Pre-Analysis Plan for "The long run effects of industrial work: Experimental evidence from Ethiopia"

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Contents

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 low-skill, low-wage industrial jobs are better than most poor people's alternatives.

Most people's alternatives are some form of self-employment (or "entrepreneurship") in agriculture and petty business. These informal microenterprises tend to remain small, and economists and policymakers are skeptical that such entrepreneurship offers much potential for growth (World Bank, 2012). One commonly hears the claim that most poor people do not want to be entrepreneurs, and would prefer the stable and potentially higher wages offered by productive export-oriented firms. Is this true? Do workers share in the productivity gains from large, industrial, export-oriented firms? Do these potential workers lack the potential to be dynamic (enough) entrepreneurs?

There are several reasons why industrial work might pay high and growing wages compared to informal work or entrepreneurship: efficiency wages, firms competing for scarce skills, or union bargaining (Akerlof and Yellen, 1986; Katz et al., 1989; Card, 1996). 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." A second view, however, is that factory jobs are simply no better or worse than the alternatives, especially if labor markets are competitive, the skills needed are modest, and search frictions are low. If labor is heterogenous, then a formal sector wage premium may still be present in the observational data, but it simply reflects unobserved heterogeneity. A third view is even more pessimistic, and fears that industrial jobs lower workers' lifetime earning potential because they carry unexpected costs or risks. Young adults could make short-sighted or time-inconsistent decisions to sacrifice health or schooling, and hence reduce long-run earnings potential.

Scholars writing during England's Industrial Revolution, from Adam Smith to Karl Marx, also feared that specialized, industrial labor would "stultify" and "stupefy" workers. For instance, Marx (1891) suggested that the exhaustive drudgery of industrial work would crowd out the time or ability to seek out more productive opportunities and what he called noble self-labor.

The answer is important. Large firms and export-oriented industries undoubtedly drive national growth. But growth for whom? If industrial jobs are better than most people's alternatives, then workers share in the prosperity, and industrial development strategies could and should become a direct focus of anti-poverty programs, including efforts to achieve the 2030 Sustainable Development Goals. Presently any discussion of firms and export growth is nearly absent from these goals and strategies. If the more pessimistic views prevail, then policymakers may want to consider the options for improving shared prosperity, such as encouraging the growth of labor demand (potentially increasing both employment and wages), improving the outside options of workers (through social safety nets or other programs), or regulation to avoid any worker risks or abuses that may prevail.

2   Experimental design

To test these views, from 2010-13, Blattman and Dercon (2017) conducted a randomized trial of low-skill industrial jobs in in Ethiopia (BD for short). BD sought out medium and large firms, mainly exporters, with plans to hire batches of up to 75 low-skill workers. BD found many firms willing to randomly allocate job offers among qualified applicants, but only five that were hiring large batches of workers: a textile and garment mill, a shoe manufacturer, a beverage plant, a flower farm, and a vegetable producer.

The firms had 304 jobs to offer in total, and received 947 eligible applicants, screened only for minimal education and health requirements. 80% were women. BD randomized applicants to one of three treatment conditions:

1. A job offer in the industrial firm to which they applied

2. A pure control group

3. A treatment designed to stimulate entrepreneurship: five days of business training followed by an unconditional cash grant of $300 ($1000 in purchasing power parity terms)—about a year of wages in a study firm.

Blattman and Dercon (2017) detail one year impacts while this plan specifies the analysis planned for the four year followup (50 months after the median start date of January 2013).

3   Outcomes

3.1   Primary outcomes

We have two primary outcomes of interest: income and physical health.

Blattman and Dercon (2017) looked at four primary outcomes of interest (income, employment, physical health, and mental health) and four secondary outcomes of interest (anti-firm attitudes, social integration, autonomy, and non-cognitive skills). BD's analysis suggested that factory exposure diminished health and had little effect on incomes, which cash transfers raised incomes. The long run follow up focuses on these two outcomes, and demotes all other outcomes.

3.1.1 Income

Our first primary outcome is income. At the first endline, we saw income increase for individuals that received the entrepreneurship program but not the job offer. In order to see if these effects persist after four years, we will collect the same three measures of income as in the previous endline and combine them into an additive, standardized index of related outcomes as in Kling et al. (2007):

1. The sum of weekly cash earnings across the 22 occupations. Earnings are seasonal and do not reflect home production, so we also consider two measures of permanent income reported by the household.

2. An index of 32 durable consumption assets (e.g. housing quality, furniture), and

3. An index of non-durable consumption in the previous 4 weeks via an abbreviated consumption module of 82 items.

3.1.2 Physical health

Our second primary outcome is physical health. At the first endline, we saw large decreases in physical health for the group assigned the job offer. To investigate this effect further, we are recollecting the same data plus adding additional physical health questions. The physical health index will include the same questions as in endline 1, except now we add additional questions including:

- Additional activities of daily living

- A list of general health symptoms

- Results for spirometry procedure conducted during the interview

- The prevalence of 4 illnesses (asthma, respiratory problems, dermatitis, and carpal tunnel)

3.2 Secondary outcomes

We have three secondary outcomes of interest. We have empirical or theoretical reasons for thinking that they are affected by one of the treatments but they are not the chief or primary basis on which we would assess the theoretical and empirical effects of the treatment.

3.2.1 Employment and occupational choice

The first secondary outcome of interest in employment and occupational choice. We are interested in understanding if either of the treatments have long term impacts on how individuals distribute their working hours across nine different types of occupations, in line with Banerjee & Newman (1993). More specifically, we are interested in looking at the effects on 1) factory hours 2) self-employment hours, and 3) formal-wage hours.

We are also interested to see if there are any effects on aggregate employment hours, unemployment and the standard deviation of hours.

3.2.2 Job quality

Finally, we are interested in studying whether the interventions moved some of the other margins of employment quality rather than our main outcome of index. For example, there may be compensating differentials for lower pay in the wage paying sector, including job security and non-wage benefits.

3.3 Tertiary outcomes

We also have various outcomes of interest where we do not have a string empirical or theporetical prior for believing there will be an impact of the interventions, but measure them to be diligent:

- labor force participation/marriage/fertility

- empowerment/time use

- mental health

- children's health

- career history

- emigration

- workplace conditions

4 Estimation strategy

4.1 Intention to treat (ITT) effects

We will follow our empirical strategy at the first endline and estimate program impacts on outcome Y by calculating the intent-to-treat (ITT) estimate of an offer of a job or entrepreneurship program via OLS:

$$Y_{irj} = \alpha_j + \gamma_{r=1} + \theta_J Job_{ij} + \theta_E Entrepreneur_{ij} + \beta X_{ij} + \epsilon_{ij}$$

where *Job* and *Entrepreneur* are indicators for random assignment to the treatment arms. We will control for the baseline covariates,X, and gender-cohort fixed effects, α_j. We pool both survey rounds, r, include a fixed effect for the first round, and cluster (robust) standard errors by individual. We will weight individuals based on their probability of attrition and selection into endline tracking, which was not done in BD's analysis.

4.2 Complier average treatment effects CATE)

We will also follow the previous paper and report complier average treatment effects, where we use *Job* as an instrument for the number of months since baseline the person worked in a formal firm with 10 or more employees. The CATE approximates the effect of staying longer in industrial work.