

Evaluation of a Program for the Professionalization of Artisans (ProfArts) in Ghana

– Pre-Analysis Plan –

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Abstract

Training and professionalization interventions are an important vehicle for economic support within the development assistance landscape. Yet rigorous quantitative impact evaluations of such programs remain scarce, especially in developing countries. In order to help fill this research gap, we will conduct a rigorous impact evaluation of a program for the Professionalization of Artisans (ProfArts) in Ghana. The program will deliver top-up training, licensing, certification, and related benefits to up to 10,000 artisans drawn from the Ghanaian construction sector, with beneficiaries to be randomly selected from up to 20,000 baseline respondents. In a first step, we examine the effects of randomly assigned recruitment content on application rates, the composition of the applicant pool, and downstream program outcomes. In a second step, we use a randomized controlled trial to estimate effects of the program on three groups of outcomes: (i) employment, measured e.g. in terms of job retention, acquisition and lengths of employment spells, (ii) job quality and quality of life, including e.g. earnings and workplace conditions, (iii) mobility, e.g. migration intentions and behaviors, and (iv) firm-level outcomes, e.g. firm performance and employment.

Experimental design

Interventions

The project encompasses two interventions. First, we assess the effects of different recruitment content on outreach and program outcomes. Second, we examine the impacts of ProfArts program participation on a comprehensive set of employment-related indicators.

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For the first intervention, different mobilization content is randomly assigned to communities where artisans are to be recruited. The ProfArts project's overall recruitment strategy consists of (a) a default outreach campaign, which sees radio spots and social media content disseminated nationwide, and (b) a flyer campaign, with three different versions randomly assigned to communities. The different versions emphasize either (i) the potential for higher earnings as a result of the program, or (ii) the fact that artisans may learn new or update existing skills, or (iii) the program's technological aspects and offer of a digital platform. All versions of the mobilization campaign explain the core program structure and provide information on where and when to register.

For the second intervention, the ProfArts benefits package is randomly assigned to up to 10,000 eligible artisans out of a pool of up to 20,000 applicants. The program consists of a variety of benefits, including skills and financial literacy training, certification and licensing, provision of state-of-the-art tools and personal protective equipment, and access to a mobile application to connect artisans with clients. If program partners are unable to deliver a complete set of benefits to all beneficiaries, we may randomize the composition of benefits packages.

Procedures

Concerning the analysis of recruitment strategies, we randomly assign one of three flyer types at the community level, within spatiotemporal blocks given by administrative areas and scheduled days of flyer distribution. Outreach and recruitment activities will initially focus on 113 communities in Accra, Kumasi, and Tamale (in 2020), and will subsequently expand to other locations in Ghana (in 2021). Each type of flyer will be distributed in about the same number of communities. The actual locations where flyers are distributed will be tracked using GPS information.

A default outreach campaign will be carried out in Accra, Kumasi and Tamale (in 2020) and nationwide (in 2021) using radio commercials and social media activity. All campaign materials contain key information about the ProfArts program and information on where and when to register. The mobilization campaign is implemented by local partner Lyme Haus Solutions, under contract with GIZ Ghana and in cooperation with Ghana Institution of Engineering (GhIE).

Mobilized artisans register at centers in and near target communities, and they complete a baseline questionnaire at that time. Artisans may also be registered and interviewed at construction sites or other places of artisan employment. The focus of the ProfArts program is on artisans in the Ghanaian construction sector, with a focus on masonry, plumbing, steel bending, metal work/welding, electrical installation, roofing/carpentry, glazing, tiling, painting, and AC technology, and artisans need to have obtained a Proficiency I certificate or have completed an apprenticeship in order to be eligible for program benefits. The registration process is organized and carried out in cooperation with our local partner GhIE.

For the analysis of the effects of the ProfArts program, we will then randomly assign eligible registered artisans to control and treatment groups, within blocks formed based on location and respondents' socioeconomic characteristics. If not all beneficiaries can be provided a complete set of planned benefits, we may randomly assign artisans to specific program components.

Selected artisans will be offered a number of benefits over a time period of about six months. These include (i) top-up training opportunities, including financial literacy training, (ii) certification and licensing through a national craftsmen's register (GhIE), (iii) access to a mobile application to connect with clients (Vodafone Ghana), (iv) state-of-the-art tools and related training (Robert Bosch Ghana), and (v) personal protective equipment and technical advice on occupational health and safety measures (UVEX Arbeitsschutz).

Approximately six months after the end of each benefits period, we conduct endline interviews with the relevant batch of treated artisans and those in the control group, provided they have agreed to be contacted again. We will also receive administrative data provided by our partners concerning beneficiaries' program participation.

Randomization

For the analysis of recruitment content, we randomly assign one of three flyer types to each sampled community, within spatiotemporal blocks given by administrative areas and scheduled days of flyer distribution. The unit of randomization is the community, and so artisan exposure to assigned recruitment content is clustered at the community level.

For the analysis of the effects of the ProfArts program, we randomly assign eligible registered artisans to control and treatment groups, within blocks formed based on location and respondents' socioeconomic characteristics. The unit of randomization is the individual artisan, but assignment may be clustered if multiple artisans register from the same geographical unit or business and benefits cannot be effectively administered to only some of these artisans.

Sample size

For the evaluation of recruitment strategies, we plan to include 113 different communities in Accra, Kumasi and Tamale in 2020 and a substantially larger number in locations throughout Ghana in 2021. Each of the three flyer designs will be distributed in a third of the target communities.

For the evaluation of ProfArts program benefits, we will enroll up to 20,000 artisans over the course of the study, which will possibly but not necessarily be assigned separately and in as many clusters. Half of the eligible artisans will be offered benefits, i.e. up to 10,000 artisans, with 10,000 artisans in the control group.

Timeline

A first batch of registrations and baseline surveys are being carried out under the authority of Ghana Institution of Engineering (GhIE) in late November and December 2020. Assignment to program benefits will proceed in batches, tentatively starting in January 2021. Recruitment, baseline surveys, and program activities will continue in batches in 2021. Endline surveys are scheduled to be conducted six months after program activities have ended for a given batch and will stretch into 2022.

Analysis plan

Outcomes of interest

We discuss below groups of outcomes for our interventions and provide examples of a number of specific research questions to be answered. These outcomes may be considered across several academic papers.

Recruitment content intervention: For the recruitment content (flyer design) intervention, the primary outcomes are (i) the number of artisans recruited per flyer of each type distributed, or an equivalent metric, (ii) the make-up of the recruited applicant pool, including characteristics such as age, employment status, educational attainment, social preferences, and personality traits, and (iii) downstream outcomes, including program completion rates for selected beneficiaries from different communities, and economic outcomes such as those used to evaluate the ProfArts program itself.

Specific research questions include:

- Do the socioeconomic characteristics of mobilized artisans vary across flyer types (e.g. younger, more highly educated, non-unionized, self-employed artisans for the flyer emphasizing the ProfArts digital platform)?
- Do the different flyer designs mobilize different personality types, e.g. in terms of conscientiousness, extraversion, risk aversion, time preferences, patience, trust, and altruism?
- Do program enrollment, dropout, and completion rates, and labor market outcomes such as earnings, hours of work, and job quality vary by flyer type?

ProfArts program intervention: For the training and professionalization intervention, the primary outcomes are (i) employment, measured e.g. in terms of job retention, acquisition and lengths of employment spells, (ii) job quality and quality of life, including e.g. earnings and workplace

conditions, (iii) mobility, e.g. migration intentions and behaviors, as well as (iv) firm-level outcomes, e.g. performance and employment at the firm level.

Specific questions include:

- Does program participation lead to higher rates of employment at endline? Is it associated with higher rates of job retention among subjects employed at baseline and job acquisition among subjects unemployed at baseline?
- Are program participants more likely to be formally employed, i.e. in registered businesses on the basis of written contracts?
- Does program participation lead to an increase in hours worked?
- Do we observe higher earnings among program participants compared to the control group?
- Are program participants more or less interested in relocating either within Ghana or internationally than non-participants?
- Does program participation of business owners/employers lead to improved firm performance?
- Does program participation of employers lead to improved employment outcomes at the firm level, measured in terms of job creation, employee earnings, working conditions and benefits?

Estimation

We will principally estimate treatment effects on outcomes of interest using an intention-to-treat analysis. Our core comparisons will be units assigned to a particular flyer type against those assigned to any other type (for the recruitment content intervention), and eligible artisans assigned to ProfArts program benefits versus eligible artisans in the control group (for the program benefits intervention). If we assign artisans to specific program components, we will also compare artisans receiving particular benefits to other treated participants as well as the control group.

We will usually include the pre-treatment measure of the relevant outcome variable, if available and unless the outcome itself is measured as a deviation from baseline. We will also include additional control covariates to adjust for any remaining imbalance in our data, particularly those listed below as relevant for randomization checks. We will use clustered standard errors when appropriate due to clustering of treatment assignments.

We may construct measures of treatment intensity, if possible given administrative data on scheduled and actual benefit provision to treated artisans, and report results for low- and high-intensity treatment categories as well as results from an instrumental variable approach using assigned treatment as an instrument for actual treatment intensity.

Randomization checks

We will report the extent to which observable covariates are balanced across treatment conditions, as we expect to be the case. At the individual level, relevant baseline variables include region, age, sex, marital status, education, employment, economic well-being, and other baseline-available outcome measures such as migration intentions. At the community level, these variables include region, district, and day of recruitment campaign outreach.

Heterogeneous effects

We will report heterogeneous effects for each outcome and treatment-control group comparison, either by using separate samples or interactions. We will report such effects for variables including region, age, sex, education, employment, economic well-being, and other baseline-available outcome measures such as migration intentions.

Spillovers

The adopted randomization design will try to minimize the risk of spillovers. For the recruitment campaign the randomization is clustered at the local community level. Similarly the randomization of artisans into the ProfArts program will be clustered spatially/at the firm level if needed to manage the risk of spillovers.

We also plan to understand possible spillover effects by calculating for each unit the average distance-weighted treatment exposure of its neighbors and then estimating effects given this neighborhood exposure measure. If possible given the spatial distribution of eligible units, we will randomly assign the level of neighborhood exposure ex ante.

Mechanisms

We will perform mediation analysis in order to understand the mechanisms underpinning our effects of interest. Among possible mechanisms, we will in particular investigate (a) to what extent downstream effects of variation in recruitment content are mediated by changes in the socioeconomic and personality characteristics of applicants, and (b) the extent to which ProfArts program effects are attributable to (i) skills acquisition and improvements in artisan capacity, or (ii) changes in artisan networks (e.g. due to adoption of digital platforms for client acquisition).

Compliance

We will compare units that are in compliance with their treatment/control assignment with those that are not, and report differences in means and related statistics for study-relevant baseline variables such as region, age, sex, marital status, education, employment, economic well-being, and other baseline-available outcome measures (for the artisan-level analysis of program effects) and region, district, and day of recruitment campaign outreach (for the community-level analysis of recruitment content).

In the case of substantial non-compliance, we will report instrumental variable estimates for the relevant outcomes and comparisons, where random assignment serves as an instrument for actual treatment status. If possible given available administrative data, we will also construct measures of “dosage” received (e.g. number of training sessions attended), and use assigned treatment status as an instrument for actual treatment intensity.

Attrition

We will report dissimilarities between attrited units and those with available endline data by computing differences in means and related statistics by treatment status and for baseline variables including region, age, sex, marital status, education, employment, economic well-being, and other baseline-available outcome measures. In the case of substantial attrition, we will pre-process the data by matching on these relevant variables and calculate attrition-adjusted treatment effects.

Manipulation checks

We will conduct several checks to see if our interventions perform as expected. For the analysis of recruitment content, we ask registering artisans on the basis of which flyer, if any, they came to the registration center, and we will compare this data to our community-level flyer assignments. We also ask whether they were at all mobilized by a flyer, or decided to register for other reasons.

For the analysis of ProfArts program effects, we will compare our random assignment of artisans to administrative program delivery data in order to see if benefits were distributed as planned and to gauge treatment intensity across beneficiaries. In case of concerns about possible discrepancies, we will ask artisans on the endline survey about their schedule of benefits, if any.