

More sweatshops for Africa? A randomized trial of industrial jobs and self-employment*

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Abstract

Are industrial jobs better than most poor people's alternatives? We randomized applicants to five Ethiopian industrial firms to either a job offer, a microenterprise start-up grant, or a control group. Industrial jobs offered hours and stability, but do not pay wage premiums. If offered a job, two thirds quit the sector in the first year, usually within a few weeks. Job offers had no effect on incomes after a year, but this average conceals heterogeneity: applicants with the poorest outside options saw earnings rise, while earnings were lower for applicants with the best options. Workers also described industrial jobs as unpleasant and risky, and those offered jobs reported twice as many disabilities. Patterns are consistent with matching models with learning, where low-skill job markets clear at a competitive wage but applicants learn fit and risks via experience. Meanwhile, grants increased microenterprises, reduced formal labor force participation, and raised earnings 33%.

JEL codes: J24, O14, F16, J81, O17

Keywords: wage labor, factories, employment, wage premiums, entrepreneurship, cash transfers, Ethiopia, field experiment

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1 Introduction

“The misery of being exploited by capitalists” the economist Joan Robinson famously remarked, “is nothing compared to the misery of not being exploited at all” (1962, p.45). This reflects a common view that even low-wage industrial jobs provide poor people with higher or more stable earnings than their alternatives.¹

Industrial jobs tend to be scarce, and factories and farms do not seem to have a hard time finding workers, at least judging by the long queues of applicants. By revealed preference, it would seem that workers who line up for jobs prefer even so-called sweatshop jobs to the alternatives.² Even some opponents concede the point: a Scholars Against Sweatshop Labor statement (2001) admits that “after allowing for the frequent low wages and poor working conditions in these jobs, they are still generally superior to ‘informal’ employment in, for example, much of agriculture or urban street vending.”

Theoretically there are several reasons why industrial work would pay a wage premium compared to informal work. Firms may pay efficiency wages or there may also be institutional and legislative sources, such minimum wages, labor codes or union bargaining.³ If so, the result is a dual labor market, in which those gaining industrial jobs earn rents while informal workers queue for those jobs.⁴ A large body of observational evidence supports the notion of wage premiums in formal firms, especially firms that are large, foreign-owned, or exporters.⁵

Other views are more pessimistic, reflecting fears that industrial jobs exploit workers

¹We use the term “industrial” jobs to capture work in formal firms in manufacturing and high-intensity commercial agriculture, focusing on formal firms with 10 or more employees (i.e. excluding very small enterprises and workshops).

²There is no universal definition of a “sweatshop”, but the term generally connotes a job with very low wages, long hours, and unpleasant or hazardous working conditions. The industrial jobs we study in this paper arguably fit this broad definition of sweatshops, but since this is a subjective judgment we refer to them as low-skill industrial jobs.

³e.g. Katz et al. (1989); Akerlof and Yellen (1986) on efficiency wages and Card (1996) on unions.

⁴e.g. Lewis, 1954; Harris and Todaro, 1970; Fields, 1975. Learning and matching models can also predict wage premiums, at least in the short run. A large labor economics literature argues that some firm-worker matches are more productive than others, searching takes time and is costly, and workers (especially young workers) may not know their own ability, match quality, or comparative advantage (e.g. Jovanovic, 1979; Antonovics and Golan, 2012; Papageorgiou, 2013).

⁵For Mexico see Bernard et al. (2010); Verhoogen (2008) and for Africa see Söderbom and Teal (2004); El Badaoui et al. (2008). Plant-level data show that large and foreign firms pay higher wages than smaller or domestically-owned ones. See Aitken et al. (1996) for Venezuela and Mexico, Lipsey and Sjöholm (2004) for Indonesia, and Strobl and Thornton (2004) for five African countries. The correlation tends to remain but decrease when firm and worker characteristics are taken into account. Finally, there is also some observational evidence suggesting that industrial work can empower or improve the quality of life of women. Kabeer (2002) and Hewett and Amin (2000) provide suggestive evidence that working in textiles factories is associated with higher female status and better quality of life measures. Atkin (2009) finds that Mexican women in export manufacturing jobs see increased incomes, and have better bargaining power in the household, and have significantly taller children.

or lower their lifetime earning potential. For instance, young adults could make poorly-informed or present-biased decisions that sacrifice health or schooling, reducing long-run earnings potential.⁶ Scholars writing during England’s Industrial Revolution, from Adam Smith to Karl Marx, also feared that the exhaustive drudgery of industrial work crowds out workers’ opportunities for productive and noble self-employment (Marx, 1891).

We test the effect of industrial jobs experimentally in Ethiopia. The country is a growing export hub in horticulture, textiles, and leather products, and has been touted as one of “China’s successors” in garment manufacturing (NPR, 2014). A majority of firms were willing to join the study, but only a handful were hiring batches of 15 or more new workers. We identified five firms who were expanding production: a water bottling plant, a vegetable farm, a flower farm, a shoe manufacturer, and a textile and garment factory. We worked with the firms to randomly assign jobs within the pool of applicants, most of whom were young women with some secondary school entering the formal sector for the first time.

Of nearly 1000 applicants in total, we assigned a third to a job offer, a third to a control group, and a third to a \$300 grant (about \$1000 in purchasing power) plus a few days of business planning. The grant equals about a year of wages. Our reasoning was that poor, young, credit-constrained adults could start or expand a profitable microenterprise with capital and some basic advice.⁷ We did so in order to compare industrial work to something better than applicants’ possibly meagre employment options. We expected industrial jobs to offer such high hours and wages that they would even outperform a generous microenterprise intervention in terms of poverty alleviation.⁸

We followed the sample over a year, and found little support for our hypothesis, at least in these five firms. There was no evidence of a wage premium or a dual sector, and these low-skill job markets seem to clear at relatively competitive, subsistence-level wages. Firms offered more hours and a lower risk of unemployment, but wages were 22% lower than the hourly earnings offered by people’s mainly informal alternatives.

Of those offered the job, most tried out the work, discovered it was unsuitable or unpleasant, and quit within a few weeks or months (almost none were fired). After a year, just 32%

⁶Atkin (2012) shows that high-school dropout rates rise as industrial job opportunities appear, and that the loss in long run earnings is inconsistent with fairly high discount rates.

⁷A growing evidence base suggests that cash transfers can stimulate self-employment. If the average poor person has high returns to capital but is credit-constrained, then injections of capital may increase hours worked and earnings (Udry and Anagol, 2006; de Mel et al., 2008; Haushofer and Shapiro, 2013; Blattman et al., 2014, 2015). Cash transfers could also relieve the risk that someone takes an unwanted or unsafe job to cope with shocks.

⁸Manufacturing growth could have broader welfare impacts that this design will not capture, such as incentives for prospective employees to gain education. Heath and Mobarak (2014), for instance, show that growth in the Bangladeshi textile industry increasing girls age at marriage and an increase in younger girls’ educational attainment.

of the job group and 20% of the control group were employed in any factory or commercial farm. Quitters not only left the firm, but left the formal sector entirely, usually to return to informal work. Those who quit described the jobs as too difficult, too poorly paid, rigid, and often hazardous.

This is partly because applicants' outside opportunities were better than they initially appeared. At baseline, they had just 7.5 hours of work per week on average, and two thirds had not worked in the last month. A year later, however, the control group had 26 hours of work, and a third had no work. As a result, on average those offered a job offer had the same employment hours, income, and hourly earnings as the control group after one year.

So why did workers queue for these jobs? Some of the applicants used industrial jobs as temporary employment to cope with adverse shocks or temporary unemployment spells, and did not plan to stay. More generally, however, it appears that workers queued for industrial jobs not because the jobs were scarce and desirable, but as youth with little formal sector experience, they were uncertain about the nature of these jobs or their aptitude. They learned mainly through experience. Overall, this pattern is consistent with matching models with learning (e.g. Antonovics and Golan, 2012; Papageorgiou, 2013).

Although the job offer had no effect on incomes, this average conceals important heterogeneity. Low-ability applicants offered the job had higher earnings after a year than those in the control group, while high-ability workers had lower earnings than control group with the same characteristics. This suggests imperfect matches are somewhat persistent and costly.

More ominously, we see some evidence that factory jobs cause physical harm. Workers described a number of risks in the industrial jobs, including chemicals and intense physical demands. Job offers caused a modest decrease in health on average. The more worrisome impact, however, was in the lower tail: the number of people reporting difficulty performing simple activities (such as lifting heavy items or walking a distance) doubled, from 4% in the control group to 8% among those offered industrial jobs. Complier average treatment effects suggest that such "disabilities" increased 1.3 percentage points for every week in a factory job. We need to interpret these measures with some caution: they are self-reported and could be biased, and they may not represent permanent injuries. Nonetheless the effects are large and need to be considered seriously. Qualitatively, complained of repetitive stress injuries as well as kidney and respiratory problems. Such health risks may be another source of imperfect information overcome in the matching and learning process, but costly to workers in the long run.

Finally, in contrast to the industrial job offer, the microenterprise treatment led raised incomes and subjective well being. Those who received grants shifted their occupations from casual labor and industrial work to their own farms and petty businesses, but overall they did

not work significantly more hours per week. After a year their earnings rose by about a third compared to the control group. This was only a gain of \$1 a week, but an important gain given they only earned \$3 a week otherwise. Accordingly, grant recipients report significant increases in happiness and a fall in financial anxiety.

The five study firms found the high turnover inconvenient, but took limited steps to reduce it. Our study firms, like much of the industrial sector, are typically less than ten years old. Our firms are also more representative of with large number of lower-wage, lower-skill workers. Thus our results may not generalize beyond these five firms, or beyond Ethiopia. But it is notable that our sample exit the entire industrial sector not just our firms. Also, these turnover rates and other patterns are hardly unique to Ethiopia. Turnover has been a perennial problem in early and middle stages of industrialization. From modern day Chinese manufacturers, to early textile mills in the US and Europe, to US manufacturers in the early 20th century, turnover rates exceeding those we observe in Ethiopia are quite common. The openness to this study among so many firms in Ethiopia suggests this is a replicable study. If the results hold elsewhere, it would have important implications for our understanding of formal and industrial labor markets, and the impacts of firm and export growth on worker welfare.

2 Intervention and experimental procedures

2.1 Context

Firms exporting from Asia are looking to Ethiopia as a potential new industrial hub.⁹ The country has many advantages: low wages, a stable and investment-friendly autocratic regime, a domestic market of 92 million people, and proximity to Europe. The country remains quite poor: 78% live under PPP\$2 a day. Manufacturing value added is just 4% of GDP (compared to 17% in Bangladesh). Even so, growth in both GDP and industrial output averaged roughly 10% per year in the past decade.¹⁰

Ethiopia has a long history of manufacturing, especially shoemaking for mainly domestic markets, with some current firms in existence since the 1930s. Until the 1990s, however, Ethiopia was a command economy with few private firms. Over the last two decades, however, there has been a transformation in urban labor markets. Urban employment was once dominated by public sector work, which paid skills premiums and featured considerable queuing and unemployment. Over the last two decades urban labor markets have shifted

⁹See for instance Fortin (2013); The Economist (2014).

¹⁰For Value added see World Bank (2014) and for output growth see World Bank (2012).

to become more flexible, with rising importance of private sector work, with no obvious skill premiums between the private and public sector, and with lower (but still considerable) urban unemployment.¹¹

In the past ten years, more and more factories and commercial farms have opened, serving both domestic and export markets. Hence this is a relatively young sector, since even the long-lived manufacturers were typically privatized in the past one to fifteen years. We do not know whether there was a urban formal-informal wage premium at the outset of this study in 2010, but long queues for factory and commercial farm jobs suggested widespread interest in entry-level positions.

The private formal labor market is also relatively flexible and unregulated in Ethiopia. While there are minimum wages and labor regulations that are (sometimes) binding and observed, it is relatively straightforward to fire an employee. Within-firm labor unions are common but collective labor action or bargaining are rare.

The industrial firms we study tend to hire young adults with some secondary education. A 2012 urban labor survey suggests that most of this demographic was employed in temporary jobs or self-employed. A third had no employment at all, and about a tenth had a permanent job in the informal or formal sector (Franklin, 2014b).

This snapshot conceals considerable churn. A recent panel study shows that young adults typically take temporary, often unsatisfactory work, in different places, varying from week to week (Franklin, 2014b). Few can afford to be completely unemployed for long stretches, and rely on family networks for short periods before returning to some temporary work, all while searching for higher quality permanent jobs. Both this survey and ethnographies of youth and work in Ethiopia stress how longer-term, contractual jobs are prized, especially white collar jobs in the private and public sector (Mains, 2012).

2.2 Study firms and jobs

We worked in five firms, described in Table 1 (full details Appendix B). They were diverse, from five sectors and four regions. Two firms hired more than one cohort over the study period, 2010–13, for a total of eight cohorts. While this is a small number, the diversity over time, space, and sectors reduces the influence of idiosyncratic shocks.

The positions required no experience, although the three factories (not the two farms) required applicants to have completed grade 8 or 10. The jobs involved working on production lines—bottling water, packing flowers, cutting fabric, or sewing shoes. They could involve heavy machinery or simple tools.

¹¹See Bigsten et al. (2013) and Appendix A for a brief history of the Ethiopian labor market.

Table 1: Characteristics of our study cohorts and interventions

Characteristic	Firm and cohort									
	Beverage producer		Horticulture farm		Flower farm		Shoe factory		Garment & Textile factory	
Site type	Peri-urban		Rural		Peri-urban		Urban		Peri-urban	
Region	Oromia		SNNP		Oromia		Addis		Tigray	
Firm size	Medium		Medium		Large		Large		Large	
Foreign owner?	N		N		Y		N		N	
Exporter	N		Y		Y		Y		Y	
Unionized?	Y		N		Y		Y		Y	
Start date (MM/YY)	04/10	03/11	10/11	10/11	11/11	11/11	01/13	05/12	05/13	06/13
Eligible sample	53	68	89	89	152	152	158	89	140	188
Jobs available	15	19	30	30	50	50	50	30	45	60
Monthly wage (current birr)	350	350	574	574	535	535	734	417	420	420
Monthly wage (2010 birr)	348	280	381	381	395	395	422	247	234	233
Weekly work hours	48	48	48	48	47	47	44	48	48	48
<i>Grants (after tax)</i>										
In current birr		4,872		5,016	4,969	4,969	5,773	5,124	5,849	5,884
In 2010 birr		3594		3330	3293	3293	3278	3048	3266	3196
In USD		290		290	290	290	315	290	315	315
Tranches		2		2	2	2	1	1	1	1
<i>Applicants</i>										
Age	22	24	23	23	22	22	24	22	21	20
Female	64%	44%	77%	77%	100%	100%	66%	52%	100%	100%
Married	15%	22%	31%	31%	34%	34%	34%	10%	25%	8%
Education	11	11	6	6	6	6	12	10	11	9

Notes: Firm data come from firm manager interviews. Applicant data come from a baseline survey, described in Section 3.1.

The positions required people to work 45 to 50 hours per week over 5 or 6 days. At the time of the baseline surveys, they typically paid a wage of \$1 to \$1.50 per day at 2010 market exchange rates (about 12.4 Birr per hour). Some firms offered non-wage benefits such as on-site healthcare and bus transport.

The workplaces were professional and well-maintained, and firms never coerced employees. Nonetheless, health risks were common, especially: air quality (due to dust particles or chemical fumes); discomfort and fainting from standing or lack of breaks or water; and occasional safety hazards such as wet floors, sharp instruments, and so forth. In interviews, workers who worked with chemicals—typically cleaning solvents, pesticides, dyes, or glues—sometimes reported fainting from inhalation.

Most firms were unionized, but these were generally worker associations that mediated disputes but did not engage in collective bargaining. Occasionally, however, we did observe short strikes or walkouts in response to salary delays.

2.3 Site selection

We approached more than 300 firms over two years. We identified firms through applications for investment certificates, public business listings, industry associations, and personal contacts.¹² To be eligible for the study, a firm had to be in a manufacturing or commercial farm sector, expect to hire a batch of at least 15 low-skill, full-time workers, and be willing to randomly assign job offers within a pool of applicants the firm pre-screened.

Surprising to us, more than three-quarters of the firms we approached were open to the study.¹³ The main difficulty was finding firms planning to hire a large batch of workers. Even interested firms sometimes suffered prolonged delays and did not open their new line during the study period.¹⁴

Randomizing jobs proved uncontroversial. While one might expect that firms want to select the best workers, low-skill entry-level positions were often filled without a substantive interview process. In most of the firms we approached, human resource managers described

¹²These firms are not a representative sample of all firms, but rather were our attempt to contact all firms in textiles, leather, horticulture, and other manufacturing, especially firms that were expanding operations (and hence requiring an investment certificate). We contacted most firms via phone or walk-in, though some came from personal contacts.

¹³They typically expressed interest in participation in the study for several reasons: curiosity in the answer; the opportunity to bring some structure to relatively unstructured hiring processes; and an interest in learning more about their applicant pool and the other opportunities available to their employees.

¹⁴2010 to 2012 in Ethiopia was a period of moderate government financial repression and pre-election uncertainty. Despite a growing economy and a boom in some sectors, such as construction, many of the firms we approached were temporarily holding off on growth plans. Other common sources of delay included difficulty in obtaining licenses, foreign exchange, importing equipment, and obtaining parts.

entry-level hiring as ad hoc. For instance, we commonly witnessed firms filling low-skill positions on a come first-come, first-hire manner, with little or no interview process.

Representativeness of our firms Are the firms that agreed to work with us unusual? All were expanding employment, suggesting they may have had higher returns to investment than others. One might also worry that firms willing to randomize employment were poorly managed or had unusual turnover. Qualitatively, however, our firms did not seem to stand out from the majority we approached in this regard.

We can also compare our study firms to a representative sample of firms in 2014.¹⁵ Compared to the average manufacturer, our study firms had higher revenues, lower profits, two to three times as many production employees, and lower-skilled employees. Starting salaries at our firms were also lower than average—at roughly the 30th percentile of manufacturers in the capital region. Even controlling for observed firm characteristics and education profile of the workforce, this translates to a \$1.07 a day lower wage.

Our sense is that our five firms had simpler and more labor-intensive production processes than average, as one would expect with textiles or flowers. Hence they were more likely to hire in batches and be open to randomization. Managers in our study firms were concerned about turnover because it meant that their firms were not able to operate at full capacity. But they did not regard hiring and retraining unskilled workers a major cost of business. This is an important scope condition: our results apply mainly to low-skill factory work.

2.4 Stimulating self-employment: Grants and training

Starting with the second cohort, the microenterprise treatment arm offered people five days of business training and planning, followed by an unconditional cash grant of nearly 5000 Birr, or roughly \$300 using 2010 Birr and exchange rates (see Table 1).¹⁶ We chose the amount based on our qualitative assessment of the costs required to set up a part-time enterprise, plus the limits of what we could afford.

Professional skills trainers led classes of about 20, and each person also received individual

¹⁵See Appendix C for data and analysis.

¹⁶Total implementation cost was roughly \$450 per person including the grant, training, and local program administration. The grant amount varied slightly from cohort to cohort because of inflation, currency devaluation, and tax issues. For cohorts 2 to 4, a for-profit firm ran the intervention and was required to withhold tax on the grants. To minimize the tax burden the cash was disbursed in two tranches several weeks apart. We used a for-profit firm because we could not find a non-profit organization willing to disburse cash without conditions at low cost. For cohorts 5 to 8, we ran the intervention through a parastatal research organization to avoid the tax burden. The amount of the grant was increased to maintain the rough purchasing power and disbursed in a single tranche to reduce implementation costs.

mentoring during those five days.¹⁷ While we framed the cash grant as a business start-up fund, throughout the intervention we made clear that it was nonetheless an unconditional grant and grantees were free to use it as they saw fit—savings, consumption, or investment. Subjects had to complete at least three days of the training, however, to receive the grant.

2.5 Experimental procedures

The firms advertised jobs through a posting on the front gate, word of mouth, and local job boards.¹⁸ Applicants were instructed to gather on a specific day. Firm managers would then screen written or verbal applications, typically based on firm- or job-specific minimum education and health requirements. Some firms also preferred specific age ranges or genders for different positions. Across the study cohorts, between 75 and 95% of applicants passed these criteria and thus entered the study sample. We do not have data on ineligible applicants.

The research team then debriefed eligible applicants on the random assignment to the job, and informed them for the first time about the grant. Nearly all agreed to enter the study and were invited to complete a baseline survey. Afterwards we randomized people to each treatment group via computer, stratified by gender. The firm posted the names of people receiving the job offer at the factory site and the research team contacted all those assigned to the job or grant. Job offers began within a few days. We gave each firm a list of unsuccessful applicants and asked the firm not to hire them for 2–3 months.

3 Data

3.1 Participants and balance at baseline

Table 2 reports characteristics of the eligible applicants at baseline and tests of balance.¹⁹ 80% were women. The average applicant was 22 and had completed grade 9. Most were unmarried. They had 12 hours of work per week, typically a portfolio of activities such as farming, casual labor, or petty business. They had earned little cash in the previous month.

¹⁷Cohorts 2 and 3 also received a follow-up visit by the trainer after three months for additional advice. Grantees did not see this service as helpful, and given the cost it was discontinued after cohort 3.

¹⁸In order to ensure sufficient applicants, we assisted in posting more notices within a wider radius (usually no more than a few kilometers). Thus it's possible that the pool of applicants is further outside the family/friend network, and lives slightly further from the factory, than would otherwise have been the case.

¹⁹Applicants completed a 90-minute baseline survey plus 45 minutes of interactive games, with real money, to measure time and risk preferences, and cognitive abilities such as executive function. An Ethiopian enumerator delivered surveys and the games verbally in the local language. The games remunerated the respondent with roughly a half days wages.

They were inexperienced. Only 27% had worked in a large, formal firm before, and only 19% in a factory. Based on qualitative interviews, most applicants had only a hazy idea of the type and difficulty of the work in advance, and often only learned the salary being offered at the time of hiring. Work conditions and paths for progression were poorly understood.

In general the sample was balanced across the three treatment arms.²⁰

3.2 Outcomes and attrition after one year

We ran endline surveys 11- and 13-months after job offers, for two rounds of data on low-autocorrelation outcomes (such as weekly employment hours and earnings), thus increasing statistical precision in a fixed sample (McKenzie, 2012). At 11 months we also attempted to interview the household head for household labor allocations, wealth, and attitudes.

Our sample frequently moved between survey rounds. We tracked 88% of individuals after 11 months, 85% after 13 months, and also interviewed 90% of their households. These rates of attrition are comparable to or lower than other panels of young adults in Africa (e.g. Baird et al., 2011; Blattman et al., 2014).

Across the two surveys, attrition was 87.4% in the job arm, 87.4% in the grant arm, and 84.2% in the control arm. Controlling for baseline covariates, attrition is 2.3 percentage points higher in the control group than the treatments, but this is not statistically significant.²¹ Attrition is, however, associated with covariates: it is higher among women and those who were poorer, had less formal sector experience, and were less conscientious at baseline (a personality trait that indicates lower perseverance and discipline).²² As a consequence, we control for baseline covariates when calculating treatment effects, and also check robustness of treatment effects to alternative attrition scenarios.

3.3 Qualitative data

At each firm we interviewed managers at every level from senior management to line managers. Research assistants also conducted more than 150 semi-structured interviews with 138 workers and small enterprise owners, in the sample or working at the firm. Research assistants also conducted roughly 60 exit interviews. Finally, in the course of soliciting firm

²⁰Of the 34 covariates across two treatments, 7 of the 68 differences have $p < .1$. A handful of covariates display imbalance. Those assigned to jobs are less likely to be married and have slightly lower executive functions and education compared to the control group. Those assigned to the grant have lower assets and more firm experience. A test of joint significance of all covariates has a p-value of 0.10 for the job treatment and 0.16 for the grant treatment.

²¹Appendix D.1 reports response rates by round and treatment, and the correlates of attrition.

²²The p-value on a joint test of significance of baseline covariates is $< .001$.

Table 2: Baseline summary means and test of randomization balance

	Control	Balance test (OLS)			
	mean	Job-Control		Grant-Control	
	(n=358)	Diff	p-value	Diff	p-value
Baseline covariate (n=947)	(1)	(2)	(3)	(4)	(5)
Age	22.02	-0.10	0.70	-0.13	0.66
Female	0.80	0.03	0.30	-0.01	0.67
Unmarried	0.81	-0.06	0.06	-0.04	0.28
Muslim	0.05	-0.00	0.96	0.00	0.98
Household size	4.35	-0.16	0.33	-0.13	0.46
Household head	0.23	0.04	0.28	-0.00	0.99
Proportion household dependents	0.43	0.01	0.90	-0.00	0.99
Total years of education and training	9.31	-0.23	0.26	-0.01	0.95
Executive function, z-score	0.11	-0.18	0.01	-0.13	0.09
Weekly cash earnings (2010 birr)	9.57	0.51	0.83	-1.44	0.56
Durable assets, z-score	0.09	-0.11	0.13	-0.13	0.06
Ever worked in a large firm	0.27	-0.03	0.33	0.04	0.20
Average weekly hours of work	7.52	-0.22	0.87	-0.36	0.80
No work in past 4 weeks	0.68	0.01	0.76	-0.01	0.72
Highest - lowest earnings, past month	181.38	36.97	0.07	15.15	0.35
Could borrow 3000 birr	0.31	0.03	0.35	-0.00	0.98
Ability to do activities of daily life (0-15)	14.32	0.05	0.63	0.11	0.29
Disability (great difficulty at >1 ADL)	0.01	-0.01	0.35	-0.00	0.79
Risk aversion, z-score	-0.01	-0.05	0.51	0.11	0.19
Future orientation, z-score	0.10	-0.05	0.48	-0.03	0.74
Locus of control index, z-score	-0.04	0.03	0.67	0.13	0.11
Self-esteem index, z-score	-0.05	0.03	0.74	0.07	0.40
Family relations index, z-score	-0.05	-0.03	0.74	0.07	0.34
Friends and neighbors relations index	-0.01	-0.06	0.39	0.01	0.93
Change in subjective well being, past yr.	0.22	0.20	0.03	0.09	0.36
Symptoms of depression, z-score	-0.02	0.02	0.83	0.01	0.93
Symptoms of anxiety, z-score	-0.04	0.05	0.48	-0.01	0.91
Aggressive or hostile behaviors, z-score	0.04	-0.06	0.38	-0.13	0.12
Conscientiousness index, z-score	-0.00	0.01	0.90	0.04	0.64
Years experience, private firm	0.33	0.15	0.11	0.22	0.02
Years experience, workshop	0.01	0.00	0.74	0.01	0.26
Years experience, government/NGO	0.08	-0.02	0.69	0.02	0.68
Probability of better job, next month	0.68	-0.01	0.47	-0.01	0.71
Probability of full-time work, next month	0.55	0.01	0.68	0.03	0.17

Notes: Medians are imputed for baseline variables with missing observations. Treatment and control group differences are calculated using an OLS regression of each covariate on treatment indicators plus cohort fixed effects. The male dummy is omitted because it enters into the randomization block (gender-cohort) fixed effects. Standard errors are heteroskedastic-robust.

partners in 2010–12 and conducting the 2014 firm survey, we conducted informal interviews with workers and managers during site visits to several dozen factories and commercial farms.

4 Estimation

To estimate impacts, we pool all eight cohorts and calculate the simple intent-to-treat (ITT) estimates of an offer of a job or grant via OLS, controlling for all baseline covariates in Table 2 and a gender-cohort fixed effect. We pool the 11- and 13-month estimates and cluster standard errors by individual.

Given the high quit rates, we also calculate a complier average treatment effect (CATE), where we use random assignment to a job offer as an instrument for the number of weeks since baseline the person worked in a formal firm with 10 or more employees.²³ From Table 3, controls worked an average of 10 weeks in a formal job and this increases by roughly 10 weeks with a job offer. Thus the ITT estimate represents the impact of temporarily ending a person’s search and increasing the probability that they start and stay with an industrial job. The CATE estimates the effect of each additional week of industrial work.

To reduce the number of hypothesis tests and risk of “false positives”, we follow Kling et al. (2007) and collect “families” of major outcomes into standardized additive indexes: employment, income, physical health, and mental health. We can also go further and use alternative, more conservative p-values to account for the fact that we are testing multiple hypotheses. With a Bonferroni adjustment of the four family indexes, the critical value for $\alpha = 0.05$ is $p = 0.0125$ at this family index level.

5 Results

5.1 Take-up of industrial job offers

Significant numbers of people offered a job turned it down or quit quickly, and most quit within a few months. Table 3 reports take-up rates and differences by treatment arm.

If offered the job, 10% did not show up the first day. A further 20% quit within a month. Meanwhile, 13% of the control were hired by a study firm during the year. Controlling for covariates, assignment to a job increased the chances an applicant held that job for at least a month by 57 percentage points relative to the control group.

²³In principle a job offer could affect outcomes through some mechanism other than weeks worked (e.g. people who learn and quit after a day) and so we consider the CATE with some caution.

Table 3: Take-up of treatments (compliance)

Dependent variable	Proportion who take-up by				Take-up differences (OLS)			
	treatment assignment				Job-Control		Grant-Control	
	Job (1)	Grant (2)	Control (3)	Obs (4)	Coeff. (5)	Std. Err. (6)	Coeff. (7)	Std. Err. (8)
Was directly informed of a job offer in a study firm [†]	0.99	0.00	0.04	947	0.964	[.019]***	-0.027	[.017]
Worked at least a day in a study firm [†]	0.89	0.07	0.11	947	0.776	[.047]***	-0.064	[.050]
Worked at least a month in a study firm [†]	0.69	0.07	0.13	947	0.569	[.044]***	-0.071	[.032]*
Worked at least a month in formal sector	0.91	0.53	0.69	835	0.225	[.034]***	-0.157	[.041]***
Worked at least a month in any industrial firm	0.83	0.26	0.43	835	0.408	[.057]***	-0.153	[.021]***
# of months worked in any industrial firm	5.98	1.43	3.16	835	2.948	[.390]***	-1.509	[.288]***
Working in any industrial firm at endline	0.32	0.09	0.20	1,587	0.107	[.023]***	-0.119	[.016]***
Offered grant [†]	0.00	0.97	0.00	947			0.971	[.018]***
Received grant [†]	0.00	0.95	0.00	947			0.945	[.029]***

Notes: A study firm is one of our five firms. The formal sector includes any formal firm with 10 or more employees in any sector. By “industrial firm” we mean any manufacturer or commercial firm. Indicators for working at least a month in a firm since baseline are equal to 1 if it was reported in the 11- or 13-month endline. The # of months worked in a firm since baseline is calculated up to the 13-month endline, where those data are available. The indicator for working in any firm at endline comes from both the 11- and 13-month endlines, and is the only variable that is not averaged but rather pooled. The estimates in Columns (5) to (8) come from an OLS regressions of the dependent variable on assignment to job and assignment to grant program with cohort dummies and the baseline control vector listed in Table 2.

[†]Data drawn from project administrative data rather than the endline survey data. Directly informed of a job offer means one of the study staff reached them in phone or person.

*** p<0.01, ** p<0.05, * p<0.1

People do not simply quit the factory job, they often leave the sector altogether (or fail to find another job in the sector). Between baseline and endline, 55% of the control group held a formal sector job of any form for a least a month, and 43% worked in some kind of industrial firm. Being assigned a job offer to one of our study firms increases the probability of working a month or more in an industrial firm by 41 percentage points. Being assigned to the grant, however, decreases this probability by 15 percentage points.²⁴

By the end of the year, only 32% of those assigned to an industrial job still worked in the sector in the past month, compared to 20% in the control group. From exit interviews with workers and discussions with firms, these seem to be mainly instances of quitting rather than firings.²⁵

Who stays versus quits? Table 4 reports the correlates of job take-up among those assigned to the industrial job. Those who stay are older and tend to have less formal work experience, lower executive function²⁶, lower conscientiousness, greater physical health (measured by a self-reported disability, discussed below), and (weakly) greater future orientation (based on self-reported time preferences plus play in incentivized games).²⁷ One interpretation is that people with observable human capital (education, experience) have good outside options, while those with less observable skills and productivity (future orientation, or productivity reflected in their initial outside earnings) are less likely to leave.

5.2 Grant use

We do not have precise investment figures, but we returned to grant recipients 6–8 weeks after the grant and asked them to describe how they had used the cash by allocating 30 tokens across 12 pictures representing different expenditures. They indicated that 55% of the grant went to business materials or investments, 35% to savings or cash on hand, and 10% to consumption or transfers. Money is fungible (among other weaknesses of these data) but nonetheless the exercise implies that young people sought to smooth the income shock and put at least \$165 of the \$300 into enterprises.

²⁴Of those assigned to the grant, 3% could not be reached and 2% declined the training and cash or dropped out midway, typically (they said) due to illness or a preference for full time work.

²⁵For instance, a worker would be fired if she were absent without explanation for several days, but since workers were well aware of this fact, even employers considered these firings to be a form of quitting.

²⁶Also known as working memory, it is used to perform activities such as planning, organizing, strategizing, paying attention to details, and managing time and space. We measure it through a combination of forward and backward digit recall tests, as well as a modified Stroop test that tests inhibitory control.

²⁷We have survey questions related to patience and self-control in everyday situations. We also play games involving trade-offs of real money over time, which we use to calculate a discount rate. We average all measures and standardize the index.

Table 4: Baseline correlates of industrial job take-up, job and control group only (n=518)

Baseline covariate	# of months worked in any industrial firm since baseline		Working in any industrial firm at endline	
	Coefficient (1)	Std. Err. (2)	Coefficient (3)	Std. Err. (4)
Age	0.167	[.096]*	0.017	[.008]*
Female	-0.039	[.924]	0.101	[.084]
Unmarried	-0.032	[.719]	0.013	[.066]
Household head	-0.611	[.705]	-0.065	[.063]
Disability indicator	-3.749	[1.706]**	-0.431	[.134]***
Total years of education and training	-0.129	[.109]	-0.003	[.010]
Cognitive ability, z-score	-0.621	[.288]**	-0.074	[.028]***
Mental health, z-score	-0.420	[.291]	-0.029	[.027]
Conscientiousness index, z-score	-0.359	[.343]	-0.060	[.032]*
Risk aversion, z-score	-0.189	[.285]	-0.036	[.028]
Future orientation, z-score	0.409	[.294]	0.048	[.026]*
Income and wealth, z-score	-0.110	[.342]	0.005	[.032]
Years experience in formal work	-0.559	[.233]**	-0.044	[.024]*
Ever worked in industrial firm	0.801	[.832]	0.010	[.084]
Prospects for employment in next month (0-1)	0.004	[1.263]	0.027	[.118]
Mean of dependent variable		5.038		0.320
R-squared (including fixed effects)		0.029		0.001
F-test of joint significance (p-value)		0.106		0.129

Notes: All regressions use OLS and include cohort fixed effects and an indicator for the 13-month endline. Standard errors are clustered at the individual level.

5.3 Impacts on occupation and income

To measure occupational and earnings impacts, at each endline we asked respondents whether they had engaged in 22 occupations, from farming to petty business, trades, and formal jobs. For each one, we collected self-reported hours and net earnings in both the last week and the week prior. With two endline surveys this gives us four weeks of employment data per person. People reported 0 to 3 occupations, with an average of 0.75 (1.13 among those reporting any). We calculate total hours and earnings across all occupations each week, and estimate treatment effects on the average of the two weeks of data.

Table 5 reports ITT estimates. There was no change in total hours worked per week among those offered an industrial job, but occupations shift. Factory and commercial farm labor increased while petty business, casual labor, and other activities decreased. Those who received grants, meanwhile, increased total hours worked by 3.4 per week (significant at the 10% level only) and shifted their time towards smallholder farming and petty business, as well as medium skilled salaried labor (e.g. white collar jobs).²⁸

We have three measures of income. One is the sum of weekly cash earnings across the 22 occupations.²⁹ Earnings are seasonal and so not reflect home production, so we also consider two measures of permanent income reported by the household: an index of 38 durable consumption assets (e.g. housing quality, furniture) and the value of non-durable consumption in the previous 4 weeks via an abbreviated consumption module of 82 items.³⁰

On balance the factory job offer seems to have no significant effect on income by any of the three measures, and a family index of the three increases only 0.03. We also ask about savings flows in the past month and see no evidence of an increase. We do not have a measure of savings stocks.

Weekly earnings in the grant group, however, are 12 Birr higher than the control group. In absolute terms this is roughly \$1 per week (\$3 PPP), and in relative terms this is a large effect—a one third increase in earnings for otherwise very poor young people. If we assume this earnings gain lasted the whole year, grant recipients earned about \$52 more since baseline—about 16% of the full grant, or 32% of the amount they said they initially invested. If we deduct compensation for added hours worked, these figures fall to 7% and 13%.³¹ These

²⁸A family index of hours worked, unemployment, and the standard deviation of hours does not rise significantly because the increase in the standard deviation of hours enters negatively into the index. If we exclude or reverse the direction of this volatility measure, the rise in employment is highly significant.

²⁹As a check against this weekly and activity-based measure, we also ask respondents to estimate their total cash earnings in the past four weeks. The treatment effects are similar.

³⁰See Beegle et al. (2012) for this approach. This abbreviated measure likely understates total consumption by excluding durable asset use and less common purchases. We do not have price data for valuing durables.

³¹Grant recipient work 3.5 more hours per week, valued at 5 Birr per week at the average wage, from Table 5 below. We subtract this from the 12 Birr per week.

Table 5: Economic impacts of the job offer and grant

Outcome	ITT estimate				
	Control	Job offer		Cash grant	
	mean (1)	Coeff (2)	Std. Err. (3)	Coeff. (4)	Std. Err. (5)
Employment & occupational choice, z-score	-0.04	0.078	[.073]	0.038	[.076]
Hours work/week, past two weeks	26.39	0.958	[1.888]	3.460	[1.887]*
Factory labor	7.46	2.818	[1.394]**	-4.166	[1.188]***
Farm wage labor	3.07	2.027	[.925]**	-1.381	[.741]*
Smallholder farming	0.82	-0.251	[.319]	1.460	[.397]***
Petty business	4.04	-1.052	[.966]	5.325	[1.374]***
Skilled trades	1.59	-0.656	[.442]	-0.549	[.480]
Casual non-farm labor	2.18	-0.875	[.569]	0.811	[.767]
Low skill salaried labor	4.19	-0.043	[1.098]	-0.474	[.958]
Medium skill salaried labor	1.21	-0.421	[.412]	1.603	[.588]***
Other work	2.12	-0.002	[.667]	0.402	[.695]
Unemployed in past two weeks	0.34	-0.015	[.033]	-0.081	[.032]**
Std. dev. of hours/week	16.44	-1.254	[1.338]	3.961	[1.485]***
Income, z-score	-0.00	0.025	[.052]	0.153	[.059]***
Individual weekly earnings, 2010 Birr	34.23	3.620	[4.441]	12.108	[5.437]**
Earnings per hour, 2010 Birr	1.46	-0.005	[.187]	0.160	[.201]
Std. dev. of weekly earnings	56.01	4.737	[7.535]	3.918	[8.236]
Household consumption durable assets, z-score	0.07	-0.064	[.069]	0.014	[.067]
Household non-durable consumption, 2010 Birr	665.05	26.867	[34.652]	78.947	[35.655]**
Household production durable assets, z-score	-0.12	0.048	[.068]	0.323	[.077]***
Other economic measures					
Reports serious health risks at workplace	0.14	0.084	[.032]***	0.005	[.032]
Rating of comfort of workplace (0-8)	5.23	-0.042	[.141]	0.354	[.146]**
Emigrated to Middle East	0.04	0.016	[.017]	0.027	[.017]
Savings in past month, 2010 Birr	45.68	-3.112	[6.182]	35.721	[8.492]***
Commuting, hours/week	3.94	0.296	[.431]	0.047	[.434]
Leisure, hours/week	21.15	-0.841	[1.521]	-3.637	[1.465]**
Chores, hours/week	20.10	0.222	[1.181]	0.179	[1.219]
Returned to school, past year	0.16	-0.010	[.019]	0.029	[.020]
Currently enrolled	0.07	-0.033	[.019]*	-0.016	[.021]

Notes: Column (1) reports the control group mean. Columns (2) to (5) report the results of an OLS regression of each outcome on treatment indicators, baseline covariates, and cohort-gender fixed effects. 11- and 13-month survey responses are pooled. Standard errors are clustered by individual.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 6: Heterogeneity in treatment effects by baseline earnings potential

Outcome	Dependent variable	
	Working in industrial firm (1)	Weekly earnings (2)
Assigned to job offer (a)	0.099 [.050]**	21.254 [5.468]***
Job \times Above median earnings potential (b)	0.017 [.068]	-35.020 [8.997]***
Assigned to grant	-0.154 [.040]***	20.950 [6.321]***
Grant \times Above median earnings potential	0.067 [.055]	-17.412 [10.532]*
Earnings potential	-0.032 [.056]	10.651 [7.676]
Impact of job if above median earnings potential (a + b)	0.116 [.047]**	-13.765 [7.009]**
Impact of grant if above median earnings potential (a + b)	-0.088 [.040]**	3.538 [7.000]

Notes: The above median earnings potential indicator is constructed with predicted baseline covariates using weights estimated from an OLS regression of weekly earnings on baseline covariates for the control group only. 11- and 13-month survey responses are pooled. Standard errors are clustered by individual.

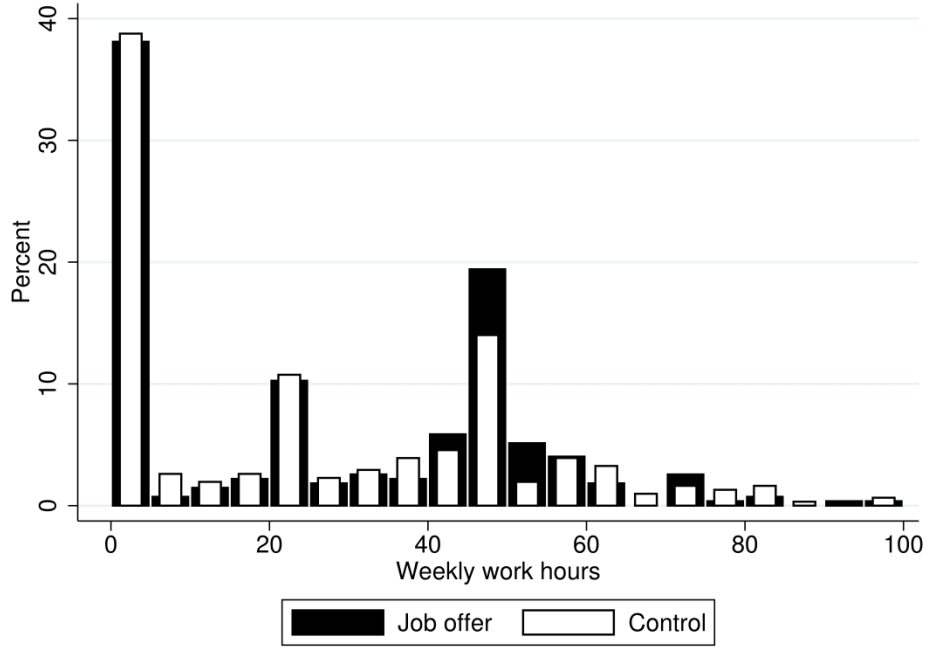
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

are not necessarily high returns, especially when we consider that the recipients also received training in addition to the capital.

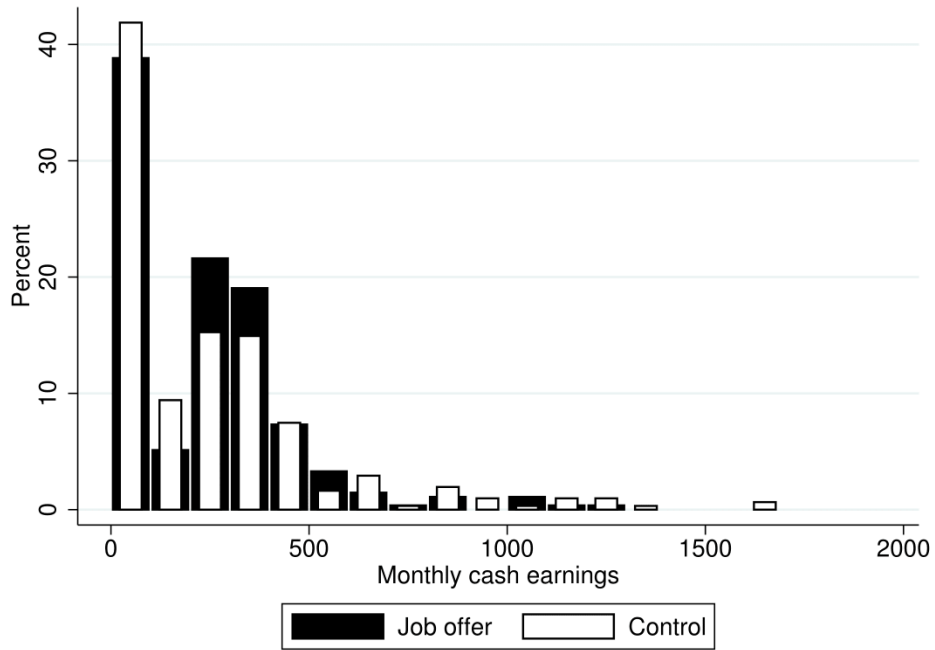
Volatility A job offer does not lead to less volatile earnings or works hours compared to the alternatives. If we take the standard deviation of weekly work hours or weekly earnings for the four weeks of data available, we see no evidence of a significant decrease from a job offer (indeed the point estimate on the standard deviation of earnings is positive). Figure 1 displays histograms of average weekly hours and estimated earnings in the past month for the job offer and control groups. They are broadly similar.

The cash grant, meanwhile, increases the standard deviation of weekly work hours and weekly earnings, though the latter is not statically significant.

Figure 1: Outcome distributions, by treatment assignment



(a) Weekly hours of work



(b) Monthly cash earnings

5.4 Heterogeneous employment and earnings impacts

The zero average treatment effect on earnings conceals important heterogeneity, reported in Table 6. We divide applicants into those with high and low outside earnings potential according to their observed characteristics. To do so, we take the control group and regress endline earnings on all baseline covariates, then use the estimated coefficients to predict earnings potential for the full sample.³² We use these predictions to create an indicator for above- and below-median earnings potential, and interact this indicator with indicators for assignment to treatments. As a result, the coefficient on assignment to the job offer can be interpreted as the treatment effect on applicants with characteristics associated with below median earnings opportunities. The sum of this coefficient and coefficient on the interaction (reported at the base of the table) can be interpreted as the effect of a job offer on applicants with characteristics associated with above median earnings.

A job offer appears to increase earnings for applicants with low predicted outside earning potential, but decreases earnings for applicants with high outside earning potential, implying that imperfect matches have persistent effects on earnings at least a year later. Regardless of their earnings prospects, those assigned to job offer are about 10 percentage points more likely to be working in an industrial form at endline, suggesting that accepting a job has persistence, even when the match is poor. For those with poorer earnings prospects, this job offer raises earnings by 21 Birr per week, a 62% increase over control group earnings. Those with higher earnings prospects, the job offer reduces earnings prospects by 14 Birr per week, a 41% decrease compared to average control group earnings.

Curiously, the grant seems to increase earnings principally among the applicants with low predicted outside earning potential. This could imply that low outside earning potential is driven by liquidity and credit constraints that are relieved by the grant.

One cautionary note: it's possible that the "high" types who stay, and have lower earnings than their peers in the control group, are actually low ability in some unobserved way, and that their low earnings reflect their low marginal product. While possible, it's worth noting we have an unusually rich set of baseline covariates going far beyond the usual Mincerian regressions, including time preferences, personality traits, work histories, mental abilities (such as executive function), and other covariates that are typically strong determinants of lifetime earnings potential.

³²See Appendix D.2 for this analysis.

5.5 Other economic impacts

Workplace conditions We also look at amenities and disamenities of the workplace. Fourteen percent of the control group reported serious health risks at their place of work, and this increases 8.6 percentage points in the job offer group. Dangerous chemicals and fumes were often cited. An index of eight self-reported conditions (such as physical comfort, space, and temperature; flexibility and control over work hours; or boredom and opportunities to learn) is .22 standard deviations greater in the grant group, but the job offer group report no better conditions than the control group.

That said, correlations suggest that the industrial jobs have serious disamenities that do not show up in the ITT estimates because most people assigned to industrial jobs quit the sector. A simple regression of workplace conditions on endline industrial work, controlling for baseline covariates, suggests that working in an industrial job is associated with a 28 percentage point increase in perceived health risks (especially chemicals but also smoke), a 15 to 25 percentage point reduction in various measures of control over one’s time, and a 25% increase in opportunities to learn new skills (regressions not shown).

Emigration Young Ethiopians commonly migrate to the Middle East for temporary domestic work and (for men) construction. Based on qualitative interviews with emigrants, these jobs can pay significantly higher wages than domestic factories, but may have fixed costs of entry and potentially severe disamenities, such as extremely long hours, no days off, infrequent family contact, restricted freedoms, and sometimes abuse.

We know whether someone emigrated, but we do not have survey outcomes. Based on household interviews, we estimate 4% of the control group emigrated and emigration is 1.6 percentage points higher among those assigned to a job (not statistically significant), and 2.8 points higher among those assigned to a grant. These emigrants are omitted from the treatment effect estimates. Since there is a small treatment differential, this could mean that the estimated income treatment effects are too low, and the workplace condition effects are too high. We bound treatment effects below for different attrition scenarios, and see no reason migration could affect our core conclusions.

Time use and schooling Assignment to industrial work or the grant has little impact on time use, whether commute time (about 4 hours a week), leisure, or chores (20 hours on average per week). Those assigned to the grant report 3.6 fewer leisure hours per week compared to the control group, but it is not statistically significant. Return to school and enrollment is 3.2 percentage points lower among those assigned to a job, about half the control mean (though significant at only the 10% level).

5.6 Employment and earnings in and out of industrial work

At baseline, most applicants had little work or earnings. So why quit a permanent job? First, as it turns out, applicants were in a temporary employment slump, were new entrants, or were re-entering the labor market after a period of no employment. Baseline earnings and employment did not reflect most people’s options over a longer horizon. In the control group, for example, the share of participants with no employment hours whatsoever fell from 68% at baseline to 36% at endline, and average hours of work per week rose from 12 to 26. The largest increases in hours came from factory and farm wage labor, casual non-farm labor (e.g. construction), and salaried labor in non-industrial organizations (such as shops, offices, etc.). As a result of this doubling in work, average weekly earnings in the control group more than tripled from baseline to endline, from 9 to 33 Birr.

Second, while receiving an industrial job increased the hours and earnings available (and while keeping a job reduced the risk of an unemployment spell), industrial work paid wages that are similar or lower than most people’s non-industrial (mostly informal) options. Table 7 reports the employment levels, earnings, and average earnings per hour (“wages”) for those with and without any industrial work at endline. The premium from industrial work comes from an OLS regression of each outcome on an indicator for any employment in a factory or farm at endline plus select baseline covariates and cohort fixed effects.³³ We look at this premium with and without the “unemployed”, which for the purposes of this table we redefine as those with fewer than five hours of work per week on average. We can also look with and without baseline controls to observe the effect of selection on the “premium”.

At endline, 38% of the sample worked fewer than 5 hours per week. Including the unemployed (the top panel), people outside factory work had only about 20.7 hours of work a week and 27.9 Birr in weekly earnings. Excluding the unemployed, the non-industrial opportunities were better: 41.5 hours a week, and 54.7 Birr in earnings.

Overall, the data suggest that a factory job increased hours and total earnings because (if people kept the job) it limited unemployment spells that came with the unpredictable and often temporary nature of mostly informal work. Compared to people employed in other sectors, there was an increase in hours and total earnings from working in an industrial firm, but only the rise in hours is statistically significant.³⁴

³³To the extent that these covariates capture the endogenous determinants of occupational choice and matching with an industrial firm, the coefficient on the factory/farm work indicator can be interpreted as the causal effect of industrial jobs. This assumption of conditional unconfoundedness is probably too strong, and the coefficient is undoubtedly biased, but it nonetheless gives, to a first approximation, a sense of the returns to industrial work. We cannot use assignment to an industrial job as an instrument since it would violate the exclusion restriction; assignment to a factory job could affect current earnings even if a year later the individual is no longer in the job.

³⁴Likewise, Table 9 below looks at the complier average causal effect. The coefficient on earnings is positive

More striking, the coefficient on earnings per hour in an industrial job is actually negative and statistically significant at the 5% level. If anything industrial work is more poorly remunerated than non-industrial work (when such work is available).

5.7 Health impacts

Physical health Table 8 reports impacts on our measures of health and well-being. Our main measure of physical health is self-reported ability to perform five activities of daily life, or ADLs: walk 2 km, work outside on your feet for a full day, carry a 20 liter carton of water 20 meters, do usual daily activities, and standing at workbench working for 6-8 hours.³⁵ Each is measured on a 0–3 scale running from unable (0), great difficulty (1), slight difficulty (2) and easily (3). ADL measures are widely used in studies of labor supply or health and economic development in developed and developing countries, including Africa, and they have been tested for consistency across tests, interviewers, and skills.³⁶

Most people in our sample are young and in excellent health, and so report nearly perfect ADLs (14 of a potential score of 15 on average). We also code an indicator for a “disability”, which we define as reporting “great difficulty” or “unable” on at least two ADLs. 4% of the control group report such a disability at endline.

Finally, we collect a subjective measure of health using Cantril’s Self-Anchoring scale, a life evaluation approach commonly used in Gallup polls and social science studies (e.g. Kahneman and Deaton, 2010). We gave respondents a picture of three ladders, with ten rungs each, where the top rung represented the best health and the lowest the worst health.

An industrial job is associated with a 0.29 decrease in the ADL index and a .24 decline in subjective health evaluations. While these declines are small relative to the means, they seem to be driven by a few people reporting more serious disabilities at the tail of the distribution. The disability rate rises 3.7 percentage points among those offered an industrial job, nearly doubling the risk of injury. A family index of the health measures suggests job recipients report a .19 standard deviation decline in health, and the effect is significant at the 1% level using conventional p-value cutoffs, and at the 5% level using the Bonferroni adjustment. These results are also robust to alternate “disability” indicators (Appendix D.4).

and reasonably large, indicating that compliers earn more because of the larger aggregate number of hours. But this estimate is not statistically significant.

³⁵We adapted the five questions from existing ADL instruments to the context in Ethiopia. We are not aware of a standardized or validated ADL instrument for either Ethiopia or sub-Saharan Africa.

³⁶See for example Ware et al. (1980); Schultz (1999); Gertler and Gruber (2002); Strauss and Thomas (2007); Mwabu (2007). ADLs are commonly used in household surveys and program evaluations because they are more common than morbidity and mortality in small or short-run samples, and because measures such as days ill or away from work may be endogenous to labor supply decisions.

Table 7: Industrial employment, earnings, wage premiums at endline

	Dependent variable			
	Unemployed (<5 hours work per week) (1)	Weekly work hours (2)	Weekly cash earnings (Birr) (3)	Earnings per hour (Birr) (4)
Mean, people with no industrial work (including unemployed)	0.50	20.66	27.92	1.59
Mean increase among people with any industrial work (with baseline covariates)	-0.47 [.026]***	23.39 [1.455]***	26.80 [5.384]***	-0.36 [.171]**
Mean increase among people with any industrial work (without baseline covariates)	-0.48 [.025]***	23.83 [1.405]***	28.07 [5.416]***	-0.36 [.172]**
Observations	1087	1087	1088	681
Mean, people with no industrial work (excluding unemployed)		41.50	54.71	1.45
Mean increase among people with any industrial work (with baseline covariates)		4.26 [1.486]***	3.58 [6.650]	-0.21 [.161]
Mean increase among people with any industrial work (without baseline covariates)		4.00 [1.482]***	3.88 [6.550]	-0.21 [.160]
Observations		671	671	671

Notes: 11- and 13-month survey responses are pooled and clustered at the individual level. Industrial work is an indicator for positive hours in factory work any time in the two weeks prior to the 11 or 13-month survey. “Unemployed” mean less than 5 hours of work per week, on average, across the weeks of work reported in the 11- and 13-month surveys. The “Average increase among people with any industrial work” is the coefficient on an indicator for industrial work in an OLS regression of each dependent variable on an indicator for having any factory or commercial farm work at endline, plus baseline covariates and cohort fixed effects. Earnings per hour are undefined if there were zero work hours reported.

*** p<0.01, ** p<0.05, * p<0.1

Table 8: Health impacts of the job offer and grant

Outcome	Control mean (1)	ITT estimate			
		Job offer		Cash grant	
		Coeff (2)	Std. Err. (3)	Coeff. (4)	Std. Err. (5)
Physical health, z-score	0.05	-0.192	[.064]***	-0.081	[.063]
Ability to do activities of daily life (0–15)	14.07	-0.290	[.123]**	-0.231	[.127]*
Disability	0.04	0.037	[.015]**	0.016	[.014]
Subjective health assessment (0–10)	8.91	-0.233	[.104]**	0.001	[.104]
Subjective health assessment, 5 years from now (0–10)	9.67	-0.181	[.060]***	0.000	[.055]
Mental health & subjective well being, z-score	-0.07	0.050	[.068]	0.148	[.064]**
Depression symptoms (0–27)	2.54	-0.091	[.216]	-0.282	[.210]
Anxiety symptoms (0–21)	2.03	0.032	[.194]	-0.299	[.183]
Level of financial anxiety (0–12)	1.59	-0.070	[.135]	-0.287	[.128]**
Subjective well being (0–10)	4.14	0.189	[.111]*	0.381	[.108]***
Subjective well being, 5 years from now (0–10)	7.57	0.083	[.121]	0.341	[.119]***

Notes: Columns (2) to (5) report the results of an OLS regression of each outcome on treatment indicators, baseline covariates, and cohort-gender fixed effects. 11- and 13-month survey responses are pooled. Standard errors are clustered by individual.

*** p<0.01, ** p<0.05, * p<0.1

Table 9: IV estimates of the impacts of an extra month in an industrial job

Outcome	Control mean	Months in an industrial firm since baseline	
		CATE	Std. Err.
	(1)	(2)	(3)
Hours work/week, past month	26.39	0.500	[.693]
Weekly earnings, 2010 Birr	34.23	1.352	[1.681]
Earnings per hour, 2010 Birr	1.46	-0.007	[.058]
HH consumption durable assets, z-score	0.07	-0.022	[.022]
HH non-durable consumption, z-score	665.05	7.859	[12.897]
Activities of daily life (0–15)	14.07	-0.108	[.049]**
Disability	0.04	0.012	[.006]**

Notes: Columns (2) and (3) report the results of two-stage least squares regression of outcomes on months employed in an industrial job since baseline, a grant assignment indicator, baseline covariates, and cohort-gender fixed effects, instrumented using random assignment to the factory job. Coefficients on the grant and all covariates are omitted. Table 3 displays first-stage results. 11- and 13-month survey responses are pooled. Standard errors are clustered by individual.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Our qualitative interviews suggest a number of common ailments, especially repetitive stress injuries from standing or repeated tasks, or respiratory problems due (people report) to dust, particulates, or chemical fumes. We do not know if these represent chronic or temporary problems, but there is some suggestion they may be permanent problems. We asked people to rate their subjective health five years from now on the same ladder. The control mean rose, but the treatment effect is similar to the subjective health today.

Table 9 reports the CATEs for main outcomes. The clearest impact is on health. Each additional week in an industrial firm is associated with about a 1.3 percentage point increase in a serious difficulty performing two or more standard activities of daily life.

We have to take these results with some caution. First, only a small absolute number of people report “great difficulty” at an ADL: 10 in the control group and 15 in the job offer group. Second, since these are self-reported data, there is undoubtedly measurement error and it could be correlated with treatment. Self-perceptions of health might be affected endogenously by work experiences.³⁷ Finally, we do not have objective tests of health or

³⁷Our disability treatment effect, for instance, becomes smaller and no longer statistically significant if we exclude either the “working outdoors for a full day” or the “standing all day at a workbench” components. These are the components with the largest and most statistically significant. While this may be worrisome, it’s worth noting that if we use the “some difficulty” threshold for a disability indicator, the largest and most significant components are “carrying 20 liters” and “performing daily activities”, and the overall impact of the job offer on disability is statistically significant and robust to excluding “working outdoors for a full day” or the “standing all day at a workbench” components.

disability. We will need longer term data and more objective metrics to say. In the meantime, the size of the treatment effects are quite striking, especially considering that two thirds of the factory group exited the factory job some time ago.

Mental health and happiness Table 8 also considers a number of self-reported facets of mental health and well being. First, we used pre-existing, validated questionnaires on depression and anxiety symptoms, and examine additive indices of the symptoms and their severity.³⁸ In general people report very few symptoms. We also asked people four questions about their financial worries, including whether they worried about meeting expenses for education, health expenses, and other essential costs, as well as worrying about being able to afford less than others (each on a 0–3 scale of severity). These are also relatively rare, perhaps because many are young people living at home with lower middle class families, and generally have enough to eat. Finally, to measure subjective well being (happiness) we used the same life evaluation ladder as with health, but where the top rung represented the best possible life and the lowest the worst possible.

In general we see no evidence of an effect of the job offer on mental health, and weak evidence of an increase in subjective well-being now (but not in five years). The grant, however, led to small but statistically significant decreases in self-reported financial anxiety, as well as a rise in subjective well being.³⁹ there were also small declines in depression and anxiety symptoms, and while these were not individually significant, overall a family index of all these measures increase 0.14 standard deviations (significant at the 5% level using conventional thresholds but not using the Bonferroni adjustment).

5.8 Robustness and sensitivity analysis

Table 10 reports sensitivity analysis for key outcomes. We report difference-in-difference treatment effects (Column 2), ITT effects where we average the 11- and 13-month endline outcomes (Column 3), as well as attrition scenarios that would bias any treatment effects downwards (Columns 4 to 6). We estimate attrition bounds by imputing outcome values for unfound individuals at different points of the observed outcome distribution, focusing on the cases that reduce program impacts. For positive outcomes we impute the observed mean plus x standard deviations of the distribution for the control group, and for the treatment group

³⁸We piloted several standard depression and anxiety questionnaires to determine what appeared to work best in our population, in part by ease of respondent understanding and in part by high levels of within-scale intercorrelations. For depression we use the Patient Health Questionnaire (PHQ-9), a nine-item scale incorporating depression diagnostic criteria (Martin et al., 2006). To evaluate clinical anxiety and stress, we use the Generalized Anxiety Disorder-7 (GAD-7), a seven-item scale (Spitzer et al., 2006).

³⁹We also see little effect of either treatment on attitudes to labor rights, unions, or firms (Appendix D.6).

we impute the observed treatment mean *minus* x standard deviations of the distribution. We calculate estimates for $x = 0.1, 0.25,$ and 0.5 . Note these imply large systematic differences between the missing treatment and control members.

In general treatment effects are robust to all specifications. The increase in disability risk among the job group, and the increase in income in the grant group, are generally smaller and less precise under extreme attrition scenarios. The direction of these effects and the qualitative findings are unchanged, however, even in the worst case scenarios.

Finally, the Appendix D.5 reports firm-by-firm treatment effects and illustrates robustness to omitting one firm at a time. It also shows that effects are similar by gender.

6 Why did workers queue?

Prior to this study, a range of factors led us to predict that Ethiopia’s nascent industrial sector paid wage premiums, and that receiving such a job could lead to a high and growing wage profiles—including the queues for entry-level industrial jobs, applicants’ low earnings and employment levels, the long history of public sector wage premiums in urban Ethiopia, and the economic theory and observational evidence for formal sector wage premiums elsewhere in the world.

As we followed a panel of applicants over time, and experimentally offered jobs, our presumption was turned on its head. Applicants had much better informal employment opportunities than their baseline conditions suggested, and while industrial jobs provided more steady hours (mainly by reducing the risk of involuntary unemployment spells), these firms offered wages that were significantly lower than earnings per hour in most people’s informal options. These industrial jobs also carried additional risks and other disamenities. Workers reported them to be generally unpleasant, difficult, inflexible jobs that presented moderate to serious health risks. As a result, workers didn’t show up the first day, or quit within weeks or months.

In that case, why did workers queue in the first place? We see three potential candidates:

1. *Screening*. Because of imperfect information about workers, firms hired many more workers than they needed, and only promoted or raised the pay of those who performed well. The remainder were fired or (perhaps because firing workers is difficult) offered low wages and unpleasant conditions in the hopes they would quit.⁴⁰
2. *Shocks*. People with better employment options in expectation applied to industrial

⁴⁰This practice is reportedly common in Indian manufacturing, where regulation inhibits the firing of workers.

Table 10: Sensitivity analysis of treatment effects to alternate models and missing data scenarios

Outcome	ITT estimate under alternative models			Sensitivity of ITT to attrition		
	Result from Tables 5 and 8	Diff-in-diff estimate	Average 11- and 13-month responses	0.1 SD (4)	0.25 SD (5)	0.5 SD (6)
<i>Treatment: Industrial job offer</i>						
Working in any industrial firm at endline	0.108 [.034]***	0.099 [.035]***	0.107 [.034]***	0.083 [.031]***	0.064 [.031]**	0.038 [.031]
Weekly earnings, 2010 Birr (lower bound)	3.620 [4.441]	1.944 [4.974]	2.804 [4.514]	0.641 [3.814]	-2.752 [3.850]	-8.407 [3.961]**
Weekly earnings, 2010 Birr (upper bound)				5.166 [3.803]	8.559 [3.824]**	14.214 [3.912]***
Disability	0.037 [.015]**	0.048 [.018]***	0.030 [.015]**	0.024 [.014]*	0.014 [.014]	0.005 [.015]
<i>Treatment: Grant</i>						
Working in any industrial firm at endline	-0.120 [.029]***	-0.137 [.030]***	-0.126 [.029]***	-0.098 [.026]***	-0.078 [.026]***	-0.050 [.026]*
Weekly earnings, 2010 Birr (lower bound)	12.108 [5.437]**	11.923 [6.040]**	12.340 [5.668]**	8.641 [4.768]*	5.381 [4.798]	-0.053 [4.891]
Subjective well being, now compared to one year ago	0.243 [.071]***	0.122 [.117]	0.230 [.073]***	0.005 [.012]	-0.006 [.013]	-0.016 [.013]

Notes: Columns (4) to (6) impute the mean of the control (treatment) group plus (minus) "X" standard deviations of the group's distribution (SD), for X = 0.1, 0.25, 0.5. All regressions include a vector of baseline covariates, and all but Column (3) pool 11- and 13-month survey outcomes and cluster standard errors by individual.

*** p<0.01, ** p<0.05, * p<0.1

jobs as a response to temporary shocks, such as a sudden loss in employment and income, or a sudden need to increase expenditures (e.g. gifts or bills to pay). They quit when other opportunities arrived or the need subsided.

3. *Learning and matching.* People, especially young people with little formal labor market experience, do not know their affinity for the work or the risks or disamenities in advance, and principally learned by doing. They quit if they discovered the job was a poor match given wage levels and their opportunity cost.

In this case, the evidence for the learning and matching story is strongest, followed by the shocks story, with no indication of explicit screening.

6.1 Screening

We observed little evidence of screening. In the five firms we worked with, and the many other firms we interviewed as candidates, none of the management described screening workers in this way. There were also few regulatory barriers to firing workers. In general, firm managers were puzzled and dismayed by the high levels of turnover, and would have preferred to see the applicants stay. The managers we interviewed made efforts to improve working conditions, such as offering free transport, free clinics, and in some cases a free meal at a canteen. They appeared less likely to raise wages, however, and indeed often failed to keep pace with inflation and keep real wages constant. The reasons for not paying higher wages were hard to discern, and we gained a range of impressions from the many firms we interviewed: a belief that higher wages would not be profit-maximizing; a belief they might be but cash flow problems at the firm level made a higher wage bill impossible; and a tendency to money illusion, or thinking about wages in nominal terms and failing to keep pace with inflation.⁴¹

We do see a rising wage profile over time among the workers who remained in industrial jobs, but the gains are not dramatic. For instance, in the full sample, if we regress endline earnings on a Mincerian-style set of baseline covariates, including of age, gender, several measures of ability, education, and work experience, we see that previous formal sector and even industrial experience are not associated with higher earnings (See Appendix D.7 for this analysis). If we take everyone in the sample working in a factory or farm at endline and run the same Mincerian regression but add months of tenure in that industrial job, the coefficients on baseline experience remain negative, and the coefficient on months in the firm is positive but is small and not statistically significant—equal to about a 3% increase in real wages per month worked (or about 10% in total given that the average person spent 3–4

⁴¹Indeed, even the authors succumbed to this money illusion, initially failing to keep survey enumerator wages in pace with inflation until a correction was made after high quit rates and complaints.

months in the job). If we extrapolate to a worker who remained for a year, this amounts to a one third increase in the wage. But we need to remember that this estimate is endogenous, in that it reflects workers who choose to stay because it is a better fit. Hence a rising wage profile reflects positive self-selection and rising marginal productivity.

Finally, the firms also offered minimal formal training, as most training was on the job and informal. Since these were especially low-skilled firms, almost none of the workers we interviewed anticipated significant advancement or career prospects for remaining in this kind of position, at this firm or a competitor.

6.2 Shocks

First, nearly all of the applicants we interviewed described industrial jobs as temporary in the sense that they did not expect to work there more than a few years. This was true both prior to the job and among the people who had started and stayed.

For many women, many said they only planned to work in the formal sector for only a few years, until they had children and took on child-rearing, household occupations, and more flexible part-time self-employment. Many young people, perhaps even a majority, also expressed a preference for running their own businesses. But most envisioned a business much larger than the ones they currently had the capital to start, even with the generous start-up grants. Thus many viewed any formal sector job as a useful alternative or stepping stone to their own business while they accumulated savings. Among those who did see a career in the formal sector, they commonly saw the factory as a stepping stone to white-collar or other non-industrial employment. These patterns are largely consistent with recent labor market studies and ethnographic work in Ethiopia, which find that higher paid white collar jobs are preferred, that roughly half of factory workers are dissatisfied with their job (Mains, 2012; Franklin, 2014b).

This does not explain the often very short tenure of most of the people offered a job in a study firm, however, especially since quitters often exited the industrial sector entirely. In interviews, many applicants described the factory jobs as undesirable and short-term occupations while they found more interesting, respectable, or easier work for better wages. In these accounts, they seemingly understood the poor conditions, difficulty, and low pay of industrial work, but endured it for a few weeks or months between other, better jobs. Similarly, a 2012 urban labor market survey found that young workers, especially the higher-ability and more ambitious ones, churn through multiple jobs, treating them as temporary places to earn money while they search for something better (Franklin, 2014b). That is, seasonal or short-term but higher-paying informal work is regularly available, and less desirable jobs

(such as industrial work) are used in the interim.

Indeed, as we saw above, the endline survey data indicated that the average applicant had other, largely informal employment opportunities that paid similar wages with fewer disamenities, conditional on working. And when the grant was offered, giving people marginally more earnings in informal self-employment, the percentage of people working in an any industrial job at endline halved, from 20% in the control group to 9% in the grant group. An interesting anecdote (unfortunately we do not have survey data on the matter) is that several managers complained that quit rates increased seasonally. People quit at the beginning of the school year, and at the times of year when the government offered its public works scheme (cobblestone making and laying, which often paid significantly more than the factory daily wage, albeit only for a few weeks).

Unfortunately we do not have data on pre-application shocks, nor do we have sufficiently detailed employment histories to distinguish new entrants from recently or long term unemployed. Hence sharp tests of the shocks hypothesis are not possible. Since there is unobserved selection into our sample, however, none of these tests would be particularly well identified.

Not all the evidence is consistent with this view, however. If the shocks story is important, we might expect applicants with more liquid wealth to leave more quickly. But we see no heterogeneity in length of stay in the industrial job by baseline household assets (see Appendix D.8 for this analysis). Moreover, people commonly quit despite having no other full time work opportunity, and entered a spell of unemployment. As young people who commonly lived with their parents or a husband, they did not necessarily need to work full time, and given the low wage and demanding work many said they preferred to stop working full time and do petty jobs while searching for better full time employment. This is a common employment search strategy in Ethiopia (Franklin, 2014b). Hence it's not clear how important the shocks mechanism is.

6.3 Learning and matching

Finally, much of the qualitative evidence, along with labor market surveys, are consistent with the idea that joining the factory was part of a process of experimentation with different kinds of jobs.

For 81% of applicants, this was their first industrial job (indeed, for most it was their first formal sector job). Some had little idea of what to expect and whether the work would suit them. Many said they had little sense of the nature or difficulty of the work, or the hazards involved. They tried out the job, but left if the workload and disamenities were not worth their expectations for such work. The variation in earnings by predicted outside earnings is

consistent with this view.

Other applicants did say they had some information about the quality of the jobs in advance, from friends and neighbors, and that they expected the jobs to be unpleasant. But they said they underestimated the disamenities, or how little the pay were once they factored in the inflexibility of the work, transport time and costs, or the physical demands and risks. We do not have data on pre-application expectations of the posts. The same points are echoed by the subjects in a weekly panel survey of young job searchers in the capital over the course of a year Franklin (2014b).

Finally, recall that quitters did not not simply switch industrial jobs. Rather, they tended to exit the industrial sector (or even the formal sector entirely) suggesting they realized their poor fit.

7 Discussion and conclusions

Most accounts of industrial jobs, whether they emphasize wage premiums or exploitation, tend to treat these labor markets as non-standard in some way. Our findings suggest that, at least in low-skill industrial firms in Ethiopia, labor markets were relatively unremarkable.

In a market with young, heterogenous workers, and a relatively new industrial sector, search frictions arose from workers' imperfect information about themselves and the nature of formal work. Even so, this imperfect information resolved itself reasonably quickly, usually within weeks or months. Private labor markets clear at a reasonably competitive level, close to the informal wage.

Meanwhile, many control subjects found work in formal firms, including industrial firms. This suggests that search costs may not have been that high from the worker's point of view. Indeed, the evidence suggests a formal and informal labor market for the young and low-skilled that was more fluid than we expected.

The overall finding—that industrial firms paid no better than the alternatives, so that most workers are indifferent between these forms of work—would seem innocuous if not for two findings. One was the persistent cost of imperfect matches. Applicants with high predicted ability tended to stay in the factory job, and as a result their earnings were lower than their peers. The second finding is of course the adverse health effects. They suggests that industrial employment in Ethiopia might be detrimental to worker health, an obvious reason for quitting the firm and sector.

Meanwhile, we see that when given a viable alternative—a large amount of capital and basic business training—few people choose to enter industrial work. Rather they start a small, part-time business that increases their average work hours and incomes, and the

rest of their work is a largely a mix of informal farm and non-farm work. There is some evidence that their hours of work become more volatile, but incomes are not. So this informal alternative does not increase risk (something full time formal work is supposed to alleviate).

The response to the cash grant also suggests that financial market imperfections lead to labor misallocations. Receiving the grant leads youth to experiment with self-employment, deters them from entering low-paying industrial jobs, and generally increases incomes relative to various forms of wage labor. It suggests that the average young person might actually prefer their non-industrial alternatives if they had the capital to deal with income shocks or become an entrepreneur. In principle cash transfer and other employment programs could speed the pace at which formal firms are forced to bid up wages.

We should not be too surprised, however, that the grant improved outcomes relative to a job offer. Even if there were a wage premium and a growing wage profile in industrial work, it would have to be fairly large—nearly double the informal wage—for its net present value to equal the value of the grant.⁴² As it happens, weekly earnings did double among those who stayed in factory work, mainly because the jobs offered more hours and protection of unemployment spells. This earnings gains equals the grant in present value only if workers attach zero value to this “leisure”. If anything, we are somewhat surprised that the grant recipients seem to have lower returns to capital than observed in other capital transfer programs in Africa, where estimated return range from 30 to 100%.⁴³

7.1 Generalizability

These results are based only on five firms, most of which are domestically-owned exporters, required low-skilled employees with little to no professional experience, and paid wages that were roughly a third lower than the average in all manufacturers. Thus we estimate local average treatment effects on young, entry level workers to firms with large number of lower-skill jobs where employees are, in practice, interchangeable.

It’s possible that wage premiums vary massively across countries, and that Ethiopia has unusually low wages, perhaps because this is a relatively young industrial sector.⁴⁴ We cannot generalize outside the Ethiopian context. Nonetheless, similarly high rates of turnover are relatively common features of industrial jobs, however, whether modern day higher-skill Chinese manufacturing, or industrialization in the US or UK as recently as a century ago.

⁴²For instance, earnings among non-industrial workers are about 28 Birr per week (Table 7). If this doubled for five years, it would have roughly a 5000 Birr present value at a 10% discount rate.

⁴³See Udry and Anagol (2006); Blattman et al. (2014); Fafchamps et al. (2014); Blattman et al. (2015).

⁴⁴There is some evidence of cross-country variation. For example, Marcouiller et al. (1997) find no observational evidence of a informal-formal sector wage gap in Mexico but observe large gaps in El Salvador and Peru.

Hence our firms and worker experiences may not be so exceptional.

For example, a study of turnover at an Apple supplier in eastern China found that 92% of workers leave within six months of hire, and weekly rates of exit average about 7% (Joshua Cohen et al., 2015).⁴⁵ In Jordan, Groh et al. (2014) not only show that it is difficult to create matches between employers and workers searching for work, but that a majority of workers quit their “successful matches” within a few months.

Beckert (2014), looking at early textile development, found high turnover to be the norm from Barcelona to Liverpool to New England. For example, he writes:

“The Dover Manufacturing Company in Dover, New Hampshire, had to employ a total of 342 workers in the period from August 1823 to Oct 1824 just to maintain an average workforce of approximately 140. ... Entering the factory for a few weeks, they would leave once they had made enough money to hold them over to the selling of their crops or when their labor was needed on the farm.”

Similarly, Montgomery (1989) and Kaufman (2008) note how, between 1900 and 1920, US companies started to become aware of, and obsessed with, extraordinary levels of turnover. Turnover at Ford Motor Company in 1913, for instance, was estimated at 370%. They also document how a General Electric manager toured industrial plants in the US, finding more than 100% rates of turnover on average. While the revolution in scientific management, or “Taylorism”, is often associated with increasing productivity, reducing employee turnover was equally a focus.

Our paper’s specific results, however, could still be influenced by the fact that Ethiopia is still at an early stage of industrialization, with relatively few firms competing for workers. Jeffrey Sachs and Paul Krugman have argued that developing countries need more sweatshops not because they pay wage premiums, but rather because they believe worker wages will rise as firms begin to compete for a increasingly smaller pool of experienced workers, and as firms begin to adopt more technologically advanced production that is complementary to human capital (Krugman, 1997; Myerson, 1997). If so, wages would rise in general, in the informal as well as formal sector, and we would not expect an experiment such as ours to yield treatment effects on income.

Nevertheless, the results suggests that the labor market for low-skilled jobs is not segmented as in Lewis-style dual economy models with a traditional agricultural sector, whose

⁴⁵In a recent poll of Chinese workers and firms, a recruiting agency found that over 40% of employees stayed at their previous companies for just one to two years, and only 38% of polled firms had prepared strategies to retain their workers even though nearly all said they were aware of the negative impact of turnover (Hays PLC, 2012).

labor market is separated from a modern sector. Nor is the evidence consistent with institutional constraints on labor markets pushing up wages, yet.

7.2 Implications

The adverse effects on education and health suggest a role for information and possibly regulation, especially if workers face these risks uninformed, or are time-inconsistent in their choices over short term gains at long term costs. Regulation, however, risks raising labour costs and benefitting insiders at the expense of outsiders. An important direction for more research is exemplified by Harrison and Scorse (2010), who show that anti-sweatshop activists campaigns in Indonesia led to large real wage increases in targeted enterprises, with some costs in terms of reduced investment, falling profits, and increased probability of closure for smaller plants, but no adverse employment effects.

Understanding better why firms don't try to combat high turnover, for example through paying efficiency wages, may also lead to better and more efficient outcomes, especially if the low wages being paid are suboptimal. The take-up and effectiveness of modern human resource practices in the firm is an important but unexplored area of research.

The fundamental problem, of course, is low demand for labor. In the absence of large firm growth, an explosion of agricultural employment, or relieving of credit constraints boosting self-employment, it is hard to see how these wages will rise. Even so, anti-poverty programming could play a role on the margin. While the general equilibrium effects of large-scale cash transfer or other anti-poverty programs is still poorly understood, in principle these and other self-employment programs could speed the pace at which formal firms are forced to bid up wages.⁴⁶

Finally, this experiment deserves replication, especially in countries at different stages of industrialization (or, ideally, where the degree of industrialization and competition for labor varies over time). The openness of so many firms to participate in the study suggests that this design could be replicated in other countries straightforwardly.

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⁴⁶Such support could also improve matches. Franklin (2014a) experiments with cash subsidies for search, and shows that this keeps them from needing to take temporary jobs while they look for better options.

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Appendix for online publication

A A brief history of the Ethiopian labor market

Over the last three decades, we have seen the transformation of urban employment dominated by public sector work, paying skills premiums with considerable queuing unemployment to one that is more flexible, with rising importance of private sector work, without obvious skill premiums between the private and public sector, and with lower (but still considerable) unemployment. We draw these conclusions from a literature that draws on large sample cross-section and panel data surveys in urban areas, focusing on descriptive statistics, and regression analysis using participation selectivity corrections.

Before 1991, labor market data suggest a dual labor market in Ethiopia, as urban young people queued for public sector jobs, allocated in part by patronage. Ethiopia was a controlled (command) economy, with strong controls on labour mobility. There was centralized recruitment and deployment of civil service personnel and employees of publicly owned companies. Workers were not allowed to move without permission. The private sector was repressed, with very few larger private sector companies. By 1989, more than 75 percent of those aged 15-29 in formal wage work were working for government and state-run enterprises.¹ The public sector was paying better than the private sector. Krishnan (1996) estimated selectivity-corrected Mincerian earnings regressions to find returns to secondary education that were 65 percent higher for public sector employment than private sector wage work. She also found that connections (in the form of family background) strongly influenced whether a public sector could be obtained.

Post-1991, these restrictions were gradually removed, with the end of central recruitment. Still, using data from 1994, Serneels (2007) found that the informal sector remained small and the urban labor market preserved the qualities of a dual sector with queuing for scarcer public jobs. Using data from a random sample across 7 urban areas, 80 percent of male adults in a wage job were employed in the public sector. The data suggest there was a large pay gap between public and private organizations—80 percent higher pay in the government sector for men (although that is not by skills). With a third of the labour force supposedly looking for work, there was also large unemployment, larger than what we usually see among urban workers in sub-Saharan Africa.² The urban informal sector was also surprisingly small throughout the 1990s, as there were about as many people in formal wage work (private and public) as in the informal sector.

Thus urban unemployment was most highly concentrated among very young men. In 1994, half of men between 15 and 30 reported they were unemployed, but this peaked at 19 years of age (Serneels, 2007). In 1989, only a third of the same group was unemployed, suggesting a rapid increase (Krishnan, 1996). Rather similar to 1989, however, in 1994 young men had a median duration in unemployment of nearly 4 years, and a majority of the unemployed had never held paid work in their lifetimes. Half the men aged 15 to 30 reported searching for a job in the public sector, implying job queues for this sector were far in excess of the employment opportunities. Of the remainder, half were indifferent between informal sector and private sector wage work.³

¹Krishnan (1996), using data from the Survey of Adolescent Fertility, Reproductive Behaviour and Employment Status of the Youth Population in Urban Ethiopia, 1990, representative of urban areas.

²See Kingdon et al. (2006) for a comparison with Ghana, Uganda and Tanzania.

³Education raised unemployment as well, and as returns to education remained higher in the public sector in this period (Krishnan et al., 1998), this is suggestive of a ‘queueing’ story. Similarly, having a father in the civil service raised unemployment—but duration of unemployment was lower the higher family wealth and connections (Serneels,

But a shift towards informality was already underway in the 1990s. Comparing panel data for the same group of young male adults in 1989 and 1994, among those working in 1989, 58% were in public sector wage work and only 20% in the informal sector. By 1994, this was 31% in public sector wage jobs and more than half in the informal sector. So while there was still queuing, probabilities of success were declining fast.

From 1994 to 2004, provatye sector jobs began growing quickly.⁴ Not only were far fewer public sector jobs created in urban areas, central recruitment totally disappeared and other restrictions on the inter-sectoral movement of labour were removed too, resulting in much more labour market flexibility. Private formal sector wage employment doubled in this period. Large public wage premiums remained, but the link between this premium and skills disappeared. There was also increasing mobility between these three sectors (private wage, public wage and informal). The increase in the rates of mobility, especially after 2000, across sectors of employment was accompanied by a small but persistent decline in the rate of open unemployment.

Franklin (2014) used data from the Urban Employment and Unemployment Survey to assess labor markets in 2012. Unemployment among those aged 15-29 was estimated now at about 25%. Many of them aspired still to government jobs. For very low levels of education, they still pay better, though there is no skill premium anymore for higher levels of education. But the labour market is much more flexible and the private sector plays an increasingly important role offering stable employment opportunities. Median unemployment spells for these young adults are 13 months, and there is much evidence of temporary wage work, mainly in the private or informal sector. Of those in work, a quarter were in public sector jobs, a third in private sector jobs and the rest in the informal sector including domestic work.

B Firm and cohort details

This section provides additional firm, job, and process details for each cohort. Table A.1 summarizes details of each cohort’s recruitment, randomization, and grant implementation.

B.1 Beverage producer

The beverage plant is located in a town of roughly 200,000 people in the Oromia Region, around 20 km outside Ethiopia’s capital Addis Ababa. The plant manufactures bottled spring water as well as flavored water in various bottle sizes, mainly for domestic consumption. In 2010, the plant was more than a decade old, had approximately 150 employees in total, and shared the site with three non-beverage firms owned by the same parent company, a domestically owned investment firm. We learned of the firm and the opening through personal contacts of the authors.

The firm operated six days a week, 24 hours a day, with three 8-hour shifts, and workers rotate through shifts over time. The nightshift is unpopular. The firm had a reputation for being quite lenient with personal leave, personal breaks, or lateness, and some workers reported this is one reason they did not leave for other factories. About three-quarters of production staff are women. Women

2007), similar to the Krishnan (1996) results: particular types have good reasons to queue, as they can be more successful to get the prized public sector jobs. This is not inconsistent with the early conclusion by Myrdal (1968) that unemployment in developing countries like Ethiopia is a ‘bourgeois phenomenon’.

⁴See Bigsten et al. (2013) who use panel data covering 10 years. The data have some problems: this is a panel so we observe ageing and attrition of older workers.

Table A.1: Cohort recruitment, randomization, and implementation details

Characteristic	Horticulture							
	Beverage producer (1)	(2)	farm (3)	Flower farm (4)	Shoe factory (5)	(6)	Garment & Textile factory (7)	(8)
Job start date	5/4/2010	5/4/2010	3/10/2011	2/11/2011	28/1/2013	21/5/2012	11/5/2013	24/6/2013
Number of openings	15	19	30	50	50	30	45	65
Minimum education	8	8	n/a	n/a	n/a	8	6	6
Applicants	288	101	101	~170	230	114	210	263
Eligible applicants	60	68	90	152	190	90	197	226
Surveyed and randomized	53	68	89	152	158	89	140	188
Randomization strata	None	Gender	Gender	None (all female)	None	None	None (all female)	None (all female)
Assigned to job offer	15	23	30	50	59	30	45	60
Assigned to control	38	27	30	52	58	30	50	68
Assigned to grant	0	22	29	50	50	29	45	60
Grant tranches		2	2	2	1	1	1	1

typically engaged in washing, labeling and bottling, whereas men performed more labor-intensive work such as packaging, loading, and operating heavy machinery.

Ownership changed several times between 2009 and 2014. In 2014, upon visiting the factory, we learned that it had filed for bankruptcy, had been closed for some months, but had just reopened.

Workers were organized in a local union, which mainly advocated for small changes to working conditions (e.g. reassigning pregnant women to physically undemanding tasks), advocating for benefits (such as maternity leave), and on rare occasion organizing walkouts in the event of late pay.

Compensation In April 2010, the plant offered starting salaries for 350 Birr a month to unskilled workers, with wages rising up to 600 Birr for more experienced workers. Managers and workers all agreed that pay is based mainly on seniority rather than productivity and ability, although ability and experience is one factor in promotion to more complex and higher paid tasks. Inexperienced workers begin with simpler jobs, in the bottle washing department for instance, but can graduate to higher skilled jobs in the firm. There are no incentive programs or bonus schemes. The cohort we study was not eligible for benefits, though in later years the firm introduced three months of maternity leave and transportation services for local commuters.

Firm managers were aware that turnover was high in part because other factories in Burayu were paying higher wages, in some cases twice the wages of Burayu, and because seasonal construction work also offered men higher wages. They increased starting wages several times from 2010–13, in part to keep pace with inflation and in part to reduce turnover, but their wages remained at the lower end of the scale compared to other factories in the town. When asked why wages were not increased further managers noted that they were uncertain whether this was profitable, or how much it would reduce turnover. One manager felt that turnover had only a modest impact on the firm because experienced workers were not required for the work, though it meant they seldom operated at full capacity as a result. Managers were also aware that the work flexibility and leniency allowed them to pay a lower wage (which some workers confirmed). They explained they were also cash flow constrained, and were facing increasing competition and falling real prices from new beverage producers, and so raising wages was not financially possible.

Health and hazards Most of the issues reported were concerning the chemicals used for washing bottles. In interviews, workers attributed respiratory issues, skin rashes, fainting, and in one case a lost pregnancy to these chemicals. From 2010–14, one serious accident could be recalled, when a new trainee lost three fingers in a machine. In general, moreover, the work could be physically demanding, especially lifting and carrying of heavy water bottles and packages, and standing a full shift at bottling machines. Also, the factory was not heated and could become quite cold at night (especially if wet), to which many employees attributed common respiratory illnesses.

Recruitment and randomization, first cohort (March 2010) For the first cohort, the firm sought 15 workers to work on an expansion project for producing 5 liter bottled water. They also planned to move some excess workers out of other jobs to staff this new line in addition to the 15 new hires. Firm managers expressed a preference for a specific number of females and males.

We assisted the firm in advertising the factory jobs in the greater Burayu area in 5-6 different sites between Burayu town and the next nearest town. Approximately 100 advertisements were posted for a period of 4 days.

This resulted in more applicants than expected: 327. The firm screened and deemed eligible just 60 eligible partly on qualifications (at least eight years of education and who lived in the town where the firm is located, since the firm pays transport costs to and from work) and partly on a first come first served basis. Prior factory experience and age did not influence eligibility. 7 of the 60 could not be located for the baseline or randomization and were dropped from eligibility before randomization. There were 19 men and 34 women.

The randomization of the 53 to the job offer or pure control group was not stratified. We conducted the randomization by public draw, for transparency and buy-in by the sample.

Recruitment and randomization, second cohort (March 2011) In the second wave of hiring, the firm sought 19 workers to work on a further expansion project replace workers who had left other lines. They expressed a preference for seven females and 12 males. Females are typically preferred for assembly line works such as packing, labeling and quality checking, while males are typically preferred for jobs that require physical strength, such as loading and unloading products.

We assisted the firm in advertising the factory jobs in the greater Burayu area in 5–6 different sites between Burayu town and the next nearest town. Approximately 100 advertisements were posted for a period of 4 days.

101 applications were received. Factory staff screened the applicants according to the understanding of working conditions and shift work, prior work experience, education, salary expectations, and proximity to the site. Consequently, 68 eligible applicants were identified by the firm and we surveyed all of them.

The 101 was sufficient but lower than expected and so two enumerators conducted informal qualitative interviews to assess the relative lack of interest in the job compared to the previous year. Major reasons included low pay relative to construction and public works day labor, as well as higher wages in other Burayu firms. The factory notice also requested that each applicant have a personal reference, even though this was never used in screening. It may have deterred some applicants.

We randomized using computer algorithm, stratified by gender. 23 (not 19) were assigned to the job offer, anticipating some refusals. (This is the only time we offered excess jobs to the sample. Refusals in future firms/cohorts would be offered to people outside the study sample.)

Grant intervention No cash grant program was conducted for the first cohort. The second cohort was the first time the cash grant program was conducted. We could not find an Ethiopian non-profit organization willing to disburse cash grants with only basic training, and so we hired a private consultancy to disburse cash and provide training. The training commenced at the end of April 2011, roughly three weeks after the jobs began. We disbursed the grant in two tranches, roughly a month apart.

B.2 Vegetable farm

The horticultural farm is one of the main Ethiopian exporters of fruits and vegetables. Using open fields and greenhouses with modern irrigation technology, the firm produces various types of vegetables, fruits and flowers for domestic and foreign consumption. It is comprised of six farms located in different parts of the country, with headquarters in Addis Ababa. The firm is foreign

owned and managed. We first established contact with the farm through a national horticultural association, via local research managers.

We worked in a one-year old site roughly 300 kilometers south of the capital, just outside a local capital city of roughly 200,000 people. It operated several greenhouses producing vegetables primarily for export. It employed nearly 250 production workers. There was one daily shift, and workers were required to work 8 hour days, 6 days a week. In practice shifts could last 10 or 12 hours, workers being required to complete their daily tasks, and there would not be paid for these extra hours. In busy seasons workers would work the seventh day of the week, typically for double pay, but receive no days off that month.

Eighty percent of workers were female, due to a preference of the company to hire women, and all were permanent rather than part-time or seasonal employees. Workers performed a range of activities including land preparation, harvesting, planting, greenhouse maintenance, transporting products, cutting, and chemical spraying. The majority of workers lived near the farm and had their own crops to cultivate. Work at home was a major source of absenteeism.

The study firm is the largest commercial farm in the area. Its competitors tend to hire short term labor rather than offer permanent contracts, but also pay slightly higher wages as a result.

Workers established a local labor union shortly after the study cohort began working (one did not exist before because the firm was so new). The union was semi-active, and tended to inform workers of their rights and responsibilities, intervene if there was a disagreement between workers and supervisors, advocate for higher wages, inquire as to the reasons workers were fired, and intervene if the reasons were deemed insufficient. A strike was threatened in 2014 for the first time.

Compensation In 2011-12, wages varied from 480 Birr to 600 Birr a month (in 2011 Birr) depending on position. Harvesting and crop culture paid lower salaries, and breeding and chemical spraying paid higher salaries. Chemical spraying wages were partly to compensate for unpleasantness and risk. Those in the chemical department earned higher wages than others. Wages increased annually by about 10-15% (inflation was roughly 10-25% over the period). Managers and workers generally agreed that pay was tied to seniority, absences, and ability. The highest performing workers were recognized twice annually with prizes, and workers can receive end-of-season bonuses based on performance and attendance. Bonuses can be as high as 280 Birr per month.

Shortly after the study cohort began working, the farm began offering some transportation services to workers. Workers also had access to a clinic free of charge. Women received three months of maternity leave, and all received two weeks of annual leave, plus time off for emergencies.

Despite relatively high turnover, it was not a major management concern, in part because they were easily replaced and skills and experience were not deemed essential. It did mean that the farm was always running slightly below capacity however, and this was the chief disadvantage cited.

Health and hazards The workers we interviewed described chemicals and dust in the workplace as a major health risk, though many didn't specify how they were directly affected by it, and their responses overall didn't seem to indicate high anxiety about their occupational hazards in the workplace compared to other study firms. Some workers described having eye and skin irritation from contact with the chemicals sprayed on plants, and one woman attributed a lost pregnancy to the chemicals. Chemical spraying staff were equipped with masks and were tested for chemical toxicity in their blood every three months. Those with elevated toxicity were reassigned to another department for 6 months before returning to chemical spraying.

There is no piped water at the factory, thus workers reported they sometimes get sick when drinking from stagnant water jugs provided by the firm. Others complained of eye issues resulting from the intense reflection in the greenhouse. The region is malarial, leading to high illness, but it is not clear the risk is elevated in the farm.

Recruitment and randomization We worked with the firm to post 20 advertisements at the farm premises and the furthest distance the farm allowed workers to come from (based on walking distance and public transport). The firm’s human resource office registered 101 eligible applicants.

The HR officer deemed 90 of the applicants eligible, in that they were (visually) in good physical condition and between the ages of roughly 18 and 35. There was no educational requirement, unlike manufacturing firms. the firm preferred to hire 90% women, so the majority of the sample was female. We found and surveyed 89 of the 90. Some Amharic enumerators used local translators to deliver the survey to respondents who spoke only a local language. In future surveys we made sure to have local-language trained enumerators, for all cohorts.

We randomized the 89 via a computer algorithm: 30 to receive the job offer, 29 the grant, and 30 the pure control group. Randomization was stratified by gender.

Grant intervention The training commenced roughly two weeks after the jobs began. Grants were disbursed in two tranches, roughly a month apart. the same private consultancy ran the grant intervention.

B.3 Flower farm

The flower farm is located roughly 100 km south of Addis Ababa in the Oromia region. It is foreign-owned and had been established almost a decade before. The farm grows two species of cut flowers for export to Europe, and employs anywhere from 700 to 3,000 workers, depending on the season. As of December 2011 the firm employed over 2,000 people, a majority of whom were permanent production workers. Field research managers established contact with the firm through the national horticultural association.

The firm operates seven days a week, and workers work 5.5 days a week, in one shift a day. Three quarters of production workers are women. Production workers perform several tasks including plant breeding, propagation, crop culture, harvesting, cooling, and “elite” (i.e. preparing the mother plants for propagation). Most workers are from the surrounding area, or have migrated from the south and southeast regions of Ethiopia. They typically live with family members or other factory workers to minimize the cost of living.

The firm has an unusually active labor union, which established a collective bargaining agreement with management. This agreement details the benefits, leave, bonus, materials and protective gear provided to workers, and is negotiated each year. Additionally, the union is responsible for informing workers of their rights and responsibilities, chemical re-entry scheduling (i.e. determining when workers may re-enter the greenhouse after spraying), and intervening if workers are fired unjustly or have disagreements with management. Indeed, there have been a few instances in which workers who management had intended to fire were kept on after the labor union intervened. There have been three strikes at the company, in 2011, 2012 and 2013, over pay, national pension contributions, and the expiration of contracts, and all strikes resulted in many of the worker demands being met.

Compensation In 2012, wages varied by department, from 422 ETB to 726 ETB (\$24-41) a month. Those in the chemical department earned higher wages than others. Wages increased annually by 25% (inflation was roughly 10-25% over the period). There are 20 promotion levels, and each worker was promoted one level a year. Workers could also move up levels based on ability, according to supervisor evaluations. Workers generally agreed that pay was tied to both seniority and ability. There are no bonuses or incentive pay schemes.

Workers commonly work seven days a week or other overtime and receive 2.5 times hourly pay for these extra hours.

Shortly after the study cohort began working, the farm began offering some transportation services to workers. Workers also had access to a clinic free of charge. Women received three months of maternity leave, and all received two weeks of annual leave, plus time off for emergencies.

Management were aware of the high turnover issue, and felt that turnover negatively affects the firm because new workers must be trained for one month, thereby increasing costs and reducing productivity. Supervisors also agreed that turnover results in significant losses for the firm since new workers must be trained and remaining workers often need to work overtime to cover the increased work burden. In general this was one reason that the firm aimed to keep wages competitive with other farm jobs in the area, and also for the bonus scheme.

Health and hazards Workers complained of the excessive heat in the greenhouses, the chemicals being sprayed, and not being given sufficient water. Several workers complained the chemicals used cause skin irritation and respiratory issues. Workers are provided protective clothing, including masks, gowns, gloves, and closed-toed plastic shoes. The firm performs a chemical toxicity test on production workers every three months. If test results are below a certain threshold (which indicates one has been exposed to toxic chemicals), workers are moved to another department and tested monthly. When their levels return to normal, they are returned to their previous posts.

Regarding water, one jerry can is brought to each greenhouse in the morning. Everyone in the greenhouse drinks from this jerry can and once it's gone, workers are not permitted to drink additional water. Workers attributed kidney problems, urinary tract infections, swelling of the legs, and frequent fainting due to the excessive heat and inadequate water. The region is malarial, leading to high illness, but it is not clear the risk is elevated in the farm. The firm conducted an internal absenteeism study in 2012, which reported that 27% of workers interviewed self-reported that they became sick at least once as a result of the firm's working conditions.

Recruitment and randomization Advertisement by word of mouth was deemed sufficient to attract a large pool of applicants. The firm required applicants to be female and at least 18 years old. Registration and screening occurred concurrently. 190 applicants were registered, and a small but unknown number were turned away. The baseline survey and randomization took place the following day, and 152 appeared for the survey. The firm preferred to limit randomization to these 152 since they displayed enough interest in the job to attend the survey.

We randomized the 89 via a computer algorithm: 50 to receive the job offer, 50 the grant, and 52 the pure control group.

Grant intervention The training commenced roughly two weeks after the jobs began. Grants were disbursed in two tranches, roughly a month apart. The same private consultancy ran the grant intervention.

B.4 Garment and textile factory

The firm has two main plants on the same site: one that produces and dyes textiles from raw materials, and another that produces garments, principally for export to the United States and Europe, including a large number of major retail brands. The firm is located just outside the capital of the Tigray region, Mekelle, about 775km north of the capital. It is domestically owned, and had been in operation nearly a decade. In 2012 the firm employed over 1,400 people, a majority of whom were permanent production workers. Field research managers established contact with the firm through a firm visit.

The firm operates six days a week and workers work the full six days, eight hours a day. There were three overlapping shifts a day, with no night shift. 85% of production workers are women, and jobs are not officially segregated by gender. Production workers operated heavy machinery in the spinning and weaving and dyeing processes, and operated small machinery (such as sewing or cutting machines) in garment production.

The firm had an active labor union, which mainly advocated for small changes to working conditions and advocating for worker's rights and benefits. We were not aware of any organized labor actions or collective bargaining.

Compensation In 2012, the starting salary for production workers was 417 Birr per month, and management reported that after four to six months, depending on the job, workers could earn between 100 to 200 Birr more per month. The textile plant was typically staffed with the more experienced and higher paid workers, because of the skill required to operate the machinery. There were no other major textile or garment manufacturers in the area, and so most of this experienced was accumulated in-house. Workers could increase their pay principally by demonstrating ability and moving to more high skilled positions. Our study sample generally started in the garment manufacturing (lowest skilled) side of the business. There were no bonuses or incentive pay schemes during the study period, though one was introduced in 2014. Double overtime pay was offered for working a seventh day or holidays.

The firm offered some transportation services to workers. Workers also had access to a clinic free of charge. Women received three months of maternity leave, and all received three weeks of annual leave, plus time off for family events and emergencies.

Management were more concerned about turnover at this firm than the other study firms, in large part because the new workers must be trained. Losing workers diminished productivity and led them to incur direct training costs. Some managers attributed high turnover to the practice of hiring workers with a 10th grade education or more, who would quit the firm to pursue higher-paying opportunities outside the manufacturing sector, or to continue their education. In 2014 the firm was considering lowering their minimum education level to sixth grade.

Health and hazards The most common health issue reported was respiratory infections (difficulty breathing, coughing, and congestion) from exposure to dust particles and chemicals in the factory. A couple of workers also maintained they had kidney infections from not being permitted to use the washroom or drink water throughout the day. One worker explained that there are only four or five toilets for over 1,000 workers; therefore, it is difficult to use the washroom in the allotted 15-minute breaks.

Recruitment and randomization (three cohorts in 2012 and 2013) This was a period of expansion for the firm, and workers needed to be replaced because of turnover, and so the firm sought to hire 30 people in May 2012, 45 in May 2013, and 60 in June 2013. All three cohorts proceeded similarly.

Jobs were advertised on the front gate, and we assisted the firm in posting advertisements within a few kilometers of the firm, including the capital city. Each hiring round advertised to a slightly wider area.

The firm required applicants to at least 18 years old within a specific education range: 8 to 12 years in the first cohort, and 6 to 12 in the second and third cohorts. Applicants with higher or lower qualifications were rejected. Staff then gave applicants basic physical tests: (i) for minimum height (to be able to reach necessary parts of the machinery); (ii) an eye exam; (iii) ability to walk back and forth rapidly; and (iv) a threading test (passing a thread through ten needles on a piece of wood). Ignoring applicants who did not meet the basic gender and education criteria (on whom we do not have data), 90 of 114 applicants passed the physical examination and were deemed eligible in the first cohort, 197 of 210 in the second, and 226 of 263 in the third cohort.

We randomized eligible applicants via a computer algorithm, only including those who re-appeared for a baseline survey. In the first cohort, a large number quit within the first few weeks, and the firm had trouble replacing them rapidly. Thus in the second and third cohorts we randomly selected about 40 applicants as a reserve list for the firm to draw from in the coming months, and excluded them from the study sample and initial job/grant randomization. In the first cohort, 30 received the job offer, 29 the grant offer, and 30 neither (no gender stratification). In the second cohort, 45 received the job offer, 45 the grant offer, and 50 neither (all were women). In the second cohort, 60 received the job offer, 60 the grant offer, and 68 neither (all were women). We did not survey or follow the reserve list individuals.

Grant intervention The training commenced roughly two weeks after the jobs began. Grants were disbursed in one tranche. This time we ran the grant intervention through a parastatal organization with the field research managers overseeing much of the activity, to reduce overall implementation costs (since the private firm was subject to taxation, which increased implementation cost by about a third).

B.5 Shoe factory

The firm has two manufacturing plants in Addis Ababa and 28 retail outlets, and manufactures leather shoes for both domestic and international markets. About 90% of sales are domestic, with the balance mainly to Italy and China. It was a parastatal in operation for more than 75 years and was privatized in 2011, being bought by an Ethiopian national. We worked in their largest plant, with over 700 production workers in 2013. We established contact with the firm through a survey enumerator’s professional contacts.

The firm operates 5.5 days a week, in one shift a day, but managers and workers explained that there is effectively mandatory overtime evenings and weekends—about 1–2 hours a day when production demands it, plus Sunday. Production workers are both male and female and perform several tasks including leather cutter, sewer, sole adhering (gluing), stitching, packaging, and assistant or “helper” positions for several of these manufacturing tasks. The firm is centrally located in Addis Ababa

and draws workers from around the city. Shoemaking is a longstanding and traditional enterprise in Ethiopia, and there are many large and small firms in the capital.

The firm has a labor union that bargains on behalf of workers and is involved when workers are fired (due to misbehavior and other issues). Additionally, shortly after the baseline survey, a few workers went on strike because they disagreed with their supervisors and asked that the supervisors be shifted to another section. They were partly successful.

Compensation This was the firm with the most sophisticated compensation scheme, and also the one firm where workers had the most upward mobility inside and outside the firm.

In 2013, compensation varied depending on the duties assigned, and appeared competitive for low-medium skilled labor in the area. The average monthly salary for helper positions (those our cohort was hired for) was around 715 Birr a month. Workers were promoted based on ability and experience (especially the operation of technical machinery and specialized tasks), and fast learners or those with previous experience may begin earning anywhere from 1,200 to 1,500 Birr a month within six months to a year of being hired. The firm would pay more skilled workers within a level a higher wage than others, even if this caused disgruntlement. There was a 300 Birr bonus for every employee after a year of work plus other bonus schemes contingent on the firm's profitability. Low-level workers could easily earn another 250 Birr per month in overtime pay per month.

The firm did not offer transportation assistance, but the salary was said to include a "transportation allowance". Workers also had access to a clinic free of charge. Women received three months of maternity leave, and all received two weeks of annual leave, plus time off for emergencies.

When asked to explain the low starting wage level, managers explained that new workers are typically unskilled and therefore require training. During this training period, the firm incurs additional expenses (e.g., in extra materials needed for training) and the trainee does not produce at full capacity. He further noted that because a regular employee must assist the newcomer, this experienced worker is also slowed down, thereby negatively impacting the firm's production and justifying the low wages new and unskilled laborers receive.

Unlike other study firms, turnover at the shoe manufacturer commonly came from (i) urban students taking temporary work until returning to school, and (ii) people going to work for other shoe firms. Because of the training investment, the firm viewed turnover as a major problem. This is one reason given for its complicated compensation scheme. Nonetheless, managers admitted that the cost of hiring and retraining a new unskilled worker was not that high.

Health and hazards According to a 2013 firm-led survey, 94 of the 103 workers polled (91%) believed working conditions at the factory were unfavorable to one's health. Specifically, workers cited a i) lack of sanitation in the office and toilet, ii) lack of safety equipment to mitigate the inhalation of fumes (such as glues), iii) lack of skilled medical personnel on-site, iv) standing the entire day while at work, v) high temperatures in the factory, and vi) chemical fumes and dust particles. All of the factory jobs, with the exception of sewing, require workers to stand the entire day, causing health issues such as swelling in the legs. Because of the equipment, there were previous experiences with serious injuries to fingers and hands. Many workers also complained of kidney problems.

Recruitment and randomization Advertisement by word of mouth, and a notice on the plant was deemed sufficient to attract a large pool of applicants. There were no education or gender

requirements, though the firm prioritized candidates aged 18 to 38 and disqualified applicants who suffered from a history of epilepsy, kidney, heart, or leg problems. Of 230 applicants, 190 were deemed eligible and were registered, and 158 appeared for the survey.

We randomized them via a computer algorithm: 50 to receive the job offer, 50 the grant, and 58 the pure control group.

Grant intervention The training commenced roughly two weeks after the jobs began. Grants were disbursed in one tranche. The intervention was handled by the parastatal partner.

B.6 Baseline characteristics by cohort

Table A.2 reports baseline summary statistics of cohorts by firm.

Table A.2: Summary Statistics by Firm

Baseline covariate	Garment &				
	Beverage	Horticulture	Flower	Textile	Shoe
	Producer	Farm	Farm	Factory	Factory
	(1)	(2)	(3)	(4)	(5)
Age	22.60	22.61	22.05	20.90	23.68
Female	0.53	0.78	1.00	0.90	0.66
Unmarried	0.81	0.69	0.66	0.86	0.66
Muslim	0.06	0.10	0.13	0.00	0.06
Household size	3.66	6.45	3.51	4.40	4.06
Household head	0.34	0.18	0.24	0.22	0.21
Proportion household dependents	0.33	0.74	0.42	0.45	0.37
Total years of education and training	10.80	6.07	5.75	10.06	10.00
Executive function, z-score	0.24	-0.65	-0.38	0.17	0.10
Weekly cash earnings (2010 birr)	4.23	4.73	2.36	11.92	18.40
Durable assets, z-score	0.03	-0.67	-0.71	0.09	0.81
Ever worked in a large firm	0.55	0.36	0.28	0.12	0.32
Average weekly hours of work	3.67	7.52	4.59	7.76	14.05
No hours in the last X weeks	0.68	0.44	0.67	0.73	0.63
Highest - lowest earnings, past month	249.83	150.63	152.23	193.47	222.30
Could borrow 3000 birr	0.36	0.25	0.28	0.32	0.34
Ability to do activities of daily life (0-15)	14.54	14.39	14.45	14.50	13.82
Disabled	0.01	0.04	0.00	0.00	0.03
Risk aversion, z-score	0.07	-0.41	0.04	0.10	-0.12
Future orientation, z-score	0.77	0.27	0.14	-0.26	-0.17
Locus of control index, z-score	-0.03	-0.30	-0.24	0.22	-0.18
Self-esteem index, z-score	-0.08	0.02	-0.20	0.13	-0.12
Family relations index, z-score	-0.12	0.35	0.26	-0.10	-0.10
Friends and neighbors relations index	0.08	0.52	0.49	-0.20	-0.29
Change in subjective well being, past yr.	0.26	0.46	0.13	0.34	0.30
Symptoms of depression, z-score	0.15	-0.29	0.07	0.04	-0.14
Symptoms of anxiety, z-score	0.05	-0.18	0.07	0.03	-0.10
Aggressive or hostile behaviors, z-score	-0.54	-0.26	-0.14	0.20	0.14
Conscientiousness index, z-score	0.16	0.42	0.27	-0.05	-0.46
Years experience, private firm	0.86	0.56	0.51	0.14	0.60
Years experience, workshop	0.05	0.01	0.00	0.00	0.02
Years experience, government/NGO	0.13	0.15	0.03	0.04	0.18
Probability of better job, next month	0.70	0.62	0.70	0.70	0.60
Probability of full-time work, next month	0.50	0.54	0.58	0.58	0.60
Number of Participants	121	89	152	427	158

C Comparison of study firms to other firms

Firm data come from the 2014 Addis Ababa Large Employers Survey (?), a representative sample of all small to large firms in the greater Addis area, which the authors supplemented by also surveying

all study firms, 8 manufacturers in Mekelle (the location of one of the study firms), and 9 flower and vegetable farms. We call this the supplemented sample of large manufacturing and farming firms.

In table B.1 below, compare our firms to the supplemental sample, restricting the comparison to firms in the manufacturing and farming sectors with at least 50 employees. The five study firms are significantly larger than the typical Ethiopian firm, with over four times as many employees as the typical firm in the sample. Workers in study firms are paid less than workers in other firms, but they are also less educated than workers at other firms in the sample.

Table B.1: Comparison to Large Manufacturing and Farm Firms

	Full Sample		Blattman- Dercon
	Mean	Median	Mean
Number of years the firm has been in business (as of 2014)	29.14	21.00	29.60
In Addis Ababa	0.86	-	0.40
Majority share government owned	0.04	-	0.00
Majority share domestically owned	0.72	-	0.60
Majority share foreign owned	0.18	-	0.40
Certified international quality	0.29	-	0.40
Average annual sales revenue (2004-2006), 000s ETB	148,675	46,063	206,987
Average annual profits (2004-2006), 000s ETB	22,083	3,998	4,345
Number of competitors within 15 minute walk	2.2	1	2
Number of persons employed	340	167	790
Number of persons employed in production	202	99	569
Average starting salary of production workers	1,478	1,200	834
Average starting salary of production workers, 12 months ago	1,336	1,000	719
Share of production workers who completed high school	0.62	0.69	0.44
Typical new production hire completed high school	0.64	-	0.40
Would participate in study using randomization	0.40	-	0.80
Observations		127	5

Given that low wages are likely correlated with other worker characteristics or sector norms, we want to know if the study firms pay less, conditional on other firm and worker characteristics. In Table B.2, we report an OLS regression of each firm's reported production worker starting wages on an indicator for the five study firms, controlling for firm-reported characteristics. Columns (1) and (2) report this regression for all firms in the sample that report production salaries, including sectors such as finance, education, etc. Columns (3) and (4) report this regression for all manufacturing firms and commercial farms. Columns (5) and (6) report for all manufacturing firms and commercial farms with at least 50 employees. In each sample, the study firms pay production workers less than similar firms.

Table B.2: Conditional Wage Differences

	Full Sample		Manufacturing & Farms		Large Manufacturing & Farms	
	β (1)	S.E. (2)	β (3)	S.E. (4)	β (5)	S.E. (6)
In Blattman-Dercon Sample	-295.3	[594.028]	-332.0	[605.687]	-446.8	[527.017]
Number of years the firm has been in business (as of 2014)	3.4	[4.625]	5.0	[5.005]	8.1	[5.885]
In Addis Ababa	315.4	[572.119]	232.3	[582.404]	259.9	[503.067]
In Tigray region	929.4	[710.577]	765.4	[726.257]	710.3	[633.493]
Firm is in agricultural sector	-1031.0	[689.291]	-748.7	[714.933]	-259.7	[469.482]
Produces garments, apparel, textiles, or shoes	-324.1	[283.553]	-265.4	[304.457]	-286.8	[269.972]
Produces food or beverages	-110.6	[273.982]	-16.0	[316.525]	-81.5	[274.511]
Majority share foreign owned	564.4	[299.540]*	419.7	[320.351]	277.1	[301.875]
Certified international quality	-54.0	[191.657]	-87.3	[204.062]	256.3	[223.053]
Log of average sales revenue	131.1	[49.990]***	70.9	[62.181]	101.2	[78.383]
Number of competitors within 15 minute walk	2.9	[7.772]	3.0	[9.337]	-18.6	[23.734]
Number of persons employed in production	-1.0	[.478]**	-0.8	[.505]	-0.7	[.489]
Share of production workers who completed high school	191.7	[138.632]	826.5	[304.857]***	406.8	[357.371]
Would participate in study using randomization	125.0	[148.156]	232.0	[170.210]	173.9	[210.697]
Constant		Sector Fixed Effects	441.5	[1053.004]	-263.1	[964.338]
R-Squared	0.20		0.21		0.19	
Observations	310		246		122	

Note: Firms with <10 employees dropped. Firm age is imputed for 3 firms, revenue is imputed for 46 firms, number of competitors is imputed for 22 firms, share of workers who completed high school is imputed for 3 firms, and international certification is imputed for 1 firm.

D Other analysis

D.1 Attrition

Table C.1 reports response rates by round and study arm. Response rates were roughly 88% at the 11-month survey and 85% at the 13-month survey. Reasons for individual attrition include 32 who had moved and could not be found, 42 refusals, 54 people who moved abroad, typically to the Middle East for domestic or construction work, one who died and one who went to prison. There is no association between the treatments and emigration. Household attrition is lower because individuals who were away temporarily or unavailable typically had household members available. Table C.2 reports correlates of attrition, via an OLS regression of attrition on select covariates (pooling the 11- and 13-month surveys).

Table C.2: Correlates of attrition, selected covariates

Baseline covariate	Unfound at endline	
	Coeff.	Std. Err.
Assigned to job	-0.023	[.025]
Assigned to grant	-0.024	[.026]
Age	-0.001	[.003]
Female	0.100	[.031]***
Unmarried	-0.006	[.027]
Household head	0.004	[.026]
Disability indicator	0.046	[.094]
Total years of education and training	0.003	[.004]
Cognitive ability, z-score	0.011	[.010]
Mental health, z-score	0.013	[.011]
Conscientiousness index, z-score	-0.030	[.013]**
Risk aversion, z-score	0.008	[.011]
Future orientation, z-score	0.003	[.011]
Income and wealth, z-score	-0.024	[.010]**
Years experience in formal work	-0.026	[.006]***
Ever worked in industrial firm	0.044	[.029]
Prospects for employment in next month (0-1)	0.068	[.049]
Dependent variable mean	0.138	
p-value from F-test of joint significance	0.000	
Observations	1841	

Notes: This table reports results of an OLS regression of an indicator for not being found at endline on baseline covariates as well as a dummy for the 13 month endline and gender-cohort fixed effects (not displayed). 11- and 13-month endline data are pooled in this regression. Standard errors are clustered at the individual level.

D.2 Correlates of earnings

D.3 Wages by sector

In Table C.3, we report endline earnings, work hours, and hourly wages by main occupation at endline. Work hours and wage averages are restricted to the sample of respondents who report positive work hours in the last month. For each measure, we asked respondents how much they had

Table C.1: Survey response and attrition

Respondent	Round	Response rates			By treatment group			Job-Control		Grant-Control	
		Sought (1)	Respond (2)	% (3)	Job (4)	Grant (5)	Control (6)	Diff. (7)	p-value (8)	Diff. (9)	p-value (10)
	Baseline	947	947	100%							
Applicant	11 mo.	947	832	87.9%	90.1%	87.7%	86.0%	3.73%	0.025	0.38%	0.849
	13 mo.	894	755	84.5%	84.4%	87.0%	82.2%	2.20%	0.256	4.68%	0.128
Household head	11 mo.	947	856	90.4%	91.8%	90.9%	88.8%	2.76%	0.104	1.41%	0.333

Notes: This table pools people in all eight cohorts with available endline data. Columns (7) to (10) reports the coefficient on assignment to treatment from an OLS regression of the response rate on the treatment indicator and cohort fixed effects, with standard errors clustered by cohort.

earned and how many hours they had worked in the past month, as well as in the past week and in the week before last. Therefore, we have two measures of weekly work hours and earnings—averages over the past week and over the past month. The average over the month is less volatile, but subject to recall bias. Therefore, we prefer the two week averages throughout this paper. However, both measures are shown below.

D.4 Additional disability analysis

Table C.4: ITT estimates for different health outcomes

	Control	Job offer		Grant	
	mean	β	S.E.	β	S.E.
	(1)	(2)	(3)	(4)	(5)
Ability to do activities of daily life (0-15)	14.07	-0.290	[.123]**	-0.231	[.127]*
Workplace has serious health risks (0-1)	0.14	0.084	[.032]***	0.005	[.032]
Disabled (great difficulty doing ≥ 1 activity)	0.11	0.052	[.022]**	0.035	[.022]
Disabled (great difficulty doing > 1 activity)	0.04	0.037	[.015]**	0.016	[.014]
Has great difficulty walking 2 kilometers	0.01	0.007	[.005]	0.018	[.007]***
Has great difficulty carrying 20 liters	0.04	0.023	[.015]	0.025	[.014]*
Has great difficulty performing daily activities	0.02	-0.006	[.009]	0.002	[.008]
Has great difficulty working outdoors for a full day	0.06	0.041	[.016]**	0.017	[.016]
Has great difficulty working on feet at bench for a full day	0.04	0.036	[.016]**	0.014	[.015]
Disabled (some difficulty doing ≥ 1 activity)	0.32	0.047	[.028]*	0.035	[.029]
Disabled (some difficulty doing > 1 activity)	0.21	0.044	[.025]*	0.036	[.026]
Has some difficulty walking 2 kilometers	0.04	0.020	[.014]	0.002	[.013]
Has some difficulty carrying 20 liters	0.10	0.056	[.022]**	0.079	[.021]***
Has some difficulty performing daily activities	0.08	0.053	[.019]***	0.020	[.017]
Has some difficulty working outdoors for a full day	0.23	0.045	[.025]*	0.008	[.026]
Has some difficulty working on feet at bench for a full day	0.23	0.029	[.027]	0.017	[.027]
Disabled (great difficulty doing > 1 activity, excluding work bench)	0.03	0.014	[.010]	0.022	[.011]*

Disability robustness check

Effect of disabilities on earnings and employment Table C.5 reports the results of an OLS regression of labor market outcomes at endline on an indicator for reporting a “disability” at endline (a serious difficulty at at least two of five activities of daily living), plus baseline covariates (including baseline health) and cohort fixed effects.

D.5 Additional treatment effects analysis

Table C.6 reports ITT estimates for men and women separately. Table C.7 reports ITT estimates firm-by-firm, and Table C.8 reports ITT estimates of the impact of the job offer excluding one firm at a time.

Table C.3: Hours, earnings, and wages by main occupation

Occupation	Last Month Average				Last Two Weeks					
	Main Oc- cupation	Weekly Hours	Weekly Earn- ings	Hourly Wage	Weekly Hours	Weekly Earn- ings	Hourly Wage	Weekly Hours	Weekly Earn- ings	Hourly Wage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Any Employment	68%	46.0	87.3	2.4	1.0	68%	40.2	55.7	1.5	1.0
Factory labor	15%	50.4	88.7	1.8	0.8	14%	43.4	45.5	1.0	0.7
Farm wage labor	9%	46.4	62.2	1.5	0.6	8%	40.2	59.0	1.5	1.0
Smallholder farming	6%	26.7	32.9	1.5	0.6	5%	23.3	7.5	0.4	0.3
Casual non-farm labor	6%	46.6	121.9	2.9	1.3	5%	39.4	72.4	2.1	1.4
Low skill salaried labor	8%	54.1	68.9	1.5	0.6	7%	48.6	47.2	1.1	0.7
Medium skill salaried labor	4%	45.8	139.0	3.5	1.5	4%	40.5	110.9	2.6	1.7
Skilled trades	4%	39.4	106.7	2.9	1.2	3%	33.6	66.0	2.0	1.4
Petty business	12%	47.3	96.3	3.1	1.3	11%	43.1	57.1	1.7	1.1
Other	6%	43.3	100.2	3.7	1.6	5%	36.7	72.4	2.5	1.6

D.6 Other outcomes

Labor and firm attitudes We see little effect of either treatment on attitudes to labor rights, unions, or firms. Table C.9 reports treatment effects. We asked six questions per index, on a 0–4 Likert scale, for a 0–24 scale per index. We see little change in an index of pro-union attitudes (e.g. prefer to work in a place with labor unions, or unions protect workers from firms); of attitudes supportive of large firms (e.g. they are good for growth, they pay fair salaries); are that workers rights are protected and respected (e.g. have safe environments, are free to quit jobs or join labor unions). We do see a weak decrease in whether large foreign firms are good for the country (e.g. they benefit Ethiopia, they pay taxes and invest in Ethiopia).

Table C.9: Treatment effects on labor and firm attitudes

Outcome	ITT estimate				
	Control	Job offer		Cash grant	
	mean (1)	Coeff (2)	Std. Err. (3)	Coeff. (4)	Std. Err. (5)
Pro-unions (0-24)	14.27	0.01	[.247]	0.18	[.258]
Firms good for workers & country (0-24)	13.15	-0.16	[.244]	0.36	[.252]
Foreign firms good for country (0-24)	14.21	-0.50	[.259]*	0.20	[.264]
Workers rights protected (0-24)	12.33	-0.20	[.299]	0.22	[.317]

Notes: Columns (2) to (5) report the results of an OLS regression of each outcome on treatment indicators, baseline covariates, and cohort-gender fixed effects. 11- and 13-month survey responses are pooled. Standard errors are clustered by individual.

*** p<0.01, ** p<0.05, * p<0.1

D.7 Earnings-experience profiles

D.8 Other heterogeneity analysis

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Table C.5: Correlation of endline disabilities with endline labor market outcomes

	Working at			Weekly			Consumption,			Weekly			In School			One-Year		
	Factory or			Cash			z-score			Work Hours			Well-Being			Change in		
	Farm	Coef.	Std.Err.	Coef.	Std.Err.	Coef.	Std.Err.	Coef.	Std.Err.	Coef.	Std.Err.	Coef.	Std.Err.	Coef.	Std.Err.	Coef.	Std.Err.	Coef.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)					
Disabled at Endline	0.02	[.056]	-4.24	[7.008]	-0.07	[.108]	-6.81	[2.892]**	-0.04	[.031]	-0.25	[.148]*	1.96	[.518]***				
Age	-0.00	[.004]	0.40	[.628]	0.00	[.005]	0.43	[.248]*	-0.01	[.002]***	-0.02	[.009]*	0.02	[.023]				
Female	0.07	[.040]*	-21.97	[7.291]***	0.09	[.056]	-3.11	[2.380]	-0.05	[.026]**	-0.18	[.088]**	0.49	[.209]**				
Unmarried	0.03	[.031]	13.43	[4.491]***	0.02	[.041]	6.05	[2.048]***	0.02	[.018]	-0.02	[.076]	0.14	[.190]				
Household head	0.03	[.033]	4.62	[5.292]	-0.25	[.039]***	5.86	[2.006]***	0.03	[.020]	0.08	[.068]	-0.07	[.175]				
Total years of education and training	0.00	[.005]	1.15	[.773]	0.02	[.007]**	0.02	[.298]	0.01	[.003]***	0.02	[.012]	-0.06	[.028]**				
Cognitive ability, z-score	-0.03	[.014]*	-4.10	[1.999]**	0.02	[.016]	-1.78	[.786]**	-0.00	[.007]	-0.10	[.037]***	0.19	[.089]**				
Mental health, z-score	-0.02	[.014]	2.16	[2.207]	0.02	[.020]	0.10	[.773]	0.01	[.009]	-0.06	[.034]*	-0.57	[.082]***				
Conscientiousness index, z-score	-0.00	[.014]	-3.90	[3.061]	-0.01	[.019]	-1.37	[.849]	-0.00	[.010]	0.02	[.034]	0.03	[.076]				
Risk aversion, z-score	-0.00	[.014]	-0.26	[2.165]	0.02	[.016]	0.06	[.747]	0.00	[.008]	-0.00	[.034]	0.01	[.078]				
Future orientation, z-score	-0.00	[.014]	-0.28	[2.492]	-0.03	[.020]	0.01	[.861]	0.00	[.008]	-0.00	[.034]	0.02	[.083]				
Economic well-being, z-score	0.00	[.015]	4.48	[2.599]*	0.05	[.019]**	1.79	[.889]**	0.01	[.009]	0.04	[.040]	-0.04	[.079]				
Years experience in formal work	-0.02	[.008]*	-0.34	[1.384]	0.01	[.013]	-0.40	[.565]	-0.01	[.005]	-0.01	[.028]	-0.02	[.055]				
Prospects for employment in next month	0.01	[.056]	19.00	[9.318]**	0.05	[.077]	1.77	[3.861]	-0.04	[.035]	0.04	[.140]	-0.91	[.350]***				
Mean for able-bodied respondents	0.19		32.77		0.69		26.43		0.31		0.60		1.91					
Observations	1587		1586		1584		1585		1587		1576		1587					

Table C.6: Impacts of job offer and grant by gender, all firms

	Men (N=174)			Women (N=773)		
	ITT			ITT		
	Mean (1)	Job (2)	Grant (3)	Mean (4)	Job (5)	Grant (6)
Worked \geq 30d in a study firm	0.089	0.531 [.073]***	-0.026 [.057]	0.155	0.549 [.038]***	-0.058 [.034]*
Worked \geq 30d in any factory or farm with $>$ 10 emp.	0.348	0.391 [.085]***	-0.170 [.083]**	0.377	0.351 [.037]***	-0.157 [.037]***
Working in any factory or farm with $>$ 10 emp. at endline	0.179	-0.014 [.075]	-0.202 [.068]***	0.203	0.113 [.038]***	-0.120 [.033]***
Emigrated (typically to Middle East)	0.000	0.001 [.011]	0.040 [.022]*	0.053	0.030 [.020]	0.029 [.021]
Mean weekly cash profits, 3/2010 Birr	50.270	5.413 [12.279]	33.736 [12.933]***	30.313	8.046 [4.692]*	12.970 [5.462]**
Ability to do activities of daily life, 0-15 scale	14.491	0.180 [.165]	0.272 [.139]*	13.969	-0.281 [.142]**	-0.235 [.139]*
Has major disability (difficulty doing two or more activities)	0.009	0.000 [.017]	-0.014 [.014]	0.048	0.028 [.017]*	0.014 [.016]
Attended school, training, or university in past year	0.223	0.008 [.064]	-0.019 [.060]	0.142	-0.012 [.021]	0.048 [.022]**

Table C.7: Impacts of job offer, by firm

Outcome	ITT for each firm alone:					
	ITT, all firms	Beverage Producer	Horticulture Farm	Flower Farm	Garment & Textile Factory	Shoe Factory
	(1)	(2)	(3)	(4)	(5)	(6)
Worked \geq 30d in a study firm	0.541 [.034]***	0.677 [.124]***	0.472 [.143]***	0.493 [.101]***	0.499 [.054]***	0.653 [.077]***
Worked \geq 30d in any factory or farm with $>$ 10 emp.	0.357 [.034]***	0.444 [.146]***	-0.106 [.239]	0.198 [.102]*	0.443 [.046]***	0.450 [.096]***
Working in any factory or farm with $>$ 10 emp. at endline	0.108 [.034]***	-0.004 [.096]	-0.073 [.153]	0.212 [.103]**	0.071 [.050]	-0.026 [.086]
Emigrated (typically to Middle East)	0.016 [.017]	0.034 [.089]		0.065 [.078]	-0.015 [.018]	0.104 [.058]*
Mean weekly cash profits, 3/2010 Birr	3.620 [4.441]	12.078 [9.637]	-15.503 [9.488]	17.031 [16.185]	3.930 [6.567]	-15.108 [16.239]
Ability to do activities of daily life, 0-15 scale	-0.290 [.123]**	-0.208 [.510]	-1.939 [.603]***	-0.117 [.392]	-0.243 [.168]	0.207 [.417]
Has major disability	0.037 [.015]**	0.000 [.030]	0.056 [.071]	0.015 [.038]	0.015 [.016]	0.040 [.050]
Attended school, training, or university in past year	-0.010 [.019]	0.091 [.160]	-0.020 [.076]	-0.031 [.024]	-0.016 [.032]	0.012 [.060]

Table C.8: Impacts of job offer, excluding one firm at a time

Outcome	ITT estimate of job offer excluding:					
	ITT, all firms	Beverage Producer	Horticulture Farm	Flower Farm	Garment & Textile Factory	Shoe Factory
	(1)	(2)	(3)	(4)	(5)	(6)
Worked \geq 30d in a study firm	0.541 [.034]***	0.525 [.037]***	0.539 [.037]***	0.543 [.037]***	0.571 [.046]***	0.534 [.038]***
Worked \geq 30d in any factory or farm with $>$ 10 emp.	0.357 [.034]***	0.379 [.036]***	0.382 [.036]***	0.387 [.037]***	0.251 [.051]***	0.337 [.038]***
Working in any factory or farm with $>$ 10 emp. at endline	0.108 [.034]***	0.111 [.036]***	0.105 [.036]***	0.095 [.037]**	0.121 [.051]**	0.099 [.038]**
Emigrated (typically to Middle East)	0.016 [.017]	0.019 [.017]	0.017 [.019]	0.008 [.017]	0.040 [.029]	0.007 [.018]
Mean weekly cash profits, 3/2010 Birr	3.620 [4.441]	2.518 [4.805]	4.205 [4.990]	1.113 [4.549]	5.108 [6.196]	3.779 [4.769]
Ability to do activities of daily life, 0-15 scale	-0.290 [.123]**	-0.308 [.135]**	-0.122 [.128]	-0.243 [.133]*	-0.389 [.183]**	-0.414 [.124]***
Has major disability	0.037 [.015]**	0.039 [.016]**	0.025 [.015]*	0.033 [.017]**	0.045 [.024]*	0.035 [.014]**
Attended school, training, or university in past year	-0.010 [.019]	-0.017 [.020]	-0.005 [.021]	-0.009 [.023]	-0.003 [.024]	-0.007 [.022]

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