

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

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July 2, 2023

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 would like to express our gratitude to Anant Ahuja, Chitra Ramdas, and the Organizational Development team at Shahi Exports for their enthusiastic support throughout this study, as well as Lavanya Garg, Varun Jagannath, and the entire team at the Good Business Lab for their exceptional coordination during the field implementation. Adhvaryu and Nyshadham acknowledge funding from the Private Enterprise Development in Low-Income Countries (PEDL) initiative. Xu acknowledges the financial support from the National Natural Science Foundation of China (#72103007). This research has benefited from discussions with Hoyt Bleakley, Paul Gertler, Melanie Wasserman, Dean Yang, and many seminar participants. Thanks also to Sofia Calderon, Mamta Pimoli, and Medha Sektia for their excellent research assistance. The views expressed herein do not represent PEDL or Shahi Exports, Pvt. Ltd. All errors are our own.

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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 period.

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).

In addition, those in the treatment group take more days of leave and are more likely to be tardy for work in the post-intervention period, suggesting a decrease in their on-the-job effort.

Follow-up interviews 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 (Delquié and Cillo, 2006; Gul, 1991; Kőszegi 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

²Operating cost for the employer before the transfer is roughly INR 1,325 per resident per month. The employer pays the new management INR 1,500 per month for each worker, wherein INR 600 is deducted from worker salary. This includes water, electricity, rent, staff salaries etc.

result of their date of joining, moved into the hostels after phase 1 hostels had been transferred to 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*. 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 and attendance impacts, suggests that the negative impacts on subjective well-being for the original sample may reflect reference dependence.³

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., 2022; Breza et al., 2018; Card et al., 2012; Clark and Oswald, 1996; Mas, 2006; Ockenfels et al., 2015).⁴ 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

³Other competing explanations, such as differential reporting incentives between the treatment and control groups, change aversion among workers, and the possibility of changes in housing quality or living conditions in the control hostels due to the intervention, are discussed and addressed later in the paper.

⁴Reference-dependent preferences have been a mainstay of behavioral economics theory for decades (Barberis, 2013; Delquié and Cillo, 2006; Gul, 1991; Kahneman and Tversky, 1979; Köszegi 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. (2022); 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).

in worker satisfaction.

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.⁵ 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 (2022), 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., 2018). 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

⁵See, 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.

describes the estimation strategy, shows the results, and evaluates possible mechanisms. Section 5 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., 2021), 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. Therefore, we initially designed this study to investigate how improved living conditions in hostels may affect migration workers' satisfaction, turnover, and workplace performance.

2.2 Intervention

As of April 2016, the partner firm, Shahi Exports, 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. According to the administrative records, the employer's average operating costs prior to the intervention amounted to approximately 1,325 INR per resident per month, encompassing utility bills (water and electricity), rent, staff salaries, and maintenance costs.

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 a fixed amount of 1,500 INR per month for each resident living in the hostels. 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. Finally, the firm agreed to provide funding for hostel renovations and facility upgrading; each spending request in these categories was subject to individual approval by the firm. 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 A1 we include a set of photographs of the hostels before and after they were transferred.

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.⁶ In total, 80 hostels linked to 19 factories were handed over to the NGO in these two phases. Ten factories were randomized to phase I and the remaining 9 to phase II. Phase I began on April 1, 2016, wherein 51 hostels corresponding to 10 factories were treated, while phase II took effect 5 months later, in September 2016, wherein the remaining 29 hostels corresponding to 9 factories were transferred to the new management. Residents of the 51 hostels in phase I serve as our treatment group and residents of the 29 hostels in phase II constitute the control group. Approximately two week prior to the Phase I transfer, the NGO coordinators responsible for this program held town hall meetings at the treatment hostels. These meetings followed a similar format across different hostels, wherein the new management presented their plans for improving living conditions and actively responded to residents' concerns and inquiries. As a result, residents in treatment hostels were well-informed and attentive to the impending change in hostel management before it actually occurred.⁷

Our research design takes advantage of the gap of approximately five months between phases

⁶It is worth mentioning that the intervention was designed by the firm to *improve* hostel living conditions, and consequently increase workers' satisfaction and willingness to stay in their jobs. The authors had no direct control over the transfer of hostel management. Moreover, our study was not designed to test the reference-dependence hypothesis specifically; rather this hypothesis emerged as the most plausible explanation for the (surprising) negative treatment effects on satisfaction and subjective well-being observed.

⁷Residents in the control group worked in different factory units and resided in different hostels that were not visited by the NGO prior to the phase I transfer. Therefore, they were unlikely to be aware of the impending change in management.

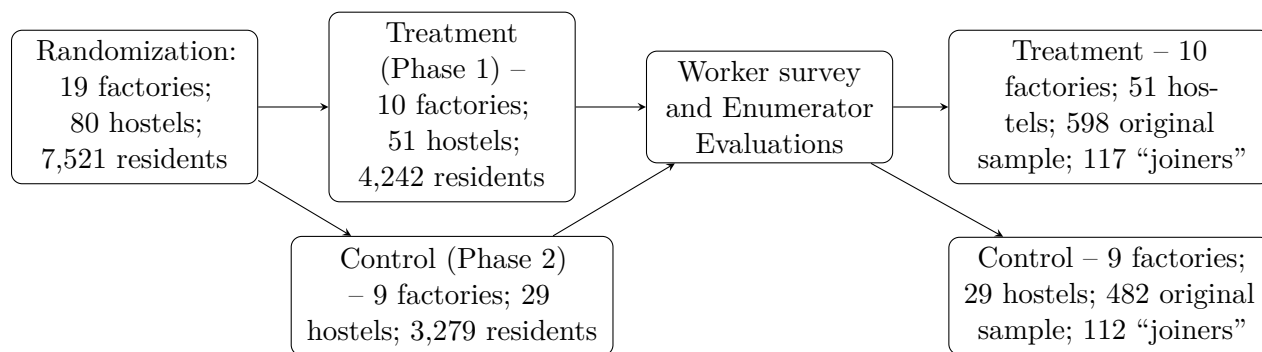


Figure 1A: Experimental Design

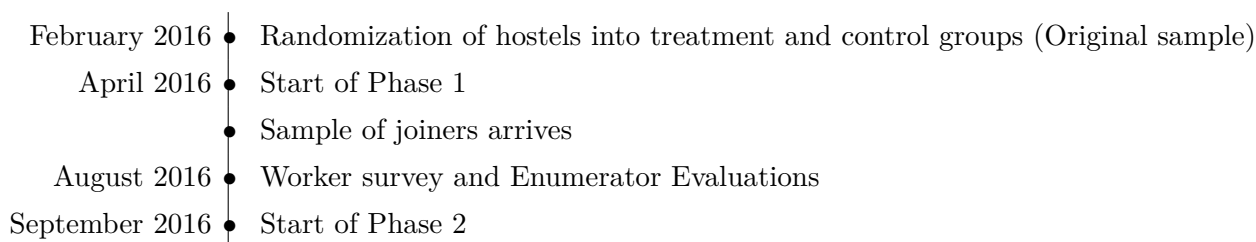


Figure 1B: Timeline of Experiment and Data Collection

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 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 and attendance 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 balance 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.⁸

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, retention, and attendance. 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, number of days' leave, and number of days that a worker is tardy.

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 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.

⁸We did not explicitly randomize the order of these visits. We gave the full hostel list to the survey team and asked the supervising enumerator to decide the order. It is plausible that this ordering was (*ex post*) orthogonal to treatment given the supervisor did not have information regarding treatment status of the hostels. The site visits were unannounced so that hostel managers were unable to manipulate living conditions during observation periods.

Table 1: Summary Statistics and Balance Checks for Original Sample

Panel A: Whole Sample	Control		Treated		Difference	
	985		1274		Difference	<i>p</i> -value
	Mean	SD	Mean	SD		
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		Difference	<i>p</i> -value
	Mean	SD	Mean	SD		
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.

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:

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

where Y_{huc} 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

Table 2: Hostel Conditions

VARIABLES	Overall	Overall	Toilet &		Sleeping	Mean
	Cleanliness	Safety	Bathroom	Kitchen	Area	Effect
	1-5 rating	1-5 rating	Index	Index	Index	(1)–(5)
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	.381 (.080)	.417 (.040)	.313 (.144)	.145 (.465)	.323 (.048)	.373 (.056)
Control mean of dep.	3.351	3.895	-.237	-.134	-.237	-.280
Treatment mean of dep.	3.757	4.359	.131	.074	.131	.155
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 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.

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.

The modest improvements in living conditions documented above are likely a reflection of the modest increase in budget, as discussed in Section 2. Under the agreement between the two organizations, the firm paid the new management 1,500 INR per month for each resident in the hostels, compared to the previous expenditure of approximately 1,325 INR per resident when the firm managed the hostels itself. The increased budget of around 175 INR (or \$2.5 in 2016 US dollars) per resident per month is relatively small, which may have limited the capacity of the new

management to make significant improvements in hostel living conditions.

The breakdown of hostel expenditure further supports this point, revealing that per-resident expenditure only experienced a slight increase of about 155 INR for the treatment hostels following the change in management. The majority of the increased expenditure can be attributed to the rise in personnel wages, amounting to approximately 90 INR per resident. In contrast, maintenance costs, which encompass plumbing, electrical repairs, pest control, and facility upgrades, saw only a marginal increase of 30 INR. These observations suggest that while the change in management led to improvements in areas such as cleanliness and safety through additional manpower, the limited budget constrained substantial enhancements in “hard” dimensions such as physical infrastructure and facilities.

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 and the NGO 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 five-point Likert scale, ranging from “extremely dissatisfied” to “extremely satisfied”. In Appendix Figure A2, we plot the distribution of the responses to each satisfaction question. The histograms show that the highest level of satisfaction (i.e. being “extremely satisfied”) stands out as a natural cutoff in these variables. For instance, 66 percent of the participants reported the highest level of hostel satisfaction. Another 24 percent reported the second highest level (“somewhat satisfied”), and only 10 percent reported other answers. This means that the most meaningful variation lies at whether or not they were reporting the highest level of satisfaction. In order to capture the key variation in this measure, we construct a binary variable that equals 1 if a worker is “extremely satisfied” and use it as the dependent variable for the main analysis.⁹

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 extremely 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 the 10% level. 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

⁹For pay satisfaction, where responses are distributed more evenly across levels, we find that the results are robust to the use of alternative cut points. The results are also qualitatively similar when we employ the Probit-adjusted OLS method as in van Praag and Ferrer-i-Carbonell (2007) and Perez-Truglia (2020). These results are available upon request.

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 $p = 0.02$).

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)
Control mean of dep.	.687	.647	.199	.109
Treatment mean of dep.	.645	.574	.127	-.088
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.

In Appendix Table A6, we present evidence that the above results are unlikely to be driven by information spillover onto the control group. We compare control group workers residing in hotels far away from treatment hostels with those living close by, and do not find any statistically significant differences in terms of satisfaction. To check the robustness of the results, we also 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 treatment effects for being extremely satisfied with 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 half step lower in Cantril’s imagined life ladder.

We then focus on the K10 psychological distress index, which is on a 10–50 scale, where smaller scores indicate less likelihood of psychological distress. 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 reported in Columns 2 and 3, respectively. Both estimates are in the same direction and of similar significance ($p < 0.05$). The results show that the score on K10 psychological distress scale increased by about 6.1 percent and 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 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.

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

VARIABLES	Step of Ladder 0-10 Scale	Log of K10 Score	Moderate Distress 1(K10 \geq 25)
	(1)	(2)	(3)
Treatment	-.563 (.004)	.061 (.044)	.045 (.000)
Control mean of dep. var.	6.176	2.595	.019
Treatment mean of dep. var.	5.677	2.663	.067
Observations	1,080	1,080	1,080

Notes: The dependent variables in Columns 1–3 are the step in Cantril’s imagined life ladder measured on a 1-10 scale, the log of K10 psychological distress 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.

4.2.2 Expectation-based Reference Dependence

To gain a better understanding of the underlying reasons for the unfavorable perceptions of living conditions, we conducted follow-up interviews with a subset of workers from our original sample. These interviews took place in December 2016, following our analysis of the survey data that revealed unexpectedly negative treatment effects on worker satisfaction and subjective well-being. We assigned a team of research assistants to interview workers in the treatment hostels who expressed relatively lower levels of hostel satisfaction, including those who reported being “very unsatisfied”, “somewhat unsatisfied”, or “neither satisfied nor unsatisfied”. We successfully tracked and interviewed 36 eligible individuals who remained employed at the firm after multiple attempts.

Several notable findings emerged from these interviews. First, it became evident that residents were well-informed and attentive to the transfer of hostel management before it occurred. When asked about the organization currently operating their hostels, all respondents correctly identified the NGO as the management. Furthermore, when questioned about when they became aware of the

management change, only three residents indicated that they became aware of it after the transfer had taken place. Out of the 33 workers who were aware of the change before the transfer, 19 individuals mentioned attending town hall meetings hosted by the NGO employees. Additionally, eight respondents learned about the change from their roommates, who likely had attended these meetings, while the remaining six respondents obtained this information from the old management, their colleagues at the workplace, or other sources.

Second, the new management actively communicated their plans and made promises regarding improvements in living conditions prior to their takeover. According to the responses from attendees or their roommates, the town hall meetings were held in March 2016, approximately two weeks before the transfer took place. These meetings followed a similar format across the hostels, where the new management introduced their background and mission, announced the timing of their takeover, presented their plan for enhancing living conditions, and encouraged residents to ask questions and provide feedback. The new management portrayed themselves as an organization dedicated to enhancing the welfare of workers. They emphasized their successful track record in managing migrant worker hostels and implementing welfare programs in the Bengaluru area, and assured residents of significant improvements through better management and increased budget allocation. During the Q&A session, many residents raised pertinent questions and suggested improvements, primarily focused on facilities and physical structure of the hostels. The new management assured workers that these improvements would be implemented, as the costs would be covered by the firm.

Finally, the responses from these interviews indicate that the actual improvements implemented in the treatment hostels fell short of the residents' expectations, leading to disappointment with the new management. When asked about the most important aspects they were hoping to see improved after the change in management, the majority of responses (31 out of 68) emphasized facilities such as the kitchen, bathroom, toilet, bed, and wardrobe. A smaller number of responses (14) were related to cleanliness and safety. Additionally, 10 responses expressed expectations for the promised nutrition and supplements provided by the NGO, while 13 responses welcomed areas such as freedom, training, and recreational activities. When asked about their satisfaction with the actual changes in these aspects, over two-thirds of the respondents (23) indicated that they were "unsatisfied with most aspects".

Overall, based on the qualitative evidence from the interviews, it is evident that residents

placed significant importance on the physical structure and facilities of the hostels, which would require a substantial budget for improvement. While the employer did increase the monthly transfer payments to the new management, the increased budget was inadequate and only allowed for an increase in manpower to address cleanliness and safety concerns. Our discussions with the firm and the NGO also revealed that although the firm agreed to renovate hostels and upgrade facilities, the timing and implementation of these improvements were not clearly specified. The contract only stated that major renovation and facility upgrade expenses would require separate approval from the firm. However, the NGO coordinators responsible for this program were initially ambitious. They held meetings with hostel residents before the transfer and communicated their plan for improvements, only to find that their requested budget for beds, gas stoves, wardrobes, and other facilities was not approved. In our discussions with the firm's management, we discovered that the lack of approval for additional spending was partially attributed to a lack of trust. The firm wanted to assess the reliability of the NGO before committing to further investments. Additionally, the renovation process also required coordination and approval from the owners of the hostel buildings, which is a time-consuming and complex procedure. For these reasons, no significant renovations or upgrades were made to the hostels by the end of our study.

Taken together, these findings indicate that the NGO management made promises based on their own understanding and plans, at a time when there was still much uncertainty regarding the level of improvement that could be delivered. These promises significantly raised workers' expectations. However, due to budget constraints, many of the promised improvements were never realized, leaving the workers' expectations largely unmet. During our follow-up interviews, residents frequently expressed their disappointment with the new management. For example, some workers expected to have larger kitchens and more cooking equipment, while others hoped for bunk beds to alleviate overcrowding in sleeping areas. Unfortunately, they did not experience meaningful improvements in these areas. Additionally, the promised nutritional supplements, such as fruit and eggs, were not consistently provided.

Motivated by these observations, we propose that the decline in subjective well-being is attributed to the disparity between workers' expectations of changes in living conditions and 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 in the treatment hostels should not exhibit the same decline in subjective well-being as documented for the treatment original sample.

4.2.3 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.¹⁰ 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

¹⁰Our analysis does not rely on the assumption that joiners are similar to the original sample. Instead, it is based on the assumption that joiners in the treatment hostels are similar to those in the control group.

as dependent variables. Consistent with the prediction of the reference-dependence hypothesis, we find that the estimated treatment effects for joiners are positive across housing- and job-related satisfaction measures. While the estimated coefficient for hostel satisfaction is insignificant ($p = 0.18$), it is large in magnitude, suggesting that joiners in treatment hostels were 9.1 percentage points more likely to be satisfied with overall dorm condition. They were also 14 percentage points more likely to be satisfied with their job positions and monthly gross salary and both coefficients are statistically different from zero at the 10% level. These 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.¹¹

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 A7. 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.

4.2.4 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:

¹¹The estimated effects for hostel satisfaction tend to be less precise and smaller in size than those for job and pay satisfaction. This is likely due to the fact that workers’ satisfaction with hostels depends not only on hostel conditions, but also on hostel costs. In our context, hostel rents are directly deducted from workers’ salary, and joiners who just arrived may lack accurate information on this front, e.g. some workers may not pay attention to, or have difficulties understanding, the sub-items that constitute their net pay. This could thus introduce noise to the measure of hostel satisfaction, which in turn reduces the estimation precision. However, when making assessments about *gross* salary or employment as a whole, workers consider both the net pay they receive and the value of the housing (non-monetary benefits) they enjoy. Because both components are more certain to workers, and because treatment increased the value of the housing, the estimated effects on job and pay satisfaction tend to be stronger.

Table 5: General Satisfaction – Joiners

VARIABLES	Dorm	Job	Monthly	Mean
	Situation	Position	Pay	Effect
	Satisfaction	Satisfaction	Satisfaction	(1) – (3)
	(1)	(2)	(3)	(4)
Treatment	.091 (.180)	.149 (.036)	.141 (.056)	.376 (.012)
Control mean of dep.	.518	.491	.179	-.107
Treatment mean of dep.	.615	.581	.214	.102
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.

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

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

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

VARIABLES	Step of Ladder 0-10 Scale	Log of K10 Score	Moderate Distress 1(K10 \geq 25)
	(1)	(2)	(3)
Treatment	.097 (.774)	-.016 (.593)	.004 (.854)
Control mean of dep. var.	6.027	2.607	.009
Treatment mean of dep. var.	5.521	2.651	.026
Observations	229	229	229

Notes: The dependent variables in Columns 1–3 are the step in Cantril’s imagined life ladder measured on a 1-10 scale, the log of K10 psychological distress 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.

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 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

Table 7: General Satisfaction – Pooled Specifications

VARIABLES	Dorm	Job	Monthly	Mean
	Situation	Position	Pay	Effect
	Satisfaction	Satisfaction	Satisfaction	(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)
Control mean of dep.	.655	.617	.195	.065
Treatment mean of dep.	.641	.575	.141	-.054
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.

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 effects for the two samples.

4.2.5 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

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

VARIABLES	Step of Ladder 0-10 Scale	Log of K10 Score	Moderate Distress 1(K10 \geq 25)
	(1)	(2)	(3)
Treatment	-.563 (.004)	.061 (.044)	.045 (.008)
Treatment \times 1(Joiners)	.661 (.076)	-.076 (.048)	-.041 (.100)
Control mean of dep. var.	6.148	2.597	.017
Treatment mean of dep. var.	5.652	2.661	.060
Observations	1,309	1,309	1,309

Notes: The dependent variables in Columns 1–3 are the step in Cantril’s imagined life ladder measured on a 1-10 scale, the log of K10 psychological distress 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.

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 a competing explanation which is 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 change aversion. That is, these workers might consider the change in hostel management as something disruptive, either because individuals are intrinsically resistant to change (Oreg, 2003), or because they have become accustomed to old practices and changes within the organization leave 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*.

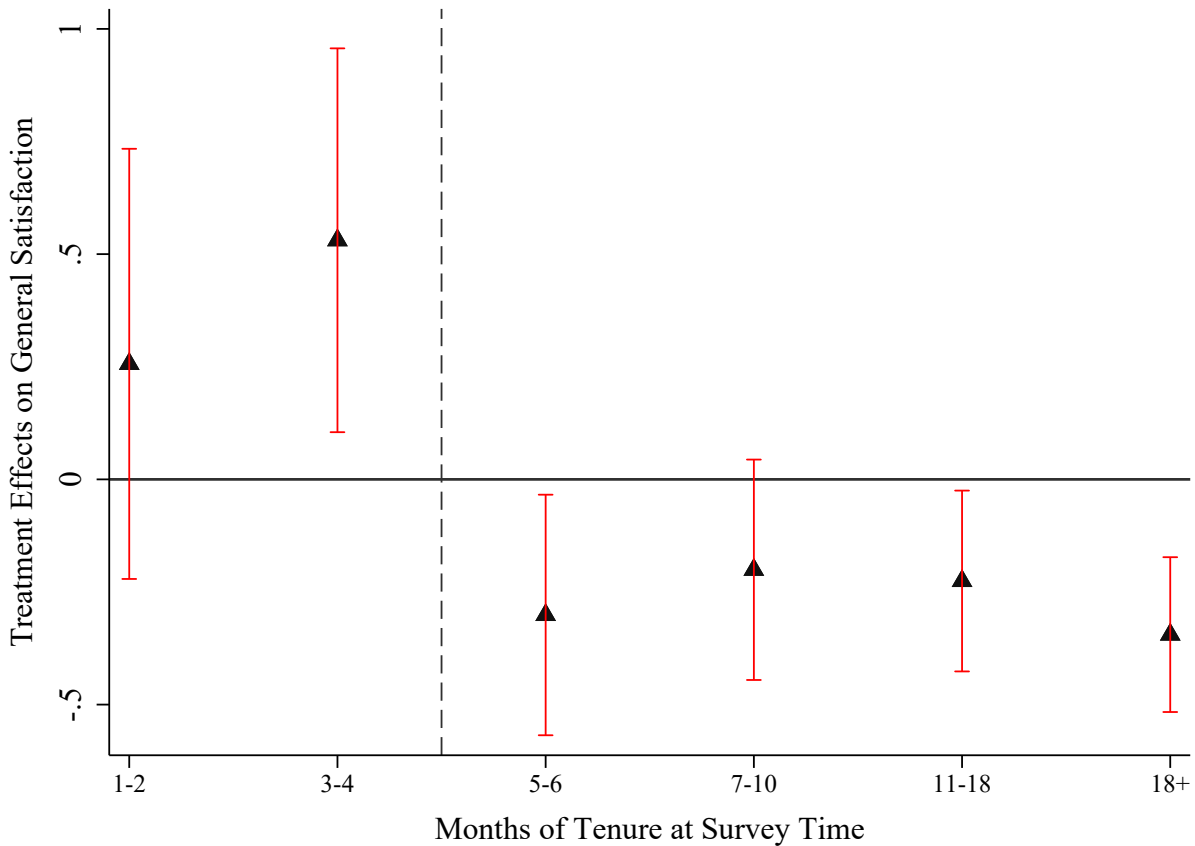


Figure 3: Treatment Effects on Overall Satisfaction, by Tenure Month

Note: This figure plots coefficient estimates and 95% confidence intervals (based on robust standard errors clustered by factory) 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.

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.

Second, the treatment effect does not appear to vary by tenure month for the original sample. That is, residents who have been exposed to old management for longer time do not exhibit stronger treatment effect. This evidence is inconsistent with the change aversion hypothesis. If aversion to change were driving treatment effects on satisfaction, one might expect to see more of this aversion

among workers with longer tenure, since they are more accustomed to the old management. The fact that we do not find this, of course, does not provide dispositive evidence refuting the importance of change aversion; rather, it suggests that perhaps this mechanism, if it were indeed at play, is not fully explaining the results. In Section 4.3, we provide additional evidence from workplace data in support of this point.¹²

4.2.6 Perceived Changes in Hostel Conditions

To measure the impact of treatment on perceived changes in hostel conditions among residents, we also estimate the main regression models using measures of hostel conditions based on residents' evaluations in the survey, along the same dimensions assessed in the enumerator evaluations. It is worth noting that the reference-dependence hypothesis only requires that the realized hostel condition improvements to be lower than workers' expected improvements. The hypothesis is silent about how workers' perceived conditions could be affected. In theory, treatment workers could perceive better conditions, and still experience utility losses if the conditions did not measure up to their expectations. Alternatively, treatment workers could also perceive worse conditions than the control group, if their perceptions were severely biased by the sensations of disappointment (Bushong and Gagnon-Bartsch, 2020).

We report the results for the original sample in panel A of Appendix Table A8. What we see is that the estimated treatment effects are negative across all dimensions. This suggests that the treatment group tends to have lower perceptions of hostel conditions, even if the enumerators' evaluations show modest improvements in housing quality. This evidence appears consistent with recent studies on attribution bias over reference-dependent utility (Bushong and Gagnon-Bartsch, 2020; Haggag et al., 2019), which show that individuals can misattribute disutility from disappointment to the underlying quality of a good or an activity, leading to lower assessments of quality

¹²A related hypothesis is that workers in the treatment group might be dissatisfied due to a sense of betrayal, arising from the fact that the firm and the new management made promises but did not deliver. In this case, we believe that betrayal should be seen as a special case of expectation-based reference dependence. The difference is that betrayal requires the expectations to be set by a person while reference-dependence does not specify the source of the expectations. Well-designed laboratory experiments in behavioral economics do provide evidence for betrayal aversion. These studies show that people are less likely to take risks when the source of risk is man-made, rather than naturally occurring. This is true even if the odds and payoffs are identical, suggesting that individuals are averse to being betrayed (Bohnet et al., 2008; Bohnet and Zeckhauser, 2004). In our real-world setting, since people are the only source of expectations and disappointment, it is beyond the scope of this research to distinguish in a nuanced manner between the two concepts.

than it really is. This evidence is merely suggestive, given that the effects on perceived conditions are imprecisely estimated.

Panel B of Appendix Table A8 reports the estimated changes in perceived conditions for joiners. Unlike the original sample, joiners were never exposed to the expectation manipulation and did not exhibit a disappointment effect. Therefore, their assessment of hostel conditions should not be biased. Indeed, the estimated effects for this sample are consistently positive across all dimension, suggesting that joiners in treatment hostels tend to perceive better conditions. Again, these estimates are not statistically significant, likely because there is more heterogeneity among workers when looking at each individual aspect rather than the hostel condition as a whole. For instance, some workers might have higher demand and standards for cleanliness while others might value living space more.

4.3 Workplace Outcomes

In this section, we use the firm’s administrative data linked to hostel residents by their worker IDs to investigate the treatment effect on several workplace outcomes. We focus on worker retention and attendance, which are of primary interest to the literature (Breza et al., 2018; Card et al., 2012; Hoffman and Tadelis, 2021; Lazear et al., 2015). 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 also observe the number of days’ leave and the number of days that a resident is late for work in a given month.¹³ If the intervention induced dissatisfaction among workers, it may further affect their willingness to stay and their work incentives. We test for this by estimating the following regression specification on all residents living in hostels at the baseline:

$$Y_{iut} = \beta_1 * T_u * During_t + \beta_2 * T_u * Post_t + \lambda_u + \mu_{gt} + \epsilon_{iut} \quad (4)$$

where the dependent variable, Y_{iut} , is a workplace outcome for worker i from factory u in month t . 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. This treatment variable is interacted with two time indicators: one for the first month of treatment ($During_t$) and the other for the subsequent months ($Post_t$). We use data

¹³Productivity data at the individual level were not available for these workers.

from February to December 2016. The dummies for pre-treatment months are omitted to make treatment relative to that 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 us to examine whether the effects vary between early and late months of treatment. β_1 and β_2 are the key coefficients of interest, representing the treatment effects on workplace outcomes in a given period.

Table 9: Treatment Effect on Workplace Outcomes

Variables	Worker Retention	Days' leave in a month	Days being tardy in a month
Treatment*During	.032 (.040)	.110 (.297)	.326 (.489)
Treatment*Post	-.017 (.633)	.276 (.068)	.736 (.084)
Mean of dep. var.	.657	.412	7.012
Observations	75,878	49,840	49,834

Notes: The dependent variables in Columns 1–3 are an indicator that takes the value 1 if a worker is retained at the firm, the number of days' leave, and the number of days that a worker is tardy in a given month, respectively. 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. The 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.

We report the results in Table 9. In Column 1, the outcome is an indicator variable that takes the value 1 if the worker was retained in a specific month, and 0 otherwise. 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 disappeared and gave way to (imprecisely estimated) negative impacts for the remainder of the study period. We then turn to two attendance variables as the outcome variables in Columns 2–3. Conditional on retention, we find that treatment workers were more likely to ask for leaves, and

were more likely to be late for work in the post-intervention period. Both estimates are economically meaningful in magnitude, and statistically significant at the 10% level.

These results contribute additional evidence in support of the disappointment interpretation. The pattern of retention suggests that residents in treatment hostels were more inclined to stay at the firm right after they became aware of the management transfer. This evidence is difficult to be reconciled with the change-aversion story. If residents are averse to change or consider the management transfer as something disruptive, we should not observe the increase in retention rate when the change first occurred. Rather, this evidence is consistent with residents holding high expectations for improvements in hostel conditions when the management was first transferred, 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.¹⁴ The findings related to worker attendance also indicate that the differences in reported satisfaction and subjective well-being documented earlier are not simply an artifact of semantic, or caused by strategic reporting incentives.¹⁵ Instead, these findings suggest that the treatment did cause greater dissatisfaction among hostel residents, which in turn decreased their work incentives and made them more likely to shirk. This is consistent with previous studies by Backus et al. (2022) and Adhvaryu et al. (2022), which demonstrate that disappointment can have significant behavioral and economic consequences.

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 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 man-

¹⁴It is 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.

¹⁵For instance, the treatment group who was aware that improvements were possible might have stronger incentives to under-report, so as to inspire further improvements. However, this explanation is inconsistent with workers' behavioral changes; we thank a reviewer for pointing this out.

agement, 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 and attendance 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. Additionally, we also find that treatment group took more days of leave, and were more likely to be late for work in the post-intervention period, suggesting a decrease in workplace effort.

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. (2022). Expectations, wage hikes and worker voice. *The Economic Journal*, 132(645):1978–1993.
- 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., and Tadelis, S. (2022). Expectation, disappointment, and exit: Evidence on reference point formation from an online marketplace. *Journal of the European Economic Association*, 20(1):116–149.
- 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. (2022). Multinational enforcement of labor law: Experimental evidence on strengthening occupational safety and health (OSH) committees. Technical report, Centre for Economic Policy Research.
- 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. (2018). 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.
- Bushong, B. and Gagnon-Bartsch, T. (2020). Reference dependence and attribution bias: Evidence from real-effort experiments. *American Economic Journal: Microeconomics*.
- 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. and Penman, S. (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 Troyer Moore, C. (2021). On her own account: How strengthening womens financial control impacts labor supply and gender norms. *American Economic Review*, 111(7):2342–2375.
- Galiani, S., Gertler, P. J., and Undurraga, R. (2018). 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.
- Haggag, K., Pope, D. G., Bryant-Lees, K. B., and Bos, M. W. (2019). Attribution bias in consumer choice. *The Review of Economic Studies*, 86(5):2136–2183.
- 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.
- Hoffman, M. and Tadelis, S. (2021). People management skills, employee attrition, and manager rewards: An empirical analysis. *Journal of Political Economy*, 129(1):243–285.
- 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.
- Lazear, E. P., Shaw, K. L., and Stanton, C. T. (2015). The value of bosses. *Journal of Labor Economics*, 33(4):823–861.
- 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.
- Perez-Truglia, R. (2020). The effects of income transparency on well-being: Evidence from a natural experiment. *American Economic Review*, 110(4):1019–54.
- 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.
- van Praag, B. and Ferrer-i-Carbonell, A. (2007). *Happiness quantified: A satisfaction calculus approach*. OUP Oxford.
- 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		Difference	<i>p</i> -value
	Mean	SD	Mean	SD		
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	22.96	.225	23.33	.209	-.371	.244
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		Difference	<i>p</i> -value
	Mean	SD	Mean	SD		
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		Difference	<i>p</i> -value
	Mean	SD	Mean	SD		
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	
	1,080		229		Difference	<i>p</i> -value
	Mean	SD	Mean	SD		
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]
Control Mean of dep. var.	4.537	4.504	3.095
Treatment Mean of dep. var.	4.459	4.406	2.897
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: Effects of Distances on Subjective Well-being (control group only)

VARIABLES	General Satisfaction Mean Effect		Step of Cantril's Ladder		Log of K10 Score	
	(1)	(2)	(3)	(4)	(5)	(6)
Average Distance	.004 (.613)		.003 (.709)		.001 (.762)	
Minimum Distance		.004 (.717)		-.009 (.513)		-.001 (.553)
Mean of dep. var.	0	0	6.176	6.176	2.595	2.595
Observations	482	482	482	482	482	482

Notes: The dependent variable in Columns 1–2 is a summary standardized index that averages together all three satisfaction measures. The dependent variable in Columns 3–4 is the step in Cantril's imagined life ladder measured on a 1-10 scale. The dependent variable in Columns 5–6 is the log of K10 psychological distress score. All models are estimated based on the control group in the original sample. The key explanatory variable in odd columns is the average distance to all treatment hostels. The key explanatory variable in even columns is the distance to the nearest treatment hostel. 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.

Table A7: 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]
Control mean of dep.	4.313	4.295	3.143
Treatment mean of dep.	4.350	4.496	3.368
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 A8: Perceived Hostel Conditions – Original Sample & Joiners

VARIABLES	Overall Cleanliness 1-5 rating	Overall Safety Index	Toilet & Bathroom Index	Kitchen Index	Sleeping Area Index
	(1)	(2)	(3)	(4)	(5)
Panel A: Original Sample					
Treatment	-.037 (.601)	-.101 (.277)	-.085 (.388)	-.100 (.413)	-.009 (.898)
Control mean of dep.	4.436	.054	.018	.019	-.005
Treatment mean of dep.	4.441	-.044	-.015	-.015	.004
Observations	1,080	1,080	1,080	1,080	1,080
Panel B: Joiners					
Treatment	.057 (.517)	.038 (.633)	.106 (.513)	.174 (.240)	.151 (.456)
Control mean of dep.	4.330	.051	-.043	-.028	-.119
Treatment mean of dep.	4.342	-.049	.041	.026	.115
Observations	229	229	229	229	229

Notes: Overall cleanliness is rated on a 1-5 scale; Summary index in Column 2: An indicator for ever feeling unsafe in hostel and an indicator for ever feeling unsafe walking nearby hostel; Summary index in Column 3: access to working toilets, cleanliness of toilets, access to working bathrooms, and cleanliness of bathrooms; Summary index in Column 4: access to a working kitchen, cleanliness of kitchen, and safety of kitchen; Summary index in Column 5: cleanliness, comfort, and spaciousness of the bedding area. All variables have been converted so that a larger value is a better outcome. 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.



Passage before the intervention



Passage after the intervention



Drinking water before the intervention



Drinking water after the intervention

Figure A1: Hostel Conditions Before and After Treatment

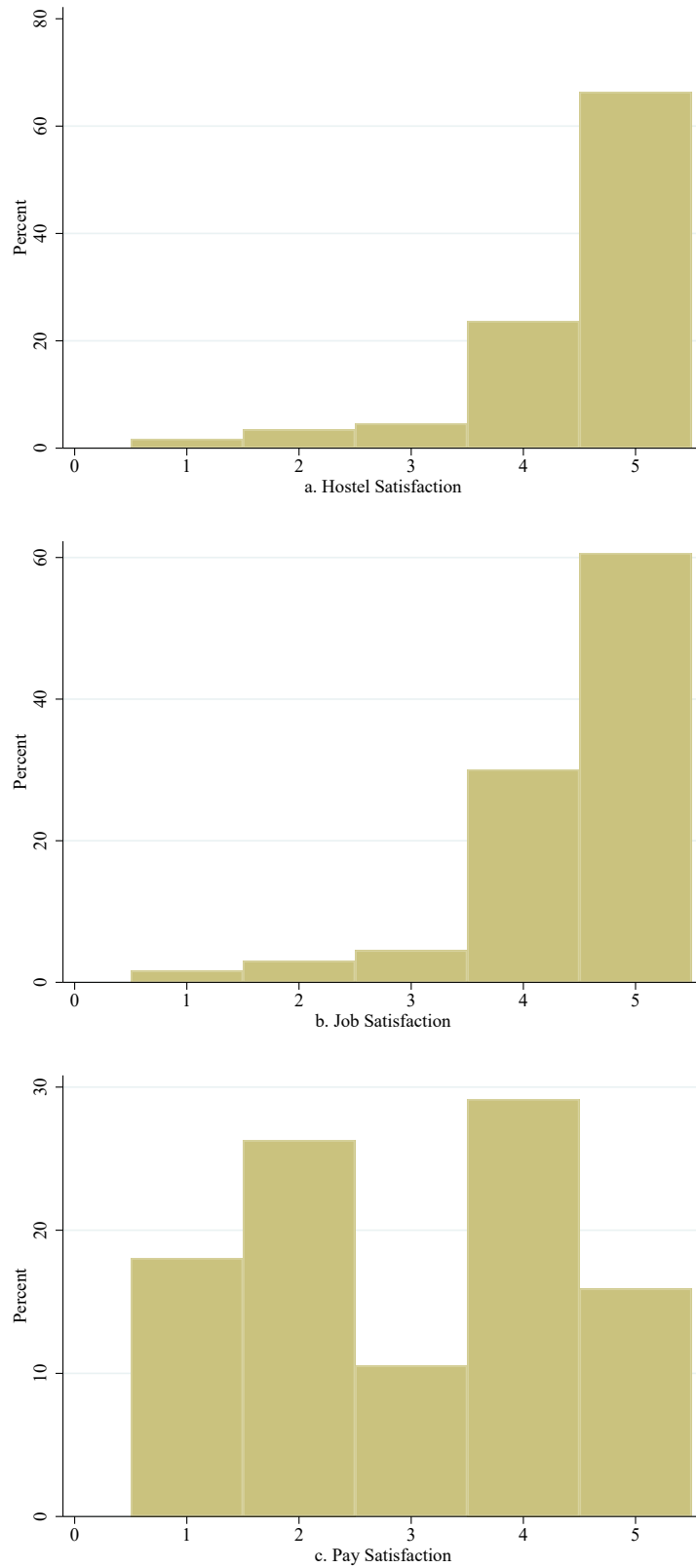


Figure A2: Distribution of the Responses to Satisfaction Questions

Note: This figure plots the histograms of the raw satisfaction measures for the original sample .

B Intervention Details

- As per the agreement, the NGO is responsible for appointing two well-trained social workers to each hostel, one as caretaker and the other as security guard. Our visits to the hostels confirmed the successful implementation of this arrangement, and the enumerator evaluations also showed noticeable improvements in terms of cleanliness and safety in the treatment hostels.
- Under the terms of the agreement, Shahi Exports, the employer, makes a monthly transfer payment to the NGO. The payment amounts to 1,500 INR per resident, with 600 INR deducted from each resident's salary and the remaining 900 INR paid by the employer. The payment covers various hostel operational expenses such as rent, utility bills, maintenance costs, and personnel wages. Compared to the expenditure under the old management, the monthly budget increased by approximately 175 INR per resident.
- The new management assumes responsibility for personnel management, ensuring sanitary conditions, and facilitating coordination between residents and the employer. Security guards are assigned to maintain security and handle utility maintenance. Analysis of the hostel expenditure data indicates a slight increase in maintenance costs, with the majority of the increased budget allocated to personnel expenses.
- The NGO promised to implement a more flexible schedule management system and allow greater freedom of movement for residents. Our interview reviewed that restrictions on entry and exit times at the hostels were relaxed, providing residents with increased flexibility.
- The NGO also committed to offering free language, cooking, knitting, and other skill training to residents on a regular basis, with the aim of assisting migrant workers in better assimilating into their new environment. Our interview suggested that these programs were held from time to time and were generally welcomed by the workers.
- Furthermore, the NGO organized recreational activities such as singing and dancing sessions for interested residents. The follow-up interviews indicate that these activities were held on occasion and were generally welcomed by workers.

- The NGO promised to provide residents with regular supplies of fruits and nutritional supplements. However, according to our interviews, while eggs and bananas were initially provided during the first few weeks, they were no longer distributed thereafter.
- Grievance committees, works committees, and prevention of sexual harassment committees were formed by the NGO to address disputes, conflicts, and protect women from harassment. However, most of the workers we interviewed were unaware of the existence of these committees, suggesting a lack of interest regarding this operation.
- Although the employer agreed to renovate the hostels and upgrade facilities, specific details regarding the timing and implementation of these improvements were not provided in the contract. The contract stipulated that any major renovation or facility upgrade expenses required separate approval from the firm. Unfortunately, the new management's request for a budget to acquire beds, gas stoves, wardrobes, and other facilities was not approved. Our discussions with the firm's management revealed that the lack of approval for additional spending was partly attributed to low trust. The firm wanted to assess the reliability of the NGO before making additional investments. Additionally, the renovation process required coordination and approval from hostel building owners, which further complicated the process. Consequently, no significant renovations or upgrades were made to the hostels by the end of our study.

C Survey Instruments

DORMITORY WORKERS SURVEY

Unit No.
Date of Interview

Token No.
Name of interviewer

Centre
Name of Supervisor

Quality Check Accompanied....1 Spot Checked....2 Checked by

I. General Satisfaction

For each of the following aspects of your life please tell us how satisfied/happy you are:

Situation	Very/Extremely dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very/Extremely satisfied
Current dorm situation	1	2	3	4	5
Job/position	1	2	3	4	5
Monthly gross pay	1	2	3	4	5

Have you ever considered leaving this job due to dissatisfaction with the hostel situation? (Y/N)

1 = Yes

0 = No

How long do you expect to continue to work at the factory? _____ months.

II. Cleanliness, safety, and utility access

a. How satisfied/happy are you with the cleanliness of the hostel overall?

1 = Very/Extremely dissatisfied

2 = Somewhat dissatisfied

3 = Neither satisfied nor dissatisfied

4 = Somewhat satisfied
5 = Very/Extremely satisfied

b. Toilets

- i. Do you have adequate access to a working toilet?
1 = Yes
0 = No
- ii. How satisfied/happy are you with the cleanliness of the toilet?
1 = Very/Extremely dissatisfied
2 = Somewhat dissatisfied
3 = Neither satisfied nor dissatisfied
4 = Somewhat satisfied
5 = Very/Extremely satisfied

c. Bathing

- i. Do you have adequate access to a working bath?
1 = Yes
0 = No
- ii. How satisfied/happy are you with the cleanliness of the bath?
1 = Very/Extremely dissatisfied
2 = Somewhat dissatisfied
3 = Neither satisfied nor dissatisfied
4 = Somewhat satisfied
5 = Very/Extremely satisfied

d. Cooking

- i. Do you have adequate access to a working kitchen/stove or area to prepare food?
1 = Yes
0 = No
- ii. How satisfied/happy are you with the cleanliness of the kitchen/stove or area to prepare food?
1 = Very/Extremely dissatisfied
2 = Somewhat dissatisfied
3 = Neither satisfied nor dissatisfied
4 = Somewhat satisfied
5 = Very/Extremely satisfied
- iii. Have you ever felt that the kitchen/stove was dangerous or unsafe (e.g., a gas leak or malfunctioning)?
0=No
1=Yes

e. Sleeping area

- i. How satisfied/happy are you with the cleanliness of your bed/sleeping area?
1 = Very/Extremely dissatisfied
2 = Somewhat dissatisfied

3 = Neither satisfied nor dissatisfied

4 = Somewhat satisfied

5 = Very/Extremely satisfied

ii. How satisfied/happy are you with the comfort of your bed/sleeping area?

1 = Very/Extremely dissatisfied

2 = Somewhat dissatisfied

3 = Neither satisfied nor dissatisfied

4 = Somewhat satisfied

5 = Very/Extremely satisfied

iii. How many other people sleep in the same room as you? _____

f. Water and Electrification

i. Is water provided here?

1 = Yes

0 = No

ii. Is the water provided clean enough for drinking?

1 = Yes

0 = No

iii. How many hours in the last week did you not have electricity? _____

g. Safety

i. How satisfied/happy are you with the safety and security of the hostel?

1 = Very/Extremely dissatisfied

2 = Somewhat dissatisfied

3 = Neither satisfied nor dissatisfied

4 = Somewhat satisfied

5 = Very/Extremely satisfied

ii. Do you ever feel unsafe inside the hostel?

1 = Yes

0 = No

iii. Do you ever feel unsafe walking outside the hostel (neighborhood around the hostel)?

1 = Yes

0 = No

III. Health

a. Your current height is _____ centimeters.

b. Your current weight is _____ kilograms.

c. Have you felt feverish in the last four weeks?

1 = Yes

0 = No

d. Have you had coughing or trouble breathing in the last four weeks?

1 = Yes

0 = No

- e. Have you had diarrhea or stomach pain in the last four weeks?
 1 = Yes
 0 = No
- f. Have you been diagnosed with malnutrition by a doctor in the last four weeks?
 1 = Yes
 0 = No
- g. Have you been diagnosed with anemia by a doctor in the last four weeks?
 1 = Yes
 0 = No
- h. Have you experienced the following symptoms of anemia in the last four weeks? (choose all that apply)
 1 = feeling tired
 2 = weakness
 3 = shortness of breath
 4 = poor ability to exercise
 5 = loss of consciousness
 6 = increased thirst
 7 = Other (specify)
- i. Have you ever wanted to miss work due to illness in the last four weeks?
 1 = Yes
 0 = No
- j. (Enumerator Question): Please rate the respondent's health status
 1 = Healthy
 2 = Fair
 3 = Relatively unhealthy
 4 = Unhealthy
 5 = Very unhealthy

IV. Family Background

- a. How many people live in your household in your native place? _____
- b. Does your family engage in agricultural production (on their own land or as tenants)?
 0 = No
 1 = Yes, own land
 2 = Yes, leased land
- c. Are you currently married?
 0 = Single
 1 = Married
 2 = Widowed/Separated
- d. Do you have any children?
 1 = Yes

0 = No

V. Psychological well-being

- a. Cantril's Ladder: Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. Suppose we say that the top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. If the top step is 10 and the bottom step is 0, on which step of the ladder do you feel you personally stand at the present time? _____ (RECORD ANSWER FROM 0-10)

- b. Kessler 10

In the past 4 weeks...

1. About how often did you feel tired out for no good reason?	a. None of the time	b. A little of the time	c. Some of the time	d. Most of the time	e. All of the time
2. About how often did you feel nervous?	a. None of the time	b. A little of the time	c. Some of the time	d. Most of the time	e. All of the time
3. About how often did you feel so nervous that nothing could calm you down?	a. None of the time	b. A little of the time	c. Some of the time	d. Most of the time	e. All of the time
4. About how often did you feel hopeless?	a. None of the time	b. A little of the time	c. Some of the time	d. Most of the time	e. All of the time
5. About how often did you feel restless or fidgety?	a. None of the time	b. A little of the time	c. Some of the time	d. Most of the time	e. All of the time
6. About how often did you feel so restless you could not sit still?	a. None of the time	b. A little of the time	c. Some of the time	d. Most of the time	e. All of the time
7. About how often did you feel depressed?	a. None of the time	b. A little of the time	c. Some of the time	d. Most of the time	e. All of the time
8. About how often did you feel that everything was an effort?	a. None of the time	b. A little of the time	c. Some of the time	d. Most of the time	e. All of the time
9. About how often did you feel so sad that nothing could cheer you up?	a. None of the time	b. A little of the time	c. Some of the time	d. Most of the time	e. All of the time
10. About how often did you feel worthless?	a. None of the time	b. A little of the time	c. Some of the time	d. Most of the time	e. All of the time

HOSTEL ENUMERATOR QUESTIONNAIRE

Date of Evaluation: _____
Enumerator Code/ID: _____
Supervisor Code/ID: _____
Hostel ID: _____
Hostel Name: _____
Factory Unit no: _____
Time of Arrival: _____
Time of Departure: _____
Quality Check: _____

101. How clean does the hostel look overall? (1 to 5 scale)

- 1 = Very Unclean
- 2 = Somewhat Unclean
- 3 = Neither Clean nor Unclean
- 4 = Somewhat Clean
- 5 = Very Clean

102. How safe and secure does the hostel look to you? (1 to 5 scale)

- 1 = Very Unsafe
- 2 = Somewhat Unsafe
- 3 = Neither Safe nor Unsafe
- 4 = Somewhat Safe
- 5 = Very Safe

103. Are there any wardens or security guards in the hostel?

- 0 = No
- 1 = Yes

104. Do residents have adequate access to a working toilet?

- 0 = No
- 1 = Yes

105. How clean does the toilet look to you? (1 to 5 scale)

- 1 = Very Unclean
- 2 = Somewhat Unclean
- 3 = Neither Clean nor Unclean
- 4 = Somewhat Clean
- 5 = Very Clean

106. Do residents have adequate access to a working bathroom?

0 = No

1 = Yes

107. How clean does the bathroom look to you? (1 to 5 scale)

1 = Very Unclean

2 = Somewhat Unclean

3 = Neither Clean nor Unclean

4 = Somewhat Clean

5 = Very Clean

108. Do residents have adequate access to a working kitchen/stove or area to prepare food?

0 = No

1 = Yes

109. How clean is the kitchen/stove or food preparation area? (1 to 5 scale)

1 = Very Unclean

2 = Somewhat Unclean

3 = Neither Clean nor Unclean

4 = Somewhat Clean

5 = Very Clean

110. How clean does the bed/sleeping area look to you? (1 to 5 scale)

1 = Very Unclean

2 = Somewhat Unclean

3 = Neither Clean nor Unclean

4 = Somewhat Clean

5 = Very Clean

111. How comfortable does the bed/sleeping area look to you? (1 to 5 scale)

1 = Very Uncomfortable

2 = Somewhat Uncomfortable

3 = Neither Clean nor Uncomfortable

4 = Somewhat Comfortable

5 = Very Comfortable

112. Is water provided in the hostel?

1 = Yes

0 = No

If yes, does the water provided seem clean enough for drinking?

1 = Yes

0 = No

113. Is there electricity?

1=Yes

0=No