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Abstract

Many countries in Sub-Saharan Africa face a rapidly growing population and labor force in demand of good jobs. Ethiopia has reacted to this challenge by prioritizing large-scale industrial development through the construction of industrial parks to drive exports, job creation, and growth. However, the African experience with industrial parks so far has been mixed. To provide further evidence on the welfare effects of factory jobs in Ethiopia, this study conducted an experiment that facilitated the job application and onboarding process for young female job seekers at three factories. Using panel data from 827 applicants, the study finds that the extra support increased the likelihood of being employed in the treatment group in the short run, largely driven by wage and factory work. Further, the intervention raised reported monthly income by nearly 30 percent in the treatment group. However, the study also finds an adverse impact on health outcomes as well as downward adjustments of applicants' expectations and perceptions of the earnings potential and desirability of factory work in response to the treatment.

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Short-Run Welfare Impacts of Factory Jobs: Experimental Evidence from Ethiopia*

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1. Introduction

The demographic transition is presenting many countries in Sub-Saharan Africa with both opportunities and challenges: On the one hand, a rapidly increasing labor force boom can be a thrust for long-term growth and development; on the other, demographic developments may lead to increasing discontent and instability if the growing young labor force cannot be provided jobs of sufficient quantity and quality. With a burgeoning population of 100 million plus people, the doubling of the labor force in the past two decades and the entry of nearly 2 million new people to the labor market annually, Ethiopia is an interesting case emblematic of the demographic transition opportunities and challenges of many large low-income countries.

Cognizant of the high labour force growth and employment challenges, Ethiopian policy makers have long recognized the need for massive job creation and prioritized large-scale industrial development to drive growth, exports, and job creation (FDRE 2010). The country's industrialization strategy is mainly anchored on attracting foreign capital to export-oriented labor-intensive industries (NPC, 2015). More recently, the jobs creation target of the strategy has come to be strongly linked with low-skill manufacturing jobs mostly housed in Industrial Parks (IPs, hereon).[1] These jobs in textile, garment and leather industries are considered to offer wage employment opportunities for young job seekers with limited education and formal labor market experience. While it is early to evaluate the effects of the industrialization strategy on workers' welfare, pieces of evidence so far point both towards successes and challenges.

The consensus is that stable wage work in formal firms is a preferable path to prosperity and that there is often a queue for wage work in developing countries (Blattman et al., 2019; Contreras et al., 2017; Weiss 1980). In the industrial sector, formal firms often pay higher wages compared to informal employment because of efficiency wages, exporter wage premia, firm competition for scarce skills, and/or union bargaining (Bernard and Jensen 1995; Verhoogen 2008; El Badaoui et al., 2008). Even when such jobs are low-skill and low-wage, they are often considered better than most poor people's alternatives as they offer a higher degree of economic security (Roy, 2004). There is also evidence suggesting that industrial work can have a positive impact on women's

[1] With the plan and construction of a new industrial park, the first two highly publicized targets are invariably the number of jobs expected to be created and earnings from exports.

empowerment, demand for own and children's education, negotiating power, and quality of life (Kabeer, 2002; Atkin, 2009; Jensen 2012; Heath and Mobarak 2015).[2] Recent evidence from Ethiopia also indicates that industrial jobs can lead to welfare improvements, especially for female workers. For example, Suzuki et al. (2018) find that industrial workers earn and save more compared to workers with similar characteristics in other sectors. Getahun and Villanger (2018) also find that employment in the flower industry generates higher income for female workers thereby improving their intra-household bargaining power.

Indeed, women's access to formal jobs and increased wages are critical for poverty reduction and gender equality. However, the African experience with IPs has been inconsistent (Bräutigam and Xiaoyang 2011; Farole 2011a). Even where IPs have successfully attracted investment, concerns remain over the quality of employment, labor rights and issues of sustainability. Further, labor-intensive industries that are located in IPs often produce low value commodities, such as t-shirts, shirts, underwear, trousers and shoes, which usually command thin profit margins. With narrow margins, the international competitiveness of these industries thus mainly lies in continuously driving down production costs along the value chain adopting measures, such as low wages and poor labor standards, which potentially diminish the quality of employment therein. Well-organized firms in IPs can also muster collective action that enables them to jointly set wages and control labor mobility within the park, practices that are often illegal and detrimental to workers' welfare.[3] In short, while IPs create vast quantities of new jobs, the quality of these jobs remains a concern.

In the same vein, several studies have shown that industrial jobs do not necessarily improve worker welfare and thus may not be a desirable form of employment for many (Carneiro and Henley, 2001; Blattman and Dercon, 2018). As highlighted above, this tends to be the case in environments

[2] Heath and Mobarak (2015), for example, examine the effect of the drastic growth of the ready-made garment industry on the lives of women in Bangladesh. They find that garment jobs encourage female workers to delay marriage and childbirth, thereby generating larger effects on female schooling even compared to a large-scale government conditional cash transfer program designed to encourage female enrollment.

[3] In many of the industry parks, including Bole Lemi I, the base wage for entry level workers is set uniformly across companies and there are widespread allegations that firms agree not to hire each other's workers within the park (Minwagaw 2019). Hardy and Hauge (2019) also argue that the Ethiopian government's restriction on migration of young female workers abroad is partly motivated by the need to ensure continuously supply of such workers to a slew of industrial parks that are being constructed throughout the country.

where firms' competitive advantage is derived from exploiting low-wage labor costs, forcing a "race to the bottom" (Farole, 2011b). In contrast to Suzuki et al. (2018) and Getahun and Villanger (2018), a strand of evidence from Ethiopia indicates that industrial jobs may not be as attractive to female employees as anticipated.[4] Worker attrition challenges commonly cited by newly established firms in Bole Lemi and Hawassa IPs support such a conclusion (Abebe et al., 2019; Hardy and Hauge 2019).

Furthermore, results from an experiment conducted earlier with five Ethiopian industrial firms by Blattman and Dercon (2018) showed that of all the applicants who were offered a factory job, 10 percent never showed up on the first day, 20 percent quit in the first month, and only 32 percent were employed in any factory or commercial farm one year on—as compared to 20 percent of the control group. The study identified several factors influencing retention, including rigid working conditions, inadequate compensation packages as well as misaligned expectations between employers and their workers. In fact, workers often chose casual labor, employment in informal enterprises, or self-employment over factory work despite such jobs having fewer and less predictable hours of work. In a similar study conducted in Hawassa Industry Park among female recruits to a factory work, Abebe et al. (2019) find that only a third of the new recruits remain with the firm after six months, with turnover being the highest in the first three months. A follow-up interview with these young female workers suggests low pay, rising living cost and the desire to pursue education to be the main reasons for workers to quit. In general, emerging evidence from Ethiopia suggests that high worker turnover represents misalignment between the value individual workers place on formal industrial work and the value the labor market places on it.

Even when factory work in IPs may theoretically afford women opportunities to gain financial, social, and personal autonomy, formal employment does not relieve them of household responsibilities or caregiving obligations, which require temporal flexibility. The manufacturing labor market is not designed to accommodate such cultural norms and gender dynamics and operates solely on the incentive created by rewarding individuals who work stipulated hours.

[4] Unlike Blattman and Dercon's (2018) study, these two previous studies rely on a self-selected sample of workers and construct a comparison group using observable characteristics of new recruits. Notwithstanding the obvious methodological differences between these two studies and that of Blattman and Dercon (2018), the contradictory results are still somewhat puzzling and call for further investigation of the issue.

Against this background, we evaluate the short-run impact of supporting and facilitating the job application process for young women seeking a production line position at one of the factories in the Bole Lemi IP. To our knowledge, this is the first study that systematically evaluates job facilitation support in the context of IPs in low-income countries. None of the previous studies samples workers from firms that operate in IPs, and hence, aside from anecdotes, rights activists and journalistic accounts, our knowledge concerning the nature of jobs in these flagship industrial projects is highly limited.[5]

We advertised for the factory positions and directed interested applicants to a local sub-district (woreda) administration office for registration. At the woreda offices, we set up application centers where enumerators screened applicants to determine their eligibility according to the hiring criteria of the partnering firms in the IP. Eligible individuals received an invitation to interview with an IP firm and were provided transportation to the factory for the interview. Following the interview, the firms decided whether to make a job offer to the applicants and initiate any hiring procedures for the individuals who they wanted to hire. We partnered with three firms operating in the Bole Lemi IP. These firms were all foreign-owned and produced finished garments for export. They also had large-scale hiring plans for the study duration. Each of the firms had agreed to interview the applicants the research team had randomized into the study sample.

Our results show that the extra support during the application process increased the likelihood of individuals in the treatment group to have been employed eight months after the baseline survey. A higher likelihood of employment in wage work and in particular factory work appears to be the driving force behind this result. This indicates that young women face significant barriers to labor market participation and a simple and one-off facilitation support that brings them in contact with employers improves their transition from unemployment to employment.

The intervention also raised reported monthly income by nearly 30 percent. This is likely because while individuals in the control group did have other forms of employment, these jobs do not seem to provide a stable stream of income as factory jobs did for the treatment group. Further, our results

[5] Nearly all newspaper articles and research reports that have looked at the nascent industrial parks in Ethiopia exclusive focus on how and why wages are low inside the park, and, in comparison, to wages in other countries, such as Bangladesh and Sri Lanka (Dean 2018, Barrett and Dorothée Baumann-Pauly 2019; Minwagaw 2019; Kiruga 2019). It is thus not clear whether these jobs in IPs provide better livelihoods than the alternatives young female adults often hold.

indicate that the treatment did not crowd out other income generating activities; i.e., factory employment did not increase at the expense of other alternative activities, such as self-employment. However, we also find an adverse impact on health outcomes as well as a downward adjustment of applicants' expectations and perceptions regarding factory work in response to the treatment.

The remainder of this paper is organized as follows. Section 2 discusses the context of factory work in Ethiopia. Section 3 describes the research design, data and estimation strategy. Section 4 presents estimates of the intervention's impact on a range of outcomes related to employment, welfare and health. Section 5 provides the concluding remarks.

2. Industrial Parks and Factory Jobs in Ethiopia

Despite accelerated progress towards development and poverty reduction, Ethiopia remains among the poorest countries in the world — challenged by the need to create opportunities for its rapidly growing population. With the majority of the population (over 70 percent) still engaged in the agriculture sector, structural transformation has been very slow (Bezawagaw et al., 2018). The employment structure has further remained heavily dominated by informal work (own-account- and family-employment) with only 13.5 % of the workforce classified as wage workers (ILO, 2018). The government's plan for the economy to transition from a reliance on agriculture to manufacturing, particularly of tradable goods, is further motivated by Ethiopia's growing population of landless youth in rural areas. The growth in export-oriented industrial production is particularly hoped to absorb the youth into productive employment (FDRE, 2010; NPC, 2015).

IPs are the main policy tools the Ethiopian government deployed to facilitate both the attraction of foreign investment towards export-oriented labor-intensive manufacturing industries, such as garment, textile and leather articles, and to furnish labor sourcing from nearby communities.[6] Further, combined with insufficient rural job creation, the construction of new IPs is spurring

[6] As stated in the Industrial Parks Proclamation No. 886/2015, industrial parks are established to "upgrade industries and generate employment opportunities."

large-scale migration to urban areas (Schaefer and Oya 2019). For example, 70% of our study sample were recent migrants to Addis Ababa.

Indeed, for countries endowed with a vast pool of low-skilled labor like Ethiopia, IPs are intended to absorb large-scale unemployment and create opportunities outside the informal sector. As part of its industrialization and structural transformation agenda, Ethiopia completed the construction of its first IP, called Bole Lemi I, in 2014.[7] Located on the outskirts of the capital, Addis Ababa, Bole Lemi I occupies 187 hectares of land and hosts 12 different companies operating in 20 factories engaged either in garment or leather goods production. These companies are exclusively foreign-owned, primarily producing for the export market.

At the initiation of the study, there were 10 foreign-owned firms operating in the Bole Lemi, eight and two of which respectively produce textiles and garments and leather goods. Each firm in the IP occupies between one and five large production facilities called *sheds*, which the firms rent from the Ethiopian government in exchange for a nominal rental fee, tax breaks, customs assistance and various other benefits the government provides for firms directly investing in the Ethiopian economy. Each of the *sheds* has the capacity to accommodate between 1,000 and 2,500 production workers at a time. At the start of our study, the majority of firms in the IP had only just begun production and were looking to hire a large number of workers to slowly increase production.

Though each IP firm offered a firm-specific compensation package to its production-line workers, the cross-firm differences in remuneration were relatively small. At the start of the study in April 2016, the average starting wage at most firms was about 750 Ethiopian birr per month before taxes, with an incremental rise of 100 birr every 3 to 6 months thereafter.[8] In addition, firms either provided lunch directly to their workers in their factory cafeteria or paid workers a lunch stipend of about 300 birr per month. Several firms also provided workers with transportation to and from work by running buses to multiple neighborhoods in the sub-cities closest to the IP. Rounding out the compensation package were work-related medical insurance or services, firm contributions to

[7] Ethiopia currently has seven operational or semi-operational industrial parks (Bole Lemi I, Adama, Eastern, Mekelle, Kombolcha, Jimma and Hawassa). At the time of writing this paper, the construction of Bole Lemi II is well underway.
[8] In April 2016, US$1 was worth roughly 21.5 Ethiopian birr (ETB).

a worker pension fund and various monetary and non-monetary incentive schemes related to worker attendance, overtime work and individual productivity.

Furthermore, firms in Bole Lemi I were primarily hiring female employees, and thus creating a path for many young women to enter the formal economy for the first time. In Ethiopia, where women are at an inherent disadvantage due to social norms, unequal institutions, and other barriers to labor market participation, the light-manufacturing sector has the potential to catalyze women to become powerful agents of growth and poverty reduction. There is emerging evidence that industrial employment indeed generates welfare improvements for female workers in the modern horticulture sector in Ethiopia (Getahun and Villanger 2018; Suzuki et al., 2018). Evidence from other developing countries also indicates that low-skilled manufacturing jobs promote gender equity and improve quality of life for female workers and their children's health and educational outcomes (Hewett and Amin 2000; Atkin 2009; Nicita and Razzaz 2003).

Unfortunately, the feminization of labor can also have unintended consequences, as it is sometimes discovered in other parts of the world. For example, Ghosh (2009) and Seguino (2000a) show that East Asia's export-oriented industrialization was highly dependent on the gender-based wage inequality. The stereotype that women are nimbler and more docile—and thus more suitable for low-paid work with few opportunities for advancement—reinforced this wage inequality, particularly in the textile, garment and leather sectors. Furthermore, the segmentation of women into these export-intensive industries, where the price elasticity is high, restricted their bargaining power. These allowed firms to keep wages artificially low and widened the gender wage gap further (Berik et al., 2004; Seguino, 2000b; Chamarbagwala, 2006; Pitt, Rosenzweig, and Hassan 2012).

As the government continues to construct IPs and industrialization accelerates in Ethiopia, understanding and documenting the impact these new manufacturing jobs have on the livelihoods and empowerment of young women—and the associated economic and social impacts on young women's households—is crucial. The limited evidence available thus far has been largely mixed and the current knowledge base on export-intensive manufacturing focuses more on the macro implications of such activities, with outcomes at the micro level less well understood. Filling this

knowledge gap will help shape a more inclusive industrialization policy that benefits a growing segment of the Ethiopian population.

3. Research Design, Data and Empirical Strategy

This evaluation is based on supporting and facilitating the job application for factory work for a randomly selected sample of eligible female job applicants in Addis Ababa, Ethiopia.

3.1. Research Design

During the initial phase of the evaluation, the research team collected hiring criteria and plans from each participating firm and used this information to target interested job candidates. It is worth stressing that all partnering firms were only willing to hire women for the factory floor jobs considered for this study. The factory positions were advertised using various methods, including posting advertisements in public places, passing out flyers in high-traffic areas of the city, coordinating with youth associations and utilizing other forms of community mobilization. Unemployed individuals who have registered with their local woreda were also contacted directly by a professional HR consultant.

During the recruitment process, those individuals identified as potential candidates were told to bring their identification and qualification documents to the nearest screening center which was set up in several woreda offices across three sub-cities of Addis Ababa. These screening centers were staffed by trained enumerators every day of the working week from 9am-3pm.

During the scheduled opening hours, enumerators reviewed the documentation of the interested applicants who visited the screening centers and determined their eligibility for the advertised positions. Applicants with incomplete documentation, for example, those who did not have personal identification cards or those who did not meet any of the firms' eligibility criteria (i.e. applicants fell outside the targeted age range or were unable to provide proof of the required education) were screened out from the study. All applicants who met the eligibility criteria and had proper documentation to prove their eligibility were selected into the sample and asked to stay

for the baseline survey. Given that all firms were only considering female applicants, the study sample comprises only women.

Study participants were then randomized into treatment and control, with two-thirds of applicants in the treatment group and one-third in the control group using a public lottery method. Once randomized, the treatment applicants were assigned a specific firm to interview with. This stage was complicated by the fact that each of the participating IP firms has slightly different hiring criteria.[9] These differences create multiple distinct applicant groups according to the intersecting hiring criteria. Those treatment applicants who were eligible for multiple firms were asked for a second random draw for firm assignment.

Once firm assignment was determined, the enumerators formally invited the treatment individuals to a firm interview and informed them that they will be given transportation to the firm at the Bole Lemi IP for the interview.[10] As such, both treatment and control individuals only learned about their treatment status after completing the baseline survey but before they left the screening center. On the day of the interview, an enumerator confirmed that only treatment individuals were provided with transport to the firm. After the interview process was completed, all candidates were transported back to the screening center.

The firms conducted interviews with each of the treatment candidates according to their own hiring procedures and decided whether or not to offer the applicant a job. With the additional in-person eligibility verification done at the screening centers, it was anticipated that the firms would select the vast majority of the treatment candidates who participated in an interview. After the interview and before an offer was made, candidates were required to complete any additional hiring procedures—such as a medical exams and/or aptitude tests—at this time. Once they received a job offer, treatment candidates had the option to take up the position and begin work or decline the offer. Nearly two-thirds of the applicants assigned to the treatment group attended a firm interview, and, of those who attended, half started employment at the factories. Applicants who accepted the

[9] For example, one firm accepts individuals between the ages of 18 and 35, but another firm only accepts those between 18 and 28; with respect to education, one firm accepts individuals who have completed grade 5 and above, but another firm only accepts those with grade 8 and above.

[10] In the pilot of the evaluation design, one of the primary reasons fully eligible candidates did not attend their scheduled interview was that they had difficulty getting to and finding Bole Lemi I. Providing transportation to the interview was intended to minimize sample attrition at this stage of the hiring process.

job offers then had to go through the onboarding process at the firms which typically consisted of a training that lasted for several days or weeks depending on the hiring firm. This training typically focused on teaching technical skills related to fabric handling, stitching, pressing, packing and quality control among others.

3.2. Data

The data collection for the baseline survey took place at screening centers directly after the eligibility checks of individual job applicants in order to minimize attrition and to ensure that the treatment and control groups are fully comparable. All eligible job applicants who agreed to take part in the study were interviewed at baseline and, in total, information from 935 respondents was collected between June-August 2016. Approximately eight months after the baseline data collection, an effort was made to re-interview all baseline respondents during the follow-up data collection. Among the baseline respondents, 827 were successfully tracked, which results in an attrition rate of 11.6 percent. The information from respondents interviewed both at baseline and at follow-up comprises the panel data set and only the sample of panel respondents will be at the core of the impact analysis.

Table 1 indicates that on average study participants randomized into the control group were roughly 24 years old at baseline. Around one-quarter of the respondents were married and slightly less than one-quarter were mothers at baseline. As expected, the number of migrants among applicants for factory work is high. Nearly 70 percent of the respondents had migrated to Addis Ababa. On average, respondents have more than nine years of completed formal education and nearly 10 percent of the sample is enrolled in some form of educational program at baseline. It should also be noted that the vast majority of study participants has had experience from either self or wage employment, with nearly 77% reporting to have at least one regular wage or salary paying experience (not shown in the table). We also find that around 30 percent of our sample has had some cash income within the 30 days leading up to the baseline survey. In the 7-day period preceding the baseline survey, however, 80% of our sample respondents were not engaged in any form of employment. Importantly, there do not seem to be any systematic differences across this wide range of observables between the treatment and the control group which suggests that the

random allocation of study participants had worked well. We also test and cannot reject the joint hypothesis that each coefficient obtained from a regression of treatment on all variables listed in Table 1 is equal to zero.

Table 1: Characteristics of Job Applicants at Baseline, by Treatment Status

Dependent variables		Obs.	Mean (treatment group, baseline)	Mean (control group, baseline)	Mean difference	Normalized difference
		(1)	(2)	(3)	(4)	(5)
Demographics	Age (in years)	827	23.6	24.2	-.588*	-.098
			[4.02]	[4.43]	(.319)	
	Married (yes=1)	827	.245	.297	-.051	-.082
			[.431]	[.458]	(.034)	
	Has any child(ren) (yes=1)	827	.201	.254	-.053*	-.089
			[.401]	[.436]	(.032)	
	Migrated to Addis Ababa (yes=1)	827	.689	.695	-.006	-.010
			[.463]	[.461]	(.036)	
Education	Educational attainment (in completed years of schooling)	827	9.66	9.57	.095	.041
			[1.65]	[1.63]	(.127)	
	Currently enrolled in any form of formal education program (yes=1)	827	.096	.114	-.018	-.041
			[.295]	[.319]	(.023)	
Economic Activity	Ever employed (yes=1)	803	.865	.867	-.002	-.003
			[.342]	[.341]	(.027)	
	Ever employed in factory work (yes=1)	803	.202	.231	-.029	-.049
			[.402]	[.422]	(.032)	
	Had any cash earnings in the past 4 weeks (yes=1)	827	.315	.297	.018	.028
			[.465]	[.458]	(.036)	
	Pays any rent (yes=1)	827	.315	.343	-.028	-.043
			[.465]	[.476]	(.036)	

Notes: The table reports mean values of key covariates and difference in means between the treatment and control group (balancing test of these variables). Testing joint hypothesis that each coefficient obtained from a regression of treatment on all variables listed above is equal to 0 yields an F-stat (p value of F-test) of 0.59 (0.83). Standard errors in parentheses and standard deviations in brackets. *** denotes significance at 1%, ** at 5%, and * at 10%.

The attrition rate of nearly 12 percent over a period of around 8 months is of concern. However, controlling for the complete set of woreda dummies as well as different sets of control variables, treatment does not seem to be causally linked to attrition of respondents as shown in Table 2. Further, as indicated in the last row of Table 2, we cannot reject the null that the interaction between the baseline covariates and the treatment dummy are all equal to zero signifying that the sample composition did not change between the baseline and end-line due to attrition.

Table 3 shows how different sets of baseline characteristics correlate with selection into attending the initial job interview, accepting a job offer for factory work and continued employment in the factory job. What stands out is the observations that migrants were much more likely to attend the job interview among those applicants randomized into the treatment group. This is consistent with our finding from a follow-up qualitative interview that indicates that migrants' primary reason for migration is to look for employment opportunities followed by a desire to pursue their education. Yet columns 5 through 7 indicate that migrants are no more likely to start a job than non-migrants. Age and earning history appear to be the only two important variables that affect the decision to start a job; younger and poorer applicants are more likely to start a job than older and less impoverished ones. The former indicates firms' preference to select younger workers and the latter signifies that desperate applicants are likely to take up a job, perhaps any job, when offered.

Table 2: Attrition, OLS estimates

	Outcome: Tracked at Follow-Up			
	(1)	(2)	(3)	(4)
Treatment	-.042*	-.038	-.036	.288
	(.023)	(.024)	(.024)	(.203)
Age (in years)			.001	.007
			(.003)	(.005)
Married (yes=1)			-.010	-.023
			(.029)	(.052)
Has any child(ren) (yes=1)			.051	.050
			(.033)	(.058)
Migrated to Addis Ababa (yes=1)			-.010	.005
			(.024)	(.045)
Educational education completed (in years of schooling)			.006	.016
			(.007)	(.012)
Treatment x Age (in years)				-.008
				(.006)
Treatment x Married (yes=1)				.019
				(.062)
Treatment x Has any child(ren) (yes=1)				.0005
				(.069)
Treatment x Migrated to Addis Ababa (yes=1)				-.020
				(.053)
Treatment x Educational level completed (in years of schooling)				-.014
				(0.15)
Constant	.915***	.940***	.857***	.621***
	(.020)	(.098)	(.132)	(.198)
Mean of Dependent Variable:	.884	.884	.884	.884
Woreda Dummies	No	Yes	Yes	Yes
Observations	935	935	935	935
F-statistic (joint significance of all interaction variables)/p-value				0.56/0.73

Notes: The table presents the likelihood of being surveyed in the follow-up using a linear probability model. The dependent variable is a dummy that is equal to one if the respondent is tracked between the baseline survey and the follow-up survey, and zero otherwise. The large *p* value from the F-test on the coefficients of the interaction between the baseline covariates and the treatment dummy indicate that the sample composition did not change due to attrition. Standard errors are in parenthesis. *** denotes significance at 1%, ** at 5%, and * at 10%.

Table 3: Selection into Employment in Factory Jobs, OLS estimates

Outcome:	Conditional on treatment group, ever applied or interviewed for job in Bole Lemi (yes=1)				Conditional on treatment group and interviewed, ever started job (yes=1)				Conditional on treatment group, interviewed and started job, still working in job (yes=1)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Age (in years)	.005	.005	.004	.006	-.011*	-.012*	-.012*	-.011	-.002	-.001	-.002	-.0005
	(.006)	(.006)	(.006)	(.006)	(.007)	(.007)	(.007)	(.007)	(.010)	(.010)	(.010)	(.010)
Married (yes=1)	.027	.013	.024	.024	.009	-.014	.011	.010	.097	.087	.107	.100
	(.058)	(.059)	(.059)	(.058)	(.066)	(.067)	(.066)	(.066)	(.090)	(.090)	(.089)	(.089)
Has any child(ren) (yes=1)	-.108	-.115*	-.097	-.099	-.071	-.054	-.062	-.055	-.004	-.004	-.008	-.008
	(.067)	(.068)	(.068)	(.067)	(.078)	(.079)	(.078)	(.078)	(.114)	(.114)	(.113)	(.114)
Migrated to Addis Ababa (yes=1)	.163***	.178***	.169***	.178***	.049	.083	.048	.057	.061	.050	.025	.049
	(.050)	(.050)	(.050)	(.050)	(.058)	(.059)	(.058)	(.058)	(.083)	(.082)	(.083)	(.082)
Educational education completed (in years of schooling)	-.026*				-.022				-.005			
	(.013)				(.015)				(.021)			
Currently enrolled in any kind of formal education, university or training program (yes=1)	.043				-.062				-.135			
	(.100)				(.094)				(.173)			
Ever employed in factory work (yes=1)		.078				.014				-.033		
		(.056)				(.062)				(.087)		
Any cash earnings in the past 4 weeks (yes=1)		.009				-.170***				-.053		
		(.048)				(.053)				(.081)		
Subjective factory job quality (scale 1-10)			-.007				.002				-.011	
			(.011)				(.013)				(.019)	
Perceives garment factory jobs as healthy (yes=1)			.024				-.026				.035	
			(.048)				(.055)				(.074)	
Perceives factory jobs as permanent (yes=1)			-.038				.053				.195*	
			(.064)				(.073)				(.109)	
Mobility score				-.025				-.032				-.028
				(.028)				(.031)				(.039)
Empowerment score				.040				.033				-.027
				(.033)				(.037)				(.057)
Constant	.554**	.253	.396	.146	.820***	.660**	.587**	.568*	.413	.362	.238	.582
	(.268)	(.238)	(.262)	(.306)	(.287)	(.256)	(.284)	(.316)	(.403)	(.361)	(.401)	(.501)
Mean of Dependent Variable:	.637	.634	.637	.637	.410	.421	.410	.410	.322	.322	.322	.322
Observations	507	495	507	507	407	397	407	407	208	208	208	208

Notes: The table presents the selection processes at various stages of the experiment. Columns 1 through 4 indicate the likelihood of applying for a job in Bole Lemi conditional on being in the treatment group. About 63% of the treatment group individuals applied or were interviewed for job in Bole Lemi. Columns 5 through 8 report the likelihood of starting a job in one of the factories in Bole Lemi conditional on being in the treatment group and having been interviewed. About 41% of treatment group applicants who had been interviewed started job in Bole Lemi. Columns 9 through 12 indicate the likelihood of remaining in a job during the follow-up survey in one of the factories in Bole Lemi conditional on being in the treatment group, having been interviewed and starting the job. About a third of treatment group applicants who started the job were still working in the same job eight months after the baseline survey. The control variables also include a series of indicator variables for the woreda where study participants were recruited. Standard errors in parenthesis. *** denotes significance at 1%, ** at 5%, and * at 10%.

3.3. Empirical Strategy

As indicated in Table 3, the presence of self-selection at various stages during the hiring and onboarding process seems evident. Not all eligible applicants in the treatment group decided to participate in the job interviews. Not all applicants who passed the interview successfully decided to take up the job offer. And, not all applicants who started working in the factories stayed on the job until the follow-up.

Therefore, we primarily focus on estimating intent-to-treat (ITT) impact of the job facilitation intervention. The ITT is estimated using simple OLS:

$$y_{it_1} = \beta_0 + \beta_1 X_{it_0} + \beta_2 treat_i + \beta_3 y_{it_0} + \varepsilon_i \qquad (1)$$

where y_{it_1} is an outcome measured for respondent i measured at follow-up (t_1). The variable $treat_i$ is an indicator equal to one if the respondent was assigned to the treatment group and zero otherwise. X_{it_0} includes a set of control variables measured at baseline (t_0). More precisely, the control variables are age, a dummy for the marital status and the highest grade completed as well as the evaluation duration measured as the number of days between the baseline and the follow-up survey. y_{it_0} is the outcome measured at baseline.

We specifically test whether the treatment had any impact on a battery of outcome variables, i.e., the null that β_2=0. The broad set of outcome variables includes employment and job search, income and expenditure, cognitive and health, expectations and perceptions, and female empowerment indicators. For each family of the outcome variables, we construct '*sharpened' q*-values to control for multiple hypothesis testing (Benjamini et al., 2006). The '*sharpened' q-values* are designed to control for 'false discovery rates' when simultaneously testing for the effect of the treatment on various outcome variables that are similar to each other. Since we expect our treatment to move all the outcome variables in the same direction, the *q*-values can be reasonably computed for all the test statistics. As a further test of robustness, we also create a standardized index for each family of outcomes and present the treatment results in the Appendix.

Aside from this ANCOVA specification, we will also show the results from a simple mean comparison of the outcome y_{it_1} measured at follow-up between the treatment and the control group. We compute the '*sharpened' q*-values for these set of tests as well.

4. Results

Tables 4a through 4e summarize the key results. Table 4a shows that while the intervention did not increase the probability of whether a respondent had ever been employed either in self- or in wage-employment, the likelihood of having had a factory job increases by more than 50 percent compared to the control group. Primarily, this result is somewhat mechanical but also represents a strong marker that our job facilitation intervention was indeed successful in bridging logistical hurdles to seek employment in the IP. More importantly, the intervention was also successful in affecting the employment status in the short-run; i.e., 8 months (current employment status) after the baseline. The second panel of Table 4a indicates that the treatment group is nearly 25 percent more likely to be employed which seems to be largely driven by wage, and particularly factory work. The amount of time that individuals had been employed in the 8 months leading up to baseline also increases.

Consistent with the hypothesis that industrial work offers steadier hours, Table 4a shows that the intervention is associated with five more hours of work per week in the treatment sample. The longer hours of work linked with the job offer is mostly driven by difference in the extensive margin where the treatment group experience better opportunity for entry into employment. If we restrict the sample to non-zero hours of work, for example, there is no statistically significant difference in hours of work between the treatment and control group; i.e., on average both worked for 50 hours per week in the end-line (see Figure 1).

All these effects survive multiple comparison tests as indicated by the low *q*-values. Taken together, our findings suggest that the factory jobs represented an addition to the set of job opportunities available to the target group and did not merely crowd out other income generating activities. Specifically, the increase in factory work did not come at the expense of a reduction in

self-employment which is frequently assumed to be the fallback option for young female, low-skilled applicants.

In line with these results, individuals in the treatment group are less likely to engage in job search activities as indicated in the last panel of Table 4a.[11] Despite reduced search intensity, we find that treatment individuals are 28.5 percent more likely to receive a job offer a for non-casual/non-production task outside the manufacturing sector (not shown in the table).[12] This suggests that, compared to the control group, factory work experience made treatment group individuals more attractive in the labor market.[13]

[11] This is based on the number of times a respondent has done the following activities in the last four weeks: 'visit to job vacancy boards', 'enquiry at work sites', 'asking for help from friends, relatives and acquaintances', 'submission of formal job applications', and 'enquiry with job broker'.

[12] We restrict "job offers" to non-casual/nonproduction tasks outside the manufacturing sector to remove the mechanical relationship that arise due to the job offers made by the factories to the treatment individuals through our facilitation service (the experiment). The results obtained without imposing these restrictions are essentially similar to what we report here (results available upon request). The OLS estimate (standard errors) on likelihood of offers without the set of controls and with controls in the model respectively are 0.119 (0.038) and 0.126 (0.039), both statistically significant at 1%. The control mean is 0.419 implying a treatment effect of 28.4% and 30.1 % respectively. However, we do not have baseline data on offers made to our sample; we thus cannot estimate the corresponding ITT-ANCOVA model and hence we exclude this result from Table 4a in the interest of consistency.

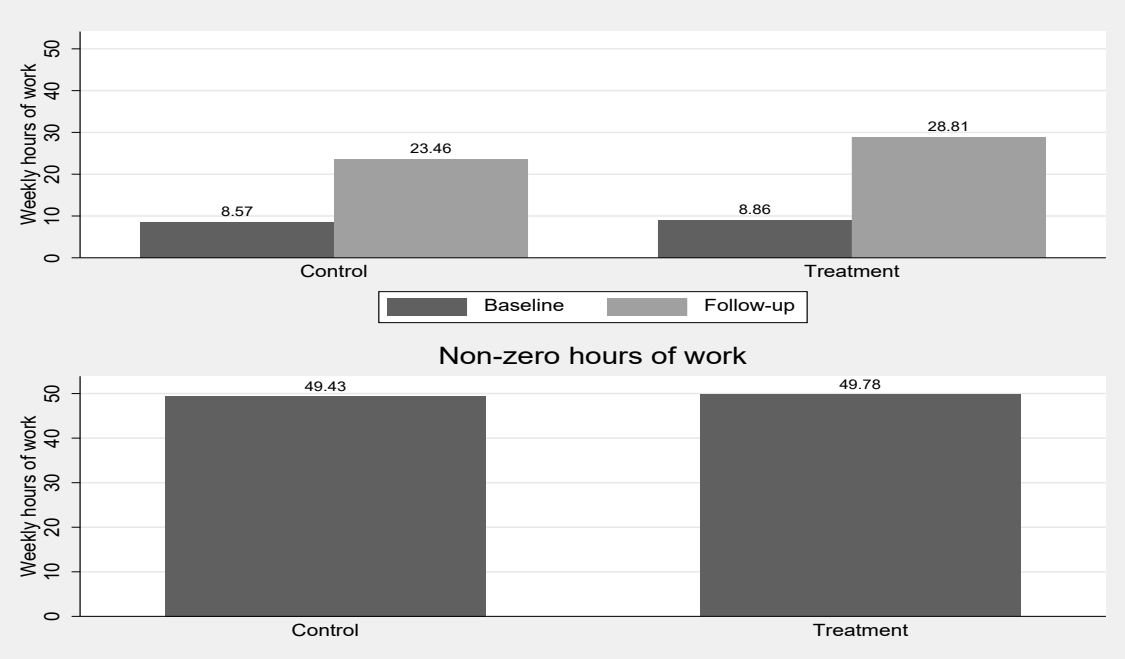
[13] Lack of formal work experience is one of the key barriers that precludes young people from obtaining good jobs (Abebe et al., 2018; Pallais 2014).

Table 4a: Employment and Job Search

Dependent variables		Obs.	Mean (Control group, follow-up)	ITT Difference	ITT ANCOVA
Employment History	Ever employed (yes=1)	827	.936	.004	.003
			[.244]	(.018)	(.019)
				{0.539}	{0.592}
	Ever employed in self-employment (yes=1)	827	.153	.007	-.005
			[.360]	(.028)	(.027)
				{0.539}	{0.592}
	Ever employed in wage employment (yes=1)	827	.898	.012	.019
			[.303]	(.022)	(.022)
				{0.421}	{0.316}
	Ever employed in factory work (yes=1)	827	.305	.155***	.174***
			[.461]	(.038)	(.037)
				{0.001}**	{0.001}**
Current Employment	Currently employed (yes=1)	827	.462	.112***	.099**
			[.500]	(.038)	(.039)
				{0.020}**	{0.041}**
	Currently employed in self-employment (yes=1)	827	.034	.013	.009
			[.181]	(.016)	(.016)
				{0.309}	{0.454}
	Currently employed in wage employment (yes=1)	827	.432	.101***	.092**
			[.496]	(.038)	(.039)
				{0.020}**	{0.044}**
	Currently employed in factory work (yes=1)	827	.114	.070**	.077***
			[.319]	(.028)	(.029)
				{0.022}**	{0.041}**
	Time employed in the past 6 months (in months)	827	2.95	.569***	.432**
			[2.73]	(.206)	(.207)
				{0.020}**	{0.044}**
	Hours of works in 7 days	827	23.5	5.348***	4.696**
			[1.68]	(2.004)	(2.023)
				{0.020}**	{0.052}**
Job Search	Any job search activity in the past 4 weeks (yes=1)	827	.470	-.073*	-.064*
			[.500]	(.038)	(.038)
				{0.052}*	{0.090}*
	Number of job search activities in the past 4 weeks	827	1.39	-.321***	-.312**
			[1.68]	(.121)	(.121)
				{0.020}**	{0.041}**
	Expect any income in 30 days (yes=1)	827	.691	.027	.030
			[.463]	(.035)	(.035)
				{0.321}	{0.316}
	Expect any income in 12 months (yes=1)	827	.979	-.013	-.006
			[.144]	(.013)	(.013)
				{0.291}	{0.489}

Note. The table reports the intent-to-treat (ITT) estimates of the effect of the job facilitation intervention on key outcomes related with employment and job search. Standard deviations in brackets. In the last two columns, we report standard errors in parenthesis and *q*-values in curly brackets underneath each estimated coefficient. *q-values* are calculated following the sharpened procedure proposed by Benjamini et al. (2006). *** p<0.01, ** p<0.05, * p<0.1.

Figure 1. Weekly hours of work by treatment status across survey waves



Notes: Weekly hours of work done by treatment and control group respondents. The first panel indicates the average number of hours of work in the baseline and end-line survey waves. The second panel restricts the sample to those with positive hours of work and presents the average hours of work by treatment status for the end-line survey.

Supporting job applicants during the hiring and onboarding process for factory work significantly increased individuals' income in the treatment group as shown in the upper panel of Table 4b. Measured by the earnings received in the last four weeks, income increased in the treatment by 194 birr or nearly 33 percent over the baseline mean of the control group. This result qualitatively holds when only considering income earned in the last 7 days.[14] Consistent with the result on employment, the intervention proved to be successful in reaching the ultimate goal of helping job seekers to generate additional income through factory work. These findings contrast with a key proposition in Blattman and Dercon (2018) who do not find significant income effects from offering factory jobs. These results are not also artifacts of multiple hypotheses testing as shown by low *q*-values throughout the table.

[14] Restricting the sample to those who work, we find no difference in hours of work and earnings between the treatment and control group, suggesting that: i) unlike Blattman and Dercon (2018), we find no evidence that industrial jobs offer lower wages; ii) the treatment appears to affect earnings on the extensive margin; i.e., through improving the prospect of the treatment group finding jobs.

The lower panel of Table 4b shows that part of the increased earnings is likely to have been spent on non-food items given the positive and significant impact on this expenditure measure in the ANCOVA specification. We do not see any increase in other expenditure categories (in general, however, the sign of the estimated coefficients on treatment is positive). This is consistent with Getahun and Villanger's (2018) finding of large industrial job effects on non-food expenditure largely driven by the improved spending of young female workers on clothing and shoes.

Table 4b: Income and Expenditures

Dependent variables		Obs.	Mean (Control group, follow-up)	ITT Difference	ITT ANCOVA
Earnings	Total cash earnings in the past 7 days (in birr)	827	148	45.9***	40.0**
			[203]	(15.6)	(15.6)
				{0.008}***	{0.026}**
	Total cash earnings in the past 4 weeks (in birr)	827	610	209***	194***
			[763]	(62.2)	(61.8)
				{0.007}***	{0.013}**
Expenditure & Savings	Food expenditure in past 7 days (in birr)	827	125	4.17	9.92
			[125]	(10.5)	(9.43)
				{0.30}	{0.214}
	Non-food expenditure in past month (in birr)	827	340	42.5	46.2*
			[349]	(27.9)	(26.9)
				{0.158}	{0.13}
	Savings from earnings in past 7 days (in birr)	827	32.1	5.80	7.93
			[89.2]	(10.6)	(10.7)
				{0.30}	{0.298}
	Savings from earnings in past 4 weeks (in birr)	827	68.6	26.3	25.3
			[211]	(17.7)	(17.9)
				{0.158}	{0.188}

Notes: The table reports the intent-to-treat (ITT) estimates of the effect of the job facilitation intervention on income and expenditure. Standard deviations in brackets. In the last two columns, we report standard errors in parenthesis and *q*-values in curly brackets underneath each estimated coefficient. *q-values* are calculated following the sharpened procedure proposed by Benjamini et al. (2006). *** p<0.01, ** p<0.05, * p<0.1.

In addition, we find that the standardized strenuosity score increased significantly which mirrors the adverse health impacts reported by Blattman and Dercon (2018).[15] Table 4c shows that the two strenuosity scores we construct are positively affected by treatment. Both indices are based on

[15] In a five-year follow-up study recently published, Blattman et al., (2019) find that the adverse health effects observed after one-year follow-up dissipate over time.

serious of questions that assess how difficult it is for individuals to carry out every day (work related) activities. The radar graph in Figure 2 decomposes the index and plots individual impacts (and the corresponding confidence intervals) for each of these activities in isolation. Perhaps unsurprisingly, the two activities most closely associated with and required for factory work ('work on feet' and 'stand at work bench') are driving the result on the strenuosity score. It is also worth mentioning that we identify impacts on strenuosity in line with the findings from Blattman and Dercon (2018) despite a considerably shorter evaluation period. We also find a positive impact on the cognitive skills score when considering the simple difference estimator between the treatment and the control group. It is possible that this finding results from a continued cognitive stimulus of the training and work tasks on those individuals in the treatment group who took up job offers.

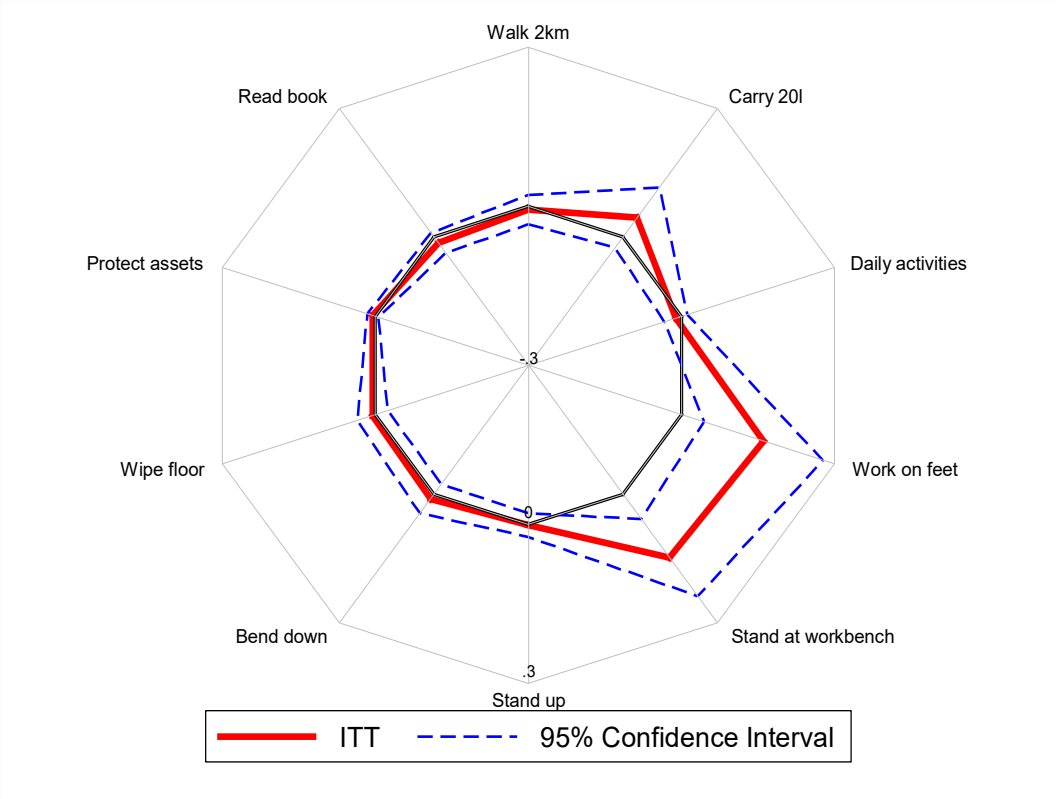
One possible explanation for the high rate of worker turnover and the small duration of workers' spells in factories is an ex-ante mismatch of applicants' job-related expectations and the reality of factory work. Indeed, recent qualitative studies that explore worker and manager interactions in the textile, garment and leather manufacturing industries find that expectations mismatch are key drivers of worker turnover in Ethiopia (Hardy and Hauge 2019; Barrett and Baumann-Pauly 2019).

Table 4c: Cognitive and Health Related Scores

Dependent variables	Obs.	Mean (Control group at baseline)	ITT Difference	ITT ANCOVA
Standardized cognitive skills score	806	-.058	.142*	.104
		[.934]	(.078)	(.077)
			{0.049}**	{0.133}
Standardized numeracy score	806	-.125	.106	.050
		[1.02]	(.078)	(.074)
			{0.097}*	{0.307}
Standardized strenuosity score	827	.058	.191**	.197**
		[1.06]	(.077)	(.077)
			{0.027}**	{0.029}**
Standardized strenuosity score (based on dummies for at least "slightly difficult")	827	-.0009	.192**	.191**
		[.975]	(.077)	(.077)
			{0.027}**	{0.029}**

Notes. The table reports the intent-to-treat (ITT) estimates of the effect of the job facilitation intervention on cognitive skills and health. Standard deviations in brackets. In the last two columns, we report standard errors in parenthesis and *q*-values in curly brackets underneath each estimated coefficient. *q-values* are calculated following the sharpened procedure proposed by Benjamini et al. (2006). *** p<0.01, ** p<0.05, * p<0.1.

Figure 2: Health Score Radar



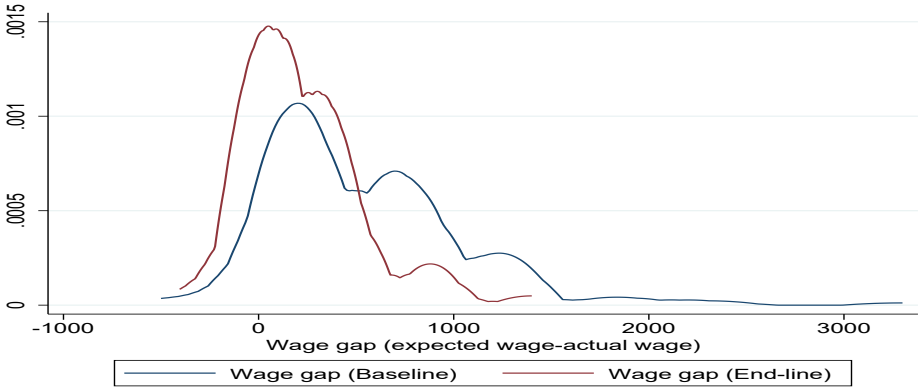
The gap between workers' expected wage and actual wage earning is, for example, large and workers appear to update their expected earnings during the course of employment. As indicated in Figure 3 by the kernel density estimate, the average difference between workers expected wage rate and actual wage is wildly spread with a long right-tail in the baseline and a tighter distribution in the end-line. The first column in Table A1 in the appendix indicate that the average wage gap, defined as the difference between expected and actual wage rate, amounts to 452 birr in the baseline and declines to 177 birr in the end-line. These figures suggest that workers overestimate earnings from factory jobs on average by about 60% from the outset (before employment), and that the expectation gap declines substantially to 16% in the end-line.[16] Restricting the sample to

[16] For simplicity, the percentage values are computed by using $= 1 - (\,{}^{(Wage_t + Gap_t)}/_{Wage_t})$. For example, entry level wage in the baseline is 750 birr and the average gap is 452 birr for all workers. The percentage value of the gap is thus 60%. Similarly, the average wage in the end-line is 1051 and the gap is 177 birr. The percentage value of the gap is 16%.

only those that remain employed at the factories by the end-line further condenses the expected wage gap distribution, suggesting updating of beliefs (Figure 3 and Table A1).

Figure 3 : Gap between expected and actual wage rates (Ethiopian Birr)

A. All workers



B. Factory workers

Notes. Wage gap is defined as the difference between expected wage and actual wages rates. Respondents were asked about the wage they anticipated to obtain from factory employment during the baseline and end-line. We compare the perceived monthly wages with the actual wage rates that the workers received to construct the wage gap. Panel A indicates Kernel density estimates of the gap in the baseline and end-line waves for all workers, those who are employed in different sectors. Panel B presents the gap in the two periods for factory workers only. The table accompanying the figures (Table A1 in the appendix) present the gaps across the two types of workers in the baseline and end-line survey waves. All the figures are in Ethiopian Birr.

We formally test whether the treatment group adjusted their expectations regarding factory work as a result of increased exposure to and experience with this work. The results shown in Table 4d suggest that the treatment group in fact lowered expectations regarding the earning potential of factory work as well as the planned job duration.[17] That is, individuals in the treatment group are more likely to regard factory jobs as temporary employment.

Such views are not, however, surprising. The adverse health impacts experienced by workers are likely to make factory work less preferable than other employment alternatives in the longer-term (Blattman and Dercon, 2018). By the very nature of its organizational hierarchy, the career progression path of young workers in the garment industry is also narrow. The industry employs a large number of less-educated and low-skilled workers who sit at the bottom of the organizational pyramid**.** For such workers, moving up the rungs of the pyramid through promotion is difficult. Even with tenure, the chances of progressions to positions beyond line management and supervisory levels are minimal; such positions are commonly filled by college graduates. On the other hand, alternatives, such as the prospect of being employed as domestic worker in the Gulf and the Middle East, are attractive inducements that encourage workers to leave factory jobs (Abebe and Schaefer 2015; Hardy and Hauge 2019).[18] Female workers face further challenges related with marriage, child-care and family responsibilities that make continuing to work in the garment industry difficult. It is thus common for entry-level workers to consider such jobs in labor intensive manufacturing industries as temporary.

Furthermore, the treatment group is less likely to regard factory jobs as healthy or quality employment as shown in the lower part of Table 4d. Again, this result is in line with the findings from Blattman and Dercon (2018) who find that offering industrial jobs significantly increased health problems in their sample of Ethiopian job seekers in the short-run.

[17] Treatment group workers view of factory work as a source of steady income; however, this is not different from those in the control group.

[18] Blattman and Dercon (2018) find that 5.3% of their sample emigrated to the Middle East and the likelihood of migration is higher in the treatment arms. Anecdotes also suggest that factory jobs provide much needed savings to finance migration of young female workers to the Gulf and the Middle East.

Table 4d: Expectations and Perceptions

Dependent variables	Obs.	Mean (Control group at baseline)	ITT Difference	ITT ANCOVA
Expected earnings from working at garment factory (in birr)	825	1,320	-99.8***	-82.8**
		[526]	(38.0)	(37.4)
			{0.01}**	{0.028}**
Subjective factory job quality (scale 1-10)	827	8.19	-1.48***	-1.40***
		[2.03]	(.174)	(.176)
			{0.001}***	{0.001}***
Perceives garment factory jobs as healthy (yes=1)	827	.623	-.189***	-.174***
		[.486]	(.035)	(.036)
			{0.001}***	{0.001}***
Perceives factory jobs provide a steady income (yes=1)	827	.814	-.011	.002
		[.390]	(.037)	(.038)
			{0.181}	{0.235}
Perceives factory jobs as permanent (yes=1)	827	.839	-.053**	-.041*
		[.368]	(.024)	(.025)
			{0.016}**	{0.05}**

Note. The table reports the intent-to-treat (ITT) estimates of the effect of the job facilitation intervention on individual's expectation and perceptions of factory jobs. Standard deviations in brackets. In the last two columns, we report standard errors in parenthesis and *q*-values in curly brackets underneath each estimated coefficient. *q-values* are calculated following the sharpened procedure proposed by Benjamini et al. (2006). *** p<0.01, ** p<0.05, * p<0.1.

As indicated by Table 4e, there are no significant impacts on several indicators or proxies of women's (economic) empowerment.[19] Unlike cases from other countries, where female entry into garment employment is associated with reduced empowerment and intensified domestic violence at least in the short-term (e.g., Ahmed 2011; Heath 2014), we find no such effect in Ethiopia. In contrast to income, where shocks and windfalls gains can affect welfare instantly, we admit that the short time horizon of the follow-up survey might be too early to document empowerment related effects. Shift in empowerment constitute not only a change in one's own and other household members' entrenched behavior and attitude towards gender norms but also a change in intra-household bargaining and resource allocation in favor of the female member in the

[19] Table A2 employs a slightly modified specification that considers only married women in the sample. Save for the mobility score, the results on empowerment indicators are largely similar to Table 4e.

household. Such changes often take time to take root, and hence may require more survey waves for empowerment effects of industrial jobs to be revealed (Dasgupta 2000; Ahmed 2011; Heath 2014).

Table 4e: Empowerment

		All sample		
Dependent variables	Obs.	Mean (Control group at follow-up)	ITT Difference	ITT ANCOVA
Owns own bank account (yes=1)	827	.682	.015	.021
		[.467]	(.024)	(.023)
			{1.00}	{1.00}
Mobility score	827	3.69	-.024	-.018
		[.763]	(.023)	(.023)
			{1.00}	{1.00}
Uses any contraceptive method (yes=1)	827	.394	-.040	-.002
		[.490]	(.036)	(.030)
			{1.00}	{1.00}
Decision-making score (sole decision-maker)	827	3.14	-.023	.010
		[1.36]	(.097)	(.084)
			{1.00}	{1.00}
Decision-making score (sole or joint decision-maker)	827	3.45	-.050	.003
		[1.36]	(.094)	(.084)
			{1.00}	{1.00}
Empowerment score (based on gender attitudes)	827	5.59	.015	.005
		[.643]	(.043)	(.044)
			{1.00}	{1.00}

Note. The table reports the intent-to-treat (ITT) estimates of the effect of the job facilitation intervention on a range of empowerment indicators. Standard deviations in brackets. In the last two columns, we report standard errors in parenthesis and *q*-values in curly brackets underneath each estimated coefficient. *q-values* are calculated following the sharpened procedure proposed by Benjamini et al. (2006). *** p<0.01, ** p<0.05, * p<0.1

As a check for robustness of these results, we aggregate all the outcome variables into six distinct family of indexes. We horizontally aggrege related outcome variables and create a z-score to generate a standardized index for each family of outcome. When the outcome variable is continuous, we generate a dummy that takes 1 if its value is larger than the median of the variable and zero otherwise. Following this procedure, all the outcome variables presented in Tables 4a, 4b, 4d and 4e, are combined to generate indexes on employment, income/spending, expectation and perception and empowerment respectively. Two separate indexes on Strenuosity and

Cognitive skills corresponding to Table 4c are also created. Table A3 reports the ITT difference and ANCOVA treatment effects on these family of indexes. The results broadly correspond to the individual variables ITT estimates in sign, magnitude and statistical significance. This provides further support to the robustness of our results to multiple hypothesis testing.

Finally, using the six indexes as outcome variables, we conduct heterogeneity test to explore whether the treatment effect varies by key baseline characteristics. We mainly conduct three sub-group analysis: by marital status, migration status and whether the worker is renting a house at a baseline or not.[20] Table A4 presents the results on heterogeneity analysis by marital status of the respondent at baseline. The table indicates significant heterogeneity of the treatment effect by marital status at a baseline. Surprisingly, the adverse health effect indicated by the negative coefficient of the strenousity index is mostly confined to single women. We also find that the treatment has positive and statistically significant effects on expectation and perceptions and empowerment indexes for married women. By contrast, we find no heterogeneity effect by migration status and whether the worker is renting a house at a baseline or not (we do not report the results to conserve space).

5. Conclusion

In the effort to transform the structure of its economy, Ethiopia has embarked on a path of massive job creation through large-scale industrial development. The construction of a series of export-oriented Industrial Parks (IPs) is one of the most visible markers for this ambitious development agenda. The goal is to provide its ever-growing labor force with jobs that are good and desirable. However, the African experience with IPs has been multi-faceted. Recent evidence points to key challenges related to high worker turnover rates, low wages and health hazards in the context of industrial work in Ethiopia.

[20] The treatment could potentially affect outcomes such as empowerment differently for married and unmarried respondents. We also hypothesize that migrants and workers who rent at baseline are less likely to be engaged in job hopping and more likely to stay with the current employer.

Our contribution is based on experimental evidence from studying the short-run impact of supporting and facilitating the job application process in the Bole Lemi IP located in the outskirts of Addis Ababa. We provided employment facilitation support to a randomly selected sample of job seekers and find that the intervention raised the reported monthly income by nearly 30 percent in the treatment group. Our results suggest that a simple job facilitation intervention can support female job seekers to overcome entry-into-formal-employment barriers that are often faced by the youth, females and migrants in developing countries. Despite offering mostly low-skill positions, employment in factory jobs generate higher earnings than other livelihood alternatives low-skilled workers typically hold. Yet we also find that these jobs tend to be physically demanding with adverse health effects detected approximately eight months after the first survey. As a result, treatment group respondents consider factory jobs to be low quality, less healthy and temporary. We also find that applicants were initially unaware of the nature of factory jobs and, after employment, adjusted their expectations downward with lower future expected earnings from factory jobs compared to individuals in the control group.

On the one hand, the positive income impacts in our research contrast the earlier findings from Blattman and Dercon (2018) and suggest that IPs, through their focus on attracting export-oriented and foreign-owned firms, potentially provide a better earning potential for workers compared to that offered by already existing factory work opportunities. On the other hand, we also document adverse health impacts which highlights that the welfare impacts of factory work are not straightforward and demand careful consideration. Our results thus emphasize that there remains considerable work in terms of identifying policies and adjustments to improve the net gains to workers' welfare in order to create 'good' jobs. Finally, we believe that studying the longer-term impacts is crucial to be able to draw a more complete picture of the welfare gains or losses from factory work.

References

Abebe, G., Caria, S., Dercon, S., and Hensel, L., 2019. Quitting too soon Projection bias and inefficient worker turnover in a nascent industry. Memo. University of Oxford.

Abebe, G., Caria, S., Fafchamps, M., Falco, P., Franklin, S., and Quinn, S., 2018. "Anonymity or Distance? Job Search and Labour Market Exclusion in a Growing African City," CEPR Discussion Papers 13136, C.E.P.R. Discussion Papers.

Abebe, G., and Schaefer F. 2015. Review of Industrial Policies in Ethiopia: A Perspective from the Leather and Cut Flower Industries. In Industrial Policy and Economic Transformation in Africa, edited by Joseph Stiglitz, and Akbar Noman. Columbia University Press, 2015.

Ahmed, S., 2011. Intimate partner violence against women: Experiences from a woman focused development programme in Matlab, Bangladesh. *Journal of Health, Population and Nutrition*. 23(1), 95–101.

Atkin, D., 2009. Working for the future: Female factory work and child health in Mexico. Unpublished Manuscript, Yale University.

Bezawagaw, Mesfin Girma; Dihel, Nora Carina; Geiger, Michael Tobias; and Getachew Kelbore, Zerihun. 2018. *Ethiopia economic update: The inescapable manufacturing services nexus : exploring the potentialof distribution services (English)*. Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/811791526447120021/The-inescapable-manufacturing-services-nexus-exploring-the-potentialof-distribution-services

Benjamini, Y., Krieger, M.A., Yekutieli. D., 2006. Adaptive Linear Step-up Procedures that Control the False Discovery Rate. Biometrika 93(3), 491–507.

Berik, G., Rodgers, Y. V. D. M., & Zveglich, J. E. (2004). International trade and gender wage discrimination: Evidence from East Asia. *Review of Development Economics*, *8*(2), 237-254.

Bernard, A. B., and Jensen, J. Bradford., 1999 Exceptional exporter performance: cause, effect, or both?. *Journal of international economics* 47.1, 1-25.

Blattman, C., 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.

Blattman, C., Dercon, S., Franklin, S., 2019. Impacts of industrial and entrepreneurial jobs on youth: 5-year experimental evidence on factory job offers and cash grants in Ethiopia. National Bureau of Economic Research. No. W25788

Bräutigam, D., Tang X., 2011 African Shenzhen: China's special economic zones in Africa. *The Journal of Modern African Studies* 49.1, 27-54.

Carneiro, F., Andrew, H., 2001. Modelling formal vs. informal employment and earnings: micro-econometric evidence for Brazil. University of Wales at Aberystwyth Management & Business Working Paper 2001-15.

Chamarbagwala, R. (2006). Economic liberalization and wage inequality in India. *World Development*, *34*(12), 1997-2015.

Contreras, D., Roberto G., and Esteban P., 2017. Self-Employment and Queues for Wage Work: Evidence from Chile. *Journal of International Development* 29.4,473-499.

Dasgupta, I., 2000. Women's employment, intra-household bargaining, and distribution: a two-sector analysis. Oxford Economic Papers 52.4, 723-744.

Dean, L., 2018. Ethiopia Touts Good Conditions In Factories For Brands Like H&M And Calvin Klein, But Workers Scrape By On $1 A Day. The Intercept, July 8, 2018, available at https://theintercept.com/2018/07/08/ethiopia-garment-industry/

El Badaoui, E., Eric, S., Frank, W., 2008 Is there an informal employment wage penalty? Evidence from South Africa', *Economic Development and Cultural Change* 56, 3, 683- 710

Farole, T., 2011a Special economic zones in Africa: comparing performance and learning from global experiences. The World Bank.

Farole, T., 2011b Special economic zones: What have we learned?. World Bank-Economic Premise 64, 1-5.

Federal Democratic Republic of Ethiopia (FDRE), 2010. Growth and Transformation Plan I (2009/2010-2014/15). Addis Ababa.

Getahun, T, D., Espen V., 2018. Labour-Intensive Jobs for Women and Development: Intra-household Welfare Effects and Its Transmission Channels. *The Journal of Development Studies* 54.7, 1232-1252.

Ghosh, J. (2009). Informalization and women's workforce participation: A consideration of recent trends in Asia. In *The Gendered Impacts of Liberalization* (pp. 179-206). Routledge.

Heath, R., Mobarak. A, M., 2015. Manufacturing growth and the lives of Bangladeshi women. *Journal of Development Economics* 115, 1-15.

Hardy, V., Jostein H., 2019. Labour challenges in Ethiopia's textile and leather industries: no voice, no loyalty, no exit?. African Affairs.

Hewett, P., Sajeda, A., 2000. Assessing the impact of garment work on quality of life measures." *New York: Population Council. Mimeo* (2000).

ILO, 2018. ILO Estimates and Projections series, analyzed in the ILO's World Employment and Social Outlook reports. International Labor Organization.

Jensen, R., 2012. Do labor market opportunities affect young women's work and family decisions? Experimental evidence from India. *The Quarterly Journal of Economics* 127.2, 753-792.

Kabeer, N., 2002. The power to choose: Bangladeshi women and labor market decisions in London and Dhaka. Verso.

Kiruga, M., 2019. Ethiopia's $26-a-month factory workers all quit in the first year", the African Report, May 10, available at

https://www.theafricareport.com/12818/ethiopias-26-a-month-factory-workers-all-quit-in-the-first-year/.

Minwagaw, N., 2019. Low Wages Cast Shadow on Industrial Parks. Addis Fortune May 25 Available at https://addisfortune.news/low-wages-cast-shadow-on-industrial-parks/

National Planning Commission (NPC), 2015. Growth and Transformation Plan II (2015/2016-2019/20) Federal Democratic Republic of Ethiopia. Addis Ababa.

Nicita, A., Susan R., 2003. Who benefits and how much? How gender affects welfare impacts of a booming textile industry. The World Bank.

Paul, M, B., Dorothée B, Pauly., 2019. Made in Ethiopia: Challenges in the Garment Industry's New Frontier. Center for Business and Human Rights, NYU Stern.

Pitt, M. M., Rosenzweig, M. R., Hassan, M. N., 2012. Human capital investment and the gender division of labor in a brawn-based economy. *The American Economic Review*, 102(7), 3531–3560.

Roy, S, D., 2004. Employment dynamics in Indian industry: adjustment lags and the impact of job security regulations." *Journal of Development Economics* 73.1, 233-256.

Seguino, S. (2000a). Gender inequality and economic growth: A cross-country analysis. *World Development*, *28*(7), 1211-1230.

Seguino, S. (2000b). Accounting for gender in Asian economic growth. *Feminist Economics*, *6*(3), 27-58.

Schaefer, F., Oya, C., 2019. Employment patterns and conditions in construction and manufacturing in Ethiopia: a comparative analysis of the road building and light manufacturing sectors. IDCEA Research Report, SOAS, University of London.

Suzuki, A., Yukichi, M., Abebe, G., 2018 Earnings, savings, and job satisfaction in a labor-intensive export sector: Evidence from the cut flower industry in Ethiopia." *World Development* 110, 176-191.

Tacoli, C. (2012). *Urbanization, gender and urban poverty: paid work and unpaid carework in the city* (p. 48). Human Settlements Group, International Institute for Environment and Development.

Verhoogen, E, A., 2008. Trade, quality upgrading, and wage inequality in the Mexican manufacturing sector." *The Quarterly Journal of Economics* 123.2, 489-530.

Weiss, A., 1980. Job queues and layoffs in labor markets with flexible wages. *Journal of Political economy* 88.3, 526-538.

Appendix

Table A1. Mean of wage gap by worker type

	Wage Gap (Baseline)	Wage Gap (End-line)
All workers	452	177
Factory workers	490	223
Number of observations	208	68

Note. The table shows the difference between expected and actual wage rates across the two types of workers in the baseline and end-line survey waves. All the figures are in Ethiopian Birr.

Table A2: Empowerment (considering the sample of married women only)

Dependent variables	Obs.	Mean (Control group at follow-up)	ITT Difference	ITT ANCOVA
Owns own bank account (yes=1)	215	.682	0.017	0.018
		[.467]	(0.038)	(0.038)
			{.496}	{.611}
Mobility score	215	3.69	0.086***	0.094***
		[.763]	(0.023)	(0.024)
			{.001}**	{.001}**
Uses any contraceptive method (yes=1)	215	.394	-0.063	-0.054
		[.490]	(0.060)	(0.060)
			{.378}	{.392}
Decision-making score (sole decision-maker)	215	3.14	0.269	0.263
		[1.36]	(0.180)	(0.174)
			{.296}	{.283}
Decision-making score (sole or joint decision-maker)	215	3.45	0.261	0.286*
		[1.36]	(0.158)	(0.162)
			{.296}	{.247}
Empowerment score (based on gender attitudes)	215	5.59	-0.040	-0.016
		[.643]	(0.086)	(0.089)
			{.496}	{.744}

Note. The table reports the intent-to-treat (ITT) estimates of the effect of the job facilitation intervention on a range of empowerment indicators. Standard deviations in brackets. In the last two columns, we report standard errors in parenthesis and *q*-values in curly brackets underneath each estimated coefficient. *q-values* are calculated following the sharpened procedure proposed by Benjamini et al. (2006). *** p<0.01, ** p<0.05, * p<0.1

Table A3: Indexed outcome variable

Dependent variables	Obs.	Mean (Control group at baseline)	ITT Difference	ITT ANCOVA
Employment	827	-.136	0.191**	0.174**
		[.975]	(0.077)	(0.075)
Income/spending	827	-.170	0.237***	0.236***
		[.939]	(0.077)	(0.075)
Strenuosity	827	-.170	0.238***	0.237***
		[.964]	(0.077)	(0.078)
Cognitive skills	827	-.008	0.012	-0.017
		[1.045]	(0.077)	(0.074)
Expectations and perception	827	0.325	-0.455***	-0.410***
		[0.934]	(0.075)	(0.076)
Empowerment	827	0.033	-0.047	-0.005
		[1.004]	(0.077)	(0.070)

Note. The table reports the intent-to-treat (ITT) estimates of the effect of the job facilitation intervention on the family of indexes constructed by aggregating related individual outcomes from Table 4a to 4e. All the outcome variables presented in Tables 4a, 4b, 4d and 4e, are combined to generate indexes on employment, income/spending, expectation and perception and empowerment respectively. Two separate indexes on Strenuosity and Cognitive skills corresponding to Table 4c are also created. Standard deviations in brackets and standard errors in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

Table A4: Heterogeneity test

Dependent variables	Obs.	Mean (Control group at baseline)	ITT Difference		ITT ANCOVA	
			Married*treatment	Treatment	Married*treatment	Treatment
Employment	827	-.136	0.027	0.170*	0.035	0.164*
		[.975]	(0.170)	(0.090)	(0.166)	(0.088)
Income/spending	827	-.170	0.027	0.225**	0.015	0.232***
		[.939]	(0.171)	(0.090)	(0.166)	(0.088)
Strenuosity	827	-.170	-0.423**	0.365***	-0.445***	0.363***
		[.964]	(0.170)	(0.090)	(0.172)	(0.091)
Cognitive skills	827	-.008	0.056	-0.011	0.015	-0.021
		[1.045]	(0.172)	(0.091)	(0.165)	(0.088)
Expectations and perception	827	0.325	0.460***	-0.579***	0.406**	-0.524***
		[0.934]	(0.167)	(0.089)	(0.168)	(0.089)
Empowerment	827	0.033	0.354**	-0.142	0.326**	-0.097
		[1.004]	(0.171)	(0.091)	(0.155)	(0.082)

Note. The table reports the intent-to-treat (ITT) estimates of the heterogenous effect of the job facilitation intervention by marital status at the baseline on the family of indexes constructed by aggregating related individual outcomes from Table 4a to 4e. All the outcome variables presented in Tables 4a, 4b, 4d and 4e, are combined to generate indexes on employment, income/spending, expectation and perception and empowerment respectively. Two separate indexes on Strenuosity and Cognitive skills corresponding to Table 4c are also created. Standard deviations in brackets and standard errors in parenthesis. *** p<0.01, ** p<0.05, * p<0.1