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ABSTRACT

Self-Employment and Migration*

There is a widespread policy view that a lack of job opportunities at home is a key reason for migration, accompanied by suggestions of the need to spend more on creating these opportunities so as to reduce migration. Self-employment is widespread in poor countries, and faced with a lack of existing jobs, providing more opportunities for people to start businesses is a key policy option. But empirical evidence to support this idea is slight, and economic theory offers several reasons why the self-employed may in fact be more likely to migrate. We put together panel surveys from eight countries to descriptively examine the relationship between migration and self-employment, finding that the self-employed are indeed less likely to migrate than either wage workers or the unemployed. We then analyze seven randomized experiments that increased self-employment, and find their causal impacts on migration are negative on average, but often small in magnitude.

JEL Classification: F22, J61, O15

Keywords: internal migration, international migration, self-employment, migrant selection, randomized experiment

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1 Introduction

Geographic mobility has long been part of the development process, and moving internally (e.g. Beegle et al., 2011) or internationally (e.g. McKenzie et al., 2010; Clemens et al., 2019) can result in larger increases in income on average for those migrating than any other development policy. However, policymakers in receiving cities and countries often express concerns about large migrant flows having negative impacts on employment for native workers[1], congestion externalities on housing and infrastructure, and other political or cultural consequences. This concern is often amplified when migration is seen as being driven by "push" factors of a lack of opportunities at home, leading policymakers to conclude the way to control in-migration is to foster job opportunities in home areas (Massey, 1988). Recent examples include the European Union funding job creation programs to deter migration from African countries in 2017-18 (Brown, 2018), the U.S.-funded Centro Quédate (Stay Here Center) in Guatemala (Sieff, 2019), and place-based policies in many countries designed to reduce internal migration pressures.

A key component of these efforts is often an emphasis on boosting self-employment activities through a combination of training and grant programs.[2] Such efforts are motivated by the important role that self-employment has as an employment source for the poor in developing countries, and by the relative effectiveness of such policies in generating self-employment compared to the difficulty of generating jobs through many other active labor market policies (McKenzie, 2017a). However, the effectiveness of such efforts is unclear, with no rigorous evaluations to date (McKenzie and Yang, 2015). Skeptics of the effectiveness of such policies note that, at the macro level, migration typically exhibits a hump-shaped pattern with development, whereby migration at first increases with local development before decreasing at higher levels and after more time has passed (Massey, 1988; Dao et al., 2018). Clemens et al. (2019, p. 685) thus conclude, at the macro level, that the evidence that aid in general can "greatly and sustainably deter emigration from poor countries is weak at best".[3] At the micro level, self-employment may tend to select individuals with higher wealth,

[1] This concern is not typically evidence-based, as empirically in-migration has often had very limited impacts on native employment (see Peri, 2014, for a recent review).

[2] Examples include the Youth Empowerment Project in the Gambia, funded by the European Union, which focuses on vocational training and support for micro and small-sized enterprises (https://yep.gm) with the intention of reducing migration; and a FAO project in rural Honduras that provided training, credit, and seed funding to help rural youth start microenterprises with the goal of reducing migration (Food and Agriculture Organization (FAO), 2015).

[3] They do allow the possibility, based on cross-sectional macro evidence, that "aid-supported programs to increase employment of young workers, in both rural and urban areas, can modestly reduce the potential for surges of emigration in the short term".

risk tolerance, and skills, which are all factors positively associated with migrating, and the income earned from self-employment could fund the costs of migrating.

This paper provides new descriptive and causal evidence on the relationship between self-employment and internal and international migration. We begin by outlining how migration theory offers uncertain predictions for both selection into migration on the basis of attributes that also determine the self-employment decision, as well as for the likely causal effect of self-employment on subsequent migration. We then put together panel data on almost 140,000 individuals from eight countries to descriptively examine the association between self-employment and migration. Contrary to several theoretical predictions and the priors of many academics[4], we find that the self-employed are less likely to migrate than either wage workers or the not employed, and that this holds conditioning on age, gender, education and income. This relationship is stronger for internal migration than international migration, in part reflecting the much lower likelihood of international migration.

We then attempt to put together data from as many randomized experiments that increase self-employment as possible, and measure the causal impacts of these programs on migration. We were able to do this for seven different experiments, exhibiting a wide range of increases in self-employment (between 2 and 41 percentage points), and enabling migration to be measured over time horizons of up to 10 years. In aggregate, we do find that programs which generated more self-employment did reduce migration. However, the impacts are typically modest, are restricted to internal migration, and require several years for impacts on migration to materialize. One reason for the limited impacts is that these programs have not been expressly targeted at those with high likelihoods of migration, and in some settings, there is very little migration among the control group to deter. This is particularly the case for international migration, which is an extremely rare event.[5] Nevertheless, we find no evidence of programs that increase self-employment subsequently increasing migration. The results therefore provide some support for fostering entrepreneurial activities in home regions as a way to reduce migration pressures, but also suggest the need to carefully target such programs at individuals with high propensities to migrate if they are to have more than modest effects.

This paper contributes to two main literatures. The first is the existing literature on migration and self-employment that has largely focused on different questions. The

[4]At the 12th Conference on Migration and Development, McKenzie asked the audience of experts on migration and development whether they thought that the self-employed would be more, or less, likely to migrate than wage workers. Only one person thought the self-employed would be less likely, and the vast majority thought they were more likely to migrate.

[5]Only 0.6 percent of the global population is estimated to migrate over a five-year period (Abel and Sander, 2014).

labor/immigration literature has noted that migrants often have a greater likelihood of being self-employed at destination than natives, and has sought to explain why this is the case (e.g. Portes and Yiu, 2013), and to estimate their contribution to the economy of the receiving region (e.g. Fairlie and Lofstrom, 2015). The development literature has, in contrast, focused on the role of remittances in funding self-employment activities for remaining family members (e.g. Woodruff and Zenteno, 2007), and on the tendency of return migrants to engage in self-employment activities (e.g. McCormick and Wahba, 2001; Mesnard, 2004). In both cases, the direction of interest has been from migration to self-employment outcomes, complementing our focus on the link from self-employment to migration decisions. The second is literature examining the impacts of social assistance programs like cash transfers, pensions, and job guarantees on migration. Adhikari and Gentilini (2018) provide a recent review of these studies, noting that unrestricted cash transfers to poor people have tended to increase migration, by overcoming credit constraints and providing some insurance against risk. In contrast, they note that place-based programs such as India's rural public employment guarantee studied by Imbert and Papp (2019) have reduced (seasonal) rural to urban migration. We add to this literature by showing the causal impacts of a range of self-employment and entrepreneurship programs on migration.

The remainder of this paper is structured as follows: section 2 discusses what migration theory predicts for the relationship between self-employment and migration; section 3 uses different panel data surveys to answer the descriptive question of whether the self-employed are more or less likely to migrate than wage workers and the not employed; section 4 then analyzes different randomized experiments to causally examine whether interventions that increase self-employment in turn reduce migration; and section 5 concludes.

2 What does economic theory predict for the relationship between self-employment and migration?

A general economic model of migration has individuals or households compare the difference between the discounted present value over T periods of the utility gained from the income W^M and amenities A^M experienced with migration and the utility received from the income W^H and amenities A^H at home, to the cost of migrating C (e.g. Gibson et al., 2019). Generalizing further to allow for the possibility of liquidity constraints which induce an additional cost term given by the Lagrange multiplier λ, and for the possibility of time-inconsistency, represented by $\beta - \delta$ preferences, we have

that an individual will migrate if

$$\sum_{t=1}^{T} \beta\delta^t \mathbb{E}\left[U(W_t^M, A_t^M) - U(W_t^H, A_t^H)\right] > C + \lambda. \tag{1}$$

Using this framework, we can see that there will be a relationship between self-employment and migration if either the types of individuals who choose to be self-employed differ in their inputs into equation (1) from the types of individuals who choose other occupations (migrant selection); or if becoming self-employed changes the inputs in equation (1) (a causal effect of self-employment). We discuss each in turn.

2.1 Migrant selection and self-employment

A key implication of equation (1) is that migration is likely to be selective on characteristics that also determine occupational choice. Typically, the assumption in the literature has been that migrants are selected on attributes that also make it more likely that the individuals would be engaged in self-employment rather than wage work or not working. For example, Williamson (1965) notes that migrants are likely to be "the vigorous and entrepreneurial, the educated and skilled, and of productive age". Naudé et al. (2017) note that both migration and entrepreneurship are risky activities, so should both attract the less risk averse, that both require access to supplementary resources to finance these activities; and that the ability to spot new opportunities for business may be related to the ability to spot opportunities for migration. These features are likely to make the income gain from migrating potentially higher for the self-employed, the expected utility of this risky gain higher due to lower risk aversion, and the self-employed to have a smaller λ (less likelihood of liquidity constraints binding). In addition, if we think of both self-employment and migration as investments that involve upfront costs with returns in the future, we might expect both to attract more patient, less hyperbolic individuals. And if we consider a "taste for adventure or new opportunities" as part of the amenity value of migrating, we might think this amenity value should be higher for the self-employed. All of these factors would lead to a prediction that selection factors will make the self-employed more likely to migrate than other types of workers.

In contrast, if the skills that are rewarded in self-employment are less portable across locations than the skills rewarded in wage work, then we might find the self-employed are less likely to select into migration. For example, knowing the tastes of consumers in a particular market, or having connections to suppliers or politicians

in a particular market may result in high W^H, but not a high W^M. Likewise, if self-employment provides employment of last resort for individuals who are poor and who are excluded from wage work, we might expect that these individuals will also be less likely to be able to migrate. Therefore, it is theoretically unclear whether we should expect the types of people who go into self-employment to be more or less likely to migrate than other types of workers.

2.2 Causal impacts of self-employment on migration

The above discussion assumes that the inputs into equation (1) stay constant when individuals become self-employed, and it is just that the types of people who are self-employed differ in their characteristics from the types of people who do not. But the implicit assumption behind policy efforts to encourage self-employment in order to deter migration is that there is a causal relationship, whereby becoming self-employed changes the migration decisions of individuals.

From equation (1), we can see several possible ways in which self-employment could causally affect the decision to migrate. The most obvious, and what many policymakers have in mind, is that having a new job opportunity at home increases W^H, the income that can be earned at home and the opportunity cost of migrating. All else equal, this will reduce the incentive to migrate. However, higher income earned at home can also enable individuals to better afford the costs of migrating, potentially lowering λ, and increasing the likelihood of migration. A second potential effect could operate through a lock-in effect that can arise from capital investments not being fully irreversible[6], so that the cost of moving becomes higher as it requires losing some wealth invested in the business (Koelle, 2019).[7] Thirdly, the skills and human capital acquired through self-employment may be more or less portable than those acquired through wage work, changing the job opportunities at destination and thus W^M. While this effect could go in either direction, the immigration literature stresses that self-employment is often a common occupation at destination, and we might think that existing self-employed individuals will be better able to succeed in self-employment at destination, so that becoming self-employed could increase the likelihood of migration. As a result, the overall causal impact of programs to promote self-employment on migration is unclear, and there is the possibility that migration

[6]In addition to physical capital, this could also include investments in intangible capital, such as brand reputation, customer and supplier relationships, etc. that have value to the owner, but are hard to sell to another owner, and so whose value falls upon migrating.

[7]In a dynamic setting, this will also mean that individuals contemplating migration may underinvest in their enterprises, in the same way that Koelle (2019) documents that Mexican self-employed considering manufacturing wage jobs may do.

could actually rise, rather than fall.

3 Descriptive analysis using panel data

In this section, we analyze survey data from eight different countries and approximately 140,000 respondents or about 190,000 respondent-waves. We provide descriptive evidence of two previously undocumented facts. First, for most countries, the majority of individuals who are self-employed at home are not self-employed after migrating, even though they are more likely to be self-employed after moving than wage workers or individuals who are not employed at home. Second, migration rates are lower for the self-employed than for wage workers or individuals with no job. This result holds for internal and international migration, for short- and long-distance migration, and conditioning on baseline covariates such as gender, age, years of education, and income.

Choice of panel surveys

Our descriptive analysis uses panel data from seven developing countries: two waves of the China Family Panel Studies (CFPS), the three main waves of the Egypt Labor Market Panel Survey (ELMPS), baseline and follow-up of the India Human Development Survey (IHDS), the latest three waves of the Indonesia Family Life Survey (IFLS), three rounds of the Mexican Family Life Study (MxFLS), three waves of the Nigeria Living Standards Measurement Study-Integrated Surveys on Agriculture (LSMS-ISA), and all three waves of the Tanzanian Kagera Health and Development Survey (KHDS). We benchmark our developing country patterns against those from the United States, using three rounds of the Panel Survey of Income Dynamics (PSID). Collectively, these eight countries contain one-half of the World's population, and provide large samples from a range of different regions of the world.

In each sample, we focus on individuals aged 18 to 65, for whom we have information on occupational status and migration rates. Our primary focus is on whether or not individuals are self-employed at baseline, which is typically based on the primary job during the past week, month, or quarter. Online appendix B describes how this is defined for each sample. We drop all individuals whose primary activity is agriculture, forestry or fishing, and then compare those who are self-employed to individuals whose primary occupation is wage work or not working at all. There are several reasons for excluding agriculture, forestry and fishing.[8] The first is that these are not

[8]For completeness, online appendix figure A.1 does compare the migration rates of the self-employed to agricultural workers for our different samples, and finds agricultural workers to have

the types of self-employed occupations that are typically promoted by policy efforts to create more jobs in sending regions, and our experimental studies are all either in urban settings or are trying to foster off-farm work. Secondly, both the migrant selection effects and causal impacts of working in agricultural work may be different from non-farm self-employment: for example, the idea of being able to take your business with you as you migrate is less viable for a farmer than for someone selling clothing or cooking food. After these restrictions, our total sample is almost 140,000 respondents.

Each of the panel surveys attempts to track individuals who move[9], and migration is defined as having moved from one administrative area to another between survey rounds. The distance that constitutes "migration" varies across studies (see online appendix B), so we further split migration into internal and international migration, and then examine the robustness of our results to different distances of internal migration. The samples we have are large, and allow tracking individuals over periods ranging from 3-4 years (Mexico), up to 14-15 years (Egypt, Indonesia). However, even with long panels and a large sample, international migration is a rare phenomenon, accounting for only one percent of our observations.

Does self-employed at home mean self-employed after migration?

In their review of immigrant entrepreneurship, Fairlie and Lofstrom (2015) note that the "relationship between home country self-employment experiences and host country self-employment is not well understood", and that a key reason is "due to a lack of suitable individual level data that includes pre-migration self-employment information". Our panel data enable us to provide additional evidence on this question, by examining the extent to which self-employment at home makes it more likely to be also self-employed after moving. This also helps address the question of whether the self-employed can simply move their job with them.

Figure 1 puts together evidence from six countries for which we have information on type of occupation at destination for the majority of migrants.[10] After dropping respondents who do not move between survey waves, we are left with a sample of more than 15,000 distinct migrants aged 18 to 65 who were self-employed, wage workers, or not working at home.

somewhat similar migration rates to the self-employed in most countries.

[9]The CFPS and ELMPS do not track international migrants, and it is likely that many of the attritors from the different panels may be migrants. In the absence of alternative information, our implicit assumption is that the self-employed are not more likely to attrit when they migrate than other occupations. Under this assumption, we may understate the magnitudes of migration, but attrition should not bias the signs of associations in the data.

[10]Occupation type after move is missing for a large part of the sample in the Mexican data and in all of the Nigerian data.

We observe large heterogeneity in the share of self-employed individuals at home that remain self-employed at destination, ranging from 20% in the US over the period 2001-17 to 73% in Egypt in 1998-2006. Pooling together all the countries, 40% of individuals who are self-employed at home maintain this status after migrating. Thus, the majority of the self-employed do not stay self-employed after migrating. Nevertheless, their self-employment rate at destination is substantially higher than that of migrants who were wage workers at origin (10% become self-employed at destination), or who were not working at origin (only 6% become self-employed at destination).

Are the self-employed more or less likely to migrate?

We begin with simple unconditional comparisons that tell us whether the average self-employed worker is more or less likely to migrate than the average wage worker or individual not working at origin. Figure 2 shows that, for the majority of the country-periods considered, the self-employed are less likely to migrate than wage workers, and even more so than individuals not employed. Indeed, on average, 8% of self-employed respondents migrates internally or internationally, as opposed to about 12% of wage workers, and 13% of the individuals with no job. We draw similar conclusions when we look separately at internal migration rates (figure 3) and international migration rates (figure 4), although tracking people who move abroad is a particularly difficult task, making international migration a rare outcome in the survey data available.[11]

The considerable heterogeneity in country migration rates emerging from each of the previous figures is partly coming from place- and period-specific differences, but it is also due to the fact that our migration definition varies across surveys. For example, while in the Chinese panel data (CFPS) we can only measure migration as changes in home province or county, in the Egyptian panel data (ELMPS) we additionally account for moves between "sheyakha", a relatively small administrative division. We return to this more in detail at the end of this section, where we show that we find similar results when we separate observations by distance of migration.

We next ask whether this relationship still holds once we condition on basic observable characteristics. First, we consider age and gender. Figure 5 shows that our conclusion generally holds when we separate between female and male respondents, and group observations into five age bins.[12]

[11] Average internal migration rates are 6.8% for the self-employed, 9.9% for wage workers, and 11.6% for the unemployed. Average international migration rates are instead 0.7%, 1%, and 0.9%, respectively.

[12] We do not show results for Egypt, as we observe no instance of migration for female respondents in the 18 to 24 age category. We similarly omit data from Tanzania because the sample does not include migrants for several gender-age groups.

We then carry out probit regressions to summarize these patterns and condition on additional characteristics. Table 1 reports the corresponding marginal effects, when we compare the sample of self-employed individuals to wage workers. In each specification, the level of observation is the respondent-wave, we control for country-wave fixed effects to take into account systematic differences between countries and time periods in our sample, and cluster standard errors at the respondent level. We use as a dependent variable an indicator for whether the respondent has moved (internally, internationally, or any of the two), as the main independent variable an indicator for self-employment (compared to wage work) at baseline, and then control for individual characteristics. Column (1) shows that, after conditioning on age, gender, and years of education, the self-employed are 2.5 percentage points less likely to take up any migration than wage workers (from an average migration rate in the control group of about 12%). Young individuals (aged 18 to 24) are more likely to migrate than older peers, and we find slightly higher migration rates among the more educated, and no overall difference in rates by gender.

Columns (2) and (3) then consider separately internal and international migration as outcomes. The self-employed are 2.3 percentage points (21%) less likely to migrate internally than wage workers, and 0.2 percentage points (16%) less likely to migrate internationally. The low incidence of international migration in representative samples makes this relationship harder to detect. Columns (4) to (6) show that the results are robust to additionally controlling for the inverse hyperbolic sine transformation of respondents income at baseline.

We find comparable results if we separate migration rates between baseline and first follow-up of each survey (online appendix table A.1) and those between baseline and second follow-up, whenever available (online appendix table A.2). Online appendix table A.3 verifies that the self-employed are even less likely to migrate than individuals with no job.

As noted above, our definition of migration varies across countries depending on the detail with which respondents' location is recorded in each survey. Online appendix table A.4 checks if the main results are sensitive to whether we look at short-distance migration, or consider moves between places further away. We do this by grouping migration instances into three mutually exclusive categories based on the distance between respondents' destination and home. Level 1 includes long-distance moves between large administrative units, such as provinces or states. Level 2 details migration instances between lower-level units, as for instance counties and local government areas; while level 3 refers to the smallest administrative divisions tracked in our data. We then run a separate regression for each of the three levels of migration.

We observe that the relationship between self-employment and migration is similar across all three levels, suggesting that our findings do not depend on the specific definition of migration adopted.

This tendency of the self-employed to be less likely to migrate than wage workers and those without jobs captures the joint effect of migrant selection and of any causal effect of self-employment on migration. We next attempt to isolate how much of this effect could be causal.

4 Causal analysis using randomized experiments

As section 2.2 shows, theoretically the causal impact of becoming self-employed will depend on the extent to which it increases job opportunities at home (and hence the opportunity cost of migrating) and to which it involves a lock-in effect, versus the extent to which it alleviates credit constraints and changes human capital and hence job opportunities abroad. The result is that "the" effect of becoming self-employed will likely depend on what causes an increase in the likelihood of self-employment. For example, becoming self-employed in order to take-over a family business when a parent or spouse dies is likely to have a different effect on the likelihood of migration from becoming self-employed because you have developed new entrepreneurial skills or had access to new forms of capital or credit. Our focus is on the impact of deliberate policy actions that increase self-employment. To examine this, we bring together data from seven randomized experiments, none of which had focused on migration as a key outcome, and examine the extent to which interventions to promote self-employment also change migration propensities.

Selection of studies

We attempted to collate together as many randomized experiments as possible that were focused on stimulating or supporting self-employment and entrepreneurship, and for which we could measure migration as an outcome. We used our own knowledge of the literature, systematic reviews of business support programs, and web searches to identify studies which met the following criteria: (i) the intervention was aimed at self-employment or job creation and was successful in either stimulating new self-employment, or in getting existing self-employed firms to be more likely to survive; (ii) outcomes were measured for a period longer than 15 months after the intervention took place, to allow time for migration to occur; (iii) the follow-up survey tracked respondents who moved and did not suffer from extremely high attrition; and (iv) data were either publicly available, or shared by authors upon request.

Overall we considered 37 different RCTs, covering a range of cash grant, microcredit, business and vocational training, and multifaceted interventions.[13] The majority of these studies only measure self-employment outcomes over very short periods (a point noted by McKenzie and Woodruff, 2013), many do not succeed in stimulating self-employment, and a number do not allow tracking of migrants. We were able to identify seven studies that met our criteria, which are summarized in table 2. Online appendix table A.5 reports a list of the other interventions we considered, with reasons why they were not included in the analysis.

The interventions that we cover include cash grants to start-up, or expand, businesses in Uganda, Kenya, Sri Lanka, Ghana and Nigeria, business training programs combined with these grants in Uganda and Sri Lanka, and a micro-franchising program that provided training and start-up capital in Kenya. Ideally, our measure of migration in each case would be one that focuses on medium or long-distance moves, since we (and policymakers) are less interested in migration from one village to a neighboring one. However, in three of the studies (two in Uganda, and the one in Kenya) we only know whether or not they moved away from the home location, but not how far they moved, while in the other four we can isolate medium or longer distance migration. While these latter studies do enable us to identify international migration, it is so rare in these samples that we do not consider it as an independent outcome.[14]

Estimation

We estimate intent-to-treat (ITT) regressions as variations of the following general form

$$Y_{ijt} = \beta_{ITT} T_{ijt} + \pi X_{ij} + \tau + \varepsilon_{ijt}, \tag{2}$$

where Y denotes the outcome of interest for person i, time t, and, in some cases, group j; T is an indicator for treatment assignment[15]; X denotes a vector of covariates measured at baseline; and τ is a vector of fixed effects. For each program, we choose X and τ following the main specification in the original paper analyzing the intervention. Baseline covariates X can include, for example, age, education level, household

[13] We also implicitly considered, but did not include, a number of other microenterprise support programs, such as formalization assistance, for which there were no significant impacts on self-employment

[14] For example, in the Nigeria sample studied by McKenzie (2017b), we observe five instances of international migration at the 2-year endline (0.35% of the sample), one case three years post application (0.08% of the observations), and two cases after five years (0.14% of the sample).

[15] For the Sri Lanka microenterprise experiment discussed below, we follow DeMel et al. (2008) and DeMel et al. (2012) and define the treatment variable T as the size of the grant given to each treated enterprise.

size, work experience, monthly earnings, and so on. The fixed effects vector τ usually includes randomization strata fixed effects, and, for the Nairobi microfranchising specifications, also survey enumerator and survey month fixed effects.

We estimate equation (2) separately for the outcomes of self-employment and migration. The parameter β_{ITT} provides the causal impact of the entrepreneurship program. Each of these programs was chosen for inclusion on the basis of having a significant impact at some point in time on self-employment, and so we expect to see significant impacts for this outcome. When we consider migration as an outcome, we are then estimating the causal impact of programs intended to increase self-employment on migration. We also provide migration-self-employment elasticities, which are the ratio of the impact on migration to the impact on self-employment. This is estimated via 2SLS regressions, in which migration is the main outcome and self-employment is instrumented with treatment status. We do not interpret this as necessarily giving the causal impact of self-employment on migration, since some of the programs considered could influence migration even without affecting self-employment (e.g. grants to the business could be instead spent on funding migration), which would violate the exclusion restriction for instrumental variables. Moreover, these programs could influence migration in different directions for different people, potentially violating the monotonicity assumption needed for IV to identify a local average treatment effect of self-employment.

Impacts of self-employment assistance programs on self-employment and migration

The impacts of each program on self-employment and migration are shown in table 3. Table 4 instead considers whether these programs also affected the likelihood of being employed at all (whether in self-employment or other paid work), and this relationship with migration. Both tables are divided into two parts. Part 1 presents results from studies for which we could not distinguish between short-distance versus medium/long-distance migration, while part 2 provides evidence from studies that allowed us to isolate respondents moving further away from baseline location.[16]

The first randomized experiment we consider for the subset of studies that include short-distance migration is the Uganda Youth Opportunities Program (YOP) (Blattman et al., 2014, 2019). Groups of 10 to 40 people submitted proposals on how they would use a grant worth $7,500 on average ($400 per person) to learn and start an independent skilled trade. Applicant groups were screened by government offi-

[16]The different degree with which each study attempted to track movers for follow-up interviews is partly reflected in the large heterogeneity of attrition rates. Online appendix table A.6 briefly summarizes attrition rates for each study included in our analysis.

cials and funding was then randomly assigned among 535 eligible groups. Panel A of table 3 shows large effects of this program on self-employment, ranging between 18 and 13 percentage points in the short- and medium-term (2-year and 4-year endlines), respectively. These impacts dissipate, however, in the long-run (9-year endline). The sample here are youth, and migration is defined as moving between parishes (which can include movements to neighboring villages, as well as longer distance moves). Because of the age of the participants and this definition of migration, migration rates are very high in the control group, with 35 percent moving within 4 years and 57 percent within 9 years. The intervention initially has a weakly significant effect on migration between parishes over two years, which then becomes negative and highly significant in the medium-term. Four years after the intervention, individuals receiving the grant were about 8 percentage points less likely to migrate (from a control group average migration rate of 35%). Similar to the effect on self-employment, the relationship between the program and migration attenuates and is not statistically significant in the long-run. The elasticity reported in the last column suggests, at least for the medium-term, a negative and strong relationship between self-employment and migration. For each percentage point increase in self-employment, migration decreases by 0.5 percentage points. Online appendix table A.7 shows separate estimates of the impact of YOP on specific economic activities, together with their relationship with migration. We observe that the largest effect of the intervention on migration occurs through self-employment in non-agricultural activities, specifically in skilled trades.

Second, we analyze the Women's INcome Generating Support (WINGS) program implemented in Uganda in 2009 (Blattman et al., 2016). The treatment package included a $150 cash grant, five days of business training, and ongoing supervision. Participants in half of the treated villages additionally received group dynamics training. Panel B reports a very large and significant 40.9 percentage point increase in self-employment 16 months after the intervention. However, the impact on migration is small, positive, and not statistically significant, so that the migration-self-employment elasticity is near zero. Two caveats regarding this study are that we could only loosely define migration as changes in home location relative to baseline (see online appendix section C.2 for additional details), and that the follow-up period of 16 months may be too soon to see migration effects realized.

The final of the studies in which our measure of migration also includes some short-distance moves comes from Kenya, from an experiment that conducted two labor market interventions targeting 18 to 19 years old women from three poor neighborhoods in Nairobi (Brudevold-Newman et al., 2017). The first intervention ("franchise treatment") provided a bundle of business skills training, franchise-specific vocational

training, start-up capital, and ongoing business mentoring. The second intervention ("grant treatment") was an unconditional grant of 20,000 Kenyan shilling ($239). We focus on impacts 14 to 22 months after the intervention. Both the franchise and the grant training had large significant effects on self-employment, increasing it by 12 to 13 percentage points, as reported in table 3, panel C (a) and (b). We find a positive, but not statistically significant, relationship of the interventions with migration away from Nairobi.

Moving to the subset of experiments where we can isolate medium/long-distance migration, we first analyze the sample of microenterprise owners receiving a one-time grant in the randomized experiment studied in DeMel et al. (2008) and DeMel et al. (2012). The program provided $100 or $200 cash or in-kind grants to a small group of Sri Lankan microenterprises. Our focus is on male owners, as female-owned businesses showed no short-term or long-term impacts. Panel D of table 3 shows that the intervention significantly increased self-employment by about 10 percentage points five years after the grant, and that these effects are maintained after ten years. The reduced form impact of the grant on migration outside the baseline district shows that business owners in the treatment group are about 3 percentage points less likely to migrate at the ten years endline (halving the control group mean of 6%). The elasticity coefficients suggest that a one-percentage point increase in self-employment reduces migration by approximately 0.2 to 0.3 percentage points (although these coefficients are not significant).[17]

Next, we look at the Sri Lanka Start-and-Improve Your Business (SIYB) program. We focus on the sample of 628 women who were out of the labor force at baseline but expressed interest in starting a business within the next year (referred to as "potential business owners" by DeMel et al., 2014). Potential owners were randomized into a control group and two separate treatment groups, the first involving business training alone, and the second entailing training and a $130 grant conditional on training completion. We define a single treatment indicator that is equal to one for potential owners belonging to either one of the two treatment groups. ITT estimates are reported in table 3, panel E. Participation in business training (with or without a grant) increases self-employment (measured by business ownership) by 12 percentage points in the first eight months. However, these effects dissipate rapidly and 25 months or six years after the intervention we observe no difference between business ownership in the treatment and control group. Similarly, the effects on migration – defined as moves outside respondents' baseline districts – are small and not significantly different from

[17]Note that, although the 10-year ITT coefficient on migration reported is significant at the 10% level, if we restrict the sample to observations with non-missing employment status we obtain an insignificant coefficient of -0.021 (standard error of 0.015).

zero.

Third, we analyze data from the randomized experiment designed by Fafchamps et al. (2014), which gave cash or in-kind grants of about $120 to a sample of Ghanaian microenterprises. As before, we focus on the sub-sample of male-owned enterprises, as the program showed no significant effect on business ownership for women. At baseline, all firms are located either in Accra, the capital of Ghana, or in the nearby industrial city of Tema. We define migration as any move outside the Greater Accra Region. Panel F indicates that the intervention significantly increased business ownership by 4 percentage points in the first year after treatment, and by about 9 percentage points three years after. The program shows negative (although not statistically significant) impacts on migration. The migration-self-employment elasticities suggest that every one-percentage change in self-employment causes a 0.04 percentage points reduction in migration after one year, and a 0.14 percentage points decrease after three years.

Lastly, we consider the Youth Enterprise With Innovation in Nigeria (YouWin!) competition launched in 2011 in Nigeria and studied by McKenzie (2017b). The program provided a four-day business plan preparation course, and then grants of about $50,000 to winners randomly selected among a pool of semi-finalists. Panel G of table 3 reports the related ITT estimates. We observe large and sustained effects on self-employment, which reach 31.5 percentage points after three years, and is still 19.6 percentage points five years post application. We find that participants in the treatment group are about 2 percentage points less likely to migrate after three years (from a control group average migration rate of about 6%), and 3.6 percentage points less likely to have moved at the 5-year endline (control group mean of 8%). We estimate that each percentage point increase in self-employment reduces migration between 0.06 and 0.15 percentage points.

Table 4 shows that the conclusions drawn in the previous sections remain unchanged if we look at the effects of each program on any employment (and at migration-any-employment elasticities) instead of self-employment.

Meta-analysis

A simple average of the 16 different ITT estimates of migration from the seven studies in table 3 gives an average effect of -0.007. Four of the estimates show significant negative impacts on migration, while there is only one positive estimate, from the Uganda YOP intervention, that is itself reversed to a significant negative effect over a longer time period. The results therefore show an average tendency for programs that promote self-employment to lower migration, but that the size of the effect is

often very small. In this subsection, we perform a meta-analysis of the effects of the programs previously discussed, and explore when we are more likely to see these programs reduce migration.

Panel A of figure 6 plots the ITT migration coefficients from table 3 on the y-axis, and the corresponding self-employment coefficients on the x-axis. On average, in the short-run (i.e. up to two years after the initial intervention), we find a slightly positive relation between self-employment and migration. However, focusing on outcomes measured more than two years after the interventions, all but one estimate are negative, and every percentage point increase in self-employment is associated with an approximate 0.05 percentage points decrease in migration (dashed line). Columns (1) to (4) of table 5 explore these patterns further. Column (1) shows that the overall average impact of these self-employment programs is negative (-0.007), that there is a weak negative association with the impact on self-employment (so that programs which increase self-employment by more reduce migration by more), and that the average impact of these programs on migration is significantly much stronger when looking over longer-term horizons. The negative sign on the coefficient for the migration rate in the control group also suggests programs reduce migration more in contexts where there is more migration to potentially affect.

In column (2) we then interact the self-employment ITT with the indicator of being more than 2 years post-intervention. The coefficient is negative, which suggests increasing self-employment is associated with reducing migration by more over longer time frames. Column (3) restricts to the set of studies for which we can measure medium- and longer-distance migration. The results are similar, although we see a much stronger association with the control mean migration rate: in some of the sites there is very little migration to begin with, so that spurring self-employment will not reduce migration by nearly as much as in settings with higher migration rates.

The pattern that impacts on migration are larger over longer time horizons suggests that programs first spur self-employment, and then this in turn affects migration decisions. To explore this timing more, in figure 6 panel B, we plot the ITT impact on migration against the lagged ITT coefficients on self-employment instead of their contemporaneous effects. Column (4) of table 5 reports estimates from the corresponding regression. On average, we find that every percentage point increase in self-employment is associated with a subsequent 0.1 percentage point decrease in migration.

These first four columns weight each estimate equally. An alternative approach is to apply meta-analysis techniques to incorporate the uncertainty in the ITT migration coefficients by using random effects meta-regressions. We report these estimates in

columns (5) to (8) of table 5. In each of these regressions, observations (i.e. study-endlines) are weighted by the inverse of their variance, which includes both a within-study component (different for each observation) and a between-study component (common to all study-endlines and computed using the method introduced by DerSimonian and Laird, 1986). The results are very similar to our unweighted results, although when we use the full sample of estimates, the results that have the most precision are short-term estimates of no effect in situations in which there is almost no migration to reduce. As a result, the weighted estimate gets pulled towards zero. In online appendix figure A.2, we show the random effects pooled meta-analysis for the set of estimates over 2-year or longer time horizons. There we find a negative and statistically significant overall effect of a -0.024 reduction in migration from these programs (p=0.001).

5 Conclusions

While the idea that providing better job opportunities at home will reduce out-migration has widespread policy appeal, both economic theory and macroeconomic evidence offer the possibility that such policies could instead increase migration. This paper provides both descriptive and causal evidence on this question. Descriptively, we do find across a range of countries that the self-employed are less likely to migrate than wage workers, or than those without jobs at all. These findings hold both unconditionally, and after conditioning on age, gender, education and income level. The association is stronger in absolute terms for internal migration than international migration, but is similar in relative terms. Then, using seven randomized experiments to estimate the causal effects of promoting self-employment on migration, we find that such programs tend to reduce migration on average, but that it takes time for this reduction to occur, and the magnitude of the reduction is quite modest.

There are several reasons for the limited impacts of these programs on migration. A first reason is that many policy attempts to provide new job opportunities are not that successful. Indeed, McKenzie (2017a) notes that the typical active labor market program only creates 2 jobs for every 100 individuals in the program. The programs we consider have been more successful, with an average ITT on self-employment of 14 percentage points, but this still means the majority of participants in these programs are no more likely to be self-employed than if they were not in the program. A second reason is that none of these randomized experiments to stimulate self-employment were specifically targeted towards individuals with high likelihoods of migrating. As a result, some take place in settings where even internal migration rates are very low,

so that there is not much migration behavior to change, and none are in settings where there is a high incidence of international migration. An open question for future research is therefore the extent to which programs to spur self-employment could have much larger effects on both internal and international migration if they were explicitly targeted at populations with high likelihoods of migration.

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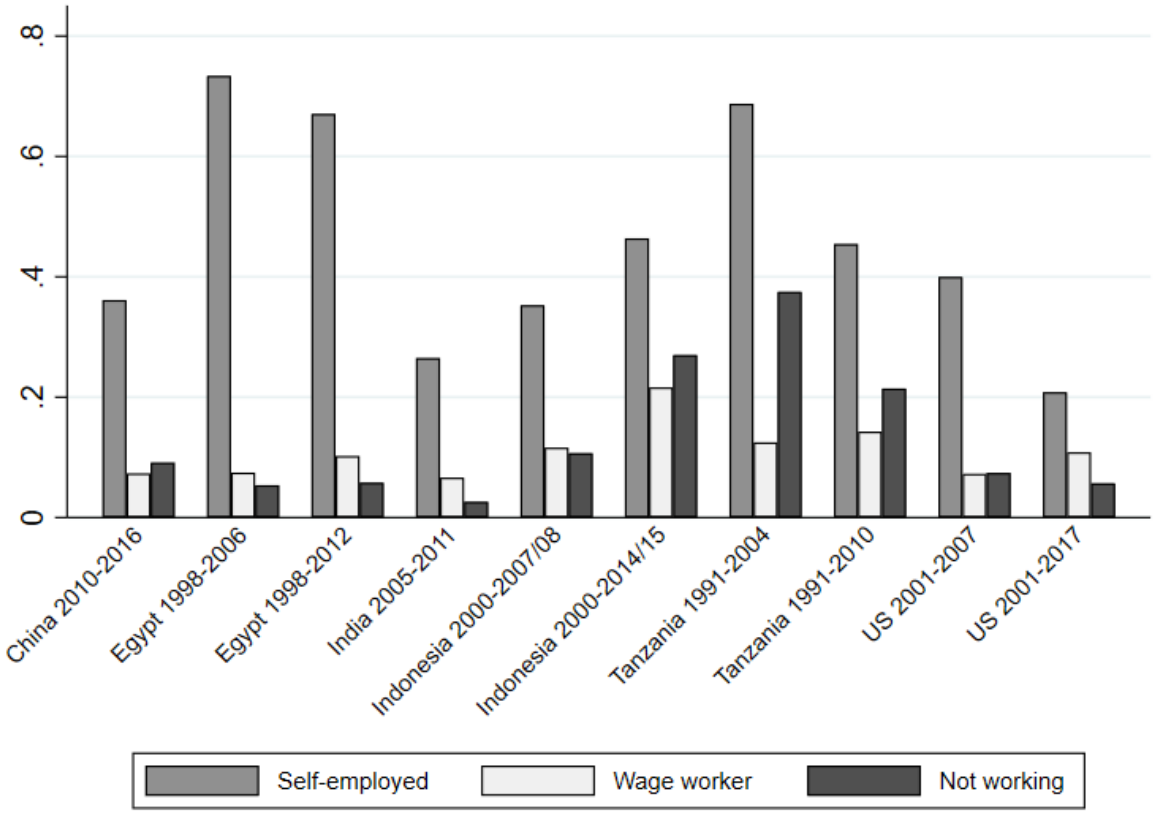
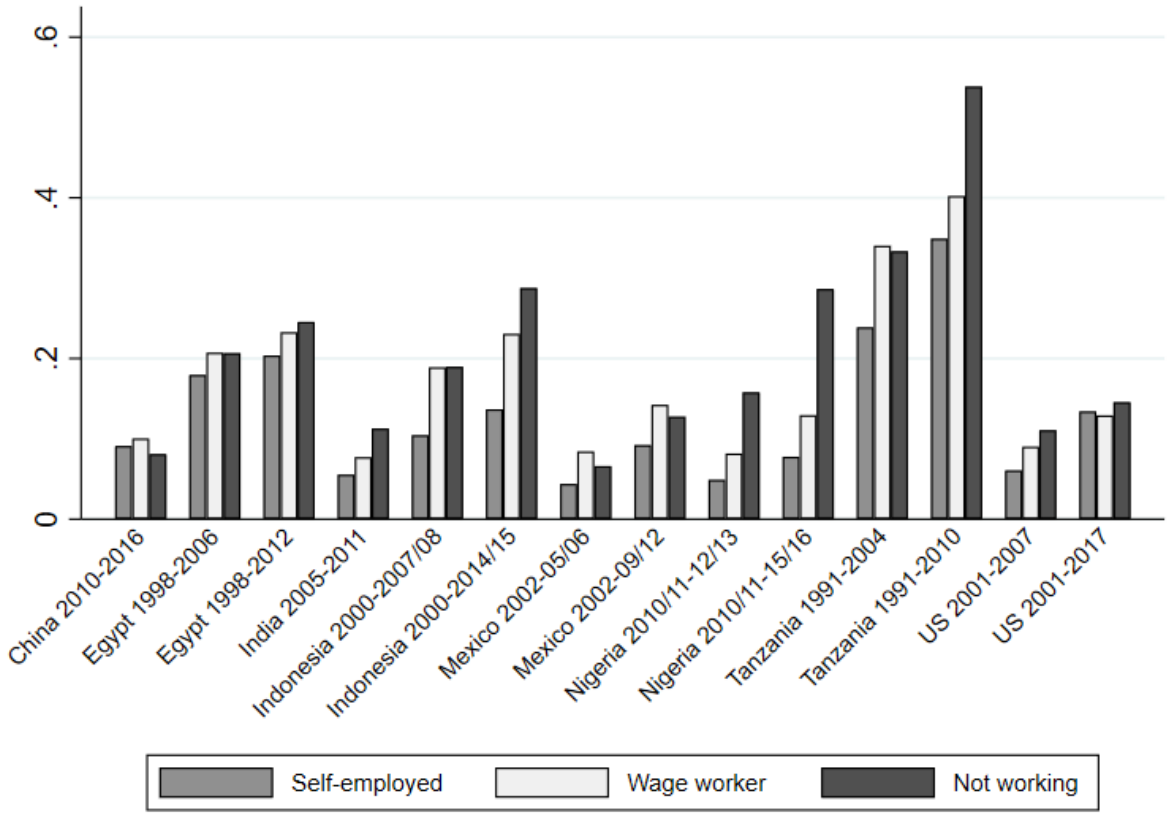
Figures and tables

Figure 1: Self-employment rates at destination, by occupation at baseline



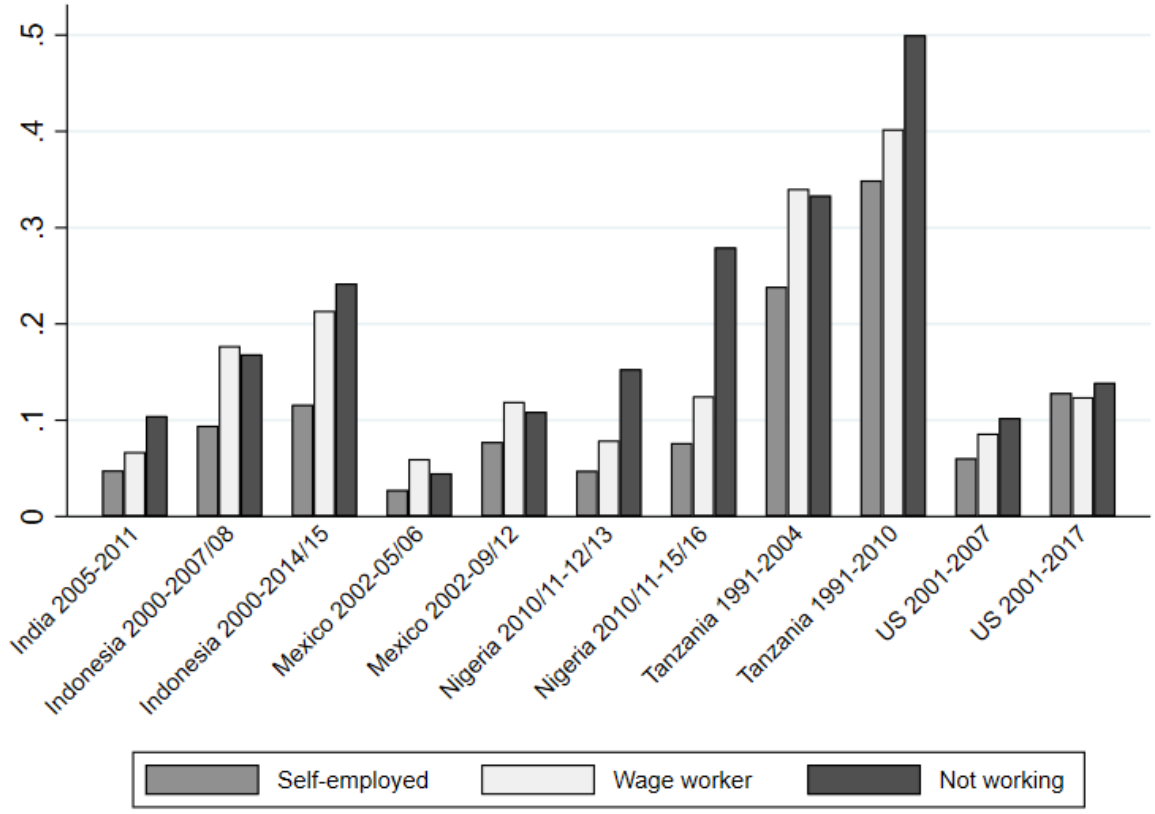
Notes: The figure reports self-employment rates at destination for the set of internal or international migrants aged 18-65 surveyed in the CFPS, ELMPS, IHDS, IFLS, KHDS, and PSID. We exclude individuals whose main economic activity at baseline is in agriculture. The final sample includes 15,377 distinct migrants and 18,205 migrant-waves. See section B of the online appendix for more details on each survey and variables construction.

Figure 2: Internal or international migration rates, by occupation at baseline



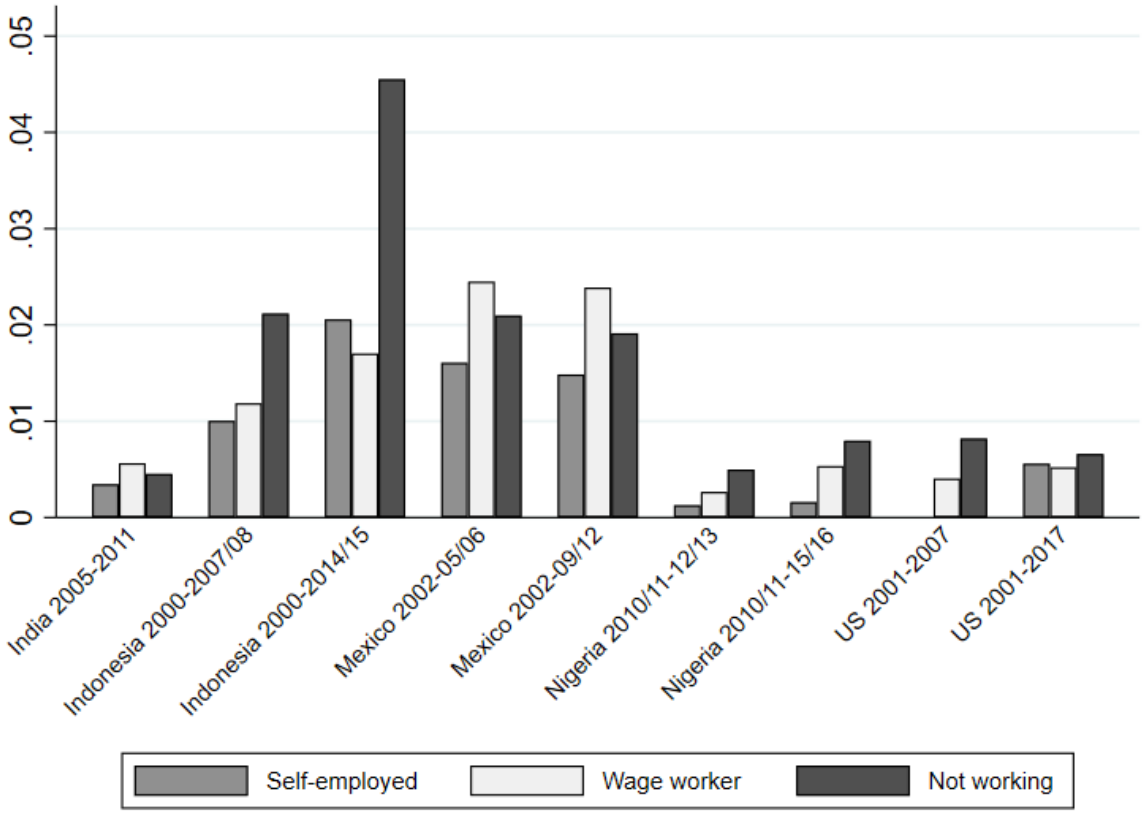
Notes: The figure reports aggregate migration rates for the set of individuals aged 18-65 surveyed in the CFPS, ELMPS, IHDS, IFLS, MxFLS, LSMS-ISA, KHDS, and PSID. We exclude individuals whose main economic activity at baseline is in agriculture. The final sample includes 138,687 distinct individuals and 191,125 respondent-waves. See section B of the online appendix for more details on each survey and variables construction.

Figure 3: Internal migration rates, by occupation at baseline



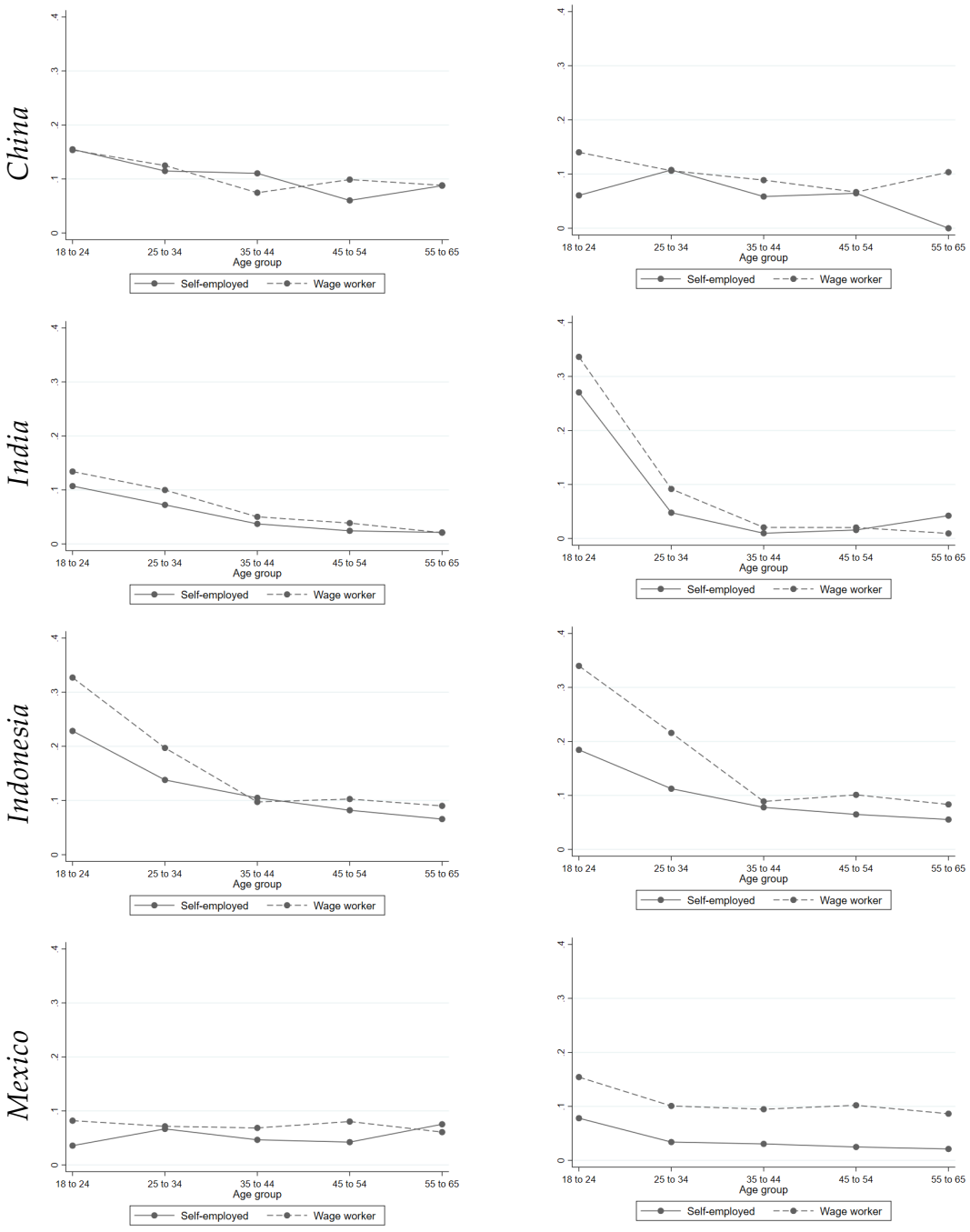
Notes: The figure reports internal migration rates for the set of individuals aged 18-65 surveyed in the IHDS, IFLS, MxFLS, LSMS-ISA, KHDS, and PSID. We do not report migration rates for respondents of the CFPS and ELMPS as these surveys do not track international migrants and internal migration rates are thus the same as the aggregate migration rates reported in figure 2. We exclude individuals whose main economic activity at baseline is in agriculture. The final sample includes 116,143 distinct individuals and 162,175 respondent-waves. See section B of the online appendix for more details on each survey and variables construction.

Figure 4: International migration rates, by occupation at baseline



Notes: The figure reports internal migration rates for the set of individuals aged 18-65 surveyed in the IHDS, IFLS, MxFLS, LSMS-ISA, and PSID. We do not report migration rates for respondents of the CFPS and ELMPS as these surveys do not track international migrants. We do not show migration rates for respondents of the KHDS as none of the surveyed self-employed or wage workers reports living abroad at one of the follow-up rounds. We exclude individuals whose main economic activity at baseline is in agriculture. The final sample includes 115,930 distinct individuals and 161,807 respondent-waves. See section B of the online appendix for more details on each survey and variables construction.

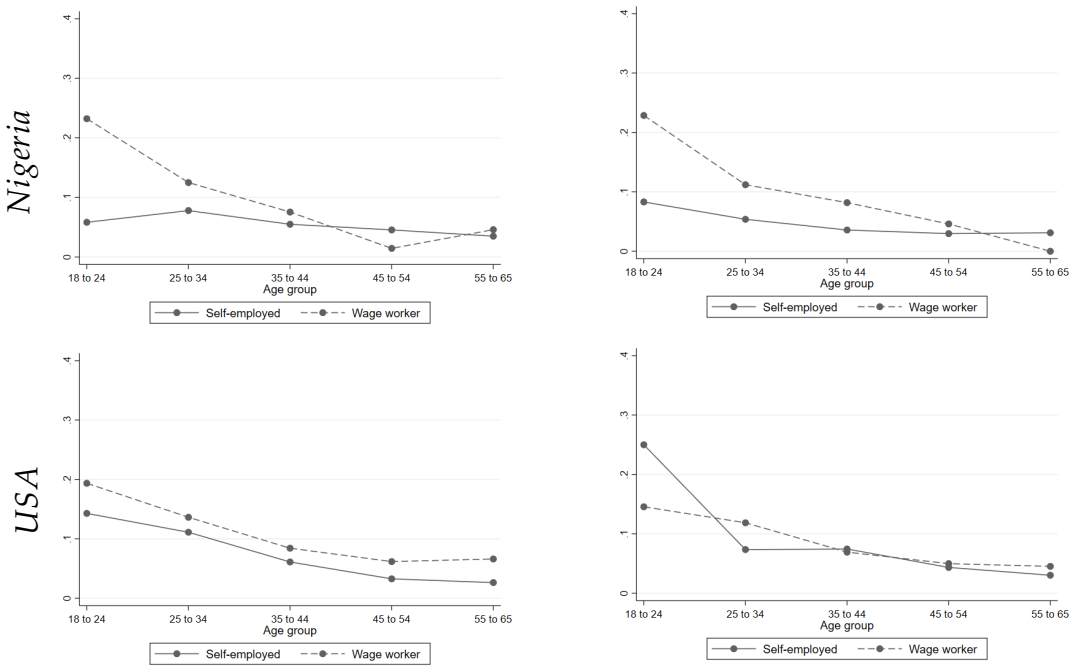
Figure 5: Internal or international migration rates, by occupation at baseline, age-group and gender



(a) Men

(b) Women

Figure 5: Internal or international migration rates, by occupation at baseline, age-group and gender (Continued)



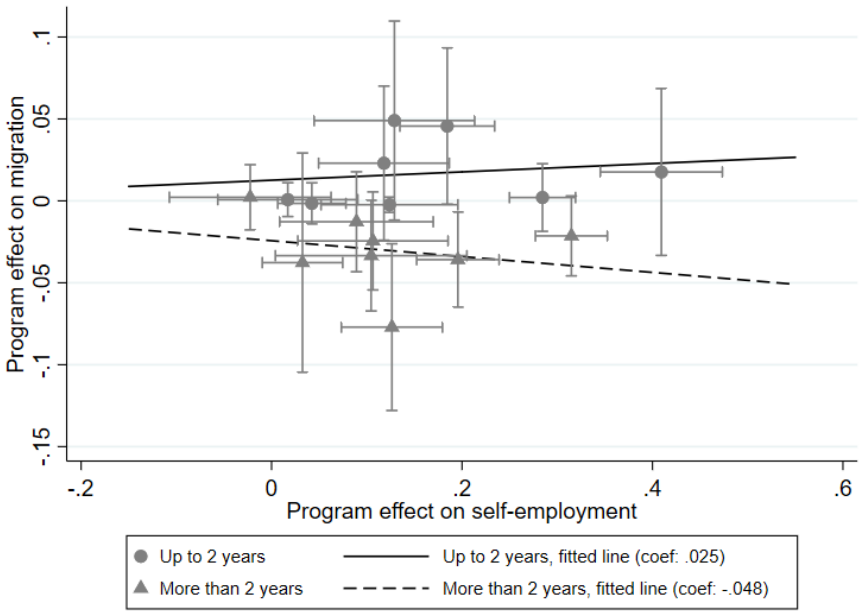
(a) Men

(b) Women

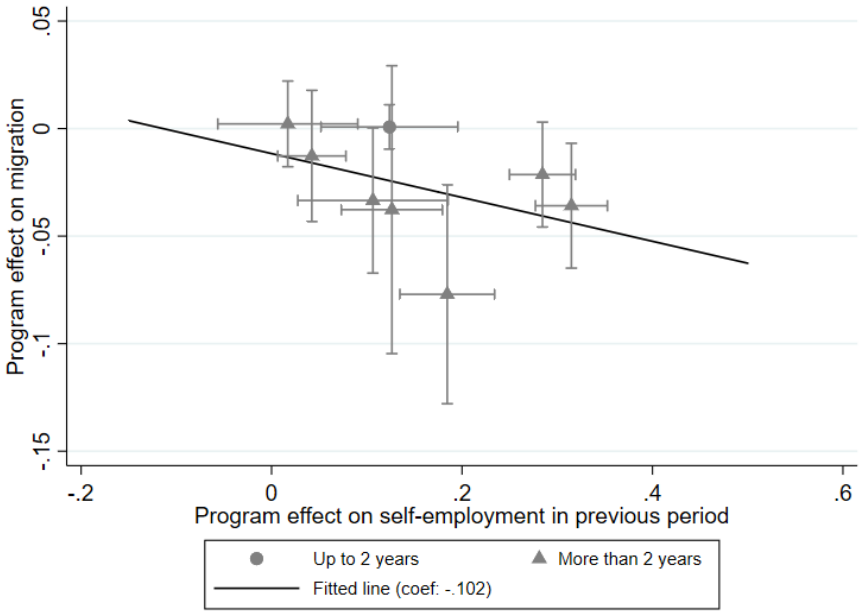
Notes: The figure reports migration rates by age-group and gender for the set of individuals aged 18-65 surveyed in the CFPS 2010 and 2016, IHDS 2005 and 2011/12, IFLS 2000 and 2007/08, MxFLS 2002 and 2005/06, LSMS-ISA 2010/11 and 2012/13, and PSID 2001 and 2007. We exclude individuals whose main economic activity at baseline is in agriculture. See section B of the online appendix for more details on each survey and variables construction.

Figure 6: Causal relationship between self-employment and migration

Panel A: Contemporaneous self-employment



Panel B: Lag self-employment



Notes: Each panel plots coefficients of the impact of programs listed in table 2 on self-employment and migration. Horizontal (vertical) error bars are ± 1.96 standard errors of the self-employment (migration) coefficient. Panel A plots the relationship between migration and self-employment when program effects on both outcomes are measured at the same point in time. A solid (dashed) line shows the average relation up to two years (more than two years) after the intervention. Panel B plots the relationship between program effects on migration at a given endline versus impacts on self-employment measured in the preceding endline. The fitted line shows the average relation between the two outcomes.

Table 1: Descriptive relationship between self-employment and migration, all survey waves

	Any migration	**Internal migration**	**International migration**	**Any migration**	**Internal migration**	**International migration**
	(1)	(2)	(3)	(4)	(5)	(6)
Self-employed	-0.025***	-0.023***	-0.002*	-0.026***	-0.024***	-0.001*
	(0.003)	(0.003)	(0.001)	(0.003)	(0.003)	(0.001)
Aged 25 to 34	-0.071***	-0.068***	-0.004***	-0.071***	-0.068***	-0.004***
	(0.005)	(0.005)	(0.001)	(0.005)	(0.005)	(0.001)
Aged 35 to 44	-0.114***	-0.105***	-0.007***	-0.113***	-0.106***	-0.007***
	(0.005)	(0.004)	(0.001)	(0.005)	(0.004)	(0.001)
Aged 45 to 54	-0.119***	-0.111***	-0.008***	-0.119***	-0.111***	-0.007***
	(0.005)	(0.005)	(0.001)	(0.005)	(0.005)	(0.001)
Aged 55 to 65	-0.125***	-0.118***	-0.007***	-0.124***	-0.118***	-0.006***
	(0.005)	(0.005)	(0.002)	(0.005)	(0.005)	(0.002)
Years of education	0.004***	0.004***	0.000	0.004***	0.004***	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Female	0.003	0.005**	-0.002***	0.003	0.005**	-0.002***
	(0.003)	(0.002)	(0.001)	(0.003)	(0.002)	(0.001)
arcsinh(income)				-0.001**	-0.001	-0.000***
				(0.000)	(0.000)	(0.000)
Wage worker mean	0.119	0.109	0.010	0.119	0.109	0.010
Sample size	87,741	87,713	75,601	87,493	87,465	75,353

Notes: The sample is the set of individuals aged 18-65 surveyed in the CFPS 2010 and 2016, ELMPS 1998, 2006 and 2012, IHDS 2005 and 2011/12, IFLS 2000, 2007/08 and 2014/15, MxFLS 2002, 2005/06 and 2009/12, LSMS-ISA 2010/11, 2012/13 and 2015/16, KHDS 1991/94, 2004 and 2010, and PSID 2001, 2007 and 2017. We drop respondents who are not self-employed or paid workers in the baseline wave of each survey. Refer to online appendix section B for more details on variable construction in the different surveys. Each column reports marginal effects from a probit regression of an indicator for migration on an indicator for self-employment at baseline. Each regression controls for country-wave fixed effects. Columns (4)-(6) additionally control for the inverse hyperbolic sine (arcsinh) of the respondent's income in the baseline wave. Standard errors in parenthesis are clustered at the respondent level.

Table 2: Overview of included studies

Study	Intervention	Country	Baseline	Number of follow-ups	Time since program end	Original sample size
Blattman et al. (2014); Blattman et al. (2019)	Cash grants of $400	Uganda	Feb-Mar 2008	3	2 years; 4 years; 9-years	2,677
Blattman et al. (2016)	Business training + grants of $150	Uganda	Apr-Jun 2009	1	16 months	1,800
Brudevold-Newman et al. (2017)	Microfranchising program or grants of $239	Kenya	Oct 2013	2	7-10 months; 14-22 months	905
DeMel et al. (2008); DeMel et al. (2012)	Cash or in-kind grants of $100 or $200	Sri Lanka	Apr 2005	9	1 to 4 quarters; 5 to 8 quarters; 5 years	408
DeMel et al. (2014)	Business training + grants of $130	Sri Lanka	Jan 2009	5	3-4 months; 7-8 months; 15-16 months; 24-25 months; 6 years	628
Fafchamps et al. (2014)	Cash and in-kind grants of $120	Ghana	Oct-Nov 2008	5	1 to 4 quarters; 3 years	793
McKenzie (2017b)	Grants of $50,000	Nigeria	Nov 2012-May 2013	3	2 years; 3 years 5 years (a)	1,841

(a) Refers to time since program application. See McKenzie (2017b), section B for a timeline of the follow-up surveys in comparison to the time of tranche payments.

Table 3: Programs impacts on self-employment and migration

	Impact on Self-Employment			Impact on Migration			Elasticity
Intervention	Sample size	Control mean	ITT	Sample size	Control mean	ITT	
Part 1: Includes short-distance migration							
Panel A: Uganda YOP							
2-year endline	2,005	0.499	0.184*** (0.025)	2,243	0.227	0.046* (0.024)	0.027 (0.110)
4-year endline	1,864	0.541	0.126*** (0.027)	2,029	0.354	-0.077*** (0.026)	-0.535** (0.207)
9-year endline	1,981	0.690	0.032 (0.022)	1,864	0.571	-0.038 (0.034)	-1.600 (1.636)
Panel B: Uganda WINGS							
16 months after grant	1,729	0.389	0.409*** (0.033)	1,729	0.130	0.018 (0.026)	0.003 (0.052)
Panel C: Nairobi microfranchising							
(a) Franchise treatment							
14–22 months after treatment	837	0.243	0.118*** (0.035)	837	0.109	0.023 (0.024)	0.210 (0.215)
(b) Grant treatment							
14–22 months after treatment	837	0.243	0.129*** (0.043)	837	0.109	0.049 (0.031)	0.326 (0.258)
Part 2: Medium/long-distance migration only							
Panel D: Sri Lanka SLMS							
5 years after grant	193	0.713	0.106*** (0.040)	178	0.043	-0.024 (0.015)	-0.317 (0.228)
10 years after grant	164	0.538	0.105** (0.051)	172	0.058	-0.033* (0.017)	-0.189 (0.158)
Panel E: Sri Lanka SIYB							
up to 8 months after training	1,208	0.429	0.124*** (0.037)	1,175	0.002	-0.002 (0.002)	-0.019 (0.020)
15–25 months after training	1,191	0.564	0.017 (0.037)	1,175	0.005	0.001 (0.005)	0.065 (0.567)
6 years after training	585	0.561	-0.022 (0.043)	614	0.013	0.002 (0.010)	-0.083 (0.374)

Table 3: Programs impacts on self-employment and migration (Continued)

	Impact on Self-Employment			Impact on Migration			Elasticity
Intervention	Sample size	Control mean	ITT	Sample size	Control mean	ITT	
Panel F: Ghana Microenterprises							
Up to 1 year after treatment	1,520	0.951	0.042** (0.018)	1,884	0.004	-0.002 (0.006)	-0.044 (0.170)
3 years after treatment	314	0.803	0.089** (0.041)	314	0.025	-0.013 (0.016)	-0.143 (0.192)
Panel G: Nigeria YouWin!							
2 years post application	1,686	0.635	0.284*** (0.018)	1,477	0.041	0.002 (0.011)	0.008 (0.039)
3 years post application	1,562	0.593	0.315*** (0.019)	1,279	0.056	-0.021* (0.012)	-0.063* (0.037)
5 years post application	1,685	0.582	0.196*** (0.022)	1,106	0.083	-0.036** (0.015)	-0.149** (0.061)

Notes: Columns (1) to (6) report impacts of several programs on self-employment and migration. The last column reports estimates from a two-stage least squares regression of the migration indicator on an indicator for self-employment instrumented by treatment status. Panel A uses the sample of participants to the Uganda YOP (Blattman et al., 2014, 2019). Each coefficient comes from a weighted least squares regression that controls for district fixed effects and a vector of baseline covariates. Regressions are weighted by inverse probabilities of attrition and selection into the endline tracking sample. Standard errors are clustered at the group level. Panel B uses data from the Uganda WINGS program (Blattman et al., 2016). Treatment effects are computed as the linear combination of the impact of an indicator for assignment to the general treatment group, and an indicator for assignment to the group dynamics training. Each regression controls for a vector of baseline covariates and strata fixed effects. Standard errors are clustered at the village level. Panel C uses data on the sample of participants to the Nairobi microfranchising interventions discussed in Brudevold-Newman et al. (2017). We further distinguish between franchise and grant treatment in sub-panel (a) and (b), respectively. Each regression controls for baseline covariates and fixed effects for randomization stratum, survey enumerator and survey month. Standard errors are robust. Panel D is based on the sample of male Sri Lanka microenterprise owners first studied in DeMel et al. (2008). The treatment variable is equal to the size of the one-time grant given to each enterprise. Standard errors are robust. Panel E uses data on the sample of potential owners that received the SIYB business training. All regressions include randomization strata fixed effects. The 8-months and 25-months regressions pool two survey rounds each. Round fixed effects are included in both regressions and standard errors are clustered at the individual level. Panel F takes data from the sample of male Ghana entrepreneurs receiving microenterprise grants as discussed in Fafchamps et al. (2014). Each regression includes strata (matched quadruplets) fixed effects and standard errors are clustered at the firm level. The 1-year regression pools data from the first 6 waves and additionally controls for wave fixed effects. Lastly, panel G presents results on the sample of winners to the YouWin! competition evaluated by McKenzie (2017b). Each regression controls for randomization strata fixed effects and standard errors are robust. See section C of the online appendix for more details on the randomized experiments analyzed and the variables used in each regression.

Table 4: Programs impacts on any employment and migration

	Impact on Any Employment			Impact on Migration			Elasticity
Intervention	Sample size	Control mean	ITT	Sample size	Control mean	ITT	
Part 1: Includes short-distance migration							
Panel A: Uganda YOP							
2-year endline	2,005	0.895	0.011 (0.015)	2,243	0.227	0.046* (0.024)	0.400 (1.696)
4-year endline	1,864	0.955	0.022*** (0.008)	2,029	0.354	-0.077*** (0.026)	-2.842** (1.283)
9-year endline	1,981	0.973	0.004 (0.008)	1,864	0.571	-0.038 (0.034)	-11.117 (24.334)
Panel B: Uganda WINGS							
16 months after grant	1,729	0.922	0.042*** (0.014)	1,729	0.130	0.018 (0.026)	0.554 (0.603)
Panel C: Nairobi microfranchising							
(a) Franchise treatment							
14–22 months after treatment	837	0.657	0.076** (0.035)	837	0.109	0.023 (0.024)	0.323 (0.349)
(b) Grant treatment							
14–22 months after treatment	837	0.657	0.057 (0.043)	837	0.109	0.049 (0.032)	0.807 (0.928)
Part 2: Medium/long-distance migration only							
Panel D: Sri Lanka SLMS							
5 years after grant	193	0.813	0.059 (0.036)	178	0.043	-0.024 (0.015)	-0.915 (1.034)
10 years after grant	164	0.754	0.073* (0.040)	172	0.058	-0.033* (0.017)	-0.281 (0.261)
Panel E: Sri Lanka SIYB							
up to 8 months after training	1,208	0.531	0.078** (0.036)	1,175	0.002	-0.002 (0.002)	-0.031 (0.035)
15–25 months after training	1,191	0.671	0.008 (0.035)	1,175	0.005	0.001 (0.005)	0.497 (13.62)
6 years after training	585	0.673	0.000 (0.040)	614	0.013	0.002 (0.010)	-0.390 (2.878)

Table 4: Programs impacts on any employment and migration (Continued)

	Impact on Any Employment			Impact on Migration			Elasticity
Intervention	Sample size	Control mean	ITT	Sample size	Control mean	ITT	
Panel F: Ghana Microenterprises							
Up to 1 year after treatment	1,520	0.960	0.030* (0.017)	1,884	0.004	-0.002 (0.006)	-0.061 (0.236)
3 years after treatment	314	0.815	0.089** (0.039)	314	0.025	-0.013 (0.016)	-0.143 (0.191)
Panel G: Nigeria YouWin!							
2 years post application	1,686	0.860	0.108*** (0.013)	1,477	0.041	0.002 (0.011)	0.018 (0.094)
3 years post application	1,562	0.850	0.103*** (0.014)	1,279	0.056	-0.021* (0.012)	-0.195* (0.114)
5 years post application	1,685	0.812	0.077*** (0.018)	1,106	0.083	-0.036** (0.015)	-0.455** (0.211)

Notes: Columns (1) to (6) report impacts of several programs on self-employment and migration. The last column reports estimates from a two-stage least squares regression of the migration indicator on an indicator for self-employment instrumented by treatment status. Panel A uses the sample of participants to the Uganda YOP (Blattman et al., 2014, 2019). Each coefficient comes from a weighted least squares regression that controls for district fixed effects and a vector of baseline covariates. Regressions are weighted by inverse probabilities of attrition and selection into the endline tracking sample. Standard errors are clustered at the group level. Panel B uses data from the Uganda WINGS program (Blattman et al., 2016). Treatment effects are computed as the linear combination of the impact of an indicator for assignment to the general treatment group, and an indicator for assignment to the group dynamics training. Each regression controls for a vector of baseline covariates and strata fixed effects. Standard errors are clustered at the village level. Panel C uses data on the sample of participants to the Nairobi microfranchising interventions discussed in Brudevold-Newman et al. (2017). We further distinguish between franchise and grant treatment in sub-panel (a) and (b), respectively. Each regression controls for baseline covariates and fixed effects for randomization stratum, survey enumerator and survey month. Standard errors are robust. Panel D is based on the sample of male Sri Lanka microenterprise owners first studied in DeMel et al. (2008). The treatment variable is equal to the size of the one-time grant given to each enterprise. Standard errors are robust. Panel E uses data on the sample of potential owners that received the SIYB business training. All regressions include randomization strata fixed effects. The 8-months and 25-months regressions pool two survey rounds each. Round fixed effects are included in both regressions and standard errors are clustered at the individual level. Panel F takes data from the sample of male Ghana entrepreneurs receiving microenterprise grants as discussed in Fafchamps et al. (2014). Each regression includes strata (matched quadruplets) fixed effects and standard errors are clustered at the firm level. The 1-year regression pools data from the first 6 waves and additionally controls for wave fixed effects. Lastly, panel G presents results on the sample of winners to the YouWin! competition evaluated by McKenzie (2017b). Each regression controls for randomization strata fixed effects and standard errors are robust. See section C of the online appendix for more details on the randomized experiments analyzed and the variables used in each regression.

Table 5: Meta-regressions

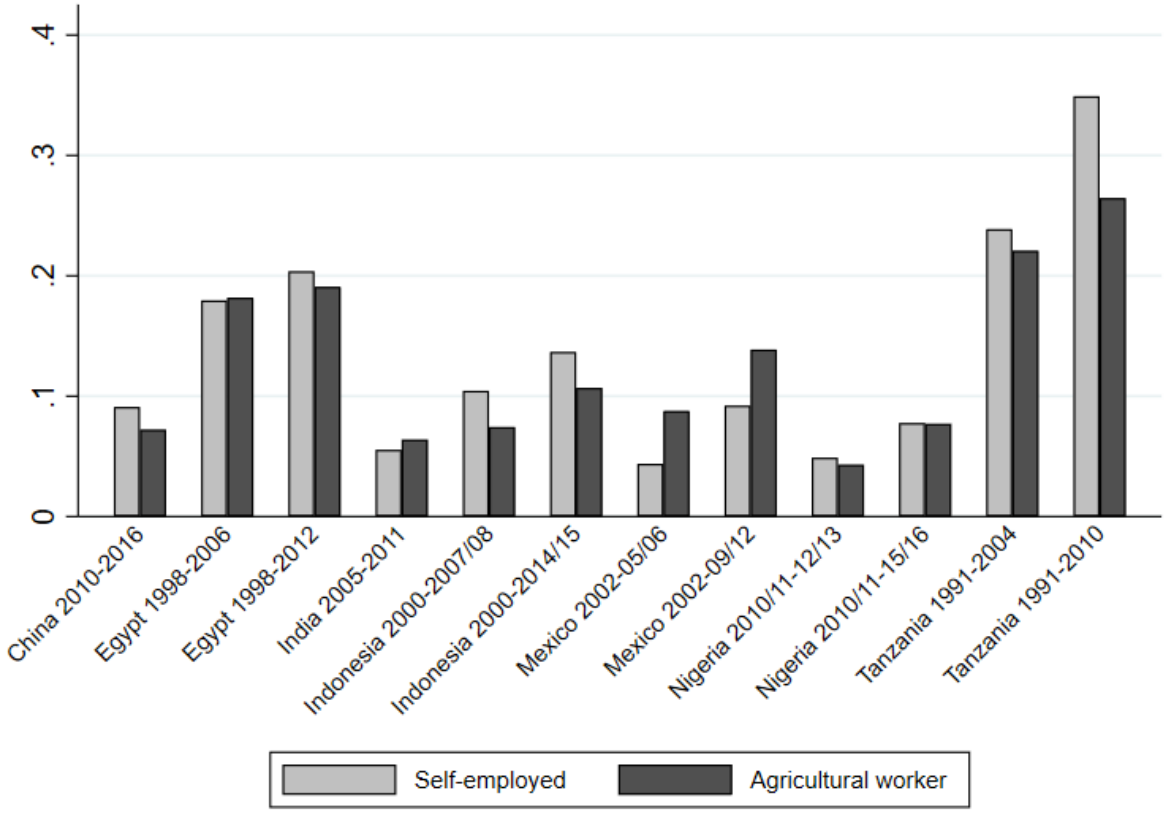
	ITT migration, unweighted				ITT migration, random effects			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	0.020	0.014	-0.003	-0.012	0.005	-0.001	-0.002	-0.003
	(0.012)	(0.014)	(0.005)	(0.016)	(0.007)	(0.007)	(0.004)	(0.013)
ITT self-employment	-0.003	0.036	0.079		-0.007	0.042	0.006	
	(0.054)	(0.070)	(0.041)		(0.041)	(0.052)	(0.041)	
Migration control mean	-0.030	-0.040	-0.501**		-0.026	-0.036	-0.166	
	(0.041)	(0.042)	(0.168)		(0.054)	(0.053)	(0.244)	
More than 2 years	-0.045***	-0.030	0.004		-0.024**	-0.009	-0.002	
	(0.012)	(0.021)	(0.009)		(0.009)	(0.013)	(0.011)	
More than 2 years x ITT self-empl		-0.103	-0.072			-0.113	-0.060	
		(0.115)	(0.044)			(0.079)	(0.062)	
Lag ITT self-employment				-0.102				-0.102
				(0.089)				(0.071)
Mean ITT migration	-0.007	-0.007	-0.013	-0.010	-0.006	-0.006	-0.006	-0.019
Mean ITT self-employment	0.141	0.141	0.126	0.150	0.141	0.141	0.126	0.150
Sample size	16	16	10	8	16	16	10	8
Long-dist migration only	No	No	Yes	No	No	No	Yes	No

Notes: Each column reports estimates from a regression where the dependent variable captures programs' ITT impacts on migration. In specifications (1) through (3), the independent variable captures ITT impacts on self-employment measured at the same point in time as the migration outcomes. Specification (1) controls for the level of migration in the control group of each intervention, and time since treatment through a dummy for outcomes measured more than two years after the treatment took place. Specification (2) adds an interaction term between time since treatment and ITT on self-employment. Specification (3) is similar to specification (2), but restricts the sample to studies for which we are able to isolate medium/long-distance migration. Specification (4) differs from specifications (1)–(3) in that the ITT impacts on self-employment are measured with a lag of one endline with respect to when migration is measured. Finally, specifications (5) through (8) reflect specifications (1)–(4) but are estimated from random effects regressions where the weight assigned to each study i is given by $w_i = \frac{1}{v_i+\tau^2}$, with the within-study error variance, v_i, computed from the standard error of the migration ITT coefficient, and the between-study variance, τ^2, estimated using the method of moments (following DerSimonian and Laird, 1986). The same weights are applied to the overall effect on migration reported in the mean ITT migration row, columns (5)–(8).

Online Appendix

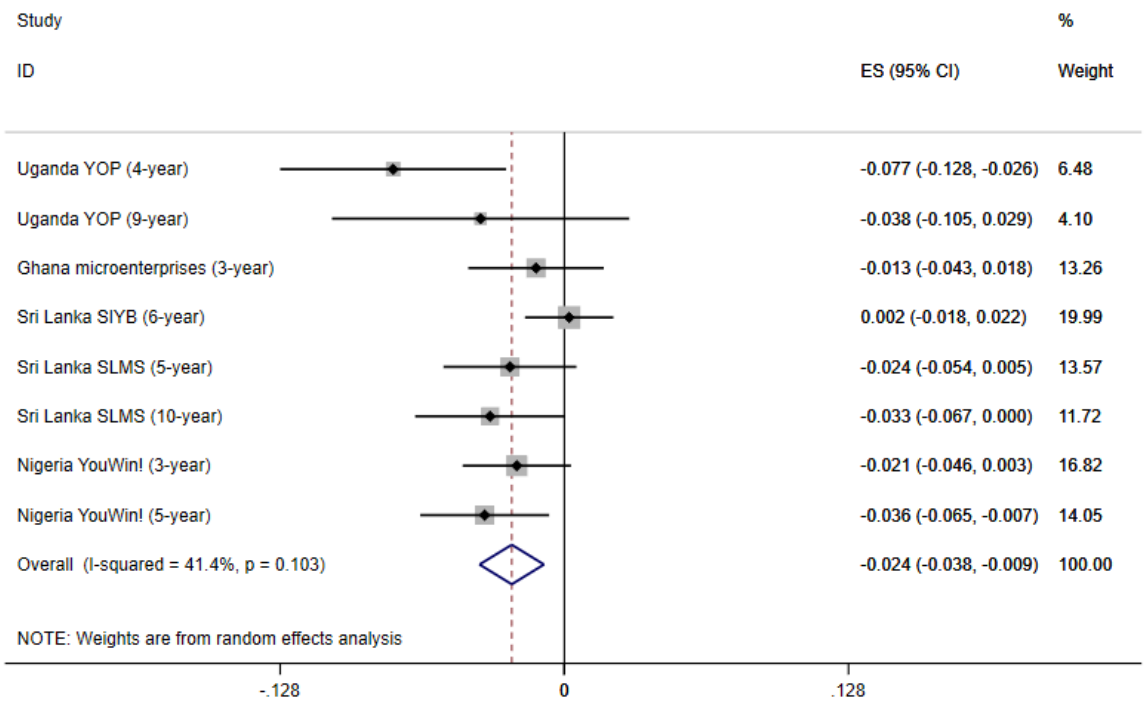
A Appendix figures and tables

Figure A.1: Internal or international migration rates, self-employed and agricultural workers at baseline



Notes: The figure reports aggregate migration rates for the set of individuals aged 18-65 surveyed in the CFPS, ELMPS, IHDS, IFLS, MxFLS, LSMS-ISA, and KHDS. We include all respondents who are self-employed or work in agricultural activities at baseline. We do not consider the two PSID waves as we are unable to consistently determine occupation in agricultural activities for all survey respondents. The final sample includes 72,599 distinct individuals and 93,299 respondent-waves. See section B of the online appendix for more details on each survey and variables construction.

Figure A.2: Meta-analysis forest plot of long-term migration effects



Notes: The figure plots coefficients of programs' ITT impacts on migration, for the subset of study-endlines measured more than two years after the initial intervention. Horizontal bars are 95% confidence intervals. The overall effect and confidence interval are shown as a diamond at the bottom at the panel, and are computed from a random effects model using the method of DerSimonian and Laird (1986). The size of each gray square is proportional to the weight given to the corresponding study (also reported in the last column as percentages). The estimate of heterogeneity of study effects (I-squared) is derived from the Mantel-Haenszel model (Higgins et al., 2003).

Table A.1: Descriptive relationship between self-employment and migration, baselines and first follow-ups

	Any migration	**Internal migration**	**International migration**	**Any migration**	**Internal migration**	**International migration**
	(1)	(2)	(3)	(4)	(5)	(6)
Self-employed	-0.023***	-0.021***	-0.002***	-0.024***	-0.021***	-0.002**
	(0.003)	(0.002)	(0.001)	(0.003)	(0.002)	(0.001)
Aged 25 to 34	-0.071***	-0.067***	-0.004***	-0.070***	-0.067***	-0.004***
	(0.005)	(0.004)	(0.001)	(0.005)	(0.004)	(0.001)
Aged 35 to 44	-0.112***	-0.104***	-0.007***	-0.111***	-0.104***	-0.007***
	(0.004)	(0.004)	(0.001)	(0.004)	(0.004)	(0.001)
Aged 45 to 54	-0.120***	-0.112***	-0.008***	-0.120***	-0.112***	-0.008***
	(0.005)	(0.004)	(0.001)	(0.005)	(0.004)	(0.001)
Aged 55 to 65	-0.123***	-0.115***	-0.007***	-0.123***	-0.116***	-0.007***
	(0.005)	(0.005)	(0.001)	(0.005)	(0.005)	(0.001)
Years of education	0.004***	0.003***	0.000*	0.004***	0.003***	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Female	0.004	0.007***	-0.003***	0.004	0.007***	-0.003***
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)
arcsinh(income)				-0.001*	-0.000	-0.000**
				(0.000)	(0.000)	(0.000)
Wage worker mean	0.101	0.092	0.008	0.101	0.092	0.008
Sample size	64,911	64,911	55,671	64,766	64,766	55,526

Notes: The sample is the set of individuals aged 18-65 surveyed in the CFPS 2010 and 2016, ELMPS 1998 and 2006, IHDS 2005 and 2011/12, IFLS 2000 and 2007/08, MxFLS 2002 and 2005/06, LSMS-ISA 2010/11 and 2012/13, KHDS 1991/94 and 2004, and PSID 2001 and 2007. We drop respondents who are not self-employed or paid workers in the baseline wave of each survey. Refer to online appendix section B for more details on variable construction in the different surveys. Each column reports marginal effects from a probit regression of an indicator for migration on an indicator for self-employment at baseline. Each regression controls for country fixed effects. Columns (4)-(6) additionally control for the inverse hyperbolic sine (arcsinh) of the respondent's income in the baseline wave.

Table A.2: Descriptive relationship between self-employment and migration, baselines and second follow-ups

	Any migration	**Internal migration**	**International migration**	**Any migration**	**Internal migration**	**International migration**
	(1)	(2)	(3)	(4)	(5)	(6)
Self-employed	-0.032***	-0.030***	-0.001	-0.033***	-0.031***	-0.001
	(0.006)	(0.006)	(0.002)	(0.006)	(0.006)	(0.002)
Aged 25 to 34	-0.069***	-0.066***	-0.003	-0.069***	-0.067***	-0.003
	(0.009)	(0.009)	(0.003)	(0.009)	(0.009)	(0.003)
Aged 35 to 44	-0.115***	-0.107***	-0.007***	-0.115***	-0.108***	-0.007***
	(0.009)	(0.009)	(0.003)	(0.009)	(0.009)	(0.003)
Aged 45 to 54	-0.110***	-0.103***	-0.007**	-0.110***	-0.104***	-0.007**
	(0.010)	(0.009)	(0.003)	(0.010)	(0.009)	(0.003)
Aged 55 to 65	-0.123***	-0.119***	-0.004	-0.123***	-0.120***	-0.004
	(0.011)	(0.011)	(0.004)	(0.011)	(0.011)	(0.004)
Years of education	0.006***	0.006***	-0.000	0.006***	0.006***	-0.000
	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)
Female	-0.002	-0.000	-0.002	-0.002	0.000	-0.002
	(0.005)	(0.005)	(0.001)	(0.005)	(0.005)	(0.001)
arcsinh(income)				-0.001*	-0.001	-0.000***
				(0.001)	(0.001)	(0.000)
Wage worker mean	0.171	0.159	0.014	0.171	0.159	0.014
Sample size	22,830	22,802	19,930	22,727	22,699	19,827

Notes: The sample is the set of individuals aged 18-65 surveyed in the KHDS 1991/94 and 2010, PSID 2001 and 2017, ELMPS 1998 and 2012, IFLS 2000 and 2014/15, MxFLS 2002 and 2009/12, and LSMS-ISA 2010/11 and 2015/16. We drop respondents who are not self-employed or paid workers in the baseline wave of each survey. Refer to online appendix section B for more details on variable construction in the different surveys. Each column reports marginal effects from a probit regression of an indicator for migration on an indicator for self-employment at baseline. Each regression controls for country fixed effects. Columns (4)-(6) additionally control for the inverse hyperbolic sine (arcsinh) of the respondent's income in the baseline wave.

Table A.3: Descriptive relationship between self-employment and migration including respondents not employed at baseline, all survey waves

	Any migration	**Internal migration**	**International migration**	**Any migration**	**Internal migration**	**International migration**
	(1)	(2)	(3)	(4)	(5)	(6)
Self-employed	-0.027***	-0.025***	-0.001	-0.027***	-0.025***	-0.001
	(0.003)	(0.003)	(0.001)	(0.003)	(0.003)	(0.001)
Not working	0.010***	0.007***	0.003***	0.006*	0.008**	-0.000
	(0.002)	(0.002)	(0.001)	(0.003)	(0.003)	(0.001)
Aged 25 to 34	-0.106***	-0.100***	-0.005***	-0.106***	-0.101***	-0.004***
	(0.003)	(0.003)	(0.001)	(0.003)	(0.003)	(0.001)
Aged 35 to 44	-0.146***	-0.137***	-0.007***	-0.146***	-0.138***	-0.006***
	(0.003)	(0.003)	(0.001)	(0.003)	(0.003)	(0.001)
Aged 45 to 54	-0.154***	-0.145***	-0.007***	-0.154***	-0.146***	-0.006***
	(0.003)	(0.003)	(0.001)	(0.003)	(0.003)	(0.001)
Aged 55 to 65	-0.163***	-0.153***	-0.008***	-0.163***	-0.153***	-0.008***
	(0.003)	(0.003)	(0.001)	(0.003)	(0.003)	(0.001)
Years of education	0.006***	0.005***	0.000***	0.006***	0.005***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Female	0.008***	0.014***	-0.005***	0.008***	0.015***	-0.005***
	(0.002)	(0.002)	(0.000)	(0.002)	(0.002)	(0.000)
arcsinh(income)				-0.000	0.000	-0.000***
				(0.000)	(0.000)	(0.000)
Wage worker mean	0.119	0.109	0.010	0.119	0.109	0.010
Sample size	185,827	185,773	156,712	185,579	185,525	156,464

Notes: The sample is the set of individuals aged 18-65 surveyed in the CFPS 2010 and 2016, ELMPS 1998, 2006 and 2012, IHDS 2005 and 2011/12, IFLS 2000, 2007/08 and 2014/15, MxFLS 2002, 2005/06 and 2009/12, LSMS-ISA 2010/11, 2012/13 and 2015/16, KHDS 1991/94, 2004 and 2010, and PSID 2001, 2007 and 2017. We drop respondents who are not self-employed, paid workers, or not employed in the baseline wave of each survey. Refer to online appendix section B for more details on variable construction in the different surveys. Each column reports marginal effects from a probit regression of an indicator for migration on an indicator for self-employment at baseline. Each regression controls for country-wave fixed effects. Columns (4)-(6) additionally control for the inverse hyperbolic sine (arcsinh) of the respondent's income in the baseline wave. Standard errors in parenthesis are clustered at the respondent level.

Table A.4: Descriptive relationship between self-employment and migration for different levels of administrative divisions, all survey waves

	Level 3 migration	**Level 2 migration**	**Level 1 migration**	**Level 3 migration**	**Level 2 migration**	**Level 1 migration**
	(1)	(2)	(3)	(4)	(5)	(6)
Self-employed	-0.008***	-0.012***	-0.008***	-0.008***	-0.012***	-0.008***
	(0.003)	(0.003)	(0.001)	(0.003)	(0.003)	(0.001)
Aged 25 to 34	-0.013***	-0.027***	-0.024***	-0.014***	-0.027***	-0.024***
	(0.005)	(0.005)	(0.003)	(0.005)	(0.005)	(0.003)
Aged 35 to 44	-0.024***	-0.043***	-0.037***	-0.025***	-0.042***	-0.037***
	(0.005)	(0.005)	(0.003)	(0.005)	(0.005)	(0.003)
Aged 45 to 54	-0.024***	-0.042***	-0.039***	-0.025***	-0.042***	-0.039***
	(0.005)	(0.005)	(0.003)	(0.005)	(0.005)	(0.003)
Aged 55 to 65	-0.027***	-0.038***	-0.043***	-0.027***	-0.038***	-0.043***
	(0.006)	(0.006)	(0.003)	(0.006)	(0.006)	(0.003)
Female	0.001***	0.003***	0.001***	0.001***	0.003***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Years of education	-0.004	0.003	-0.003**	-0.003	0.003	-0.003**
	(0.003)	(0.002)	(0.001)	(0.003)	(0.002)	(0.001)
arcsinh(income)				0.000	-0.000	-0.000
				(0.000)	(0.000)	(0.000)
Wage worker mean	0.056	0.069	0.039	0.056	0.069	0.039
Sample size	32,549	44,089	78,594	32,301	43,841	78,346

Notes: The sample is the set of individuals aged 18-65 surveyed in the CFPS 2010 and 2016, ELMPS 1998, 2006 and 2012, IHDS 2005 and 2011/12, IFLS 2000, 2007/08 and 2014/15, MxFLS 2002, 2005/06 and 2009/12, LSMS-ISA 2010/11, 2012/13 and 2015/16, KHDS 1991/94, 2004 and 2010, and PSID 2001, 2007 and 2017. We drop respondents who are not self-employed or paid workers in the baseline wave of each survey. Level 1 administrative divisions include provinces for China and Indonesia, governorates for Egypt, states for India, Mexico, Nigeria and US, and regions for Tanzania. Level 2 administrative divisions are defined as counties for China, aqsam for Egypt, kabupaten for Indonesia, municipios for Mexico, local government areas for Nigeria, and the Kagera region for Tanzania. Level 3 administrative divisions detail sheyakhat' for Egypt, kecamatan for Indonesia, localities for Mexico, and villages for Tanzania. Refer to online appendix section B for more details on variable construction in the different surveys. Each column reports marginal effects from a probit regression of an indicator for migration on an indicator for self-employment at baseline. Each regression controls for country-wave fixed effects. Columns (4)-(6) additionally control for the inverse hyperbolic sine (arcsinh) of the respondent's income in the baseline wave. Standard errors in parenthesis are clustered at the respondent level.

Table A.5: Other studies considered

Study	Intervention	Country	Reason for not inclusion
Adoho et al. (2014)	Job or business training	Liberia	Positive effect of business training on self-employment but short-term horizon (outcomes measured 7 months after intervention)
Attanasio et al. (2015)	Microcredit	Mongolia	Public use data does not include migration
Attanasio et al. (2017)	Vocational training	Colombia	10-years evaluation requires access to several administrative data sets with focus on formal employment
Augsburg et al. (2012)	Microfinance	Bosnia and Herzegovina	Positive impact on self-employment but short-term horizon (outcomes measured 14 months after intervention)
Bandiera et al. (2017)	Graduation program	Bangladesh	Public use data does not include migration
Bandiera et al. (2018)	Vocational training	Uganda	No attempt to track respondents who moved outside BRAC branch office area
Banerjee et al. (2015); Banerjee et al. (2016)	Graduation program	West Bengal	Public use data does not include migration
Berge et al. (2014)	Business training and grant	Tanzania	No effect on business survival and short-term horizon (outcomes measured 4-7 months after intervention)
Blattman and Annan (2016)	Agricultural training + in-kind grants of $125	Liberia	Short-term horizon (outcomes measured 14 months after intervention) and no effect on self-employment
Blattman and Dercon (2018); Blattman et al. (2019b)	Cash grants of $300 or job offer	Ethiopia	Respondents location was not accurately reported at baseline and follo-ups
Bruhn and Zia (2011)	Business education	Bosnia and Herzegovina	Short-term horizon (outcomes measured 5-6 months after intervention) and no effect on business survival
Calderon et al. (2013)	Business skills course	Mexico	No significant effect on firms survival
Card et al. (2011)	Job training program	Dominican Republic	Small impact on employment in the short run (10-14 months after training) and randomized design potentially compromised
Cho et al. (2013)	Vocational training	Malawi	Follow-up after only 4 months and 46% attrition rate
Crépon et al. (2011)	Expansion of MFI	Morocco	No effect on business start-up
Drexler et al. (2014)	Business training	Dominican Republic	Does not report effects on firms survival or start-up

Table A.5: Other studies considered (Continued)

Study	Intervention	Country	Reason for not inclusion
Dupas and Robinson (2013)	Access to noninterest-bearing bank accounts	Kenya	No effect on hours worked as self-employed
Fafchamps and Quinn (2017)	Cash grants of $1,000	Ethiopia, Tanzania, and Zambia	Positive impact on self-employment but short-term horizon (outcomes measured 6 months after grant)
Fiala (2018)	Capital and training	Uganda	Short-term horizon – outcomes measured six and nine months after treatment (and no effects on survival reported)
Field et al. (2013)	Change repayment term of microfinance loan	India	The authors are working on a 10-year follow-up and will provide the data once available
Giné and Mansuri (2014)	Business training	Pakistan	Respondents' home location not recorded
Haushofer and Shapiro (2016)	Cash grants of $404 to $1,525	Kenya	No effect on non-agricultural business ownership and short-term horizon (outcomes measured 9 months after grant)
Hirshleifer et al. (2015)	Vocational training	Turkey	Small treatment effect on formal employment one year after training, which dissipates after three years
Karlan and Valdivia (2011)	Business training	Peru	No effect on employment outcomes
Karlan and Zinman (2011)	Microcredit	Philippines	30% attrition at follow-up
Karlan and Zinman (2009)	Microcredit	South Africa	Short-term horizon: outcomes measures 6-12 months after intervention (longer-term effects only on credit scores)
Maitra and Mani (2017)	Vocational education	India	Migrants not tracked outside of New Delhi
Mano et al. (2012)	Business managerial training	Ghana	Positive effect on survival but short-term horizon (outcomes measured 12 months after intervention)
Premand et al. (2016)	Entrepreneurship education track	Tunisia	Small increase in self-employment but short-term horizon: outcomes measured 9 to 12 months after end of intervention
Valdivia (2015)	Business training	Peru	Positive impact of general training on business start-up but short-term horizon (effects in second follow-up, 12-15 months after treatment)

Notes: The table reports a list of employment-related interventions that were not included in the analysis of this paper for various reasons. For a review of the related literature see Blattman and Ralston (2015), Cho and Honorati (2014), and McKenzie and Woodruff (2013).

Table A.6: Attrition rates of included studies

Study	Time since program end	Attrition rate
Blattman et al. (2014); Blattman et al. (2019a)	2 years	15%
	4 years	18%
	9 years	14%
Blattman et al. (2016)	16 months	3.7%
Brudevold-Newman et al. (2017)	7-10 months	6%
	14-22 months	7.5%
DeMel et al. (2008); DeMel et al. (2012)	8 quarters	9.6%
	5 years	6% (a)
DeMel et al. (2014)	4 months	6.4%
	8 months	6.5%
	16 months	10.8%
	25 months	11.5% (a)
	6 years	14.6% (a)
Fafchamps et al. (2014)	1 to 4 quarters	16.6% (b)
	3 years	14% (a)
McKenzie (2017)	2 years	24.4%
	3 years	11.1%
	5 years	16.9%

(a) Refers to rate of firms interviewed at follow-up. Survivorship and location information could have then been collected on a larger fraction of firms from other sources.
(b) Did not answer survey in any of the waves 4 to 6.

Table A.7: Impact of YOP on specific economic activities and migration

	2-year endline				4-year endline				9-year endline			
	Sample size	Control mean	ITT	IV	Sample size	Control mean	ITT	IV	Sample size	Control mean	ITT	IV
Migration	2,243	0.227	0.046*		2,029	0.354	-0.077***		1,864	0.571	-0.038	
			(0.024)				(0.026)				(0.034)	
Hours worked non chores	2,005	24.911	4.086***	0.001	1,864	32.241	5.519***	-0.012**	1,981	44.681	0.513	-0.150
			(1.071)	(0.005)			(1.286)	(0.005)			(1.593)	(0.787)
Hours agricultural activities	2,005	13.904	-1.223	-0.004	1,864	18.765	0.422	-0.144	1,981	17.336	0.079	-0.180
			(0.755)	(0.018)			(0.945)	(0.291)			(0.856)	(0.618)
Hours non-agricultural activities	2,005	11.007	5.309***	0.001	1,864	13.475	5.097***	-0.013**	1,981	27.345	0.434	-0.887
			(0.865)	(0.004)			(0.999)	(0.005)			(1.488)	(24.982)
Hours low-skill labor	2,005	1.508	0.153	0.024	1,864	2.268	-0.117	0.531	1,981	10.933	-1.206	0.041
			(0.360)	(0.104)			(0.401)	(1.719)			(0.990)	(0.043)
Hours high-skill labor	2,005	1.244	0.659**	0.008	1,864	1.843	0.898**	-0.075	1,981	2.931	0.906	-0.055
			(0.330)	(0.030)			(0.444)	(0.047)			(0.582)	(0.054)
Hours skilled trades	2,005	2.925	4.706***	0.001	1,864	2.819	3.779***	-0.018***	1,981	2.826	2.796***	-0.019
			(0.612)	(0.004)			(0.548)	(0.007)			(0.529)	(0.014)
No employment past month	2,005	0.105	-0.011	-0.400	1,868	0.046	-0.022***	2.842**	1,981	0.027	-0.004	11.117
			(0.015)	(1.696)			(0.009)	(1.283)			(0.008)	(24.334)
Non-agricultural occupation	2,005	0.156	0.049***	0.108	1,868	0.187	0.011	-6.331	1,981	0.555	0.029	-2.529
			(0.012)	(0.433)			(0.010)	(6.418)			(0.023)	(3.760)
Any skilled trade	2,005	0.174	0.272***	0.019	1,868	0.220	0.260***	-0.257***	1,981	0.175	0.197***	-0.254
			(0.025)	(0.075)			(0.026)	(0.093)			(0.023)	(0.183)
More 30 hours skilled trade	2,005	0.038	0.054***	0.095	1,868	0.030	0.037***	-1.765**	1,981	0.033	0.029***	-1.930
			(0.013)	(0.381)			(0.013)	(0.851)			(0.011)	(1.646)

Notes: The sample is the set of participants to the Uganda's Youth Opportunities Program (YOP) evaluated by Blattman et al. (2014) and Blattman et al. (2019a). Each ITT coefficient is estimated from a weighted least squares regression of the dependent variable on a treatment indicator, district fixed effects, and a vector of the baseline covariates reported in Table II of Blattman et al. (2014). Standard errors in parenthesis are clustered at the applicant group level. All regressions are weighted by inverse probabilities of attrition and selection into the endline tracking sample. IV coefficients are estimated from weighted two-stage least squares regressions of a migration indicator on the economic activity variable reported in the corresponding row, instrumented by treatment status. See section C of the online appendix for more details on the YOP program and variables construction.

B Survey data construction

B.1 Chinese Family Panel Studies (CFPS)

Baseline (2010):

- Employment status: defined by the answer to question G3 from the Adult questionnaire ("Do you currently have a job").
- Occupation type: for respondents with non-missing employment status, defined by the answer to question G303 of the Adult questionnaire ("What is the overall type of your current job?"). Self-employment and wage workers exclude workers who are currently primarily engaging in agricultural work (question G4).
- Income: from question K601 ("Your personal income (from all sources) last year was _____ yuan") in the Adult questionnaire.

Third follow-up (2016):

- Occupation type: from variable jobclass (generated from the answers to job module [EHC-Job] in the Adult questionnaire).
- Migration: constructed using changes in province or county since baseline. Validated using answers to the migration module [EHC-RESI]. The current version of CFPS only reports province for this module. We could thus manually check that the current province in 2016 corresponds to the province reported in AR101 ("What was your address when interviewed in" [CAPI] Load CFPS2014_time"") for respondents that report an error in the 2014 filed residence, or the province reported in AR201 ("What is your current primary address") when the respondent reports to have moved with respect to 2014 (question AR2, "Is " [CAPI] Load CFPS2014_residence"your current address?").

Notes: CFPS does not track international migrants.

B.2 Egypt Labor Market Panel Survey (ELMPS)

Baseline (1998)

- Employment status: from chapter 1, question 1501 ("Did you participate in any employment during the past three months ending 31 October 1998?").

- Self-employment: refer to primary job in past three months (from question 2122 of chapter 2, Job Characteristics). Includes self-employed not employing others and employers. Exclude agriculture, forestry and fishing using the activity category from question 2107 ("What is the economic activity of your main job during the last three months?").

- Wage worker: as before, but including respondents classified as waged, monetary or in-kind workers in question 2122.

- Agricultural worker: Individuals working in agriculture, forestry or fishing according to question 2107.

- Income: sum of basic wage, supplementary payment, bonus, incentives, overtime, profits, and other earnings as detailed in question 4104 of chapter 4 (Earnings). Add average daily wage (x 20) for irregular workers (question 4109).

First follow-up (2006) and second follow-up (2012):
Both follow-up surveys have similar structure. In what follows we refer to questions in the second follow-up questionnaire.

- Self-employment: refer to primary job in past three months (from question 5134 of chapter 5). Includes self-employed not employing others and employers. Exclude agriculture, forestry and fishing using the activity category from question 5103 ("What is the economic activity of the enterprise you work in or the job you do if not in an enterprise?").

- Migration: the survey records each respondent's governorate (variable gov_YY), qism (constructed as gov_YY + qism_YY), and sheyakha (gov_YY + qism_YY + shyakha_YY). We code governorate migration, qism migration, and sheyakha migration if a respondent experiences a move across relevant geographic units between two survey waves.

Notes: ELMPS tracks international migrants but it is not possible to directly link them to the baseline survey. Consequently, we decided against including international migrants in the analysis as we could not measure their occupation type at baseline.

B.3 India Human Development Survey (IHDS)

Baseline (2005):

- We impute the main activity of each respondent based on the yearly number of hours reported working in each activity in the household questionnaire. Variables nf8 and nf9 define the number of hours worked in a year in the first household non-farm business.[18] Similarly, nf17 and nf18 refer to the second business, and nf26 and nf27 to the third business. Variables fm29 and fm30 define instead the number of hours worked in a year in the household farm.[19] Finally, ws6year defines the number of hours worked in paid jobs in the previous year.[20] Based on this, we define each job category as follows:
  - Self-employment: if business hours $\geq$ 240, wage work hours $<$ 240, and agricultural hours $<$ 240.
  - Wage worker: if wage work hours $\geq$ 240 (with industry code different than agriculture, plantations, livestock, ag. services, forestry, and fishing), business hours $<$ 240, and agricultural hours $<$ 240.
  - Agricultural worker: if agricultural hours $\geq$ 240, business hours $<$ 240 and no old age pension; or if wage work hours $\geq$ 240 (with industry code equal to agriculture, plantations, livestock, ag. services, forestry, or fishing), and business hours $<$ 240.
  - Not working: if business hours $<$ 240, wage work hours $<$ 240, and agricultural hours $<$ 240.
- Income: computed as sum of annual non-farm business income, wages and salary, and net agricultural income. Annual wages and salary are available at the individual level (questions 6.7-8 "How much was [NAME] paid in cash for this work"). Non-farm business income and net agricultural income are instead aggregated at the household level. We then impute individual business income by weighting household business income by the number of hours the respondent spent working in the business in a year (questions 7.8-9, 7.17-18, 7.26-27) over total hours spent by the household in the business. Similarly, agricultural income is computed by weighting household agricultural income by the number of hours the respondent worked in the activity (questions 4.29-30) over total household farm hours.

[18] Reference question: "Does anybody in this household run their own business, however big or small? Does anybody make something for sale, such as cloth or some food like pickles? Or does anybody sell something in a market or to customers of any sort? Or does anybody provide a service to others for a price, either a skilled service like a doctor or an unskilled service like a barber?"

[19] Reference question: "Now I would like to ask about people in your household who helped to work on the farm the last 12 months".

[20] Reference question: "Now, [besides work on the household farm or in any of the household's businesses,] what work for pay or goods did [NAME] DO LAST YEAR?".

- Education: from question 10.5 of the household questionnaire ("How many standard years has [NAME] completed?").

Follow-up (2011/12):

- Migration: we infer migration status from the current location reported in question 2.12 of the tracking questionnaire (respondent is migrant if reports living "somewhere else"). We further distinguish between intra-state migration, across-state migration, and international migration from the state of residence reported in question 2.23.

- Self-employment: question 2.15 of the tracking module reports the principal activity status. Respondents are classified as self-employed at destination if they report being artisan/independent workers, owning petty shop/small businesses, or owning organized trade/business (with more than 5 employees).

B.4 Indonesia Family Life Survey (IFLS)

Notes: Employment status and occupation type are complemented with corresponding information from section TK of the Proxy Book. Employment status at destination is unreported for international migrants.

Baseline (wave 3 – 2000):

- Employment status: we use information from section TK (employment) of Book 3A. A respondent is classified as not working if the answer to question tk01 ("What was your primary activity during the past week?") is different than "Working/trying to work/helping to earn income" and questions tk19aa and tk24a have missing answers.

- Self-employed and wage workers: based on answer to question tk24a ("Which category best describes the work that you do?"). Excludes workers that are primarily working in agriculture, forestry, fishing, and hunting (question tk19aa, "In what field of work is this job?").

- Agricultural workers: those that are primarily engaging in agriculture, forestry, fishing, and hunting according to question tk19aa.

- Income: sum of salary/wage in past year (question tk25a2) and net profit in past year (question tk26ayn). Use gross profit (tk26ayg) when net profit is missing.

- Education: based on answer to questions ar16 ("Highest level of schooling attended by HHM") and ar17 ("Highest grade ever completed by HHM") from Book K. Years of education computed combining information from Wikipedia and Nuffic.

Follow-ups (wave 4 – 2007/08, wave 5 – 2014/15):

- Internal migration: we use information on province, kabupaten, and kecamatan of each household detailed in the htrack file of each survey round.
- International migration: from section AR of Control Book. A household member is classified as international migrant if she lives in a foreign country (from question AR18i "Where does [...] live now?") and moved out of the household after baseline (from question AR18e "When did [...] move from/into this household?"). Note that we exclude from the group of international migrants in wave 5 respondents that had left Indonesia between baseline and wave 3 but then returned between wave 3 and 5.
- Occupation type: same as baseline.

B.5 Mexican Family Life Survey (MxFLS)

Notes: a large fraction of migration instances comes from individuals who leave the household and are reported in the Control Book. MxFLS does not collect information on their occupation at destination.

Baseline (2002):

- Employment status: a respondent is classified as not working if the answer to question tb02 from Section TB (Employment) of Book 3A is different than "Worked or carried out an activity that helped household expenditures".
- Self-employed: if the answer to question tb32 is either "Boss, employer, or business proprietor" or "Self-employed worker (with or without non-remunerated worker)". Exclude self-employed who work in agricultural activities according to question tb25.
- Wage worker: if the answer to question tb32 is "Non agricultural worker or employee". Restrict to non-agricultural workers as above.
- Agricultural worker: if the answer to question tb32 is "Peasant on your plot", or "Rural laborer, or land peon (agricultural worker)", or if the individual is mainly working on agricultural activities according to question tb25.

- Income: sum of labor income and profits in past 12 months. Labor income is given by the answers to question tb35a from Section TB of Book 3A. It measures the sum of after-tax income from wage and salary, piecework, commissions and tips, extra hours, meals, housing, transportation, medical benefits, and others. Business income is either net income, or gross income if net income is missing.

- Education: from the Household Roster in Book C, question ls14 and ls15.

First follow-up (2005/06):

- Migration: defined using several sources. First (i), we consider information from the household member's roster, Section LS of Book C. For all individuals who left the household between 2001 and 2006, question ls19e ("Where does (...) live now?") details if they live in the same locality, same municipality, same state, other state, or another country. According to the answer to this question, we define an indicator for migration that is equal to one if any type of migration has occurred. Second (ii), for individuals still living in the household, we verify whether the current residence of the household has changed with respect to baseline. Third (iii), we use information from the Permanent Migration module (Section MG of Book 3A). We know a respondent has migrated if she reports moving outside of the locality/neighborhood where she used to live in 2001 (question mg08a) and still live at the new location (question mg14). Last (iv), we add information on migrants to the US using the "emigus" module.

Second follow-up (2009/12):

- Migration: computed using several sources. First, individuals who moved out of their household at first follow-up are assumed to be currently living outside the household (and have positive migration status) unless they report having returned to the household in question ls01a of Section LS of Book C. Next, we identify individuals who moved between the first and the second follow-up using the analog of step (i) and (ii) of the procedure detailed for the first follow-up. We then consider information from the Permanent Migration module of Book 3A. Unfortunately, for confidentiality reasons the MxFLS does not report location codes of the destination of migration instances (although they are asked in question mg17 of Section MG of Book 3A). Therefore, for respondents migrating between baseline and first follow-up who also report a migration instance between the first and second follow-up we cannot distinguish whether the last destination is the same as the original location. We set the migration status of these respondents to missing. For those that report instead a migration instance

between 2005 and 2009 (but not between 2001 and 2005), we code migration according to step (iii) above.

Notes: the MxFLS website does not provide a specific module for migrants to the US in the second follow-up.

B.6 Nigeria Living Standards Measurement Study-Integrated Surveys on Agriculture (LSMS-ISA)

Notes: the survey collects information on occupation of migrants in section 1 of each wave (Household Roster). However, it does not specify whether the migrant is self-employed or a wage worker.

Baseline – Post Planting Wave 1 (August - October 2010):

- Employment status: we record an individual as not working if she answers no to question 4 ("During the past 7 days, have you worked for someone who is not a member of your household, for example, an enterprise, company, the government or any other individual?"), question 5 ("During the past 7 days, have you worked on a farm owned or rented by a member of your household, either in cultivating crops or in other farming tasks, or have you cared for livestock belonging to yourself or a member of your household?"), and question 6 ("During the past 7 days, have you worked on your own account or in a business enterprise belonging to you or someone in your household, for example, as a trader, shop [U+2010] keeper, barber, dressmaker, carpenter or taxi driver?") of Section 3 (Labour).

- Self-employed: individuals who report being self-employed in question 15 ("Who is the employer in this job?"). We remove people self-employed in agricultural activities using the answer to question 13 ("What was your primary activity in your main job?") and question 14 ("In what sector is this main activity?").

- Wage worker: individuals who report not being self-employed in question 15, and that are not unpaid family workers or in an unpaid traineeship (question 20, "What is the main reason you received no payment for this work?"). We remove people employed in agricultural activities as above.

- Agricultural worker: all individuals employed in agricultural activities.

- Income: we compute monthly income as sum of wages and non-farm business sales. Wages and salaries are reported in question 21 of Section 3. We compute

monthly labor income assuming respondents work 8 hours per day, 5 days per week, 4 weeks per month, and 12 months per year. Business sales are reported in question 24 of Section 6. We assume all business income goes to the owner of the enterprise.

- Education: from Section 2 (Education), question 7 and 8.

First follow-up:

- Migration: we collect information on individuals leaving their household from the Post Harvest Wave 1 (February - April 2011), Post Planting Wave 2 (September - November 2012), and Post Harvest Wave 2 (February - April 2013). For each individual, we identify destination state and local government area, and assume that this remains unchanged unless a new move is recorded in a more recent wave. For respondents that are not indicated as leaving their household, we take household state and local government area from the most recent wave.

Second follow-up:

- Migration: we use information from the Post Planting Wave 3 (August - October 2015) and Post Harvest Wave 3 (February - April 2016). The procedure to infer movers' location is the same as the one used for the first follow-up. In addition, individuals who migrated between baseline and the first follow-up are assumed to reside in the same location they were living in at the end of the first follow-up, unless a new move is registered in Wave 3.

B.7 Kagera Health and Development Survey (KHDS)

Baseline (1991/94):

- Self-employment: from section 7, whether the respondent says she is self-employed during the past 7 days (part A, question 6 "During the past 7 days, have you worked for yourself or your household? For example, as an independent merchant or fisherman, lawyer, doctor, or other self-employed activity?") in an activity not connected with farming, livestock or fishing (part D, question 1); or self-employed in the past 12 months (part A, question 7). Additionally, require that her main job in the past 12 months is not in farming, livestock or fishing (part F, question 1).

- Wage worker: from section 7, whether the respondent says she is employed during the past 7 days (part A, question 2 "During the past 7 days, have you worked

for someone who is not a member of your household, for example, an employer, a firm, the Government, or some other person outside your household?") in an activity not connected with farming, livestock or fishing (part B, question 1); or employed in the past 12 months (part A, question 3). Additionally, require that her main job in the past 12 months is not in farming, livestock or fishing (part F, question 1).

- Agricultural worker: from section 7, whether the respondent says she is self-employed in farm activities during the past 7 days (part A, question 4 "During the past 7 days, have you worked in a field or garden belonging to yourself or your household, or have you raised livestock?"); or during the past 12 months (part A, question 5). Additionally, require that her main job in the past 12 months is in farming, livestock or fishing (part F, question 1).

- Not working: from section 7, whether the respondent answers that had no activity or job over the past 12 months (part F, question 1 "What did you do in your main job or activity in the past 12 months? What did this job consist of? What kind of trade, industry, or business is this connected with?").

- Education: from section 5, question 6 ("What was the highest grade he/she completed?"). Exclude individuals with education classified as "Adulted" or "Koranic".

- Income: computed as the sum of:

  - Weekly salary (question 22) over the past seven days, from section 7, part B ("Employment"). When the time unit is not the week, the weekly salary is imputed assuming that the respondent works for 5 days a week, 4 weeks per month, and 52 weeks per year.
  - Crop sales (question 10), processed products sales (question 15), and animal products sales (question 23) over the past seven days, from section 7, part C ("Self-employed farmers").
  - Net receipts from first business (question 18), and other businesses (question 34) over the past seven days, from section 7, part D ("Self-employed businessmen").

  Each respondent is then asked if the job reported for the past seven days is the same as the main job in the last 12 months (section 7, part F, question 2). When they differ (17% observations), we recompute income using the corresponding variables for the past 12 months.

First follow-up (2004):

- Self-employment: same as baseline.
- Migration: defined according to response to survey information, question 2 part C ("Is household living in the same cluster as 10 years ago; nearby village; elsewhere in Kagera; elsewhere in Tanzania; neighbouring country; other country").

Second follow-up (2010):

- Self-employment: positive answer to section 2D, question T2dQ16 ("During the past 12 months, has [NAME] worked for him/herself or his/her household in a non-farm business? For example, as an independent merchant or fisherman, lawyer, doctor, or other self-employed activity?") and primary activity is not farm/livestock work (section 2D, question T2dQ18).
- Migration: same as first follow-up.

B.8 Panel Survey of Income Dynamics (PSID)

The PSID collects detailed information on occupation and income for the head and (if present) for the "spouse/partner" of each surveyed households.

Baseline (2001):

- Income: defined as the sum of farm income (ER2042), business income (ER20422 and ER20444), and labor income (ER20443 and ER20447) in the previous year. Losses are not reported for both farm and business income (i.e. these variables are truncated at zero).
- Occupation type: defined according to status in main job (ER17221 and ER17791; "On your main job, are you (HEAD) self-employed, are you employed by someone else, or what?"). We exclude individuals who say they work both for someone else and for self.
- Education: completed education level (variables ER20457 and ER20458).

Midline (2007) and endline (2017):

- Occupation type: same as for baseline (reference variables are ER36134 and ER36392 for 2007, and ER66198 and ER66473 for 2017).

- Migration: internal migration across states is defined when respondents report a different current state (ER36004 for 2007, and ER66004 for 2017) with respect to baseline (ER17005). International migration is defined when the respondent reports living in a foreign country and was living in the US at baseline (or the opposite).

C Randomized experiments: summary and data construction

C.1 Uganda Youth Opportunities Program (YOP)

YOP was a program implemented by the Uganda government, which invited groups of people aged 16 to 35 to apply for cash grants to start a skilled self-employed activity. The intervention had four main characteristics: (i) people had to apply in groups; (ii) each group had to submit a proposal on how they would use the grant for nonagricultural training and start-up costs; (iii) proposals were screened by government officials at the village and district level; and (iv) the grant given to successful applications was unconditional and not subject to government monitoring thereafter. The program was initially started in 2006, but the data collected by Blattman et al. (2014) and Blattman et al. (2019b) comes from 14 northern Uganda districts with funds still available as of 2008. Of the 535 groups passing initial government screening, 265 (5,460 individuals) were randomly assigned to treatment, and 270 (5,820 people) to control, stratified by district. The authors surveyed five people per group, for a total of 2,677 individuals. The baseline survey was administered in February–March 2008. The government disbursed then funds to groups in the treatment group between July and September 2008. The authors conducted three endline surveys: the first between August 2010 and March 2011 (24 to 30 months after disbursement); the second between April and June 2012 (44 to 47 months after); the third between March and May 2017 (103 to 106 months after).

Variables details:

- Self-employment: if the respondent reports positive average work hours in the past four weeks in activities that are non-agricultural and not (i) as a teacher or public employee, (ii) as a health or NGO worker, (iii) in the military, or (iv) as an employee in a company or firm. See the beginning of section Economic Activities of each endline survey for a complete list of the activities considered.

- Any employment: if the respondent reports positive work hours in the past four weeks in any economic activity.
- Migration: changes in respondents' home parish between baseline and both 2-year and 4-year endline were provided by the authors. Home location at 9-year endline was asked as open-ended question. We therefore code migration between baseline and 9-year endline through the following steps:
    1. Take each respondent's home parish (and district) and replace it with the correct location provided in the survey in case of negative response to question 306 ("Is where we currently are your permanent home location?").
    2. Create a similarity score between baseline and endline parish (and district) based on the *bigram* string matching method.
    3. Compute each parish implicit sound using the *soundex* algorithm.
    4. Create an indicator for migration equal to one if the parish name at 9-year endline is different than the parish name at baseline. Set the indicator to zero if:
        (a) the parish similarity score computed in step 2 is greater or equal than 0.5;
        (b) both the parish and the district similarity scores computed in step 2 are greater or equal than 0.3;
        (c) the parish string sound computed in step 3 matches.
    5. Manually fix cases in which the baseline parish contains the word east and the endline parish contains the word west, or vice versa.
- Regression controls: the regressions reported in panel A of tables 3 and 4 control for all baseline covariates reported in Table II of Blattman et al. (2014).

C.2 Uganda Women's INcome Generating Support (WINGS)

The program, implemented by the Association of Volunteers in International Service (AVSI), provided grants of $150 to 1,800 poor people (majority women) in 120 villages from the districts of Kitgum and Gulu. The area of the intervention was highly affected by a recent civil conflict ended in 2006. Along with the cash grant, the program provided five days of business skills training and planning, together with ongoing supervision to help implement the plan. Two months after the grant, some villages were also offered a three-day group dynamics training where participants could form

self-help groups to exchange ideas for improving their business, organize savings and credit, and cooperate on other aspects of their economic activity.

The program was implemented in two phases. In Phase 1, the researchers randomized 60 of the 120 villages to receive the intervention. The 60 treated villages were further randomized into two sub-groups of 30 villages, with one of them additionally receiving the group dynamics training. The remaining 60 villages were assigned to a waitlist group to be treated in Phase 2, 18 months later.

The baseline survey on the 1,800 program participants was administered between April and June 2009. The endline survey was administered between June and August 2012, 16 months after the first grant.

Variables details:

- Self-employment: equal to one if the respondent positively answers question Q110 of Section 4: Economic Activities ("Are you currently doing any business?").
- Any employment: equal to one if the respondent reports non-zero employment hours in the past month. The activities considered are listed in Section 4 of the survey, before Q99.
- Migration: based on question Q15 of Section 1: Household Characteristics ("Are you still living in the same location as you were when we last interviewed you?").
- Regression controls: the regressions reported in panel B of tables 3 and 4 control for all baseline covariates reported in online Appendix B of Blattman et al. (2016).

C.3 Nairobi microfranchising

The Nairobi microfranchising experiment involved two labor market interventions targeting women aged 18 to 19. The first intervention ("franchise treatment") combined several elements: business skills training, franchise-specific vocational training, start-up capital (in form of physical capital specific to each franchise), and ongoing business mentoring. The second intervention ("grant treatment") offered unconditional cash grants of $239. Outcomes were measured at midline, 7 to 10 months after the end of the intervention, and at endline, 14 to 22 months after the intervention.

We rely on the authors own construction of the variables detailing whether each respondent engages in self-employment activities, any income generating activities, and lives in Nairobi. We define migration as an indicator equal to one if the respondent does not live in Nairobi at endline.

The franchise and grant treatment coefficients reported in panel C, columns (3) and (6) of tables 3 and 4 are estimated jointly from a regression specification where the omitted category is the group randomized to receive none of the treatments. The IV coefficients reported in column (7) of both tables are estimated from two separate regressions where we compare each treatment sample independently to the control group. All regressions control for baseline household size, education level, and indicators for having given birth, having received any vocational training, or having any paid work experience prior to the baseline survey.

C.4 Sri Lanka Microenterprise Survey (SLMS)

The experiment was designed to study the effect of incremental cash investment on firms outcomes. Small cash or in-kind grants were provided to a sample of microenterprises with less than 100,000 Sri Lankan rupees (LKR, about $1,000) in capital other than land and buildings. The four types of grants awarded are: (i) 10,000 LKR ($\sim$ $100) of equipment or inventories, (ii) 20,000 LKR in equipment/inventories, (iii) 10,000 LKR in cash, or (iv) 20,000 LKR in cash. Control firms were granted 2,500 LKR after the fifth wave, since following waves represented an extension of the survey relative to what initially agreed before baseline.

We focus on the sample of male-owned businesses as DeMel et al. (2008) and DeMel et al. (2012) find no short- or long-term effects of the intervention on female-owned enterprises.

The survey took place in three districts of Sri Lanka (Kalutara, Galle, and Matara), and 25 Grama Niladhari (GN) divisions within these districts. Of the 618 firms initially surveyed, 210 are directly affected by the December 26, 2004, Indian Ocean tsunami. These firms are excluded from the analysis since the recovery process might affect returns to capital. The effects 10 years after the implementation of the program are of similar magnitude if we consider the full sample of surveyed firms instead of the sub-sample that excludes firms directly affected by the tsunami.

The baseline survey is carried out in April 2005. Eight following waves are conducted at quarterly intervals, from July 2005 to April 2007, and semi-annually – in October 2007 and April 2008. Further long-term follow-up surveys were carried out in June and December 2010, in September 2015, and in March 2016. Overall, the survey included 15 waves of data collection. In the analysis in section 4 we consider outcome variables 5 years after the intervention, as measured in the June 2010 and December 2010 survey rounds and by observation and proxy reports for firms not interviewed, and 10 years after the intervention, as measured in the March 2016 survey round.

Variables details:

- Migration: indicator equal to one for respondents that report living in a different location outside the baseline district. Movers between Grama Niladharis but within the same baseline district are not considered as migrants. We exclude respondents who are deceased, whose location is unknown, or who did not complete the survey.
- Operating business: for the 10-year endline, the operating business indicator equals one if the respondent is running the business or engaged in another/new business according to question F.5 of the March 2016 survey. It also includes respondents who have moved residence to another city or gone overseas (question F.5) and report non-missing business income during the previous month (question 6.6a). For the 5-year endline, we consider the variable provided in the replication file of DeMel et al. (2012) as it is complemented with observational data not included in the surveys.
- Any employment: for the 10-year endline, we check whether the respondent is (i) still operating a business, (ii) engaged in wage work (according to question F.5), or (iii) currently engaged in any economic activity (question 3.1). For the 5-year endline we consider respondents who are still running a business or employed as wage workers.

C.5 Sri Lanka Start-and-Improve Your Business (SIYB)

We use data from the randomized experiment designed by DeMel et al. (2014), which tested whether business training alone has a different impact on microenterprises than a package of training and an unrestricted grant of about $130. The training component is modeled according to the Start-and-Improve Your Business (SIYB) program, and includes a three day training for potential entrepreneurs (Generate Your Business), a five day course covering the main aspects of starting a business (Start Your Business), and a five day course for existing business owners that want to develop their business (Improve Your Business).

The study follows two samples of female entrepreneurs: a first group includes 628 women already involved in self-employment activities, working more than 20 hours per week and having monthly profits of 5000 Rs or less (less than $2 per day). The authors refer to this as "current business owner" sample. The second group is instead comprised of 628 women currently out of the labor force, but who express interest in starting a business activity within a year. The authors refer to this sample as "potential

business owners". For both samples, 400 participants were randomized to be offered business training, and half of these to additionally receive the cash grant conditional on finishing the training.

We focus on the sample of potential business owners, as for the sample of current business owners the program impacts dissipate in the medium-run (2 years after treatment).

All sampled business owners originally live in greater Colombo or greater Kandy, the two largest urban areas in Sri Lanka. The project area includes 7 of the 25 districts of Sri Lanka (Colombo, Kalutara, Gampaha, Kandy, Matale, Kegalle, and Kurunegala).

The study participants were surveyed at baseline in January 2009. Training took place in April and May 2009, and the cash grant was given in June 2009. There were five rounds of follow-up surveys, conducted in September 2009 (3-4 months after training), January 2010 (7-8 months after), September 2010 (15-16 months after), June 2011 (24-25 months after), and June 2015 (6 years after training).

Variables details:

We rely on the replication file published by DeMel et al. (2014) on the World Bank Microdata Library for variable construction up to follow-up round four. We then construct variables for the 6-year endline as follows:

- Self-employment: indicator equal to one if the respondent is still running the business (question F.4. "Is the enterprise owner still running the business?") or currently owns a business (question 1.1 "Do you currently own a business?"). We set the indicator to zero if the respondent's answer to question F.4 is that the business is closed, or if she answers that she does not currently own a business.

- Wage worker: indicator equal to one if the respondent is currently working (question 3.1 "Are you currently engaged in any economic activity?") and reports "working as a wage worker" or being "casual/daily paid worker" in question 3.2 ("Which of the following best describes your current economic activity?").

- Migration: indicator equal to one if respondent changes province or district between baseline and follow-up.

C.6 Ghana microenterprises

The intervention randomized a treatment of either cash or in-kind grants of 150 Ghanaian cedis (about $120) among a sample of 793 microenterprises. The experimental design follows closely the one adopted in the Sri Lanka Microenterprise Survey (see online appendix section C.4).

We focus on the sample of male-owned enterprises as, similarly to the SLMS, Fafchamps et al. (2014) find no impact on female-owned businesses.

Firms were surveyed twice before treatment, in October-November 2008, and in February 2009. Then, firms that completed the baseline rounds were randomized into either a control group (396 firms), or a cash or in-kind treatment groups (198 firms each). Firms were then surveyed quarterly in May 2009, August 2009, November 2009, and February 2009. Following Fafchamps et al. (2014), we group these four follow-up rounds together. An additional long-term follow-up survey was conducted in March 2012, approximately three years after the intervention.

Variables details:

- Self-employment: indicator equal to one if the respondent still owns and operates a business (survey introduction question 6), or if he is operating a different business (introduction question 11 "What it your main activity now?").
- Any employment: if the respondent is self-employed (see previous point) or wage worker (introduction question 11).
- Migration: all business owners participating in the study are initially living in either Accra, the capital city, or the nearby industrial city of Tema. We therefore code migration as moves outside the Greater Accra Region. We take migrants' location from introduction question 6 ("If [the household is not living at the same address as the previous round], record the new address of the household"). Instances of migration mainly involve moves to the towns of Kasoa, to Nsawam or to Manhyia.

C.7 Nigeria Youth Enterprise With Innovation in Nigeria (YouWin!)

The YouWin! competition was launched in late 2011 by the Nigerian government, attracting approximately 24,000 applications that presented ideas to start a new business or grow an existing one. The prize of the competition were grants averaging $50,000. Top applications were chosen to attend a four-day business plan training, after which program participants had to submit a detailed plan on how they would develop their initial business idea. Plans were again ranked and, of 2,400 semi-finalists, the 475 firms with highest scores (overall and within region) were selected as non-experimental winners, while 1,841 firms entered the experimental sample (79 firms were dropped because of low score and 5 firms were disqualified). Among the experimental sample, treatment was randomized within strata (defined by region, gender,

and new versus existing firm) to form a treatment group of 729 firms, and a control group of 1,112 firms.

The awarded grants were paid in four tranches. The first payment averaged about 10% of the total, while the second tranche was of approximately 45%. The third and fourth payments were conditional on employment and sale thresholds set individually.

Data was collected in three follow-up surveys. The first follow-up took place between November 2012 and May 2013; the second follow-up was administered between October 2013 and February 2014; the last follow-up took place between September 2014 and February 2015.

Variables details:

- Self-employment: indicator equal to one if respondent currently operates a firm (survey section 2, question 1, and attrition section 0, question 3).
- Employed: if respondent is self-employed, or if she worked during the last month as wage or salary worker, casual worker, paid on commission or other basis, agricultural worker, or other form of paid work (section 11, question 1).
- Migration: indicator equal to one if respondent claims to "live in a different Nigerian state now than where I lived at the start of 2012" (section 1, question P2). Also consider answers to tracking module, question 5 (whenever untracked individual is reported to live "in a different location in Nigeria" or "outside of Nigeria").

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