More Money, More Problems? Expectations, Wage Hikes, and Worker Voice*

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Abstract

We report on the results of a worker "voice" experiment in an Indian ready-made garments firm. We begin by documenting higher quit rates after a scheduled wage hike, showing that workers whose expectations regarding the size of the hike were farther from the realized increase were more likely to quit. But the randomized voice treatment, which gave workers the opportunity to complete a survey just after the wage increase in which they were asked for feedback on job conditions, supervisor performance, and overall job satisfaction, mitigated the turnover effect of the hike almost entirely.

Keywords: voice, reference dependence, anchoring, minimum wage, ready-made garments, India
JEL Classification Codes: D91, J28, J31, O15

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1 Introduction

Hirschman's seminal thesis on exit and voice – the idea that in the face of low-quality goods or services, consumers, workers, and citizens can either voice their discontent and create improvement, or exit the relationship – has profound implications for labor market dynamics (Hirschman, 1970). Evidence from lab experiments demonstrates that voice has both inherent and instrumental value (Ong et al., 2012). A worker's utility increases when she is able to communicate her dissatisfaction to her employer, creating inherent value. And the ability to lodge complaints effectively may generate positive changes in the employment relationship, generating an instrumental value. Through these two channels, voice thus functions as non-wage compensation. As a result, turnover should decrease when workers can – either individually or collectively – meaningfully communicate their dissatisfaction with their employer.

While indirect tests of Hirschman's theory 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); Kuang and Wang (2017); Lien et al. (2017); Watkins and Hyclak (2011); Williamson (1976)), to our knowledge there has been no rigorous direct test of the impacts of increased voice on worker turnover. In this paper, we seek to provide this evidence via a randomized controlled trial in which we enable greater voice for workers just after what proved to be a disappointing scheduled wage hike.

The Government of India revises its wage floors each year; the size of the "increment" – that is, the increase in the minimum wage – is generally linked to expected inflation. 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 employer-worker relationship in this context is never more fraught than after an increment that is perceived by workers to be below expectations. Indeed the period of time leading up to and following the annual hike is often marked by widespread labor unrest (Justino, 2006).

To understand the impacts of wage-related disappointment on turnover, and the potential role of increased voice in mitigating these effects, we partnered with an Indian ready-made garments firm that employs more than 100,000 workers, a majority of whom are low-skill sewing machine operators. Just before the 2016 minimum wage schedule was announced, we collected data 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 were quite disappointed by wage hike: on average, workers' expectations were about 7 USD (6 percent of total salary) higher than their realized post-increment monthly wages. Moreover, we show that this disappointment translated into exit from the firm: every 10 percent deviation between the realized hike and expectations increased the probability of quitting after the hike by 1 percentage point (about 12 percent of the turnover rate in the 3 months following the increment). This result holds (and indeed is stronger) for the 50 percent of workers who reported that they would make less at their best outside option if they were to leave their current job, consistent with a reference-dependent utility representation in which reference points are benchmarked to expectations (Abeler et al., 2011; Backus et al., 2017; Barberis, 2013; Card and Dahl, 2011; Clark, 1999; Kőszegi and Rabin, 2006). We find that expectations are in part determined by individual and social group experience with the previous year's wage hike.

Just after the wage hike, we randomized approximately half of surveyed sample to an intervention designed to enable voice within the firm. Workers in the treatment group were invited to take part in a survey asking for feedback on 1) satisfaction related to job, supervisor, wage, and workplace environment; and 2) workers' opinions on various statements: whether mistakes are held against them, whether it is difficult to ask others for help, whether supervisors encourage learning, and whether they can trust their supervisor to advocate for them, listen to them, and help solve their problems.

The results of this survey are themselves telling. Many workers used the survey to express their dissatisfaction with various aspects of the job. For instance, approximately 20%

of respondents agreed with the statements that mistakes were held against them and asking for help was difficult. Over 50% of the sample responded negatively to at least one of the six specific statements about the work environment. Finally, though average reported satisfaction levels with respect to the job, supervisor, and workplace environment were quite high (around 4 on a 5-point scale), satisfaction with wage levels were much lower – averaging less than 3 – which highlights the salience of wages as a potential driver of exit.

Enabling voice reduced turnover by 2 percentage points, a 22% reduction on mean 3-month turnover. This effect is strongest for workers who were most disappointed with the wage increment (i.e., whose expectations were farthest from the realized wage hike). This pattern is also evident in results on the impacts of wage-related disappointment and the voice treatment on absenteeism, which we interpret as a proxy for effort provision.

Our study makes two main contributions. First, we provide what is to our knowledge the first randomized evaluation of Hirschman's hypothesis on exit and voice in the employment relationship. Economic studies have carried out indirect tests using variation in union representation (Freeman, 1980); employee participation in offline problem-solving groups and self-directed teams (Batt et al., 2002); and voice in the realm of workplace hazards and unsatisfactory work conditions (Cottini et al., 2011). We add to this work by providing direct causal evidence of the power of voice to mitigate exit.

Second, despite a rich theoretical literature on reference-dependent preferences (see, e.g., Kőszegi and Rabin (2006)), most empirical evidence on these the implications of this behavioral phenomenon is limited to lab-experimental studies (Barberis, 2013). Two notable exceptions are Card and Dahl (2011), who examine violence following unexpected football game losses for the home team, and Backus et al. (2017), who study disappointment and exit in an online auction market. Our paper builds on these two studies by directly measuring expectations and showing that falling short of these expectations is related with a greater probability of turnover.

The remainder of the paper is organizes as follows. Section 2 reports on the context and randomized voice treatment. Section 3 describes the data. Section 4 discusses the estimation

strategy. Section 5 reports the results, and section 6 concludes.

2 Context and Intervention

2.1 Context

Our study focuses on the Indian garment industry, where we have partnered with Shahi Exports, Private Limited. Shahi is the largest private garment exporter in India and the single largest employer of unskilled and semi-skilled female labor in the country. For this firm, like other manufacturing firms in low-income contexts, high turnover is a major challenge that leads to persistently high recruitment and training costs. We are interested in studying whether a "voice" intervention, described below, can reduce the exit of individuals after an event that increases disappointment among workers.

Somewhat parodoxically, the "disappointing" event that we focus on is the firm-wide wage hike that took place in 2016. The Indian government makes adjustments to its minimum wage schedule every year, which results in Shahi revising the wages for all of its workers following these announcements. Anecdotal evidence suggests that worker dissatisfaction and quit rates are especially high after these annual firm-wide wage increases, a puzzle that may be explained by worker expectations. Specifically, if workers anchor their utility on the expectation of a particular wage increase, and if the actual increase falls short of this expectation, a lower-than-expected wage increase could have the unexpected effect of increasing turnover after these wage hike announcements.

In order to evaluate whether an employee voice intervention is capable of reducing the exit of individuals after a potentially disappointing wage hike, we first elicited worker expectations about the upcoming wage hike, just before the firm announced how the government minimum wage changes would translate into wage increases for its workers. These expectations allow us to create a measure of disappointment for each worker. We then randomly assigned half of the individuals to receive the voice intervention: an employee satisfaction survey, which the exit-voice literature predicts could provide workers with an alternative

way to express their disappointment – by voicing their opinions instead of exiting the firm. We describe the baseline survey of worker expectations and voice intervention below.

2.2 Baseline Surveys

In May of 2016, before workers were made aware of how the annual minimum wage hike would translate into an increase in their take-home pay, we conducted a baseline survey 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 outside option – the job they would most likely have if they did not work at Shahi. We surveyed a randomly selected sample of approximately 2,000 workers from 12 different factory units located in the cities of Bangalore, Mysore, Maddur, Shimoga, and Kannakapura in the Indian state of Karnataka.

2.3 Intervention

Of this sample, approximately half were randomly selected to respond to an employment satisfaction survey after the wage hikes were implemented at the beginning of June. These surveys were administered from the end of June to the beginning of July and were designed as an intervention to help mitigate the disappointment and higher quit rates that, according to anecdotal evidence, typically followed these wage hikes. The survey questions, listed in Table 1, allowed respondents to express their 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.

The use of an employee satisfaction survey to mitigate disappointment is motivated by the work of Hirschman (1970), who proposed that individuals have two main options in unsatisfactory situations: "exit" or "voice." Employees 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 garment workers in our analysis may not typically have many opportunities to voice concerns about their working conditions and may therefore have no option but exit, which could be a partial explanation for the firm's high turnover rates. A survey like this has the potential to reduce exit even before leading to actual changes in the work environment, by providing workers with a means of expressing their dissatisfaction and concerns.

Table 1: Employment Satisfaction Survey

A. Evaluation of Job Conditions and Supervisor Characteristics

	(1)	(2)	(3)	(4)	(5)
			Proportion		
Agreement with statement…	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
If I make a mistake in this job, it is often held against me.	0.482	0.266	0.026	0.170	0.057
It is difficult to ask others in this line for help.	0.410	0.335	0.038	0.151	0.066
My supervisor often encourages me to take on new tasks or to learn how to do things I have never done before	0.030	0.035	0.017	0.413	0.505
If I was thinking about leaving this company to pursue a better job elsewhere, I would talk to my supervisor about it.	0.086	0.064	0.013	0.422	0.414
If I had a problem in this company, I could depend on my supervisor to be my advocate.	0.052	0.080	0.030	0.420	0.417
Often when I raise a problem with my supervisor, s/he does not seem very interested in helping me find a solution.	0.449	0.377	0.029	0.080	0.065

B. Satisfaction Levels

	(1)	(2)	(3)	(4)	(5)
			Proportion		
Satisfaction with…	Extremely Dissatisfied	Somewhat Dissatisfied	Neither Satisfied Nor Dissatisfied	Somewhat Satisfied	Extremely Satisfied
Current job/position	0.022	0.040	0.038	0.332	0.568
Current wage	0.318	0.234	0.067	0.262	0.119
Supervisor	0.026	0.032	0.039	0.320	0.584
Workplace environment	0.011	0.023	0.026	0.294	0.646

Notes: N=973. Data from responses to the employee satisfaction survey that served as our voice intervention.

In fact, the responses to this employee satisfaction survey reveal that many workers used it to express dissatisfaction with various aspects of the job. Table 1 displays the distribution of responses to all of the survey questions. In panel A, we see that approximately 20% of workers agreed or strongly agreed with the first two statements: that mistakes were held

against them and asking for help was difficult. Smaller proportions (ranging between 6% and 15%) provided negative evaluations of their supervisor, indicating their supervisor was either not encouraging, not someone they could trust, or indifferent about helping solve problems. Combining responses to all of the statements in panel A, over 50% of the sample responded negatively to at least one of the six statements. Panel B of Table 1 also reveals some interesting results. Though average reported satisfaction levels with respect to the job, supervisor, and workplace environment were quite high (over half reported being extremely satisfied), satisfaction with wage levels were much lower – with over half either somewhat or extremely dissatisfied. This highlights the salience of wages as a potential driver of exit.

3 Data

We use two main sources of data for this analysis: information about wage hike expectations collected in the baseline surveys, and firm administrative data on employee retention, attendance, and individual characteristics.

Our main independent variable of interest, the randomly assigned treatment indicator, is straightforward. We also construct, using the baseline survey, 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) for all individuals in our sample.[1]

Given the motivation from the exit-voice literature, we are most interested in retention as an outcome. From the firm's administrative data, we are able to observe when an individual leaves the firm. In our main regressions, we create an indicator equal to one for workers that quit in any of the three months following the wage hike – July, August, or September of 2016.

[1]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 (more skilled workers, for example) as long as it complies with the new minimum wage laws. This is not the first time, however, that Shahi implemented a uniform wage increase for all workers in all factories in Karnataka.

We also observe daily attendance and are able to calculate the share of days (across those three months) a worker was absent. A less extreme version of exit, and likely indicative of decreased motivation, absenteeism offers another interesting outcome to study the mitigative effects of our intervention.

We obtain a set of individual-level controls from the firm's personnel data. These include tenure at the firm, gender, education, hometown, and department.

3.1 Summary Statistics

Table 2 reports summary statistics, with the first column representing the full sample. Column 2 reports statistics for the treatment group that received the voice intervention, column 3 for the control group, and column 4 the difference between the two. Turnover is high: 9% of the sample quit in the three months following the wage increase (July to September 2016). Wage disappointment, defined as the difference between expected and actual monthly wages after the hike, is also high. On average, individuals were expecting to earn 7 USD more per month (which is approximately 6% of average monthly wages) than they actually ended up earning after the hike. The sample is balanced on important observables, like salary, tenure, language, and education, across treatment and control.

4 Empirical Strategy

Our empirical strategy consists of 3 main parts. First, in order to verify that disappointment from these wage hikes has some influence on the decision to quit, we explore whether disappointment is correlated with quit rates. We then study the effects of our intervention on retention, estimating average effects as well as allowing for heteroegeneity across the disappointment distribution. Finally, we explore what might be driving these expectations.

To investigate the relationship between quitting and disappointment, we estimate the fol-

Table 2: Summary Statistics

	(1)	(2)	(3)	(4)
	Full sample	Voice Intervention Group	Control Group	Difference
Quit After Hike	0.094	0.082	0.103	0.021
	(0.292)	(0.275)	(0.304)	(0.013)
Share of Days Absent	0.116	0.107	0.118	0.010
	(0.153)	(0.133)	(0.161)	(0.007)
Wage Disappointment	0.730	0.764	0.708	-0.056
	(1.134)	(1.104)	(1.149)	(0.049)
Has Better Outside Option	0.778	0.786	0.769	-0.017
	(0.416)	(0.410)	(0.421)	(0.018)
Monthly Salary	13.010	13.018	13.066	0.048
	(4.256)	(4.051)	(4.529)	(0.186)
Years of Tenure	1.694	1.721	1.723	0.002
	(1.652)	(1.620)	(1.648)	(0.071)
Female	0.691	0.693	0.692	-0.000
	(0.462)	(0.462)	(0.462)	(0.020)
Years of Education	8.492	8.612	8.449	-0.163
	(3.628)	(3.527)	(3.703)	(0.160)
Speak Kannadas	0.677	0.674	0.695	0.021
	(0.468)	(0.469)	(0.461)	(0.020)
Bangalore	0.682	0.668	0.686	0.018
	(0.466)	(0.471)	(0.464)	(0.020)
Sewing Dept	0.546	0.551	0.542	-0.009
	(0.498)	(0.498)	(0.498)	(0.022)
Observations	2335	973	1167	2140

Notes: Standard errors are in parentheses. * $p< 0.1$ ** $p< 0.05$ *** $p< 0.01$. Quit after hike is an indicator equal to 1 for workers who left the firm in July, August, or October of 2016. Wage disappointment is the difference between expected and actual wages after the wage hike, reported in 10 USD increments. Monthly salary is also reported in 10 USD increments. Share of days absent is the proportion of work days in July, August, and October 2016, during which an individual was still employed at the firm, that an individual was reported absent.

lowing specification. For individual i working in factory unit j,

$$Q_{ij} = \alpha + \beta D_i + \gamma X_i + \mu_j + \epsilon_{ij}, \tag{1}$$

where Q_{ij} is an indicator for whether a worker quit their job between July and September 2016 and D_i is a measure of disappointment: the difference between the wage hike an individual was expecting to receive and the wage hike an individual actually received. Positive values indicate disappointment. X_i is a vector of controls: gender, tenure at the firm, years of education, an indicator for speaking the Kannada dialect, an indicator for being from Bangalore, and an indicator for being part of the sewing department. μ_j denote unit fixed effects to control for factory unit-level unobservables. In all of our analysis, we cluster standard errors at the unit level.

In order to estimate the effect of our treatment on outcomes, we run the following regression:

$$Q_{ij} = \alpha + \delta T_i + \gamma X_i + \mu_j + \epsilon_{ij}, \tag{2}$$

where T_{ij} is an indicator for being randomly assigned to receive the employee satisfaction survey. To explore heterogeneity across individuals who experienced varying levels of disappointment, we estimate:

$$Q_{ij} = \alpha + \delta T_i + \beta D_i + \xi T_i D_i + \gamma X_i + \mu_j + \epsilon_{ij}. \tag{3}$$

Finally, we explore what might be driving expectations. We are interested in whether the wage hike that took place in 2015, which was larger than the wage hike in 2016, led individuals to set high expectations for the wage hike in 2016. We therefore create measures to capture the likelihood of an individual anchoring their expectations to the 2015 wage hike. The most obvious variable is an indicator for whether the individual was working at the firm during the 2015 wage hike (in April 2015). Next, we calculate the share of individuals in a worker's

network that was at the firm during the last wage hike, where a worker's network is defined by other individuals working on their same production line and speaking the same language. We also calculate the share of individuals who were present during the last wage hike, among individuals working on the same line but who do not speak the same language. We regress wage hike expectations on all of these variables, as well as a set of basic individual-level controls.

5 Results

5.1 Motivating Evidence

We begin with some motivating evidence. If workers are indeed quitting due to disappointing wage hikes, we should expect to see higher quit rates after the hike among those who were more disappointed – specifically, those with large wage expectations relative to the actual wage hike received. Table 3 reports the coefficient estimates from equation 1. In line with predictions, there is a positive relationship between quit rates and disappointment, and this relationship is significant at the 5% level across columns 2 through 4, which include basic individual controls like tenure and education that could certainly be correlated with both quitting and expectations and are therefore important to include. Though we might expect salary to be correlated with expected wage hikes as well as quit rates, including salary as a control in column 3 does not affect our main coefficient of interest and does not appear to have an independent effect on quitting.

We have interpreted these results as a behavioral response to disappointment, but they could also be the result of an optimal response to a wage hike, if workers were simply waiting to learn their new wage before re-evaluating their employment decision. If the wage hike was not large enough to make the utility from staying at the firm higher than the utility from the next best option, it would be rational for individuals to quit after wage increase, and this quitting could be correlated with expectations if those with the higher expectations are also those with better outside options. Fortunately, we collect information on workers' outside

Table 3: Wage Disappointment and Quit Rates

	(1)	(2)	(3)	(4)
	Quit After Hike	Quit After Hike	Quit After Hike	Quit After Hike
Wage Disappointment	0.00621	0.00937*	0.0110**	0.0111**
	(0.00532)	(0.00441)	(0.00425)	(0.00439)
Has Better Outside Option				-0.00123
				(0.0121)
Monthly Salary			-0.00179	-0.00180
			(0.00176)	(0.00177)
Tenure=1		-0.0553*	-0.0548*	-0.0548*
		(0.0261)	(0.0263)	(0.0264)
Tenure=2		-0.0706**	-0.0696**	-0.0697**
		(0.0236)	(0.0240)	(0.0237)
Tenure=3		-0.115***	-0.114***	-0.114***
		(0.0239)	(0.0244)	(0.0242)
Tenure=4		-0.132***	-0.130***	-0.130***
		(0.0245)	(0.0252)	(0.0252)
Tenure=5		-0.0978***	-0.0949***	-0.0950***
		(0.0227)	(0.0238)	(0.0239)
Tenure=6		-0.0458	-0.0432	-0.0433
		(0.0433)	(0.0446)	(0.0442)
Female		-0.00185	-0.00833	-0.00847
		(0.0124)	(0.00943)	(0.00972)
Years of Education		0.000843	0.00111	0.00112
		(0.00190)	(0.00206)	(0.00206)
Speak Kannadas		-0.00619	-0.00563	-0.00566
		(0.0146)	(0.0148)	(0.0150)
Bangalore		-0.01000	-0.0101	-0.0101
		(0.0219)	(0.0222)	(0.0223)
Sewing Dept		0.00698	0.00696	0.00692
		(0.0131)	(0.0131)	(0.0131)
Constant	0.0892***	0.144***	0.167***	0.168***
	(0.00388)	(0.0259)	(0.0159)	(0.0196)
Observations	2314	2205	2200	2200
Mean of DV	0.0938	0.0921	0.0923	0.0923
Unit Fixed Effects	yes	yes	yes	yes

Notes: Standard errors, clustered at the unit level, are in parentheses. * $p< 0.1$ ** $p< 0.05$ *** $p< 0.01$. The dependent variable, quit after hike, is an indicator equal to 1 if an individual left the firm in July, August, or October of 2016. Monthly salary is also in 10 USD increments. Wage disappointment is the difference between expected and actual wages after the wage hike, reported in 10 USD increments.

Table 4: Wage Disappointment and Quit Rates: Individuals Without Better Outside Option

	(1)	(2)	(3)
	Quit After Hike	Quit After Hike	Quit After Hike
Wage Disappointment	0.0333*	0.0440***	0.0463***
	(0.0154)	(0.0126)	(0.0120)
Monthly Salary			-0.00159
			(0.00631)
Tenure=1		-0.0466	-0.0460
		(0.0372)	(0.0370)
Tenure=2		-0.0727	-0.0727
		(0.0431)	(0.0429)
Tenure=3		-0.112***	-0.112***
		(0.0313)	(0.0311)
Tenure=4		-0.138**	-0.137**
		(0.0527)	(0.0516)
Tenure=5		-0.0709	-0.0699
		(0.0487)	(0.0488)
Tenure=6		-0.0400	-0.0379
		(0.0631)	(0.0655)
Female		-0.0274	-0.0371
		(0.0358)	(0.0455)
Years of Education		-0.00305	-0.00297
		(0.00404)	(0.00417)
Speak Kannadas		0.00358	0.00415
		(0.0290)	(0.0299)
Bangalore		-0.0258	-0.0253
		(0.0555)	(0.0545)
Sewing Dept		0.0106	0.0111
		(0.0286)	(0.0293)
Constant	0.0690***	0.168**	0.194*
	(0.00827)	(0.0672)	(0.106)
Observations	518	498	496
Mean of DV	0.0869	0.0803	0.0806
Unit Fixed Effects	yes	yes	yes

Notes: Standard errors, clustered at the unit level, are in parentheses. * $p< 0.1$ ** $p< 0.05$ *** $p< 0.01$. The dependent variable, quit after hike, is an indicator equal to 1 for workers who left the firm in July, August, or October of 2016. Wage disappointment is the difference between expected and actual wages after the wage hike, reported in 10 USD increments. Monthly salary is also in 10 USD increments. These regressions restrict to individuals whose outside option wage is lower than their wage at Shahi after the hike.

options and are able to calculate whether their new wage at Shahi is better than this outside option. It is important to note that when we control for this in column 4 (using an indicator for whether they had a better outside option after the Shahi wage hike), it does not appear to have a significant effect on expectations, and our wage disappointment coefficient estimates are unchanged.

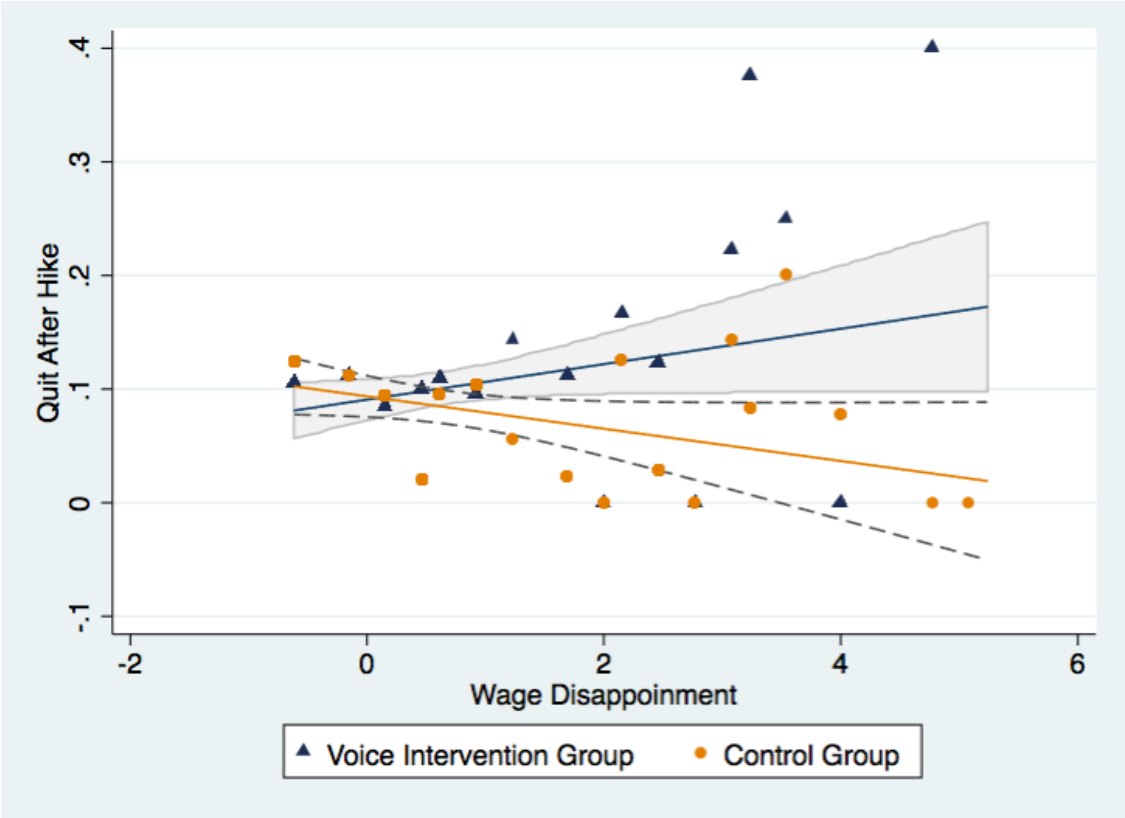
To provide additional evidence that a better outside option is not driving quit rates, we repeat the regressions in Table 3 on the sample of individuals who were calculated to have no better outside option after the wage hike. These results are reported in Table 4 and reveal even larger estimates than in our main analysis, offering further evidence that the correlation between quitting and disappointment is not due to disappointment simply capturing better outside options.

5.2 Main Results

Having established this positive relationship between disappointment and quitting, we move on to investigate the effects of our intervention. We begin with a graphical illustration of our main results. In Figure 1, we plot the relationship between wage disappointment (on the x-axis) and quit rates (on the y-axis), separately for treatment and control individuals. For individuals in the control group, the linear prediction line has a positive slope: as was true for the full sample in the analysis above, disappointment is associated with higher quit rates for individuals unaffected by any voice intervention. On the other hand, for individuals in the treatment group who participated in the employee satisfaction survey, there is no such positive relationship (if anything, the line slopes downward). The treatment appears to have mitigated the effects of disappointment on quit rates.

We now move on to our regression analysis, where we can control for unit fixed effects and individual-level controls. We begin by estimating equation 2 to obtain the average effect of the intervention on quit rates for the entire sample. Columns 1 and 2 of Table 5 report these coefficient estimates, both with and without controls. In both columns, the treatment coefficient is negative and large in magnitude – almost one-quarter of the magnitude of the

Figure 1: Wage Disappointment and Quit Rates, Treatment vs. Control



Notes: 90% confidence intervals are depicted. Wage disappointment is the difference between expected and actual wages after the wage hike, reported in 10 USD increments. The scatterplot points plot the average quit rates for each of the 20 evenly-spaced bins across the x-axis (for intervention and control groups separately), while the line represents the linear fit prediction.

Table 5: Effects of Voice Intervention on Quit Rates

	(1)	(2)	(3)	(4)
	Quit After Hike	Quit After Hike	Quit After Hike	Quit After Hike
Wage Disappointment			0.0224**	0.0247***
			(0.00792)	(0.00634)
Voice Intervention Group	-0.0198	-0.0212*	0.00771	0.00366
	(0.0119)	(0.0118)	(0.00854)	(0.0101)
Wage Disappointment			-0.0355***	-0.0329***
x Voice Intervention Group			(0.0109)	(0.00956)
Has Better Outside Option		0.00425		0.00304
		(0.0121)		(0.0117)
Monthly Salary		-0.000621		-0.00191
		(0.00216)		(0.00201)
Tenure=1		-0.0619*		-0.0592*
		(0.0300)		(0.0315)
Tenure=2		-0.0740**		-0.0731**
		(0.0240)		(0.0252)
Tenure=3		-0.118***		-0.115***
		(0.0276)		(0.0291)
Tenure=4		-0.132***		-0.130***
		(0.0252)		(0.0267)
Tenure=5		-0.0946***		-0.0877***
		(0.0261)		(0.0265)
Tenure=6		-0.0513		-0.0460
		(0.0454)		(0.0478)
Female		-0.0178*		-0.0172*
		(0.00820)		(0.00876)
Years of Education		0.000421		0.000993
		(0.00192)		(0.00183)
Speak Kannadas		-0.0106		-0.0123
		(0.0183)		(0.0194)
Bangalore		-0.0126		-0.0116
		(0.0251)		(0.0242)
Sewing Dept		0.00642		0.00483
		(0.0124)		(0.0126)
Constant	0.102***	0.189***	0.0853***	0.183***
	(0.00540)	(0.0243)	(0.00437)	(0.0260)
Observations	2140	2039	2120	2020
Mean of DV	0.0935	0.0922	0.0929	0.0921
Unit Fixed Effects	yes	yes	yes	yes

Notes: Standard errors, clustered at the unit level, are in parentheses. * p< 0.1 ** p< 0.05 *** p< 0.01. The dependent variable, quit after hike, is an indicator equal to 1 for workers who left the firm in July, August, or October of 2016. Wage disappointment is the difference between expected and actual wages after the wage hike, reported in 10 USD increments. Monthly salary is also in 10 USD increments.

mean. In the first column, this coefficient is not significantly different from zero, and in the second it is significant at the 10% level. In short, the treatment appears to have reduced quit rates, though our standard errors are somewhat large.

In columns 3 and 4, which report the estimation results from specification 3, we find some interesting heterogeneous effects. First of all, the coefficient on disappointment is positive and significant (and larger than in Table 3), demonstrating that for individuals who were not assigned to the employee satisfaction survey, disappointment is strongly correlated with increased quitting. However, for individuals who did complete the employee satisfaction survey, this effect appears to be mitigated by the intervention. The interaction coefficient is negative, significant, and completely offsets the main effect of disappointment. It is clear that the average effects estimated in the first two columns mask some important heterogeneity: the intervention substantially reduced quitting for those who were especially disappointed by the wage hike.

To ensure that these results hold for the sample of workers for whom it would not be rational to leave the firm, Table 6 repeats this analysis for the restricted sample of workers who have no better outside option. The results persist: treatment reduced quitting for more disappointed individuals.

The above analysis has focused on quitting as our main outcome of interest, due to the Hirschman (1970) theory's presentation of exit as the only alternative to voice. However, it is possible that those who do not leave the firm exhibit less extreme responses as well: they may, for example, reduce their effort or time spent at work by showing up to work less frequently. To investigate this possibility, we repeat our regressions above using absenteeism as our outcome variable – specifically, the share of days over the same three month period that an individual did not attend work. The results in Table 7 reveal that absenteeism is indeed another alternative to exit: for individuals in the control group, absenteeism is positively associated with disappointment (as can be seen in columns 3 and 4). However, as was the case in Table 6, the voice intervention appears to mitigate these effects. Overall, there is no significant effect of the intervention on absenteeism (columns 1 and 2), though the intervention did

Table 6: Effects of Intervention on Quit Rates: Individuals Without Better Outside Option

	(1)	(2)	(3)	(4)
	Quit After Hike	Quit After Hike	Quit After Hike	Quit After Hike
Wage Disappointment			0.0726***	0.0753***
			(0.0198)	(0.0148)
Voice Intervention Group	-0.0354	-0.0391	0.0269	0.0177
	(0.0237)	(0.0246)	(0.0262)	(0.0250)
Wage Disappointment			-0.111***	-0.100***
x Voice Intervention Group			(0.0251)	(0.0211)
Monthly Salary		0.00429		0.000359
		(0.00659)		(0.00663)
Tenure=1		-0.0433		-0.0319
		(0.0399)		(0.0374)
Tenure=2		-0.0654		-0.0685
		(0.0447)		(0.0464)
Tenure=3		-0.0962**		-0.0800**
		(0.0334)		(0.0286)
Tenure=4		-0.111**		-0.110*
		(0.0463)		(0.0530)
Tenure=5		-0.0597		-0.0525
		(0.0591)		(0.0578)
Tenure=6		-0.0760		-0.0551
		(0.0741)		(0.0744)
Female		-0.0177		-0.0358
		(0.0474)		(0.0476)
Years of Education		-0.00170		-0.00315
		(0.00418)		(0.00370)
Speak Kannadas		0.00181		-0.00310
		(0.0312)		(0.0346)
Bangalore		-0.0203		-0.0149
		(0.0483)		(0.0437)
Sewing Dept		0.0121		0.0204
		(0.0315)		(0.0313)
Constant	0.0993***	0.125	0.0559***	0.147
	(0.0103)	(0.115)	(0.0132)	(0.119)
Observations	477	457	476	456
Mean of DV	0.0839	0.0788	0.0840	0.0789
Unit Fixed Effects	yes	yes	yes	yes

Notes: Standard errors, clustered at the unit level, are in parentheses. * $p< 0.1$ ** $p< 0.05$ *** $p< 0.01$. The dependent variable, quit after hike, is an indicator equal to 1 for workers who left the firm in July, August, or October of 2016. Wage disappointment is the difference between expected and actual wages after the wage hike, reported in 10 USD increments. Monthly salary is also in 10 USD increments. These regressions restrict to individuals whose outside option wage is lower than their wage at Shahi after the hike.

Table 7: Effects of Voice Intervention on Absenteeism

	(1)	(2)	(3)	(4)
	Share of Days Absent	Share of Days Absent	Share of Days Absent	Share of Days Absent
Wage Disappointment			0.0134***	0.0149**
			(0.00416)	(0.00552)
Voice Intervention Group	-0.00982	-0.00832	0.00300	0.00280
	(0.00861)	(0.00882)	(0.00854)	(0.00920)
Wage Disappointment			-0.0167***	-0.0155**
x Voice Intervention Group			(0.00538)	(0.00507)
Has Better Outside Option		0.00474		0.00340
		(0.0130)		(0.0128)
Monthly Salary		-0.000965		-0.00189
		(0.00111)		(0.00119)
Tenure=1		-0.0238		-0.0223
		(0.0156)		(0.0164)
Tenure=2		-0.0424***		-0.0422**
		(0.0135)		(0.0143)
Tenure=3		-0.0543**		-0.0534**
		(0.0175)		(0.0180)
Tenure=4		-0.0749***		-0.0740***
		(0.0137)		(0.0144)
Tenure=5		-0.0664***		-0.0622**
		(0.0199)		(0.0204)
Tenure=6		-0.0771**		-0.0747**
		(0.0269)		(0.0266)
Female		-0.0169*		-0.0166*
		(0.00880)		(0.00881)
Years of Education		-0.000921		-0.000774
		(0.00138)		(0.00134)
Speak Kannadas		0.0115		0.0106
		(0.00720)		(0.00756)
Bangalore		-0.00935		-0.00909
		(0.0159)		(0.0158)
Sewing Dept		0.00316		0.00165
		(0.0102)		(0.00995)
Constant	0.117***	0.176***	0.107***	0.177***
	(0.00399)	(0.0169)	(0.00410)	(0.0182)
Observations	1874	1792	1856	1775
Mean of DV	0.113	0.113	0.113	0.113
Unit Fixed Effects	yes	yes	yes	yes

Notes: Standard errors, clustered at the unit level, are in parentheses. * $p< 0.1$ ** $p< 0.05$ *** $p< 0.01$. The dependent variable, share of days absent, is the proportion of work days in July, August, and October 2016, during which an individual was still employed at the firm, that an individual was reported absent. Wage disappointment is the difference between expected and actual wages after the wage hike, reported in 10 USD increments. Monthly salary is also in 10 USD increments.

reduce absenteeism for the most disappointed individuals.

5.3 Wage Expectations

The above analysis has demonstrated that expectations matter, and realizations that fall short of these expectations can result in higher rates of exit. What, then, drives these expectations? In Table 2, we showed that expected wage hikes exceeded actual wage hikes on average, and here, we conduct a descriptive exercise to investigate why expectations are set so high. In particular, we explore whether individuals who were at the firm during the 2015 wage hike, which was almost 30% higher than the 2016 wage hike, set their expectations high based on this large increase. In column 1 of Table 8, we see that individuals who were at the firm during the 2015 wage hike have significantly higher expectations than those who were not. In column 2, we show that this effect persists when we control for gender, education, language, hometown, and department.

In column 3, we explore whether working with people who were at the firm during the last wage hike also matters. First, we calculate the share of co-workers, working in an individual's production line and speaking the same language, who were at the firm during the 2015 wage hike. We standardize this variable and include it in the regression in column 3. The estimated coefficient is positive but insignificant. In this regression, this variable might be picking up various different things: the effects of sharing information about the last wage hike, which is what we are trying to identify, and also the effects of having more experienced workers on the same line, which might (positively or negatively) affect a worker's evaluation of their own skill and therefore her expected wage trajectory. In order to separate these two effects, in the next column, we control for an analogous "out-of-network" variable. Specifically, we calculate the share of co-workers, working on an individual's production line but who do not speak the same language (and who are therefore less likely to share information), who experienced the 2015 wage hike. If these worker share variables are simply capturing the effects of specific experience compositions in a line leading to expectations about future wage increases and promotions, we would expect to see similar coefficients on the previous in-

network and this new out-of-network variable. Instead, we find that the in-network variable is positive and statistically significant, while the out-of-network variable is negative and not significantly different from zero, which is consistent with the idea that the positive in-network coefficient is due to information sharing among individuals who speak the same language.

One important caveat to this analysis is that individuals who were at the firm in 2015 also have longer tenure, and we are unable to distinguish these two effects in this analysis because tenure is too highly correlated with the indicator for being present during last hike. However, given the importance of the in-network variable, which is less related to tenure, this descriptive evidence does suggest that previous wage hikes have important implications for how individuals set their expectations.

Table 8: Wage Expectations and Experience with Previous Wage Hikes

	(1)	(2)	(3)	(4)
	Expected Wage	Expected Wage	Expected Wage	Expected Wage
Present During Last Hike	0.870**	0.857***	0.737***	0.746***
	(0.283)	(0.187)	(0.196)	(0.215)
Percentage Of Group Present			0.119	0.459**
During Last Hike (in s.d.)			(0.121)	(0.154)
Percentage of Outside Group				-0.105
Present During Last Hike (in s.d.)				(0.148)
Female		-4.268***	-4.282***	-4.171***
		(0.408)	(0.412)	(0.453)
Years of Education		0.155***	0.150***	0.219***
		(0.0166)	(0.0167)	(0.0166)
Speak Kannadas		0.736***	0.707***	0.383
		(0.208)	(0.222)	(0.237)
Bangalore		0.135	0.0856	1.114**
		(0.379)	(0.396)	(0.449)
Sewing Dept		-0.0510	-0.0382	-0.0838
		(0.327)	(0.323)	(0.340)
Constant	12.27***	13.35***	13.52***	12.24***
	(0.164)	(0.428)	(0.514)	(0.439)
Observations	2314	2205	2205	1970
Mean of DV	12.78	12.78	12.78	12.85
Unit Fixed Effects	yes	yes	yes	yes

Notes: Standard errors, clustered at the unit level, are in parentheses. * p< 0.1 ** p< 0.05 *** p< 0.01. The dependent variable, expected wage, is the monthly take-home wage (in 10 USD increments) an individual reported s/he expected to receive in the following month. Percentage of group present during last hike and percentage of outside group present during last hike are both expressed in terms of standard deviations. Group refers to individuals on the same line who speak the same language, while outside group refers to individuals on the same line who speak a different language.

6 Conclusion

In this paper, we provide experimental evidence for Hirschman's seminal theory of the exit-voice tradeoff, for which almost no direct evidence exists, though substantial indirect evidence has been documented. An employee satisfaction survey, administered to Indian garment workers shortly after a disappointing wage hike, reduced quit rates by almost 25%. Importantly, the effects of this randomly assigned voice intervention were strongest among those most disappointed by the wage hike – individuals who, prior to the wage hike, stated expectations for the hike that were much higher than what was actually realized.

These results are very much in line with the predictions of (Hirschman, 1970), and subsequent work exploring the implications of Hirschman's thesis in various areas of economics. Turnover was substantially higher for individuals who did not have access to the voice "technology" embodied in our survey. For those who were randomized to this voice treatment, through which many workers indeed expressed dissatisfaction with various aspects of the job, exit was much less likely. The same pattern of results is apparent when we look at worker absenteeism, a less extreme form of exit.

Our study also sheds some light on what might be causing workers to set their expectations unrealistically high. We document that individuals who were at the firm during the previous wage hike, which was substantially larger than the wage hike in our year of study, set their expectations significantly higher than others. Similarly, those who worked on the same production line with more individuals present during the last hike also tended to have higher expectations. Evidence that the formation of wage expectations relies heavily on past experiences, along with the finding that unrealistically high expectations can lead to large negative consequences for both the individual and the firm, has important implications for wage-setting in firms as well as minimum wage policy in countries like India, where the annual minimum wage revisions are often accompanied by great political unrest.

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