



PEDL Research Papers

This research was partly or entirely supported by funding from the research initiative Private Enterprise Development in Low-Income Countries (PEDL), a Foreign, Commonwealth & Development Office (FCDO) funded programme run by the Centre for Economic Policy Research (CEPR).

This is a PEDL Research Paper which emanates from a PEDL funded project. Any views expressed here are those of the author(s) and not those of the programme nor of the affiliated organizations. Although research disseminated by PEDL may include views on policy, the programme itself takes no institutional policy positions.

Hostel Takeover: Living Conditions, Reference Dependence, and the Well-being of Migrant Workers*

Achyuta Adhvaryu[†] Anant Nyshadham[‡] Huayu Xu[§]

April 20, 2020

Abstract

We report impacts of a randomized housing quality improvement intervention among Indian migrant workers. Despite modest improvements in conditions, respondents experienced a decline in satisfaction and a large increase in psychological distress as a result of treatment. In contrast, residents who faced the same treatment-induced variation in living conditions as the original sample, but who arrived after treatment had already been initiated, had *increased* satisfaction. Impacts on turnover echo these patterns. We interpret this as evidence of reference dependence: residents who were primed to expect larger-than-realized improvements in living conditions suffered utility losses, while exposed but unprimed residents experienced gains.

JEL Codes: J28, J32, D9, I31

Keywords: worker satisfaction, amenities, reference dependence, personnel management, migrant workers, dormitories, India

*We are grateful to Anant Ahuja, Chitra Ramdas, and the Organizational Development team at Shahi Exports for their enthusiasm and support. Thanks also to Lavanya Garg, Varun Jagannath, and others at the Good Business Lab for excellent coordination of the field implementation. Adhvaryu and Nyshadham acknowledge funding from the Private Enterprise Development in Low-Income Countries (PEDL) initiative. This research has benefited from discussions with Hoyt Bleakley, Paul Gertler, Melanie Wasserman, Dean Yang, and many seminar participants. Thanks to Mamta Pimoli and Sofia Calderon for excellent research assistance. The views expressed herein do not represent PEDL or Shahi Exports, Pvt. Ltd. All errors are our own.

[†]University of Michigan, NBER, BREAD; adhvaryu@umich.edu; achadhvaryu.com

[‡]University of Michigan & NBER; nyshadha@umich.edu; anantnyshadham.com

[§]University of Michigan; xuhy@umich.edu

1 Introduction

A sea change in population employment shares is underway in many low-income countries; every year, millions of workers move away from agricultural production into manufacturing and services sectors (World Bank, 2014). Since these growing sectors are primarily located in urban areas, this process generates a large influx of rural migrants into cities (United Nations, 2008).¹ Due to soaring rents, migrants often avail themselves of subsidized housing in hostels operated by the firms at which they work. Life in these hostels is generally characterized negatively – cramped quarters, a lack of cleanliness, insufficient access to basic utilities, and risk of theft and violence (Kirk, 2015; Mahadevia et al., 2012). Even small improvements in these living conditions may thus improve the well-being of migrant workers in a substantial way.

In this paper, we study the impacts of a change in the management of hostels for migrant garment workers in Bengaluru, India. At baseline, the hostels we study were employer-managed. In two phases, hostel management was transferred to a local NGO specializing in women’s empowerment with specific experience managing migrant worker hostels. Hostels were randomized into either phase 1 or phase 2 of the transfer process. There was a gap of approximately 5 months between phases, during which phase 1 hostels were under the new (NGO) management and phase 2 hostels were still managed by the employer. At the end of this 5-month gap, a random sample of workers from all hostels were surveyed to study differences in living conditions and the subjective well-being of workers generated by the change in management. Phase 2 hostels were then transferred as well to the new management, and the study period ended.

We document some rather counterintuitive impacts of the intervention. Survey enumerators’ blinded evaluations of the hostels find that treatment improved living conditions (particularly related to cleanliness and safety). Yet, despite this, workers report being less satisfied with their living situation, their job, and their salary, and report substantial decreases in subjective well-being (measured via Cantril’s Ladder and Kessler’s depression-anxiety scale) as a result of treatment. Impacts on worker turnover, measured in the firm’s administrative data, echo this general pattern of results. There is an initial increase in retention in the first month of treatment, which quickly disappears and gives way to (imprecisely estimated) negative impacts for the remainder of the study

¹The resulting high demand for urban real estate has been a key topic of interest for policymakers and academics alike (Duflo et al., 2012; Galiani et al., 2017; Garriga et al., 2017; Hsieh and Moretti, 2018).

period.

Discussions with hostel residents revealed that “disappointment” with the actual changes that occurred in hostels was a leading explanation for the negative effects on satisfaction and subjective well-being. Hostel residents were sensitized to the management transfer and told that the new management would be an organization with a track record of running high quality hostels and whose goals are broadly aligned with worker welfare. They were also told that a large cash transfer would be made by the employer so as to substantially improve the housing quality, including replacing old facilities in the kitchen, bath, and toilet areas, improving sleeping area conditions, and increasing manpower to improve sanitation and security. However, data from the human resources department of the firm suggest that transfers made to the new management were fairly small and mainly used for increasing manpower.² Enumerators’ blinded evaluations of housing quality are consistent with this statement, suggesting that treatment only induced improvements in cleanliness, safety, and sleeping area condition, and had little impact on other aspects of quality. In follow-up interviews, many hostel residents complained that the improvements that occurred were far below their expectations, and did not make a meaningful difference in their everyday lives.

This qualitative evidence suggests that negative effects on satisfaction and subjective well-being may have been due to expectation-based reference dependence among hostel residents. When utility is anchored to a reference point determined by the expectation of a future outcome, falling short of that expectation, even if this entails an increase in consumption, can cause utility declines (Delqu   and Cillo, 2006; Gul, 1991; K  szegi and Rabin, 2006, 2007; Loomes and Sugden, 1986). Results from laboratory experiments suggest that individuals do indeed form reference points based on the expectation of future outcomes (as opposed to status quo outcomes) (Abeler et al., 2011; Gill and Prowse, 2012; Loomes and Sugden, 1987; Marzilli Ericson and Fuster, 2011). We argue that, in the context of our intervention, the modest improvements in living conditions that we document may not have measured up to the high expectations regarding the magnitude of quality improvements in hostels, generating a loss in utility for the hostel residents.

To evaluate this hypothesis, we turn to a second sample of “joiners,” i.e., workers who, as a result of their date of joining, moved into the hostels after phase 1 hostels had been transferred to

²Operating cost for the employer before the transfer is roughly INR 1,325 per resident per month. The employer pays the new management INR 1,475 per month for each worker, wherein INR 600 is deducted from worker salary. This includes water, electricity, rent, staff salaries etc.

the new management, but before phase 2 began. This group received the same treatment related to improved living conditions as did the original sample (who were present before phase 1 began), but they were not exposed to the expectation manipulation that occurred in the lead-up to the phase 1 transfer. Rather, when they arrived in Bengaluru, they simply happened to be placed in a treatment or control hostel, and experienced the living conditions at that hostel as *status quo*.³ This implies that the joiners should not have anchored their utility based on expectations of large changes in quality, and thus should not exhibit the same declines in subjective well-being documented for the original sample.

This is indeed what we find. Unlike the original sample, joiners show higher satisfaction and weakly higher subjective well-being as a result of treatment, consistent with the treatment effects seen on enumerators' evaluations of living standards discussed earlier. We confirm, in a pooled specification, that impacts on joiners are statistically significantly different from impacts on the original sample. This second set of results, combined with the time pattern of retention impacts, suggests that the negative impacts on subjective well-being for the original sample may reflect reference dependence.⁴

We contribute to the understanding of the determinants of worker satisfaction. Some of this literature in economics has documented the role of reference dependence as it pertains to wages (Adhvaryu et al., 2019; Breza et al., 2017; Card et al., 2012; Clark and Oswald, 1996; Mas, 2006; Ockenfels et al., 2015).⁵ In contrast, non-wage compensation (e.g., fringe benefits and workplace amenities), which is of increasing importance in total compensation packages and has been shown to be a key part of workers' perceptions of job offers, has received far less attention (Budd, 2004; Hart, 2010; Schnake, 2016; Simon and Kaestner, 2004; Woodbury, 1983). We add to existing studies by demonstrating how living conditions in employer-sponsored lodgings can lead to substantial changes in worker satisfaction.

³We report balance across the joiners in treatment and control hostels, as well as comparability between joiners and the original sample.

⁴Other plausible explanations are outlined later in the paper.

⁵Reference-dependent preferences have been a mainstay of behavioral economics theory for decades (Barberis, 2013; Delqu   and Cillo, 2006; Gul, 1991; Kahneman and Tversky, 1979; K  szegi and Rabin, 2006, 2007, 2009; Loomes and Sugden, 1986). Evidence from laboratory and field settings has corroborated the real-world importance of reference dependence (O'Donoghue and Sprenger, 2018). For some recent examples of this work, see, e.g., Abeler et al. (2011); Allen et al. (2017); Backus et al. (2017); Bartling et al. (2015); Card and Dahl (2011); Crawford and Meng (2011); DellaVigna et al. (2017); Gill and Prowse (2012); List (2003); Marzilli Ericson and Fuster (2011); Pope and Schweitzer (2011).

We also add to the understanding of policymaking and expectations. Setting appropriate expectations is a hallmark of good policy implementation. For example, the efficacy of monetary policy is critically dependent on public expectations and firms’ stock market returns are closely linked to expectations of future performance.⁶ We show that the success of internal firm policy is also contingent on appropriate expectation-setting. This relates our study to recent work by Boudreau (2019), which shows in a similar setting (the Bangladeshi ready-made garment industry) that when firms are compelled by multinational buyers to tighten enforcement of safety regulation but do not meet workers’ expectations of improvements, worker satisfaction declines markedly.

Last, our paper is related to the large literature on the impacts of living standards improvements in low-income contexts. Most of this work focuses on policies related to slum upgrading programs (see excellent reviews of this literature in Brakarz and Jaitman (2013); Lilford et al. (2017)). Subjective well-being of residents is often a primary outcome in randomized evaluations of these programs. Most of this literature finds substantial short-term increases in well-being as a result of better housing quality (Cattaneo et al., 2009; Devoto et al., 2012; Galiani et al., 2017), though a recent study following up on one of these randomized evaluations found so-called hedonic adaptation; i.e., that happiness reverts over time to a stable reference point (Galiani et al., 2015). Also related is the work evaluating the landmark Moving to Opportunity housing voucher program in the United States, which finds substantial increases in mental health as well (Kling et al., 2007). Our work builds on these studies in two main ways. First, we focus on migrant workers and living conditions in hostels (as opposed to lifelong urban residents in slums), an important and growing population that has not received adequate attention in previous work. Second, we focus on an indirect intervention, in that the management transfer that was randomized was one stage removed from actual living standards improvements. This distinction is important because it allows more room for the “disappointment” effect that we document than an intervention in which, say, all treated households receive a new, high-quality dwelling.

The remainder of the paper is organized as follows. Section 2 provides background and discusses experimental design. Section 3 discusses the data and provides summary statistics. Section 4 describes the estimation strategy, shows the results, and evaluates possible mechanisms. Section 5

⁶See, e.g., Roberts (1995); Sargent and Wallace (1976); Shiller (1978) on monetary policy, and Chambers and Penman (1984); Easton and Zmijewski (1989); Watts (1978) on stock market returns.

concludes.

2 Experimental Design

2.1 Context

We focus on the housing experiences of migrant workers working in ready-made garments production. The apparel sector employs a large share of low-income workers in many developing country labor markets, due in part to its labor-intensive production process. Since most garment manufacturing hubs are located in urban areas, the apparel sector represents important migration and employment opportunities for rural populations, especially for women, who comprise the majority of the garments workforce. Our firm partner, Shahi Exports, Private Limited, is the largest exporter of ready-made garments in India, and one of the four largest in the world. Shahi employs majority women (roughly 80 percent of tailors and production helpers), and a large proportion of the workforce is made up of migrants from rural areas (roughly 40 percent of the workforce of each factory on average). Like low-skill manufacturing firms the world over, Shahi faces high rates of turnover, especially among its migrant workers. On average, the firm replaces 75 percent of its workforce every year, which adversely impacts productivity and leads to high recruitment and training costs.

There are several hypothesized reasons for particularly high turnover among migrant workers. First, low-income workers may take up jobs as a safety net to cope with adverse shocks or temporary unemployment spells, rather than as longer-term careers (Blattman and Dercon, 2018). For example, frequent worker separation can be driven by seasonal migration, wherein rural households send migrants to urban factories during “lean” season, and these migrants subsequently return during and after the harvest seasons (Bryan et al., 2014). Second, migrant workers may lack the incentives to permanently settle in cities because doing so may isolate them from family and social networks (Barnhardt et al., 2017). Moreover, migrant workers may have imperfect information about job conditions before migrating to cities and may leave due to dissatisfaction. For migrant female workers, the potential barriers to assimilating into life in cities may be even stronger, given early marriage norms and other norms against women’s labor force participation in South Asia (Bernhardt et al., 2018; Chari et al., 2017; Field and Ambrus, 2008), lack of control over their own earnings (Field et al., 2016), and competing demands on time from non-market work such as domestic chores

and home production (Afridi et al., 2018).

We focus on housing quality for migrant workers. Due to high rents in megacities in many low-income countries, many migrant workers have little choice but to live in employer-subsidized hostels. Living conditions in these hostels are usually characterized by overcrowding, lack of security, and lack of sanitation and facilities. These poor living conditions could translate into dissatisfaction and a broad range of health issues among migrant workers, which in turn may lead to reduced tenure and increased turnover. In this study, we investigate how improved living conditions in hostels affect migrant workers' satisfaction and turnover.

2.2 Intervention

As of April 2016, the partner firm, Shahi Exports, owned and directly managed 80 hostels in the Bengaluru area, housing in total 7,500 employees working in 19 factories. Each hostel was managed by one live-in caretaker appointed by the employer. The average capacity per hostel was approximately 100 residents, with 6 to 8 residents living in each housing unit (which was similar to a one-bedroom apartment). Each resident paid about 10 USD (600 INR) per month in rent, which constituted about 10 percent of wages and was directly deducted from salary. The average operating costs of each hostel for the employer were about 1,370 USD per month, including utilities, rent, staff salaries etc.

In 2016, the employer decided to outsource the management of its hostels to Janodaya, a Bengaluru-area NGO specializing in women's empowerment and housing services for migrants. According to the agreement between the two organizations, the employer paid Janodaya an average of 1,500 USD per month for each hostel under its management. Janodaya assigned two trained social workers to each hostel to undertake day-to-day management (in place of the live-in caretakers who were employed by the firm). One social worker was in charge of sanitary conditions and the other was charged with security and utility maintenance. Janodaya also bore the entirety of utilities costs, as well as any other costs of running the hostels. The NGO also promised to provide free language and cooking training and other programming designed to enhance the well-being of residents. Appendix B details the full list of changes promised by Janodaya in the hostels. To provide some background on changes in hostel conditions due to the intervention, in Figure 1 we include a set of photographs of the hostels before and after they were transferred.



Figure 1: Hostel Conditions Before and After Treatment

2.3 RCT Design

We studied the impacts of this changeover in management on living conditions in the hostels; measures of residents' satisfaction and subjective well-being; as well as workplace outcomes. In order to estimate causal treatment effects, we convinced Shahi Exports to roll out the management changeover across factories in two phases, with factories (and their corresponding hostels) assigned randomly to either the first or the second phase of changeover. In total, 80 hostels linked to 19 factories were handed over to the NGO in these two phases. Ten factories were randomized to phase

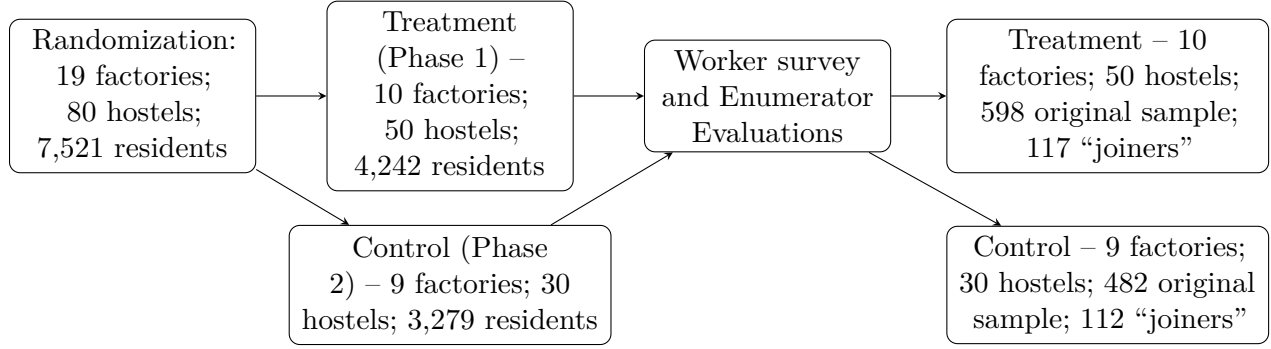


Figure 2A: Experimental Design

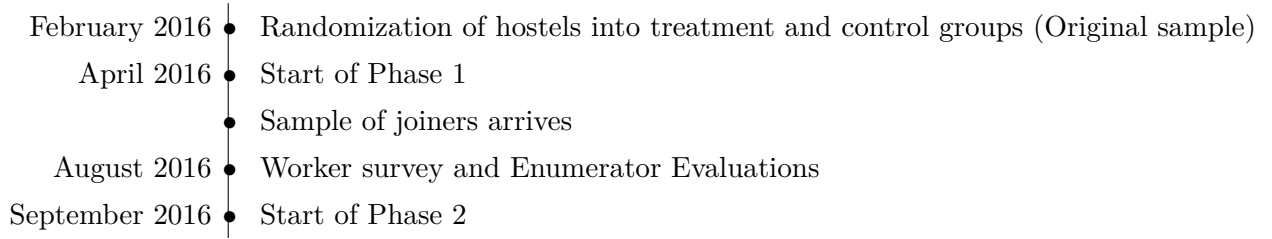


Figure 2B: Timeline of Experiment and Data Collection

I and the remaining 9 to phase II. Phase I began on April 1, 2016, wherein 50 hostels corresponding to 10 factories were treated, while phase II took effect 5 months later, in September 2016, wherein the remaining 30 hostels corresponding to 9 factories were transferred to the new management. Residents of the 50 hostels in phase I serve as our treatment group and residents of the 30 hostels in phase II constitute the control group. Hostel residents were notified about and sensitized to the shift in management about two weeks in advance of the changeover.⁷

Our research design takes advantage of the gap of approximately five months between phases I and II, during which treatment hostels were under the new (NGO) management while control hostels were still managed by the employer. Near the end of this five-month gap, we conducted a survey among a random sample of workers from all hostels to study differences in satisfaction and subjective well-being. At the same time, we administered a blinded enumerator evaluation survey for all 80 hostels in order to form “objective” measures of changes in housing quality. We describe

⁷The minimum distance between factory units (and the hostels that surround them) is about 4 kilometers; there is thus likely little information exchange across treatment and control units.

these survey efforts below.

3 Data

Two surveys were conducted to measure changes in living conditions as well as workers’ satisfaction and subjective well-being. We are also able to track retention of migrant workers, using the firm’s administrative data.

3.1 Worker Survey

We randomly sampled workers from the full roster of residents from each hostel and surveyed them in August 2016, approximately five months after treatment hostels had been transferred to new management (control hostels were still under employer management until the following month). In particular, we compiled a roster of all residents in the 80 hostels under study in February 2016 (these were the latest rosters available to us prior to the management changeover in Phase I hostels), and randomly selected 30 percent (2,259) to participate in our study. Summary statistics and balance checks between treatment and control groups for the whole sample are reported in Panel A of Table 1.

In Appendix Table A1, we also report summary statistics and results for balances checks for the whole populations of hostel residents. There was attrition between the set of workers sampled from the baseline hostel roster and the set of survey respondents. Attrition across treatment and control groups was not differential, both in terms of rate and composition. In Appendix Table A2, we show that attrited workers in treatment and control hostels are similar to each other in baseline characteristics. Balance is thus preserved with respect to observables across treatment and control groups in the respondent sample, as shown in Panel B of Table 1. We refer to these respondents as the “original sample” hereafter in the paper.

We also surveyed an additional randomly selected sample of 229 hostel residents who joined the firm between April and July 2016, of whom 117 and 112 were living in treatment and control hostels, respectively. Since all workers in this sample joined the firm after Phase I hostels had been transferred (and before Phase II began), we refer to these respondents as “joiners”. Summary statistics and balance checks between treatment and control groups in this additional sample

are reported in Table A3. The worker survey includes, among other things, questions related to subjective well-being (satisfaction with hostel conditions, job position, and payment), physical and mental health (psychological distress and self-esteem), and family background.

3.2 Enumerator Evaluation Survey

We also undertook a second data collection effort to elicit blinded evaluations of living conditions by survey enumerators. The evaluation covered questions related to hostel conditions in several important dimensions. Each hostel was visited by two enumerators, who were asked to rate similar measures by observation (cleanliness, congestion, safety and comfort, etc.) on a Likert scale, and to gauge access to utilities, including working toilet, bathroom, and kitchen. To make sure that the evaluations were not biased, the survey was contracted out to a third-party survey firm, whose enumerators were unaware of the intervention or the treatment status of dorms. The site visits were also done unannounced so that hostel managers were unable to manipulate living conditions right before the visits.

3.3 Firm Administrative Data

Using employee identifiers, we match data from the worker survey to administrative data from Shahi Exports. We focus on data on workers' demographic characteristics and retention. The variables available in demographic data include gender, age, date on which the worker joined the firm, and job type. We also observe monthly salary data for all workers from which we can obtain monthly worker retention.⁸

3.4 Summary Statistics and Balance Checks

Table 1 presents summary statistics as well as balance checks for worker characteristics and baseline values of workplace measures at the time of the hostel resident survey. We look at attendance rate, salary (available for original sample only), age, years of tenure with the firm, occupation, and indicators for gender, marriage, and children. Tests of differences in means across treatment and control groups are presented. We fail to reject that the difference between means for treated and

⁸We also observe the attendance patterns of employees, recorded on a daily basis. We present results from analysis of this data in the appendix only, as the pattern resembles that of the retention data but estimates are less precise.

Table 1: Summary Statistics and Balance Checks for Original Sample

Panel A: Whole Sample	Control		Treated		Difference	
	985		1274			
	Mean	SD	Mean	SD	Difference	<i>p</i> -value
Attendance Rate (Feb. 2016)	.909	.011	.915	.010	-.006	.686
Log(Salary)	8.92	.007	8.92	.006	-.004	.632
Male	.279	.051	.316	.048	-.037	.603
Age	22.99	.213	23.37	.194	-.382	.203
Years of Tenure	.811	.076	.840	.070	-.029	.781
Tailor	.674	.141	.438	.131	.236	.236
Checker	.016	.008	.013	.008	.003	.803
Helper	.041	.018	.022	.018	.018	.466
Attrition Rate	.510	.032	.530	.030	-.020	.659
Panel B: Survey Respondents	Control		Treated		Difference	
	482		598			
	Mean	SD	Mean	SD	Difference	<i>p</i> -value
Attendance Rate (Feb. 2016)	.942	.008	.939	.007	.003	.764
Log(Salary)	8.92	.008	8.92	.007	-.002	.853
Male	.230	.051	.239	.046	-.008	.901
Age	23.09	.196	23.19	.176	-.100	.706
Years of Tenure	.925	.095	.961	.086	-.036	.782
Tailor	.693	.152	.485	.138	.208	.325
Checker	.008	.001	.018	.001	-.010	.457
Helper	.042	.019	.018	.017	.023	.387
Ever Married	.073	.016	.095	.015	-.023	.312
Have Children	.054	.012	.063	.011	-.009	.570
Household Engages in Agriculture	.777	.034	.790	.030	-.013	.772
Household Owns Land	.704	.030	.716	.027	-.012	.764

Notes: Panel A presents summary statistics and results of balance checks between treatment and control groups for the entire sample (inclusive of the attrited workers). Panel B presents results for the survey respondent sample. Standard errors are clustered at the factory level.

control workers for any of these measures at baseline is zero.

23 percent of those surveyed were male workers. The average worker was about 23 years old. Average tenure with the firm was slightly less than 1 year. About 60 percent of these migrants work in the production department as tailors. Only about 8 percent of the sample are ever married, and about 6 percent have children.

4 Results

4.1 Treatment Effects on Hostel Conditions

We begin by comparing several important dimensions of housing quality across treatment and control hostels, based on enumerators' blinded evaluations. The estimating equation is given as follows:

$$Y_{hue} = \alpha + \beta T_u + \lambda_e + \epsilon_{hue}, \quad (1)$$

where Y_{hue} is an outcome of hostel h , belonging to factory u , and evaluated by enumerator e . We had two enumerators visit each of the 80 hostels so we can account for heterogeneity across enumerators by including enumerator fixed effects in each regression. Standard errors are clustered by factory, the level at which the randomization was conducted. Given the small number of clusters (19 factories), we report p -values obtained from the wild cluster bootstrap procedure developed in Cameron et al. (2008).

Table 2 presents the results. We measure five key dimensions of hostel conditions: cleanliness, safety, access to toilet and bathroom, access to kitchen, and bedding area conditions. Cleanliness and safety are measured by enumerator ratings on a 1-to-5 scale, with 5 being the highest possible rating. Estimates in columns 1 and 2, related to cleanliness and safety, are both positive and precisely estimated, indicating modest improvements in important dimensions of living conditions in treatment hostels. Compared with the control hostels, treatment hostels experienced roughly a 10 percent (or .32 standard deviations) increase in both cleanliness and safety scores as a result of treatment. The summary index related to toilets in column 3 averages across effects on four components – access to working toilets, cleanliness of toilets, access to working bathrooms, and

cleanliness of bathrooms – as a measure of overall toilet and bathroom condition (normalized so that the index has mean 0 and SD 1). The treatment effect on this variable is not statistically significant ($p = .144$), though it is positive and quite large, suggesting that treatment increased toilet and bathroom conditions by .31 SD.

Summary indices for kitchen and bedding conditions are constructed in the same fashion, and the results are presented in columns 4 and 5, respectively. The estimated effect for kitchen conditions is small and statistically indistinguishable from zero. The point estimate for sleeping area index is positive and significant at the 5% level, suggesting a .32 SD increase in bedding area conditions. The dependent variable in column 6 averages together all individual components in columns 1–5, which is again standardized to be mean 0 and SD 1. The estimated coefficient indicates that treatment increased hostel condition by an average of .37 SD. Overall, we interpret the results from enumerators’ evaluations as indicative of modest improvements in hostel living conditions due to treatment.

Table 2: Hostel Conditions

VARIABLES	Overall Cleanliness 1-5 rating	Overall Safety 1-5 rating	Toilet & Bathroom Index	Kitchen Index	Sleeping Area Index	Mean Effect (1)–(5)
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	.381 (.088)	.417 (.032)	.313 (.144)	.145 (.457)	.323 (.044)	.373 (.056)
Mean of dep.	3.613	4.193	0	0	0	0
Observations	160	160	160	160	160	160

Notes: Overall cleanliness and safety are rated on a Likert (1–5) scale; summary index in column 3 combines access to working toilets, cleanliness of toilets, access to working bathrooms, and cleanliness of bathroom; summary index in column 4 combines access to working kitchens, and cleanliness of kitchens; summary index in column 5 combines cleanliness, congestion and comfort of the bedding area. The dependent variable in column 6 is a summary standardized index that averages together all measures in columns 1–5. All variables have been oriented so that a larger value is a better outcome. The models control for enumerator fixed effects. P-values obtained via wild bootstrap as in Cameron et al (2008) with clustering at the factory level, based on 499 repetitions, appear in parentheses.

4.2 Subjective Wellbeing

4.2.1 Original Sample

Next we investigate the effects of the treatment on subjective well-being of migrant workers. In particular, we explore the impacts of treatment on worker satisfaction and mental health. We focus on subjective well-being as a key outcome for two reasons. First, the intervention was originally designed by the partner firm to improve worker welfare and satisfaction, which may, consequently, matter for important workplace outcomes such as retention and productivity. Second, as suggested by prior studies (Kling et al., 2007), subjective well-being can be more sensitive to changes in living conditions than economic and physical health outcomes. Because the intervention was randomly assigned, the research design used in this paper is based on comparisons of treatment and control group means. For each worker-level outcome, we estimate the following regression specification:

$$Y_{iu} = \alpha + \beta T_u + \gamma X + \epsilon_{iu}, \quad (2)$$

where Y_{iu} is one of the measures of subjective well-being for worker i in factory u ; T_u is an indicator equal to 1 for individuals living in treatment hostels; and X is a vector of control variables, which includes gender, marital status, an indicator for having children, year of birth fixed effects, year-month of joining fixed effects, production-division fixed effects, and enumerator fixed effects. We cluster standard errors at the factory level and report p -values obtained from a wild cluster bootstrap procedure.

We begin by showing treatment effects on satisfaction among original sample. Those workers all joined before the start of phase 1 and thus, were fully exposed to the intervention including all messaging from the firm regarding the upcoming changes. Table 3 presents estimates of equation 2 with 4 measures of general satisfaction as dependent variables. In columns 1-3, the outcomes are general satisfaction regarding the respondent’s overall dorm situation, job position, and monthly pay, respectively. The original measure of satisfaction is on a Likert scale, ranging from “extremely dissatisfied” to “extremely satisfied”. To capture the key variation in this measure, we construct a binary variable that equals 1 if a worker is “extremely satisfied”.

The results are quite striking. Columns 1–3 show a strong *negative* effect of treatment on worker

satisfaction. Migrant workers living in treatment hostels were 7.4 percentage points less likely to be satisfied with their hostel situation. They are 9.2 and 7.9 percentage points less likely to be satisfied with their job position and monthly pay. All three coefficients are large in magnitude and significant at conventional levels. In column 4, we follow Kling et al. (2007) and Anderson (2008) and estimate a summary standardized index that aggregates information over multiple treatment effect estimates. Specifically, we create an index of overall satisfaction that averages together three measures of satisfaction in columns 1–3. The summary index is defined to be the simple average across standardized z -score measures of each component. The z -score is calculated by subtracting the mean and dividing by the standard deviation. All components have been “realigned,” so to speak, whenever necessary, so that a higher score is a better outcome. The summary index has mean 0 and standard deviation 1; therefore, the estimates are interpreted in terms of standard deviation units. Results in column 4 indicate a fairly large negative effect on overall worker satisfaction. For the summary index that averages together all three measures, the estimate is consistently negative (with $p = 0.02$).

To check the robustness of these results, we estimate corresponding ordered probit models using the original measures of satisfaction as dependent variables, which are on a 1-5 scale, with robust standard errors clustered at the factory level. The results are highly consistent and are reported in Appendix Table A5. All signs of coefficients on treatment indicator are negative and statistically significant at the 5% or 1% level. These results are also robust to the wild bootstrap approach proposed by Kline and Santos (2012) to deal with few-cluster bias for Maximum Likelihood estimators. The marginal effects of treatment on worker satisfaction related to hostel, job, and monthly pay are 7.8%, 7.9%, and 5.8%, respectively, which are very similar to estimates from the linear probability models.

We further investigate the impacts of the treatment on psychological well-being of workers, by estimating equation 2 with measures constructed from Cantril’s ladder and the Kessler 10 (K10) psychological distress scale (Andrews and Slade, 2001; Kessler et al., 2002). Consistent with the findings on satisfaction, results in Table 4 show adverse effects of treatment on psychological wellbeing. The treatment effect estimate in column 1 is quite strongly negative (with $p < 0.01$), indicating migrant workers in treatment hostels systematically report being at a lower step in Cantril’s imagined life ladder. Column 2 reports the estimate for the K10 psychological distress

Table 3: General Satisfaction – Original Sample

VARIABLES	Dorm Situation Satisfaction	Job Position Satisfaction	Monthly Pay Satisfaction	Mean Effect (1) – (3)
	(1)	(2)	(3)	(4)
Treatment	-.074 (.064)	-.092 (.004)	-.079 (.080)	-.253 (.020)
Mean of dep. var.	.663	.606	.159	0
Observations	1,080	1,080	1,080	1,080

Notes: The dependent variables in columns 1–3 are an indicator for being “extremely satisfied” with overall dorm situation, job position, and monthly pay, respectively. The dependent variable in column 4 is a summary standardized index that averages together three measures of satisfaction in columns 1–3. The models control for gender, marital status, an indicator for having children, enumerator fixed effects, production-division fixed effects, year of birth and month of joining fixed effects. P-values obtained via wild bootstrap as in Cameron et al (2008) with clustering at the factory level, based on 499 repetitions, appear in parentheses.

index, which is on a 10–50 scale, where smaller scores indicate less likelihood of psychological distress. Again, the estimate is statistically significant and shows an adverse effect on psychological well-being of workers.

We construct two measures of psychological distress based on the K10 index, namely the log of K10 index and an indicator for moderate distress. The results are presented in column 3 and 4, respectively. Both estimates are in the same direction and of similar significance as former estimates. The result in column 4 shows that the probability of moderate distress increased by 4.5 percentage points due to treatment.

In sum, our results show that the treatment modestly improved the housing quality, especially in several key dimensions. However, original sample workers living in treatment hostels experienced significant declines in satisfaction and subjective well-being relative to residents in control hostels. In particular, we document a 0.15 standard deviation decrease in satisfaction with housing quality, a 0.31 standard deviation decrease in life satisfaction, and a 0.21 standard deviation increase in psychological distress. These effects are economically meaningful compared with other studies

Table 4: Cantril’s Ladder and Psychological Distress (K10 Score) – Original Sample

VARIABLES	Step of Ladder 0-10 Scale	K10 Score	Log of K10 Score	Moderate Distress 1(K10 \geq 25)
	(1)	(2)	(3)	(4)
Treatment	-.563 (.004)	1.002 (.044)	.061 (.044)	.045 (.000)
Mean of dep. var.	5.90	14.55	2.633	.045
Observations	1,080	1,080	1,080	1,080

Notes: The dependent variables in columns 1–4 are the step in Cantril’s imagined life ladder measured on a 1-10 scale, the K10 psychological distress index on a 10-50 scale, the log of K10 score, and an indicator for moderate distress, respectively. The models control for gender, marital status, an indicator for having children, enumerator fixed effects, production-division fixed effects, year of birth and month of joining fixed effects. P-values obtained via wild bootstrap as in Cameron et al (2008) with clustering at the factory level, based on 499 repetitions, appear in parentheses.

on subjective well-being. For example, Haushofer and Shapiro (2016) estimate that an average cash transfer of \$709 PPP in rural Kenya increased happiness and life satisfaction by 0.16 and 0.17 standard deviations, respectively, and decreased stress by 0.26 standard deviations. Galiani et al. (2017) find that providing better houses to the extremely poor in Latin America increased satisfaction with housing quality by between 0.5 and 0.63 standard deviations and satisfaction with quality of life by almost 0.4 standard deviations.

Interested in exploring these negative treatment effects further, we conducted follow-up interviews with a few residents living in treatment hostels. Responses of hostel residents pointed to “disappointment” as a leading explanation behind the results. Two weeks prior to the intervention, residents in treatment hostels were told by managers that the hostel management would be transferred to an experienced local NGO whose aim is to improve the welfare of migrant workers and a large amount of money would be transferred from the employer so as to increase manpower, repair and replace old facilities, paint walls etc. They were also told several welfare programs will be introduced by the new management, including free language and skill training, regular access to free supplements and fruits etc. However, during our interviews many respondents reported that most things that had been

promised were not provided and little change had occurred in their hostels. Others thought that there were changes made by the new management but they were not enough to make meaningful differences to their lives.

In light of this, we propose that the decline in subjective well-being is related to workers' expectations of changes in living conditions relative to the actual changes that occurred as a result of the intervention. In particular, we argue the results are consistent with a reference-dependence hypothesis, under which residents' utility is anchored to a reference point determined by their expectation of future housing quality. When the actual changes did not measure up to these expectations, even if they were mildly positive, residents would have experienced a loss in utility.

To test the hypothesis, we turn to our sample of joiners, who arrived at the hostels after phase 1 hostels (treatment) have been transferred to the new management, but before phase 2 began. When these workers joined the firm, they were randomly assigned to a hostel and experienced the same treatment-induced variation in living conditions that the original sample did. However, they were not exposed to the expectations manipulation that occurred before phase 1 began. If the reference-dependence hypothesis is true, the joiners should not exhibit the same decline in subjective well-being as documented for the original sample.

4.2.2 Results for Joiners

We begin by comparing the sample of joiners to the original sample; results are reported in Appendix Table A4. On average, joiners came to the firm about 8 months later and were about 1 year younger. The joiners sample was not systematically different from the original sample in other observable dimensions. This is consistent with the fact that hiring is decentralized – each factory HR department hires its own workers from villages in its vicinity based on its evolving needs. When a new worker arrives at a factory, she is placed in a hostel based on the distance to her workplace as well as hostel vacancies. Because this allocation process did not change with the changeover in hostel management, joiners are not expected to be – and indeed are observably not – significantly different across the treatment and control groups.

Appendix Table A3 presents the summary statistics and balance checks within the sample of joiners. Overall, this sample is balanced across treatment and control groups except that workers in treatment hostels tend to join the firm slightly earlier (less than 3 weeks). We control for the month

of tenure fixed effects in all of our regressions and also examine the treatment effect by tenure month later in this paper. In short, our results do not seem to be driven by this difference.

We study the same measures of subjective well-being for the sample of joiners using the same regression specification as in equation 2. Table 5 presents the results using measures of satisfaction as dependent variables. Consistent with the prediction of the reference-dependence hypothesis, we do find that joiners in treatment hostels experienced increases in housing- and job-related satisfaction. All of the three estimates in column 1-3 are positive and economically meaningful in magnitude. Joiners in treatment hostels were 9.1 percentage points more likely to be satisfied with overall dorm condition, although this point estimate is not statistically significant ($p = 0.18$). They were also 14 percentage points more likely to be satisfied with their job positions and monthly pay and both coefficients are statistically different from 0 at conventional levels. The “mean effect” estimate in column 4 indicates that on average, treatment increased the overall satisfaction of a resident by 0.37 SD. Corresponding estimates from ordered probit models are consistently positive and similar in significance and can be found in Appendix Table A6.⁹ Estimates related to psychological well-being for joiners are presented in Table 6. Overall, the estimates are small in magnitude and imprecisely estimated. We turn next to a pooled specification to compare treatment effects between original sample and joiners.

4.2.3 Difference in Treatment Effect between Original Sample and Joiners

In this subsection, we test whether the treatment effects for the original sample are statistically different from those for the joiners. Let J_i be an indicator equal to 1 for joiners and T_u be an indicator for the treatment status. The following regression equation is estimated using the entire sample that pools the original sample and joiners sample:

$$Y_{iu} = \alpha + \beta_1 T_u + \beta_2 T_u \times J_i + \gamma X + \epsilon_{iu} \quad (3)$$

where a measure of subjective wellbeing for individual i in factory u is regressed on the explanatory

⁹These results, paired with the negative results on satisfaction shown in the original sample, suggest that workers may consider salary, amenities, and how they are treated by the firm as a whole while making assessments about employment. Consistent with older findings on workers’ perception of wage v. non-wage amenities (see, e.g., Woodbury (1983)), changes in amenities may spill over onto satisfaction with other aspects, and cause changes in the value of the employment.

Table 5: General Satisfaction – Joiners

VARIABLES	Dorm Situation Satisfaction	Job Position Satisfaction	Monthly Pay Satisfaction	Mean Effect (1) – (3)
	(1)	(2)	(3)	(4)
Treatment	.091 (.180)	.149 (.036)	.141 (.056)	.376 (.012)
Mean of dep. var.	.567	.537	.196	0
Observations	229	229	229	229

Notes: The dependent variables in columns 1–3 are an indicator for being “extremely satisfied” with overall dorm situation, job position, and monthly pay, respectively. The dependent variable in column 4 is a summary standardized index that averages together three measures of satisfaction in columns 1–3. The models control for gender, marital status, an indicator for having children, enumerator fixed effects, production-division fixed effects, year of birth and month of joining fixed effects. P-values obtained via wild bootstrap as in Cameron et al (2008) with clustering at the factory level, based on 499 repetitions, appear in parentheses.

variable of interest $T_u \times J_i$, main effect T_u , and a series of control variables. The control variables are the same as in equation 2, with the only difference that the vector X now also allows for the impact of baseline characteristics to vary across the original sample and joiners and also includes the main effect of J_i . This mitigates concerns that joiners are responding differently to the treatment because they might be systematically different in baseline characteristics. The coefficient β_2 delivers the difference in treatment effects between the original sample and the joiners. The results for worker satisfaction and psychological well-being are presented in Table 7 and Table 8, respectively.

Consistent with the previously presented results, estimates of main effects in the first rows of Table 7 and Table 8 show that original sample experienced substantial declines in worker satisfaction and mental wellbeing. Estimates on the interaction term are also economically meaningful and statistically significant. Results in column 1 of Table 7 show that joiners in treatment hostels were 16.4 percentage points more likely to be extremely satisfied with the overall dorm condition than original sample residents in the same hostel. They were also 24 and 22 percentage points more likely to be extremely satisfied with their job position and monthly pay, respectively. Mean effect estimates in column 4 of Table 7 indicate that the treatment effect on overall satisfaction for joiners

Table 6: Cantril’s Ladder and Psychological Distress (K10 Score) – Joiners

VARIABLES	Step of Ladder 0-10 Scale	K10 Score	Log of K10 Score	Moderate Distress $K10 \geq 25$
	(1)	(2)	(3)	(4)
Treatment	.097 (.774)	-.149 (.773)	-.016 (.593)	.004 (.853)
Mean of dep. var.	5.768	14.32	2.629	.017
Observations	229	229	229	229

Notes: The dependent variables in columns 1–4 are the step in Cantril’s imagined life ladder measured on a 1-10 scale, the K10 psychological distress index on a 10-50 scale, the log of K10 score, and an indicator for moderate distress, respectively. The models control for gender, marital status, an indicator for having children, enumerator fixed effects, production-division fixed effects, year of birth and month of joining fixed effects. P-values obtained via wild bootstrap as in Cameron et al (2008) with clustering at the factory level, based on 499 repetitions, appear in parentheses.

is .6 SD greater than that for the original sample. Estimates in Table 8 consistently indicate that joiners in treatment hostels reported being at a significantly higher step in Cantril’s imagined life ladder and were less likely to experience psychological distress.

The above pattern of results allows us to rule out several competing hypotheses. For example, one concern is that despite the increase in housing quality along important dimensions as a result of treatment, housing quality may have declined in some other dimensions that we were not able to measure in the survey. If those unobserved aspects were more important to residents, overall satisfaction and subjective well-being could have declined as a consequence. Another concern is that the transfer of management to another organization allowed the employer to free human resources from the treatment hostels so that they could be spent on control hostels. The decline in subjective well-being among treatment residents may actually reflect an increase in subjective well-being among control residents. While these hypotheses are consistent with the negative effects that are documented for the original sample, they are inconsistent with the positive effects for the joiners. Since joiners experienced the same treatment-induced variation in living conditions as the original sample did, if either of these alternative explanations were true, we should see similar treatment

Table 7: General Satisfaction – Pooled Specifications

VARIABLES	Dorm Situation Satisfaction	Job Position Satisfaction	Monthly Pay Satisfaction	Mean Effect (1) – (3)
	(1)	(2)	(3)	(4)
Treatment	-.073 (.064)	-.092 (.004)	-.078 (.092)	-.250 (.024)
Treatment \times 1(Joiners)	.164 (.028)	.241 (.000)	.219 (.012)	.644 (.000)
Mean of dep. var.	.647	.594	.166	0
Observations	1,309	1,309	1,309	1,309

Notes: The dependent variables in columns 1–3 are an indicator for being “extremely satisfied” with overall dorm situation, job position, and monthly pay, respectively. The dependent variable in column 4 is a summary standardized index that averages together three measures of satisfaction in columns 1–3. The models include a full set of controls and their interactions with a dummy for “joiner”. P-values obtained via wild bootstrap as in Cameron et al (2008) with clustering at the factory level, based on 499 repetitions, appear in parentheses.

effects for the two samples.

4.2.4 Heterogenous Effects by Tenure Month

Here, we expand the above analysis by allowing treatment effect to vary by months of tenure of the hostel resident. In particular, we interact an indicator for treatment status with a series of dummies for the following tenure month bins (1-2, 3-4, 5-6, 7-10, 11-18, >18). Notice that a joiner typically has a tenure month between 1 and 4 at the survey time. Original sample workers have tenure that are longer than 4 months. This heterogeneity analysis allows us to check the robustness of our results and more importantly, to speak to two other competing explanations which are in some sense consistent with the pattern of impacts we have documented so far.

Specifically, the disutility experienced by original sample workers in the treatment group might arise from so-called betrayal aversion (Bohnet et al., 2008; Bohnet and Zeckhauser, 2004). That is, hostel residents might have experienced utility losses because they felt “betrayed” by the firm,

Table 8: Cantril’s Ladder and Psychological Distress (K10 Score) - Pooled Specifications

VARIABLES	Step of Ladder 0-10 Scale	K10 Score	Log of K10 Score	Moderate Distress $K10 \geq 25$
	(1)	(2)	(3)	(4)
Treatment	-.563 (.004)	1.000 (.044)	.061 (.044)	.045 (.008)
Treatment \times 1(Joiners)	.661 (.076)	-1.150 (.064)	-.076 (.048)	-.041 (.100)
Mean of dep. var.	5.877	14.508	2.632	.040
Observations	1,309	1,309	1,309	1,309

Notes: The dependent variables in columns 1–4 are the step in Cantril’s imagined life ladder measured on a 1-10 scale, the K10 psychological distress index on a 10-50 scale, the log of K10 score, and an indicator for moderate distress, respectively. The models include a full set of controls and their interactions with a dummy for “joiner”. P-values obtained via wild bootstrap as in Cameron et al (2008) with clustering at the factory level, based on 499 repetitions, appear in parentheses.

which did not keep its promise of substantially improving hostel conditions. Another possibility is that the change in hostel management was disruptive to the original sample of workers, either because individuals are intrinsically resistant to change (Oreg, 2003), or because they have become accustomed to old practices and changes within the organization make them worse off (Atkin et al., 2017; Dow and Perotti, 2013). The argument would be that joiners are not affected in the same way simply because they arrived after the management handover had occurred, and thus experienced the new management as *status quo*.

Figure 3 plots the coefficients and 95% confidence intervals for each tenure month bin using the mean effect of satisfaction as the dependent variable. Each coefficient represents the estimate of the treatment effect on overall satisfaction for residents in that tenure month bin. Two important features stand out. First, there is a sharp jump in treatment effect from a positive value to a negative when tenure month increases from 4 to 5, suggesting that whether or not a resident has been exposed to the old management determined the sign of the treatment effect.

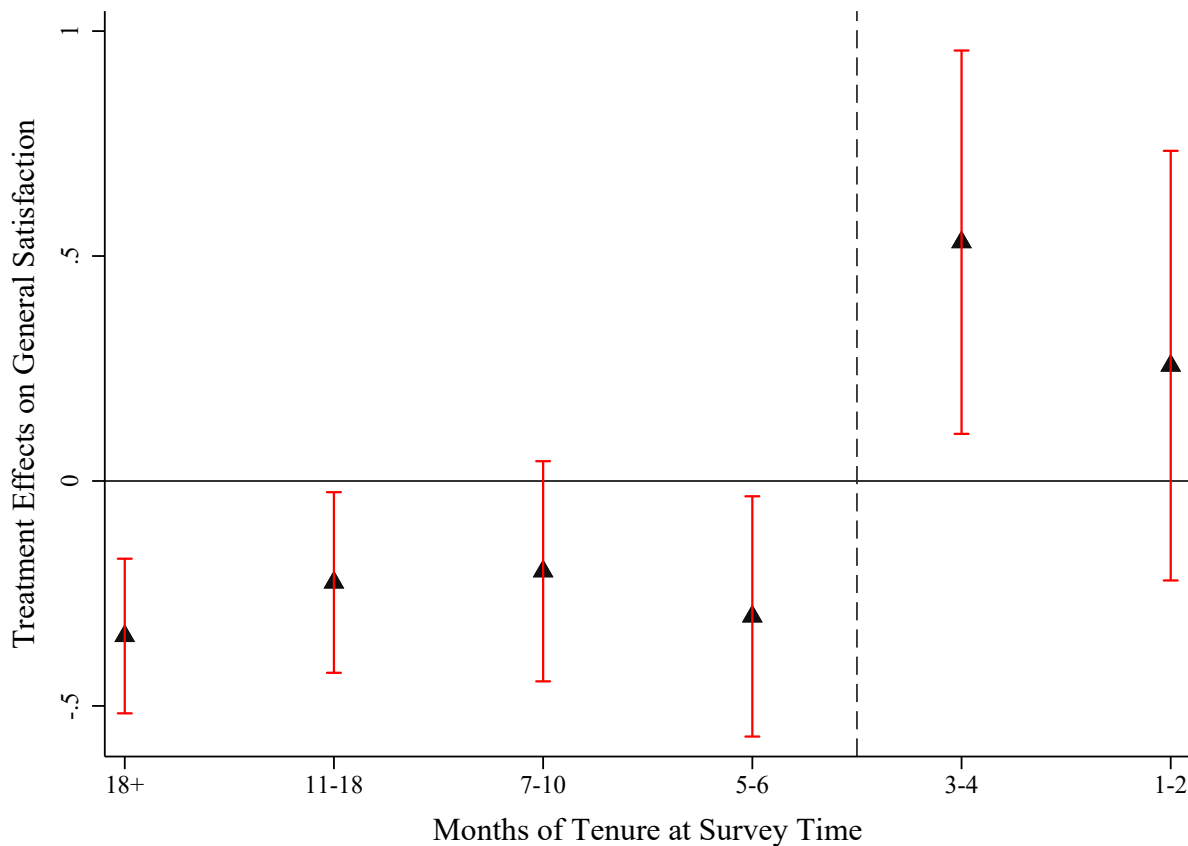


Figure 3: Treatment Effects on Overall Satisfaction, by Tenure Month

Note: This figure plots coefficient estimates and 95% confidence intervals for treatment dummy interacted with the tenure month indicators listed on the x-axis. The regression includes a full set of controls and their interactions with a dummy for joiners. Dependent variable is the mean effect of satisfaction.

Second, the treatment effect does not appear to vary by tenure month for the original sample. If betrayal and aversion to change were driving mechanisms for the treatment effect, one might expect to see a stronger sentiment of betrayal and more aversion to change the higher the worker's tenure. The fact that we do not find this, of course, does not provide dispositive evidence refuting the importance of betrayal and change aversion, it suggests that perhaps these mechanisms, if they were indeed at play, are not fully driving the results.¹⁰

¹⁰It is also worth mentioning that our focus on reference dependence over these alternative mechanisms is also due to the fact that an expectations-based explanation is what emerged from conversations with hostel residents.

4.3 Worker Retention

In this section, we use the firm’s administrative data linked to hostel residents by their worker IDs to investigate the treatment effect on worker retention at the firm. Monthly payroll data allow us to track all residents living in hostels at the baseline (February 2016) and know exactly when they leave the firm. We investigate treatment effects on worker retention by estimating the following regression specification on all residents living in hostels at the baseline:

$$Y_{iut} = \sum_{k=4}^{12} \beta_k T_u \times 1(\gamma_t = k) + \lambda_u + \mu_{gt} + \epsilon_{iut} \quad (4)$$

where the outcome is an indicator variable that takes the value 1 if worker i from factory u was retained in month t and 0 otherwise. T_u is a dummy variable that takes the value 1 if the worker is from a treatment factory and 0 if she is from a control and it is interacted with monthly dummies from April 2016 onwards (i.e., $1(\gamma_t = k)$ is an indicator equal to 1 for the k -th month of 2016). We use data from February to December 2016. Dummies for February and March are omitted to make treatment relative to the pre-treatment period. Each regression includes factory fixed effects λ_u (which absorb the main effect of the treatment indicator) and month by gender fixed effects μ_{gt} (which absorb gender-specific time-variant determinants of retention common to all factories). This specification allows the coefficient on the treatment indicator to vary by month. β_k are the key coefficients of interest, representing the treatment effects on retention in a given month k .

We report the results in column 1 of Appendix Table A7 and plot the month-by-month treatment impacts on (cumulative) retention rate in Figure 4. Results show that migrant workers living in treatment hostels were 3.2 percentage points more likely to be retained in the first month of treatment and the estimate is statistically significant at the 5% level. However, this impact quickly diminished and gave way to (imprecisely estimated) negative impacts for the remainder of the study period.

This pattern of retention contributes additional evidence in support of the reference-dependence hypothesis and against the change-aversion story. In particular, if the change in management is disruptive to hostel residents, we should observe decline in retention rate right after the change occurred when the disruption was most intense. Rather, these results are consistent with residents

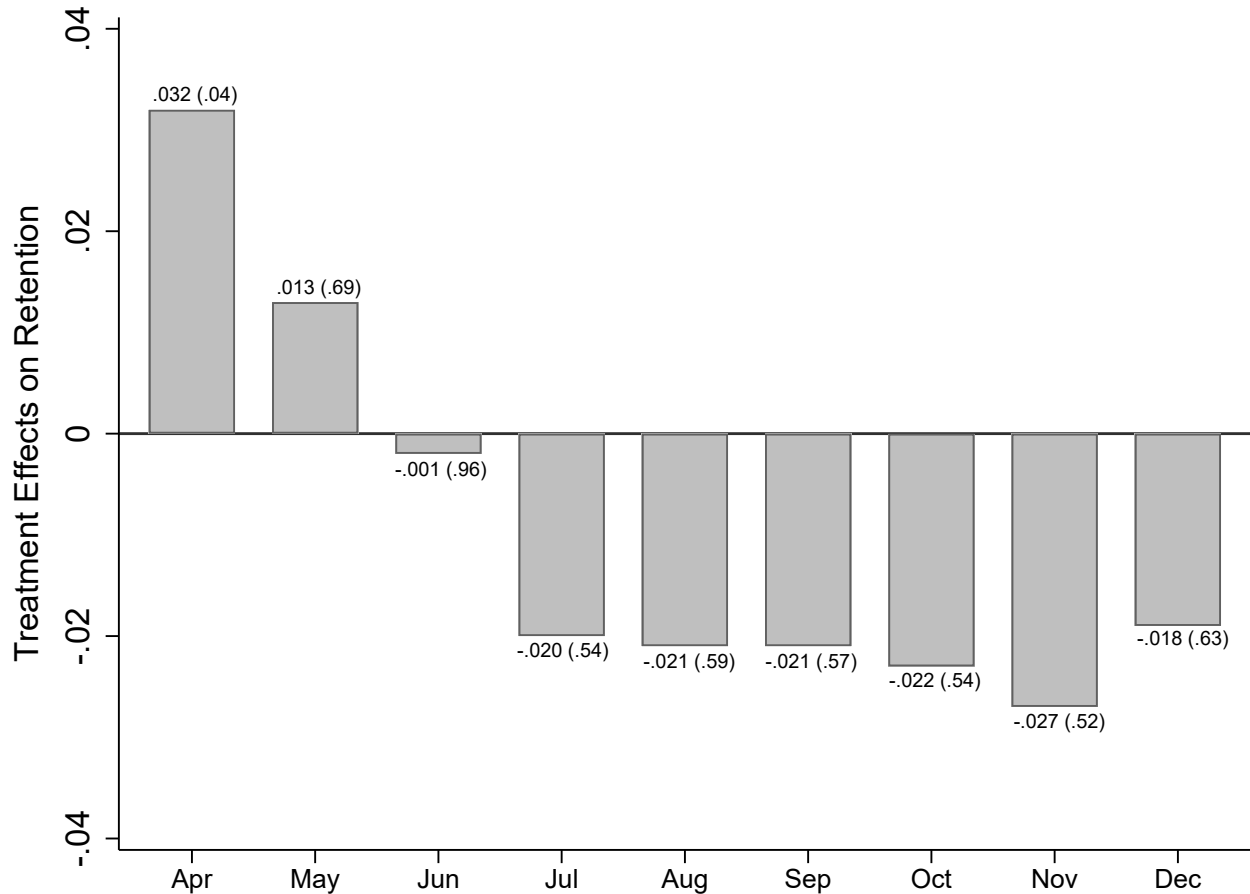


Figure 4: Treatment Effects on Worker Retention by Month

Note: This figure plots coefficient estimates for monthly treatment impacts on worker retention. The regression uses data for all residents living in hostels at the baseline (February 2016) and includes factory fixed effects and gender by month fixed effects. Sample period is February–December 2016. *P*-values obtained via wild bootstrap as in Cameron et al (2008) with clustering at the factory level, based on 499 repetitions, appear in parentheses.

holding high expectations for improvements in hostel conditions when the management was first transferred in April and thus being more likely to be retained. When the modest improvements that actually occurred fell below their expectations, worker separation increased due to disappointment.¹¹

5 Conclusion

This study documents the impacts of a change in the management of hostels housing garment workers in urban Bengaluru, India. Despite evidence of modest improvements in cleanliness and

¹¹ A similar pattern emerges when using a variable measuring both retained and present at work on a given day (using administrative data on attendance) as the outcome, but this analysis yields less precisely estimated coefficients. We present these results in column 2 of Appendix Table A7.

safety, two key determinants of hostel quality, we find that residents were substantially less satisfied with their housing and job situations, and reported higher levels of psychological distress, as a result of treatment.

We provide evidence supporting the idea that reference-dependent utility, in which reference points were anchored to high expectations of housing quality following the transfer of hostel management, could explain the surprising results we find. First, we study a sample of joiners, residents who arrived at the hostel after the first randomized phase of management transfer had taken place. This sample received all the benefits of improved living conditions without the expectations “manipulation” that may have occurred with the original sample. If our hypothesis related to reference dependence is correct, these joiners should not exhibit the same decreases in subjective well-being observed for the original sample. In line with this, we find indeed that joiners actually show increases in most measures of subjective well-being, hand in hand with the modest housing quality differential across treatment and control hostels. Second, we study the impacts of treatment on worker separation among the original sample and find that residents in the treatment hostels were more likely to be retained in the first month of treatment and then became more likely to leave in later period. This pattern further supports the reference dependence hypothesis and suggests that hostel residents held high expectations immediately following the transfer of management but were disappointed by the modest improvements that actually occurred.

Our results are important for policymakers in low-income country contexts in that they emphasize the crucial role that properly setting expectations – and implementing policy that lives up to those expectations – can play in determining the success or failure of policies. The political economy of policymaking often necessitates that the potential benefits of proposed policies be widely disseminated, and the potential costs hidden, so that policies are most effectively “sold” to the public and its elected representatives. Our work points out that doing this comes at an inherent cost: the more a policy is oversold, the less likely it is that its effects will live up to expectations. If the gap between expectations and reality is large enough, even objectively successful programs may fall prey to reference dependence, and subjective well-being may decline.

This does not necessarily imply that the returns to policymakers setting expectations low are large. If gains and losses relative to a reference point result in asymmetric changes in utility, it is likely that setting expectations extremely low would have only modest returns in terms of impacts on

subjective well-being. Benchmarking expectations to the most likely policy outcome (with perhaps, at most, a slight undersell) could be roughly optimal in a world with implementation uncertainty.

References

- Abeler, J., Falk, A., Goette, L., and Huffman, D. (2011). Reference points and effort provision. *American Economic Review*, 101(2):470–92.
- Adhvaryu, A., Molina, T., and Nyshadham, A. (2019). Expectations, wage hikes, and worker voice.
- Afridi, F., Dinkelman, T., and Mahajan, K. (2018). Why are fewer married women joining the work force in rural India? A decomposition analysis over two decades. *Journal of Population Economics*, 31(3):783–818.
- Allen, E. J., Dechow, P. M., Pope, D. G., and Wu, G. (2017). Reference-dependent preferences: Evidence from marathon runners. *Management Science*, 63(6):1657–1672.
- Anderson, M. L. (2008). Multiple inference and gender differences in the effects of early intervention: A reevaluation of the abecedarian, perry preschool, and early training projects. *Journal of the American statistical Association*, 103(484):1481–1495.
- Andrews, G. and Slade, T. (2001). Interpreting scores on the Kessler psychological distress scale (K10). *Australian and New Zealand Journal of Public Health*, 25(6):494–497.
- Atkin, D., Chaudhry, A., Chaudry, S., Khandelwal, A. K., and Verhoogen, E. (2017). Organizational barriers to technology adoption: Evidence from soccer-ball producers in pakistan. *Quarterly Journal of Economics*, 132(3):1101–1164.
- Backus, M., Blake, T., Masterov, D. V., and Tadelis, S. (2017). Expectation, disappointment, and exit: Reference point formation in a marketplace. Technical report, National Bureau of Economic Research.
- Barberis, N. C. (2013). Thirty years of prospect theory in economics: A review and assessment. *The Journal of Economic Perspectives*, 27(1):173–195.
- Barnhardt, S., Field, E., and Pande, R. (2017). Moving to opportunity or isolation? network effects of a randomized housing lottery in urban India. *American Economic Journal: Applied Economics*, 9(1):1–32.

- Bartling, B., Brandes, L., and Schunk, D. (2015). Expectations as reference points: Field evidence from professional soccer. *Management Science*, 61(11):2646–2661.
- Bernhardt, A., Field, E., Pande, R., Rigol, N., Schaner, S., and Troyer-Moore, C. (2018). Male social status and women’s work. In *AEA Papers and Proceedings*, volume 108, pages 363–67.
- Blattman, C. and Dercon, S. (2018). The impacts of industrial and entrepreneurial work on income and health: Experimental evidence from Ethiopia. *American Economic Journal: Applied Economics*, 10(3):1–38.
- Bohnet, I., Greig, F., Herrmann, B., and Zeckhauser, R. (2008). Betrayal aversion: Evidence from brazil, china, oman, switzerland, turkey, and the united states. *American Economic Review*, 98(1):294–310.
- Bohnet, I. and Zeckhauser, R. (2004). Trust, risk and betrayal. *Journal of Economic Behavior & Organization*, 55(4):467–484.
- Boudreau, L. (2019). Multinational enforcement of labor law: Experimental evidence from bangladesh’s apparel sector. Technical report, mimeo.
- Brakarz, J. and Jaitman, L. (2013). Evaluation of slum upgrading programs: Literature review and methodological approaches. Technical report, Inter-American Development Bank.
- Breza, E., Kaur, S., and Shamdasani, Y. (2017). The morale effects of pay inequality. *The Quarterly Journal of Economics*, 133(2):611–663.
- Bryan, G., Chowdhury, S., and Mobarak, A. M. (2014). Underinvestment in a profitable technology: The case of seasonal migration in Bangladesh. *Econometrica*, 82(5):1671–1748.
- Budd, J. W. (2004). Non-wage forms of compensation. *Journal of Labor Research*, 25(4):597–622.
- Cameron, A. C., Gelbach, J. B., and Miller, D. L. (2008). Bootstrap-based improvements for inference with clustered errors. *The Review of Economics and Statistics*, 90(3):414–427.
- Card, D. and Dahl, G. B. (2011). Family violence and football: The effect of unexpected emotional cues on violent behavior. *The Quarterly Journal of Economics*, 126(1):103–143.

- Card, D., Mas, A., Moretti, E., and Saez, E. (2012). Inequality at work: The effect of peer salaries on job satisfaction. *American Economic Review*, 102(6):2981–3003.
- Cattaneo, M. D., Galiani, S., Gertler, P. J., Martinez, S., and Titiunik, R. (2009). Housing, health, and happiness. *American Economic Journal: Economic Policy*, 1(1):75–105.
- Chambers, A. E. and Penman, S. H. (1984). Timeliness of reporting and the stock price reaction to earnings announcements. *Journal of accounting research*, pages 21–47.
- Chari, A., Heath, R., Maertens, A., and Fatima, F. (2017). The causal effect of maternal age at marriage on child wellbeing: Evidence from India. *Journal of Development Economics*, 127:42–55.
- Clark, A. E. and Oswald, A. J. (1996). Satisfaction and comparison income. *Journal of public economics*, 61(3):359–381.
- Crawford, V. P. and Meng, J. (2011). New york city cab drivers’ labor supply revisited: Reference-dependent preferences with rational-expectations targets for hours and income. *American Economic Review*, 101(5):1912–32.
- DellaVigna, S., Lindner, A., Reizer, B., and Schmieder, J. F. (2017). Reference-dependent job search: Evidence from hungary. *The Quarterly Journal of Economics*, 132(4):1969–2018.
- Delquié, P. and Cillo, A. (2006). Expectations, disappointment, and rank-dependent probability weighting. *Theory and Decision*, 60(2-3):193–206.
- Devoto, F., Duflo, E., Dupas, P., Parienté, W., and Pons, V. (2012). Happiness on tap: Piped water adoption in urban morocco. *American Economic Journal: Economic Policy*, 4(4):68–99.
- Dow, J. and Perotti, E. C. (2013). Resistance to change. Working Paper.
- Duflo, E., Galiani, S., and Mobarak, M. (2012). Improving access to urban services for the poor. Technical report, J-PAL.
- Easton, P. D. and Zmijewski, M. E. (1989). Cross-sectional variation in the stock market response to accounting earnings announcements. *Journal of Accounting and economics*, 11(2-3):117–141.
- Field, E. and Ambrus, A. (2008). Early marriage, age of menarche, and female schooling attainment in Bangladesh. *Journal of political Economy*, 116(5):881–930.

- Field, E., Pande, R., Rigol, N., Schaner, S., and Moore, C. T. (2016). On her account: Can strengthening women’s financial control boost female labor supply? Technical report, Working Paper.
- Galiani, S., Gertler, P. J., and Undurraga, R. (2015). The half-life of happiness: Hedonic adaptation in the subjective well-being of poor slum dwellers to a large improvement in housing. *Journal of European Economic Association*.
- Galiani, S., Gertler, P. J., Undurraga, R., Cooper, R., Martínez, S., and Ross, A. (2017). Shelter from the storm: Upgrading housing infrastructure in latin american slums. *Journal of Urban Economics*, 98:187–213.
- Garriga, C., Hedlund, A., Tang, Y., and Wang, P. (2017). Rural-urban migration, structural transformation, and housing markets in China. Technical report, National Bureau of Economic Research.
- Gill, D. and Prowse, V. (2012). A structural analysis of disappointment aversion in a real effort competition. *American Economic Review*, 102(1):469–503.
- Gul, F. (1991). A theory of disappointment aversion. *Econometrica*, pages 667–686.
- Hart, B. (2010). *The Economics of Non-Wage Labour Costs (Routledge Revivals)*. Routledge.
- Haushofer, J. and Shapiro, J. (2016). The short-term impact of unconditional cash transfers to the poor: Experimental evidence from Kenya. *Quarterly Journal of Economics*, 131(4):1973–2042.
- Hsieh, C.-T. and Moretti, E. (2018). Housing constraints and spatial misallocation. *American Economic Journal: Macroeconomics*.
- Kahneman, D. and Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, pages 263–291.
- Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S.-L., Walters, E. E., and Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, 32(6):959–976.
- Kirk, M. (2015). The peculiar inequality of Singapore’s famed public housing. *Citylab*, 9.

- Kline, P. and Santos, A. (2012). A score based approach to wild bootstrap inference. *Journal of Econometric Methods*, 1(1):23–41.
- Kling, J. R., Liebman, J. B., and Katz, L. F. (2007). Experimental analysis of neighborhood effects. *Econometrica*, 75(1):83–119.
- Kőszegi, B. and Rabin, M. (2006). A model of reference-dependent preferences. *Quarterly Journal of Economics*, 121(4):1133–1165.
- Kőszegi, B. and Rabin, M. (2007). Reference-dependent risk attitudes. *American Economic Review*, 97(4):1047–1073.
- Kőszegi, B. and Rabin, M. (2009). Reference-dependent consumption plans. *American Economic Review*, 99(3):909–36.
- Lilford, R. J., Oyebode, O., Satterthwaite, D., Melendez-Torres, G., Chen, Y.-F., Mberu, B., Watson, S. I., Sartori, J., Ndugwa, R., Caiaffa, W., et al. (2017). Improving the health and welfare of people who live in slums. *The Lancet*, 389(10068):559–570.
- List, J. A. (2003). Does market experience eliminate market anomalies? *The Quarterly Journal of Economics*, 118(1):41–71.
- Loomes, G. and Sugden, R. (1986). Disappointment and dynamic consistency in choice under uncertainty. *The Review of Economic Studies*, 53(2):271–282.
- Loomes, G. and Sugden, R. (1987). Testing for regret and disappointment in choice under uncertainty. *The Economic Journal*, 97:118–129.
- Mahadevia, D., Liu, Z., and Yuan, X. (2012). Housing of urban migrants in India and China. *Environment and Urbanization Asia*, 3(1):143–163.
- Marzilli Ericson, K. M. and Fuster, A. (2011). Expectations as endowments: Evidence on reference-dependent preferences from exchange and valuation experiments. *Quarterly Journal of Economics*, 126(4):1879–1907.
- Mas, A. (2006). Pay, reference points, and police performance. *Quarterly Journal of Economics*, 121(3):783–821.

- Ockenfels, A., Sliwka, D., Werner, P., et al. (2015). Bonus payments and reference point violations. *Management Science*, 61(7):1496–1513.
- O'Donoghue, T. and Sprenger, C. (2018). Reference-dependent preferences. *Handbook of Behavioral Economics-Foundations and Applications 1*, page 1.
- Oreg, S. (2003). Resistance to change: Developing an individual differences measure. *Journal of Applied Psychology*, 88(4):680.
- Pope, D. G. and Schweitzer, M. E. (2011). Is Tiger Woods loss averse? Persistent bias in the face of experience, competition, and high stakes. *American Economic Review*, 101(1):129–57.
- Roberts, J. M. (1995). New keynesian economics and the phillips curve. *Journal of money, credit and banking*, 27(4):975–984.
- Sargent, T. J. and Wallace, N. (1976). Rational expectations and the theory of economic policy. *Journal of Monetary economics*, 2(2):169–183.
- Schnake, M. E. (2016). Antecedents and outcomes of employee benefit satisfaction: An updated model. *American Journal of Management*, 16(3):34.
- Shiller, R. J. (1978). Rational expectations and the dynamic structure of macroeconomic models: A critical review. *Journal of monetary economics*, 4(1):1–44.
- Simon, K. I. and Kaestner, R. (2004). Do minimum wages affect non-wage job attributes? evidence on fringe benefits. *ILR Review*, 58(1):52–70.
- United Nations (2008). World Urbanization Prospects: The 2007 Revision Population Database.
- Watts, R. L. (1978). Systematic ‘abnormal’ returns after quarterly earnings announcements. *Journal of financial Economics*, 6(2-3):127–150.
- Woodbury, S. A. (1983). Substitution between wage and nonwage benefits. *The American Economic Review*, 73(1):166–182.
- World Bank (2014). *World Development Indicators 2014*. World Bank Publications.

Appendix: Not for publication.

A Additional Results

Table A1: Summary Statistics and Balance Checks for the Whole Populations of Hostel Residents

Variables	Control		Treated		Difference	
	3,279		4,242			
	Mean	SD	Mean	SD	Difference	p-value
Attendance Rate (Feb. 2016)	.906	.012	.918	.011	-.012	.472
Log(Salary)	8.92	.007	8.92	.006	-.001	.879
Male	.287	.050	.309	.047	-.022	.754
Age	22.94	.218	23.32	.202	-.388	.209
Years of Tenure	.809	.076	.83	.071	-.021	.846
Tailor	.671	.140	.434	.130	.237	.231
Checker	.020	.008	.014	.007	.005	.634
Helper	.036	.017	.019	.016	.018	.457

Notes: This table presents summary statistics and balance checks for the whole populations of hostel residents, based on rosters from each hostel in Feb 2016. Standard errors are clustered at the factory level.

Table A2: Summary Statistics and Balance Checks for the Attrited Workers

Variables	Control		Treated		Difference	
	503		676			
	Mean	SD	Mean	SD	Difference	p-value
Attendance Rate (Feb. 2016)	.876	.018	.893	.017	-.017	.502
Log(Salary)	8.92	.007	8.92	.007	-.007	.498
Male	.326	.056	.385	.053	-.059	.460
Age	22.89	.322	23.53	.295	-.638	.162
Years of Tenure	.701	.074	.732	.069	-.031	.762
Tailor	.656	.133	.396	.127	.260	.177
Checker	.024	.009	.009	.008	.015	.211
Helper	.040	.020	.025	.019	.015	.602

Notes: This table presents summary statistics and balance checks between treatment and control groups for the attrited workers in the original sample. Standard errors are clustered at the factory level.

Table A3: Summary Statistics and Balance Checks for the Sample of Joiners

Variables	Control		Treated		Difference	
	112		117			
	Mean	SD	Mean	SD	Difference	p-value
Male	.313	.085	.359	.077	-.046	.691
Age	22.32	.683	22.17	.624	.150	.873
Years of Tenure	.151	.015	.206	.014	-.056	.015
Tailor	.598	.151	.479	.133	.120	.560
Checker	.018	.009	.010	.009	-.008	.166
Helper	.010	.013	.026	.013	-.016	.185
Ever Married	.107	.036	.120	.034	-.013	.802
Have Children	.036	.036	.103	.033	-.067	.193
Household Engages in Agriculture	.732	.042	.752	.041	-.020	.735
Household Owns Land	.652	.050	.684	.048	-.032	.652

Notes: This table presents summary statistics and balance checks for the sample of joiners. Standard errors are clustered at the factory level.

Table A4: Balance Checks between Joiners and the Original Sample

Variables	Original		Joiners		Difference	
	2,259		229			
	Mean	SD	Mean	SD	Difference	p-value
Male	.300	.010	.336	.031	-.036	.258
Age	23.21	.095	22.24	.296	.962	.002
Years of Tenure	.827	.019	.179	.006	.648	.000
Tailor	.541	.105	.537	.003	.004	.912
Checker	.015	.003	.009	.006	.006	.472
Helper	.030	.004	.013	.008	.017	.141
Ever Married	.085	.008	.114	.021	-.028	.174
Have Children	.059	.007	.070	.017	-.011	.543
Household Engages in Agriculture	.784	.013	.742	.029	-.042	.170
Household Owns Land	.710	.014	.668	.031	.042	.204

Notes: This table presents results for balance checks between the original sample and the sample of joiners.

Table A5: General Satisfaction – Original Sample (Ordered Probit model)

VARIABLES	Dorm Situation Likert scale	Job Position Likert scale	Monthly Pay Likert scale
	(1)	(2)	(3)
Treatment	-.296 (.023) [.040]	-.285 (.000) [.010]	-.300 (.031) [.058]
Marginal Effect for Extremely Satisfied	-.078 (.023)	-.079 (.000)	-.058 (.054)
Mean of dep. var.	4.494	4.450	2.986
Observations	1,080	1,080	1,080

Notes: The dependent variables in columns 1–3 are respondents’ satisfaction with overall dorm situation, job position, and monthly pay, respectively, measured on a Likert scale, with 5 being the highest rating. The models control for gender, marital status, an indicator for having children, enumerator fixed effects, production-division fixed effects, year of birth and month of joining fixed effects. P-values based on robust standard errors clustered at the factory level are in parentheses. P-values obtained via wild bootstrap as in Kline and Santos (2012) with clustering at the factory level, based on 499 repetitions, appear in brackets.

Table A6: General Satisfaction – Joiners (Ordered Probit model)

VARIABLES	Dorm Situation Likert scale	Job Position Likert scale	Monthly Pay Likert scale
	(1)	(2)	(3)
Treatment	.118 (.653) [.649]	.544 (.006) [.024]	.549 (.005) [.020]
Marginal effect for Extremely Satisfied	.027 (.652)	.141 (.004)	.110 (.001)
Mean of dep. var.	4.331	4.397	3.257
Observations	229	229	229

Notes: The dependent variables in columns 1–3 are respondents’ satisfaction with overall dorm situation, job position, and monthly pay, respectively, measured on a Likert scale, with 5 being the highest rating. The models control for gender, marital status, an indicator for having children, enumerator fixed effects, production-division fixed effects, year of birth and month of joining fixed effects. P-values based on robust standard errors clustered at the factory level are in parentheses. P-values obtained via wild bootstrap as in Kline and Santos (2012) with clustering at the factory level, based on 499 repetitions, appear in brackets.

Table A7: Retention and Working

VARIABLES	Retained	Working
	1(Workers Still on Payroll Roster)	1(Worker Retained and Present in Factory today)
	(1)	(2)
Treatment \times 1(April)	.032 (.044)	.013 (.657)
Treatment \times 1(May)	.013 (.689)	.006 (.785)
Treatment \times 1(June)	-.001 (.962)	-.012 (.709)
Treatment \times 1(July)	-.020 (.537)	-.020 (.601)
Treatment \times 1(Aug)	-.021 (.589)	-.027 (.597)
Treatment \times 1(Sep)	-.021 (.569)	-.012 (.861)
Treatment \times 1(Oct)	-.022 (.537)	-.028 (.653)
Treatment \times 1(Nov)	-.027 (.521)	-.019 (.749)
Treatment \times 1(Dec)	-.018 (.629)	-.019 (.725)
Mean of dep. var.	.659	.554
Observations	75,878	1,986,624

Notes: The dependent variable in column 1 is an indicator variable that takes the value 1 if a worker was retained in a given month. The dependent variable in column 2 is an indicator variable that takes the value 1 if a worker was retained and present at work on a given day. The models control for factory fixed effects and gender by month fixed effects. P-values obtained via wild bootstrap as in Cameron et al (2008) with clustering at the factory level, based on 499 repetitions, appear in parentheses.

B Intervention Details

- Two well-trained social workers will be appointed to each hostel, with one working as caretaker and the other as security guard.
- Caretakers will be responsible for personnel management, sanitary conditions, and coordination between Shahi and Janodaya. Security guards are in charge of security and utility maintenance. Regular checks on hostel conditions will be done by Janodaya.
- Free language, cooking, knitting, and other skill training will be provided to residents on a regular basis.
- Hostel residents will also be provided with nutritional amenities, including supplements and fruits.
- Recreational activities, including singing and dancing, will be held in hostels for interested residents.
- Grievances committee, Works committee, and Prevention of Sexual Harassment committee will be formed to help resolve disputes and conflicts between residents and to protect women from sexual harassment.
- Residents will be given more freedom of movement. Restrictions on times at which residents are allowed to enter and exit the hostels will be relaxed.