefore very disappointed) did so because they were expecting large wage hikes at their outside option, this would generate a positive correlation between wage disappointment and outside option wage hike expectations. If their large outside option wage hikes were actually realized, this would make it rational for them to quit. The positive wage disappointment coefficient, therefore, could instead be capturing higher quit rates among individuals who saw larger wage hikes at their outside option. Similarly, the negative interaction coefficient could be capturing greater effectiveness of the voice intervention among those with larger outside option hikes.

We argue that this scenario is unlikely for two reasons. First, the outside options for most Shahi workers are likely to be in one of the four female-dominated industries depicted in Figure A1. This figure shows that the wage hike in tailoring was similar to (or higher than) the wage hikes in the other three industries, in 2016 as well as in the previous two years. This makes it

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[23]The effects of the voice intervention are larger for higher-paid workers, weaker for workers with high absenteeism, and weaker for workers with 1-2 years of tenure. Coefficients are not reported but available upon request.

unlikely that a Shahi worker saw a higher wage hike at their outside option than the one they experienced at Shahi.

Second, we are able to test whether controlling for the worker's outside option type (as provided by the worker in the baseline survey), and its interaction with voice, affects our coefficient estimates. Specifically, in columns 2 and 5 of Table A7, we include indicators for whether a worker reported their outside option was a garment factory job, other factory job, agricultural self employment or labor, piece rate work, and other. Importantly, we also include the interactions between these indicators and the voice intervention indicator to ensure that the heterogeneity in the treatment effect we are attributing to wage disappointment is not due to variation in outside option wage hikes.

In columns 3 and 6, we conduct a similar exercise, except we use the job type specified by the worker in response to a slightly different question. This question asks if a worker can earn a higher wage at another job outside Shahi, and if so, what this job is. To control for this variable, we once again include indicators (and their interactions with the voice intervention) for garment factory job, other factory job, agricultural self employment or labor, piece rate work, other, and finally, an indicator for having no better-paying option at any time of the year.

Comparing the estimates in Table A7 to those in Table 2, it is clear that outside option job types do not substantially change any of our main coefficient estimates. This robustness check alleviates concerns that unobserved outside option wage hikes are contributing to our results in Table 2. Again, factory unit and job type fixed effects do not affect our coefficient estimates.

In Appendix Table A8, we also report specifications analogous to those in Table A7 for the quitting dummy (quit by November, specifically) and absenteeism (from July to November) results. Results are similar with the inclusion of these additional controls (interactions between treatment and worker characteristics and outside options).

Our findings show that workers who took the employee satisfaction survey, particularly the most disappointed ones, behaved differently from those who did not. Is this because the act of taking the survey changed their attitudes and behavior, or is this because the firm responded differently to those who took the survey (and these responses, in turn, changed worker behavior)? Because the survey was anonymous, we argue the latter explanation is unlikely, though it is theoretically possible that management noticed which workers were surveyed. We are able to test for one specific firm response – whether the firm raised wages (typically through promotions) specifically for treatment workers. In Appendix Table A9, we repeat our main specification using daily wages (total monthly take-home salary divided by the number of paid days) as the dependent variable. We examine wages in each month from July to November, using the most recently recorded wage for workers that have left the firm by the given month. Across all columns, there is no evidence that the treatment group had higher wages (or that the treatment-control difference was larger for the most disappointed). In short, it is unlikely that the firm responded

differently to treatment and control workers, especially not in the form of wage increases or promotions.

A.5 Machine Learning Approach

Because the heterogeneity analysis that is central to this paper was not pre-specified in a pre-analysis plan, we use machine learning methods to verify that disappointment is indeed one of the most important sources of heterogeneity (as opposed to one – out of many important sources – that was arbitrarily highlighted).

Specifically, we use lasso to select the most important predictors of quit rates (the indicator for having quit by the end of the November) and absenteeism (from July to November). We include in the lasso all of the variables used in our study: disappointment, the treatment indicator, outside option wage, tenure, a female dummy, education, dummies for language, hometown, and sewing department, pre-treatment absenteeism, dummies for job type (checker, helper, operator, tailor, other), dummies for most likely outside option (garment, piece rate, other factory, agriculture, other), and dummies for higher-paying outside option (garment, piece rate, other factory, agriculture, other, or none). In addition to the main effects, we also include interactions between each variable and the treatment dummy. These interactions capture the treatment effect heterogeneity that we are interested in.

For both quitting and absenteeism, the treatment-disappointment interaction is one of the few treatment interactions selected by the lasso (as shown by Figures A3 and A4). Moreover, for both sets of results, the treatment-disappointment interaction is the only one of the selected interaction coefficients that is statistically significant. In short, this analysis highlights disappointment as the most important source of heterogeneity in treatment effects.

A.6   Additional Figures and Tables

Figure A1: Minimum Wages in Female-Dominated Industries
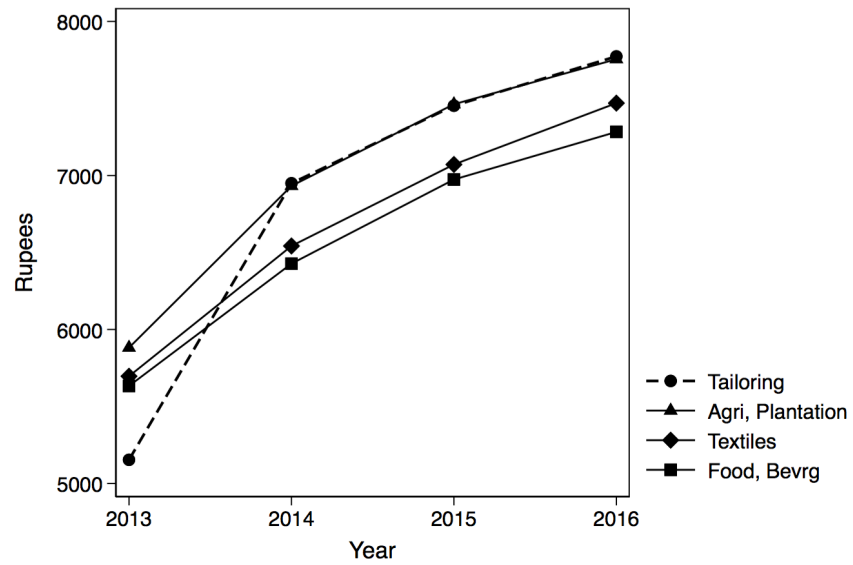
Notes: Each point represents the monthly minimum wage for the relevant year and industry in Karnataka, taking the median across all geographic areas and skill types.

Figure A2: Treatment-Control Differences in Absenteeism, by Month and Disappointment Level
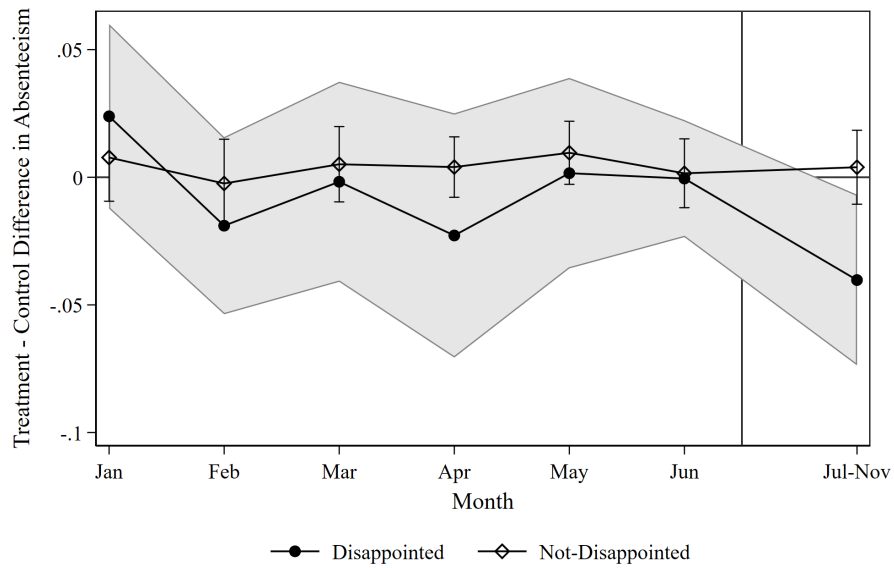
Notes: Graph plots the treatment-control differences in absenteeism (along with 95% confidence intervals), separately for Disappointed (above the 75th percentile) and Not Disappointed (below the 75th percentile) workers. The last point captures the share of days from July to November that a worker was reported absent, out of all days an individual was still employed by the firm (calculated in the same way as in Table 4 to avoid selection issues due to the treatment affecting quit rates).

Figure A3: Treatment Interactions Selected by Lasso: Quitting

Notes: Graph plots coefficient estimates and 95% confidence intervals on the treatment dummy interaction terms that were selected by lasso in a regression using an indicator for having quit by the end of November as the dependent variable. Continuous variables are scaled by their standard deviation. The following main effects were also selected by the lasso but not reported here: Monthly Salary, Tenure (in years), Female, Years of Education, Speak Kannada, Bangalore, Sewing Dept, Tailor, Helper, Pre-Treatment Absenteeism, Most Likely Job: Piece Rate, Most Likely Job: Other, Higher-Paying Job: None, Higher-Paying Job: Other Factory, Higher-Paying Job: Other.

Figure A4: Treatment Interactions Selected by Lasso: Absenteeism
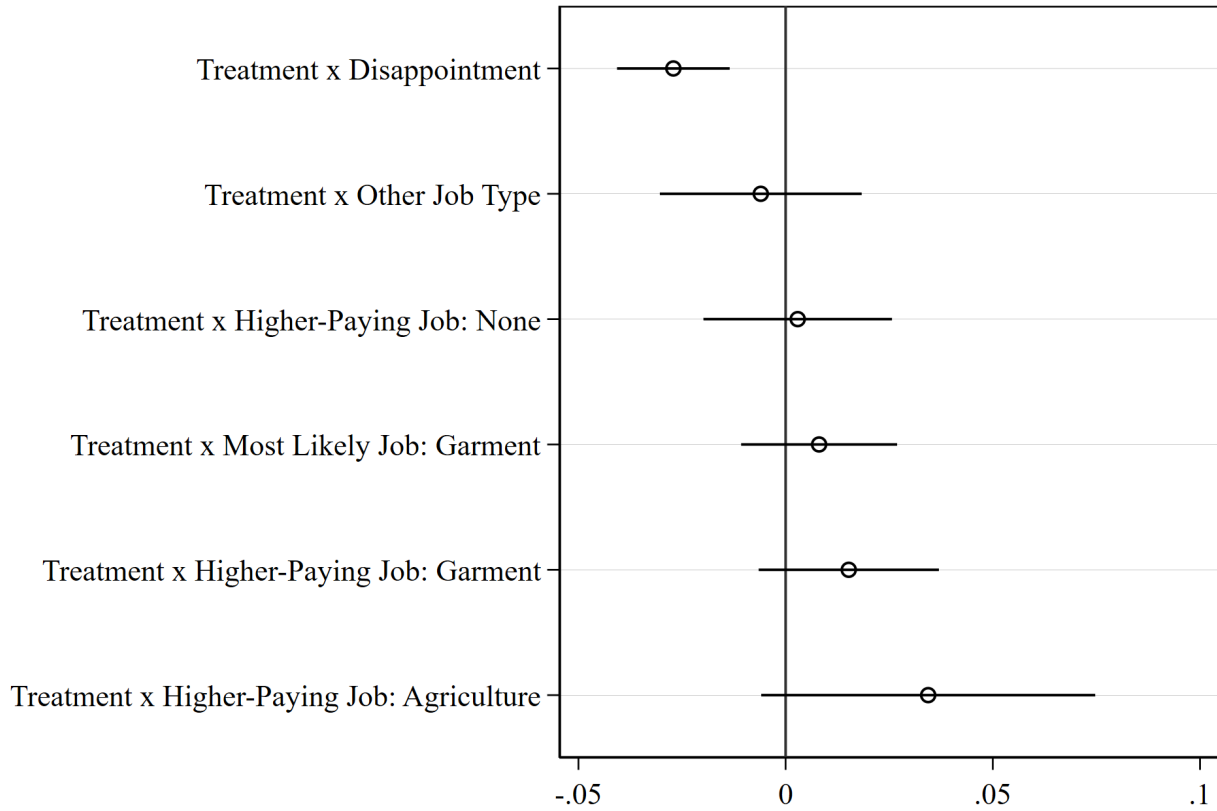
Notes: Graph plots coefficient estimates and 95% confidence intervals on the treatment dummy interaction terms that were selected by lasso in a regression using an absenteeism from July to November as the dependent variable. Continuous variables are scaled by their standard deviation. The following main effects were also selected by the lasso but not reported here: Disappointment, Monthly Salary, Tenure (in years), Female, Years of Education, Bangalore, Other Job Type, Pre-Treatment Absenteeism, Most Likely Job: Other Factory, Higher-Paying Job: Other.

Table A1: Satisfaction Survey

A. Evaluation of Job Conditions and Supervisor Characteristics

	Proportion				
Agreement with Statement...	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Mistakes held against me	0.49	0.26	0.03	0.17	0.06
Difficult to ask for help	0.44	0.31	0.04	0.14	0.07
Supervisor encourages me	0.03	0.03	0.02	0.42	0.51
Would talk to supervisor about leaving	0.09	0.07	0.01	0.41	0.42
Supervisor would advocate for me	0.05	0.09	0.03	0.41	0.42
Supervisor not interested in helping	0.45	0.37	0.03	0.08	0.07

B. Satisfaction Levels

	Proportion				
Satisfaction with...	Extremely Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Extremely Satisfied
Current job/position	0.02	0.04	0.04	0.32	0.57
Current wage	0.33	0.24	0.07	0.24	0.12
Supervisor	0.03	0.03	0.04	0.32	0.58
Workplace environment	0.01	0.02	0.03	0.30	0.64

Notes: N=822. Data from responses to the employee satisfaction survey that served as our voice intervention. See section A of the Appendix for exact wording for all questions.

Table A2: Correlates of Wage Disappointment

	Disappointment				
	(1)	(2)	(3)	(4)	(5)
Female	-0.87***	-0.76***	-0.31**	-0.32**	-0.31**
	(0.16)	(0.16)	(0.14)	(0.14)	(0.14)
Years of Education	-0.090***	-0.066***	-0.053***	-0.052***	-0.038**
	(0.020)	(0.019)	(0.017)	(0.017)	(0.016)
Speak Kannada	0.51***	0.48***	0.31***	0.30***	0.30***
	(0.12)	(0.11)	(0.099)	(0.099)	(0.099)
Bangalore	-0.34***	-0.40***	-0.41***	-0.40***	-0.41***
	(0.11)	(0.11)	(0.099)	(0.099)	(0.10)
Sewing Dept	0.21*	0.12	0.0033	0.000062	-0.032
	(0.13)	(0.12)	(0.11)	(0.11)	(0.11)
Tenure (in years)	-0.16***	-0.11***	-0.095***	-0.14***	-0.13***
	(0.029)	(0.027)	(0.025)	(0.047)	(0.043)
Monthly Salary		-0.19***	-0.061***	-0.062***	-0.060***
		(0.027)	(0.023)	(0.022)	(0.022)
Outside Option Salary		0.13***	0.089***	0.089***	0.086***
		(0.013)	(0.012)	(0.012)	(0.011)
Missing Outside Option Salary		0.032	0.19	0.18	0.19
		(0.36)	(0.31)	(0.31)	(0.31)
Pre-Treatment Absenteeism (%)			0.081***	0.081***	0.079***
			(0.0067)	(0.0067)	(0.0066)
Present for 2014 hike				0.32**	0.30**
				(0.14)	(0.14)
Present for 2015 hike				-0.17	-0.013
				(0.12)	(0.13)
% of group present for 2014 hike					0.13*
					(0.073)
% of group present for 2015 hike					-0.31***
					(0.10)
Observations	1871	1871	1871	1871	1871
Mean of Dependent Var.	1.69	1.69	1.69	1.69	1.69

Notes: Robust standard errors in parentheses. * $p< 0.1$ ** $p< 0.05$ *** $p< 0.01$. Individuals who are missing the outside option salary variable are assigned the sample average.

Table A3: Hazard Model Estimates of the Effects of Disappointment and Voice on Quitting, Alternative Specifications

	(1)	(2)	(3)	(4)	(5)	(6)
Voice Group	-0.22*	0.037	-0.16	0.14	-0.22**	0.038
	(0.11)	(0.14)	(0.11)	(0.15)	(0.11)	(0.14)
Disappointment	0.076***	0.12***	0.13***	0.18***	0.048**	0.093***
	(0.021)	(0.023)	(0.022)	(0.024)	(0.022)	(0.025)
Disappointment x Voice		-0.12***		-0.14***		-0.13***
		(0.045)		(0.052)		(0.039)
Monthly Salary					-0.081***	-0.084***
					(0.020)	(0.020)
Outside Option Salary					0.018*	0.020*
					(0.010)	(0.010)
Observations	1871	1871	1871	1871	1871	1871
Fixed Effects	None	None	None	None	None	None
Frailty	No	No	No	No	Yes	Yes
Demographic Controls	Yes	Yes	No	No	Yes	Yes
p-value of sum		0.99		0.41		0.37

Notes: Robust standard errors are in parentheses. * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$. Coefficients (not hazard ratios) from a Cox proportional hazard model are reported. All regressions control for years of tenure indicators, years of education, and indicators for Kannada (language), Bangalore (hometown), and sewing department. Individuals who are missing the outside option salary variable are assigned the sample average, and an indicator for those missing this variable is included.

Table A4: Hazard Model Estimates of the Effects of High Disappointment (Indicators) and Voice on Quitting

	(1)	(2)	(3)	(4)
Voice Group	-0.019	-0.0064	-0.028	-0.036
	(0.16)	(0.16)	(0.13)	(0.13)
High Disappointment	0.37**	0.42***	0.40**	0.46**
	(0.16)	(0.16)	(0.17)	(0.18)
High Disappointment x Voice	-0.38*	-0.40*	-0.71***	-0.69***
	(0.23)	(0.23)	(0.26)	(0.26)
Monthly Salary	-0.084***	-0.092***	-0.087***	-0.093***
	(0.023)	(0.026)	(0.024)	(0.027)
Outside Option Salary	0.024**	0.021**	0.026***	0.023**
	(0.010)	(0.011)	(0.0099)	(0.011)
Missing Outside Option Salary	0.082	0.13	0.084	0.12
	(0.30)	(0.31)	(0.29)	(0.31)
Observations	1871	1871	1871	1871
Fixed Effects	None	Unit & Job	None	Unit & Job
High Disappointment Definition	Above Median	Above Median	Top Quartile	Top Quartile
p-value of sum	0.95	0.93	0.14	0.29

Notes: Robust standard errors are in parentheses. * p< 0.1 ** p< 0.05 *** p< 0.01. Coefficients (not hazard ratios) from a Cox proportional hazard model are reported. All regressions control for years of tenure indicators, years of education, and indicators for Kannada (language), Bangalore (hometown), and sewing department. Individuals who are missing the outside option salary variable are assigned the sample average, and an indicator for those missing this variable is included. The last row reports the p-value of the test of the null that the sum of the Disappointment and Disappointment-Voice coefficients is equal to zero.

Table A5: Effects of Disappointment and Voice on Quitting, By Month – Alternative Specifications

	(1) Jul	(2) Aug	(3) Sep	(4) Oct	(5) Nov	(6) Jul	(7) Aug	(8) Sep	(9) Oct	(10) Nov	(11) Jul	(12) Aug	(13) Sep	(14) Oct	(15) Nov
								Quit by the end of...							
Voice Group	-0.017*	-0.029**	-0.024*	-0.030*	-0.029*	-0.0030	0.0053	0.020	0.016	0.030	-0.0049	0.0023	0.015	0.011	0.024
	(0.0100)	(0.013)	(0.014)	(0.016)	(0.017)	(0.013)	(0.016)	(0.017)	(0.019)	(0.021)	(0.013)	(0.016)	(0.017)	(0.019)	(0.022)
Disappointment	0.0033	0.0087**	0.010**	0.0082*	0.0067	0.0079*	0.018***	0.023***	0.022***	0.025***	0.0085*	0.020***	0.024***	0.022***	0.026***
	(0.0032)	(0.0041)	(0.0045)	(0.0047)	(0.0050)	(0.0046)	(0.0057)	(0.0062)	(0.0065)	(0.0065)	(0.0045)	(0.0057)	(0.0059)	(0.0062)	(0.0063)
Disappointment x Voice						-0.0076	-0.019***	-0.024***	-0.026***	-0.033***	-0.0069	-0.018**	-0.022***	-0.023***	-0.029***
						(0.0056)	(0.0069)	(0.0074)	(0.0078)	(0.0085)	(0.0056)	(0.0070)	(0.0074)	(0.0079)	(0.0085)
Monthly Salary	-0.0036**	-0.0054**	-0.0065**	-0.0077***	-0.010***	-0.0036**	-0.0059***	-0.0065***	-0.0081***	-0.010***					
	(0.0016)	(0.0023)	(0.0026)	(0.0026)	(0.0028)	(0.0015)	(0.0024)	(0.0026)	(0.0027)	(0.0029)					
Outside Option Salary	0.0015	0.0019	0.0024*	0.00095	0.0027*	0.0013	0.0018	0.0024*	0.0011	0.0025					
	(0.00099)	(0.0013)	(0.0014)	(0.0015)	(0.0017)	(0.00099)	(0.0013)	(0.0014)	(0.0015)	(0.0017)					
Observations	1871	1871	1871	1871	1871	1871	1871	1871	1871	1871	1871	1871	1871	1871	1871
Mean of Dep. Var.	0.050	0.086	0.11	0.14	0.18	0.050	0.086	0.11	0.14	0.18	0.050	0.086	0.11	0.14	0.18
Fixed Effects	None	None	None	None	None	Unit & Job	Unit & Job	Unit & Job	Unit & Job	Unit & Job	None	None	None	None	None
p-value of sum						0.94	0.91	0.86	0.52	0.20	0.63	0.58	0.60	0.91	0.54

Notes: Robust standard errors are in parentheses. * p< 0.1 ** p< 0.05 *** p< 0.01. All regressions control for years of tenure indicators, years of education, and indicators for Kannada (language), Bangalore (hometown), and sewing department. Individuals who are missing the outside option salary variable are assigned the sample average, and an indicator for those missing this variable is included. The last row reports the p-value of the test of the null that the sum of the Disappointment and Disappointment-Voice coefficients is equal to zero.

Table A6: Effects of Disappointment and Voice on Absenteeism, By Month – Alternative Specifications

	(1) Jul	(2) Jul-Aug	(3) Jul-Sep	(4) Jul-Oct	(5) Jul-Nov	(6) Jul	(7) Jul-Aug	(8) Jul-Sep	(9) Jul-Oct	(10) Jul-Nov	(11) Jul	(12) Jul-Aug	(13) Jul-Sep	(14) Jul-Oct	(15) Jul-Nov
								Share of days absent in...							
Voice Group	-0.0053	-0.0056	-0.0055	-0.0074	-0.0076	0.0067	0.0093	0.010	0.0096	0.0090	0.0053	0.0080	0.0083	0.0078	0.0072
	(0.0074)	(0.0070)	(0.0068)	(0.0066)	(0.0066)	(0.0091)	(0.0087)	(0.0085)	(0.0084)	(0.0084)	(0.0092)	(0.0086)	(0.0085)	(0.0084)	(0.0084)
Disappointment	0.0033	0.0038	0.0020	0.00086	0.00032	0.0072*	0.0083**	0.0066*	0.0059	0.0052	0.0065*	0.0078**	0.0063*	0.0055	0.0049
	(0.0027)	(0.0025)	(0.0026)	(0.0026)	(0.0026)	(0.0037)	(0.0036)	(0.0037)	(0.0036)	(0.0036)	(0.0036)	(0.0035)	(0.0035)	(0.0035)	(0.0034)
Disappointment x Voice						-0.0063	-0.0082**	-0.0085**	-0.0094**	-0.0091**	-0.0062	-0.0080*	-0.0080**	-0.0089**	-0.0086**
						(0.0042)	(0.0041)	(0.0040)	(0.0039)	(0.0039)	(0.0042)	(0.0041)	(0.0040)	(0.0039)	(0.0039)
Monthly Salary	-0.00058	-0.00050	-0.0013	-0.0013	-0.0017	0.00015	0.000031	-0.00079	-0.00084	-0.0011					
	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0011)					
Outside Option Salary	0.00027	0.000097	0.00060	0.00041	0.00059	0.00022	0.00012	0.00070	0.00052	0.00062					
	(0.00068)	(0.00067)	(0.00067)	(0.00066)	(0.00067)	(0.00069)	(0.00068)	(0.00068)	(0.00067)	(0.00068)					
Observations	1871	1871	1871	1871	1871	1871	1871	1871	1871	1871	1871	1871	1871	1871	1871
Mean of Dep. Var.	0.100	0.11	0.12	0.12	0.13	0.100	0.11	0.12	0.12	0.13	0.100	0.11	0.12	0.12	0.13
Fixed Effects	None	None	None	None	None	Unit & Job	Unit & Job	Unit & Job	Unit & Job	Unit & Job	None	None	None	None	None
p-value of sum						0.77	0.99	0.51	0.21	0.16	0.93	0.94	0.54	0.19	0.17

Notes: Robust standard errors are in parentheses. * $p< 0.1$ ** $p< 0.05$ *** $p< 0.01$. All regressions control for years of tenure indicators, years of education, and indicators for Kannada (language), Bangalore (hometown), and sewing department. Individuals who are missing the outside option salary variable are assigned the sample average, and an indicator for those missing this variable is included. The last row reports the p-value of the test of the null that the sum of the Disappointment and Disappointment-Voice coefficients is equal to zero.

Table A7: Hazard Model Estimates, Controlling for Other Interaction Terms

	(1)	(2)	(3)	(4)	(5)	(6)
Voice Group	-0.20	0.047	-0.13	-0.23	-0.0043	-0.084
	(0.22)	(0.20)	(0.26)	(0.22)	(0.20)	(0.27)
Disappointment	0.071**	0.087***	0.091***	0.071**	0.098***	0.098***
	(0.028)	(0.029)	(0.028)	(0.031)	(0.030)	(0.030)
Disappointment x Voice	-0.17***	-0.13***	-0.13***	-0.17***	-0.13***	-0.13***
	(0.053)	(0.045)	(0.045)	(0.055)	(0.046)	(0.046)
Monthly Salary	-0.0078	-0.084***	-0.073***	-0.0014	-0.084***	-0.078***
	(0.022)	(0.025)	(0.024)	(0.024)	(0.028)	(0.028)
Outside Option Salary	0.0047	0.024**	0.020*	-0.00024	0.019*	0.018
	(0.014)	(0.011)	(0.011)	(0.014)	(0.011)	(0.011)
Observations	1871	1871	1871	1871	1871	1871
Fixed Effects	None	None	None	Unit & Job	Unit & Job	Unit & Job
Interaction Variables	Worker characteristics	Most obtainable job	Higher-paying job	Worker characteristics	Most obtainable job	Higher-paying job
p-value of sum	0.03	0.26	0.31	0.04	0.50	0.46

Notes: Robust standard errors are in parentheses. * p< 0.1 ** p< 0.05 *** p< 0.01. Coefficients (not hazard ratios) from a Cox proportional hazard model are reported. All regressions control for years of tenure indicators, years of education, and indicators for Kannada (language), Bangalore (hometown), and sewing department. Individuals who are missing the outside option salary variable are assigned the sample average, and an indicator for those missing this variable is included. The last row reports the p-value of the test of the null that the sum of the Disappointment and Disappointment-Voice coefficients is equal to zero. Columns 1 and 4 include interactions between the voice indicator and the following worker characteristics, de-meaned: pre-treatment (April-May) absenteeism, monthly salary, outside option salary (and a missing indicator), years of tenure indicators, years of education, and indicators for Kannada (language), Bangalore (hometown), and sewing department. In columns 2 and 5, regressions also control for indicators for the most obtainable outside option job type, as well as their interactions with the voice intervention indicator. In columns 3 and 6, regressions also control for indicators for the higher paying outside option job type, as well as their interactions with the voice intervention indicator.

Table A8: Quitting and Attendance Estimates, Controlling for Other Interaction Terms

	Quit by the end of Nov.			Share of days absent in Jul-Nov.		
	(1)	(2)	(3)	(4)	(5)	(6)
Voice Group	-0.050	0.011	0.010	-0.0035	0.016	-0.0017
	(0.048)	(0.032)	(0.034)	(0.019)	(0.013)	(0.014)
Disappointment	0.013*	0.022***	0.023***	0.0045	0.011***	0.011***
	(0.0077)	(0.0066)	(0.0066)	(0.0041)	(0.0033)	(0.0033)
Disappointment x Voice	-0.031***	-0.032***	-0.032***	-0.0090*	-0.0099**	-0.0099**
	(0.010)	(0.0086)	(0.0085)	(0.0050)	(0.0040)	(0.0040)
Monthly Salary	-0.00094	-0.011***	-0.010***	-0.00023	-0.0049***	-0.0047***
	(0.0038)	(0.0028)	(0.0027)	(0.0016)	(0.0013)	(0.0013)
Outside Option Salary	-0.00042	0.0032*	0.0026	-0.00029	0.0011	0.00093
	(0.0023)	(0.0016)	(0.0017)	(0.0010)	(0.00070)	(0.00071)
Observations	1871	1871	1871	1871	1871	1871
Mean of Dependent Var.	0.18	0.18	0.18	0.13	0.13	0.13
Fixed Effects	None	None	None	None	None	None
Interaction Variables	Worker characteristics	Most obtainable job	Higher-paying job	Worker characteristics	Most obtainable job	Higher-paying job
p-value of sum	0.01	0.11	0.13	0.12	0.71	0.68

Notes: Robust standard errors are in parentheses. * p< 0.1 ** p< 0.05 *** p< 0.01. All regressions control for years of tenure indicators, years of education, and indicators for Kannada (language), Bangalore (hometown), and sewing department. Individuals who are missing the outside option salary variable are assigned the sample average, and an indicator for those missing this variable is included. The last row reports the p-value of the test of the null that the sum of the Disappointment and Disappointment-Voice coefficients is equal to zero. Columns 1 and 4 include interactions between the voice indicator and the following worker characteristics, de-meaned: pre-treatment (April-May) absenteeism, monthly salary, outside option salary (and a missing indicator), years of tenure indicators, years of education, and indicators for Kannada (language), Bangalore (hometown), and sewing department. In columns 2 and 5, regressions also control for indicators for the most obtainable outside option job type, as well as their interactions with the voice intervention indicator. In columns 3 and 6, regressions also control for indicators for the higher paying outside option job type, as well as their interactions with the voice intervention indicator.

Table A9: Effects of Disappointment and Voice on Wages

	Log daily wage, last recorded as of...				
	(1)	(2)	(3)	(4)	(5)
	Jun	Jul	Aug	Sep	Oct
Voice Group	0.0097	0.0094	0.0080	0.0061	0.0068
	(0.0074)	(0.0073)	(0.0074)	(0.0075)	(0.0078)
Disappointment	0.029***	0.029***	0.028***	0.028***	0.028***
	(0.0031)	(0.0031)	(0.0031)	(0.0031)	(0.0032)
Disappointment x Voice	0.000056	-0.000041	0.00054	0.00053	0.00063
	(0.0045)	(0.0045)	(0.0046)	(0.0046)	(0.0046)
Monthly Salary	0.049***	0.049***	0.049***	0.050***	0.050***
	(0.0014)	(0.0014)	(0.0014)	(0.0014)	(0.0015)
Outside Option Salary	0.0015**	0.0015**	0.0014**	0.0019***	0.0018**
	(0.00066)	(0.00067)	(0.00068)	(0.00068)	(0.00069)
Observations	1871	1871	1871	1871	1871
Mean of Dependent Var.	5.52	5.52	5.54	5.52	5.53
Fixed Effects	None	None	None	None	None
p-value of sum	0.00	0.00	0.00	0.00	0.00

Notes: Robust standard errors are in parentheses. * p< 0.1 ** p< 0.05 *** p< 0.01. The dependent variable is the log of daily wages (monthly take-home pay divided by the number of paid days) in the specified month (or last recorded, for workers who have quit by that month). All regressions control for years of tenure indicators, years of education, and indicators for Kannada (language), Bangalore (hometown), and sewing department. Individuals who are missing the outside option salary variable are assigned the sample average, and an indicator for those missing this variable is included. The last row reports the p-value of the test of the null that the sum of the Disappointment and Disappointment-Voice coefficients is equal to zero.