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How Far Does a Big Push Really Push? Long-Term Effects of an Asset Transfer Program on Employment Trajectories

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I. Introduction

Although Bangladesh has been credited with making impressive gains in poverty reduction and achieving a number of its Millennium Development Goals, more than a fifth of the population continues to live in ultrapoverty (Bangladesh Bureau of Statistics 2010; Chowdhury et al. 2013; Gimenez, Sharif, and Jolliffe 2013). Various market-based solutions such as microfinance have been championed for their potential to achieve sustainable impacts. Evidence, however, raises questions about the ability of these traditional interventions to reach

the ultrapoor, given that this population typically lacks the capacity and means to participate in such endeavors (Evans et al. 1999; Matin and Hulme 2003).

BRAC, an international nongovernmental organization (NGO), launched Challenging the Frontiers of Poverty Reduction: Targeting the Ultra Poor (CFPR-TUP) in Bangladesh in 2002. The program explicitly targets the ultrapoor (identified as people earning \$0.60–\$0.70/day), and selected participants are enrolled for a period of 2 years. During this time, they receive income-generating assets (valued at approximately \$140), training in developing the asset base, a food subsidy, education, and social and legal support.[1] An important aim of the program is to get participants to move away from traditional low-skilled and temporary occupations—such as day laboring, working as maids, or begging—and toward more entrepreneurial activities and thus graduating out of ultrapoverty.

A number of studies have confirmed the positive effects of TUP on participants' well-being in the short to medium terms, including effects on health and health-related expenditures (Ahmed 2006; Prakash and Rana 2006; Ahmed and Hossain 2007), food security status (Haseen 2006; Haseen and Sulaiman 2007; Ahmed and Rana 2010), and income (Rabbani, Prakash, and Sulaiman 2006). Whereas most studies looked at impacts in the short term (2002–5), Raza, Das, and Misha (2012), Das and Misha (2010), and Krishna, Poghosyan, and Das (2012) found the program to have significant and consistent positive impacts on per capita income, income-generating assets, and food security in the medium term (2002–8). Based on descriptive statistics from 2002–5 panel data, Rabbani, Prakash, and Sulaiman (2006) concluded that although the main source of income generally remained the same, the number of additional sources increased among TUP participants. Bandiera et al. (2013) evaluated the second phase of TUP, rolled out as a randomized controlled trial in 2007, and found that the program increased the proportion of women in wage employment by 65% and those in self-employment by 50% over a 4-year period. Banerjee et al. (2015) confirmed these positive findings in a set of six other countries. TUP thus far has been widely acclaimed, has served nearly 1 million households in Bangladesh since 2002, and has been replicated across 20 countries (Banerjee et al. 2015; *Economist* 2015).

The transformation brought about by TUP in the short and medium terms is not necessarily indicative of its long-term effect. Increases in income and food security could reflect, at least in part, sales of program endowments. To understand whether the program has really had a transformative long-term income effect, it is crucial to establish whether participants' occupational changes

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[1] In 2002, the exchange rate was US\$1 = BDT 69.28, whereas the purchasing power parity exchange rate was \$1 = BDT 16.25 (World Bank 2014).

persist over a longer period after the program has ended. This paper aims to establish such evidence by evaluating the effects of TUP on the employment trajectories of its participants in the short, medium, and long terms (3, 6, and 9 years after enrollment, respectively).

Our results confirm that TUP participants are much more likely to engage in entrepreneurial activities in the short and medium terms (increase by 10 and 12 percentage points, respectively), but the long-term effect reduces to 5 percentage points. Whereas TUP pushes participants away from begging and working as maids as main sources of income in the short and medium terms, a substantial proportion of participants return to such occupations in the long term.

We explore the heterogeneity of the effects of TUP across several dimensions to better understand the reduced effect sizes in the long run. We find that those originally working as maids or beggars are most likely to switch from entrepreneurial activities back to their baseline occupations. Households with support mechanisms (proxied by the presence of adult children) and those headed by females are more likely to maintain small businesses in the long run.

This paper is arranged as follows: Section II describes the TUP program, Section III describes the data and our methods, Section IV presents the results, and Section V provides a discussion and our conclusion.

II. TUP Background and Program Description

The TUP pilot program evaluated in this paper was launched in the Rangpur, Kurigram, and Nilphamari districts of northern Bangladesh in 2002. The northern districts of Bangladesh typically suffer from acute seasonal unemployment in postcropping seasons. Following positive initial evaluations, it was subsequently scaled up to cover 15 more districts and 100,000 participant households over the subsequent 4 years.[2] Due to the difficulties faced by NGOs in reaching the ultrapoor, the program utilizes a three-step targeting procedure. The poorest districts are initially selected based on poverty and vulnerability mapping by the World Food Program. A community wealth-ranking exercise known as participatory rural appraisal is carried out in each village (Chambers 1994).[3] According to these wealth rankings, a little more than the

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[2] A positive short-term impact and lessons learned from the first phase paved the way for TUP phase 2, which was operational from 2007 to 2011 and encapsulated approximately 300,000 households across 40 districts. Issues specifically faced during the first phase, such as heterogeneity among the ultrapoor, were incorporated into a diverse intervention package. This paper, however, deals exclusively with the first phase of the program.

[3] A participatory rural appraisal begins with a village-level meeting. During the process, a large map of the village is drawn, and all households and landmarks are identified. Special attention is paid to identify "invisible households," or families that reside within others' homes (e.g., on their balconies) or that are mobile. Once the identification is complete, a wealth-ranking exercise is conducted, where all identified households are ranked (typically in groups of five to six) according to their relative socioeconomic

bottom 25% of the households are considered community-level ultrapoor. The community-defined ultrapoor are then rechecked against the inclusion and exclusion criteria by the BRAC staff to arrive at the final list of eligible households. Three of the five inclusion criteria must be met: (1) the household owns less than 10 decimals of land; (2) the main source of income is a female member begging or working as domestic help; (3) no active male adult is present (female household head); (4) school-age children work for pay; and (5) no productive or income-generating assets are present. All three of the exclusion criteria must be met: (1) no active female member is in the household; (2) household includes microfinance participants; and (3) household members receive government benefits such as old-age pensions.

The program operates on a 2-year cycle, during which time the participants receive a multitude of services. The initial 18 months involve the transfer of income-generating assets; the provision of inputs, such as vaccinations and housing for the animals; and intensive training to maintain the income-generating assets. Although the participant may state his or her preference, the BRAC staff makes the final decision, taking into account prior experience, the local market, and environmental and social factors.[4] Participants additionally receive business development training, a subsistence allowance ($1.03/week) to account for opportunity costs, access to health care, and awareness training. The last 6 months involve weaning participants from program support through extensive confidence-building workshops and mobilization of local social support.

The health support package includes local BRAC health volunteers (popularly known as *shasthya shebika*), who were trained to provide curative care for 10 basic illnesses (Standing and Chowdhury 2008). For other illnesses, members in the participant households receive services from the BRAC panel doctor free of charge on referral from the *shasthya shebika*. Free pre- and postnatal care, including various supplements, are also provided to expectant mothers.

The social development component of the program is designed to create knowledge and awareness among the participants about their rights. In addition to building awareness on topics such as dowry and child marriage, the social development component also mobilizes local elite support for the participants

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status. Given inherent vulnerabilities, the female-headed households receive additional attention during the initial training process and special efforts to ensure active participation in the following months.

[4] Participants were offered a choice of eight assets in 2002: poultry rearing and cage making, goat rearing, cow rearing, vegetable cultivation, horticulture, nonfarm (tailoring, small grocery store, fruit and cloth selling), napkin making, and papaya cultivation. All asset transfers were intended to incentivize entrepreneurial activities among participants; nearly 80% of the transfers involved livestock. To the extent that the type of productive assets transferred to participants have an impact on employment outcomes and are correlated with baseline characteristics, treatment could be endogenous.

to counteract possible crowding out of informal insurance because of program participation. A forum of the local elites, called the *gram daridro bimochon* (village poverty alleviation) committee, is formed in every intervention village to help in this regard. Soon after the 2-year period, soft and flexible microfinance loans are made available to participants to further incentivize investment in income-generating activities and to discourage use of detrimental sources of finances such as high-interest moneylenders (Huda et al. 2011).

The cost of TUP per participating household for the 2-year duration is approximately BDT 20,000 (US$292). This figure includes costs related to the income-generating assets provided (nearly half of the total costs), administration, and all support provided over the entire duration of the program.

The central goal of the program is to transform the lives of the ultrapoor through occupational change. By relaxing the capital and human capital constraint through asset transfer and training, TUP aims to help the ultrapoor move away from insecure, seasonal, low-income labor activities, such as begging and day laboring, to more secure entrepreneurial activities. Earlier studies (Rabbani, Prakash, and Sulaiman 2006; Bandiera et al. 2013) confirmed that TUP was successful in creating this occupational change in the short and medium terms; therefore, we hypothesize that such multifaceted programs are indeed likely to set participants on a sustainable path out of extreme poverty. In this paper, we test this hypothesis using data that span a 9-year period since the program started.

III. Methods

A. Data Collection

This paper utilizes a four-round panel data set collected in three northern districts (Nilphamari, Kurigram, and Rangpur) of Bangladesh where the TUP pilot was first implemented (2002–4). These districts (part of the greater Rangpur region), along with those in the country's coastal belt in the south, host the largest pockets of the ultrapoor in the country. The Rangpur region is traditionally affected by acute seasonal unemployment and famine (*monga*; September–December each year), attributable to the low diversification of crops and the lack of nonfarm employment opportunities (Sultana 2010; Majumder and Wencong 2012). As a result, Rangpur inhabitants experience greater incidences of food insecurity, malnutrition, and assorted deprivations compared with the rest of the country (Sultana 2010; Karim and Tasnim 2015). Since the early 2000s, development efforts by government, nongovernment, and international organizations have targeted these particular areas.

The baseline survey canvassed 5,626 households during the first quarter of 2002. The second survey took place around the same time in 2005 and

consisted of 5,228 households. The third round was undertaken in 2008, comprising 4,549 households. The final survey of 4,144 households was implemented in 2011. No new households were added in between waves, and no households that drop out reappear in any of the following waves. The surveys were held with the entire group of the community defined as ultrapoor, so the sample includes households that were selected into the program and those that were identified as poor but were later found to be ineligible. Respondents were typically the main female member of the household.

B. Variables

The central outcomes of interest in this paper relate to occupational choices. Information on employment activities and income earned was obtained from all members of the household from the year preceding the survey. Avenues of income generation that yielded the highest remuneration over the preceding year are considered the primary occupation.[5] We classify the various employment choices into five categories: (1) entrepreneur (self-employed in either agricultural or nonagricultural labor); (2) work as a maid or servant; (3) begging; (4) day laboring (agricultural or nonagricultural); and (5) other (service, remittance, charity, and benefits).[6]

The models used in this study control for a number of individual- and household-level baseline characteristics. These include asset ownership (in the forms of livestock; value of homestead structure and building material; land holding and luxury items, such as radios or televisions; and other income-generating assets, such as rickshaws), financial indicators (per capita income, cash savings, and financial market participation), food security (proxied by whether household members can generally consume two meals per day), and social capital (proxied by whether members are invited to social gatherings or others' homes).[7]

All models additionally control for baseline household information on demographics (age, sex) and regional characteristics. Furthermore, we include indicators that reflect whether households meet the TUP selection criteria.

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[5] We conducted a similar analysis on the secondary source of income and found results similar to those reported in this paper.

[6] Entrepreneurial activities also include households that have skilled laborers, such as carpenters and blacksmiths, and that sell milk from livestock or eggs from poultry.

[7] Regarding per capita income, information on income is missing for 20% of the sample (both in the treated and control groups), which explains the difference between the 5,626 households that were surveyed and the 4,525 used in the probit model to generate the propensity score. We have no explanation for the large proportion of missing income information, but we have confirmed that it is not related to treatment or any other observable factors and attributed robustness of our results to not using income in our analysis and using the full sample (results available on request).

C. Analytical Techniques

The effect of TUP participation on employment outcomes is identified by comparing the trend in employment outcomes of eligible and ineligible (defined as initially selected during the wealth-ranking exercises but later disqualified) ultrapoor households. According to the program description, households selected for TUP need to meet three of five inclusion criteria and all exclusion criteria; however, we found limited differences in the distribution of these characteristics across the treated and control groups (annex table 1; annex tables 1–5 are available in an online appendix). This suggests that the inclusion and exclusion criteria are not implemented very strictly and precludes the application of a regression discontinuity analysis. In the treated group, for instance, 64% (1,875 households) meet the inclusion criteria, whereas only 20% (570 households) meet all three exclusion criteria, illustrating that only a few households in this group pass the exclusion test. Although three-quarters of the participants fall within the poorest quartile, Emran, Robano, and Smith (2014) and Sulaiman and Matin (2006) also confirm that a considerable number of households met all selection criteria but were excluded from the program and vice versa.[8]

We estimate the effects of TUP using difference-in-differences regression with inverse propensity weights (Ho et al. 2007; Imbens and Wooldridge 2009). Combining regression and propensity score weighting has the advantage of requiring only one of the two approaches—the specification of the propensity score or the regression model—to be correctly specified the "double robustness" property. We first estimate propensity scores ($p(X_0; \gamma)$) from a probit model of the treatment indicator on the baseline values of all control variables (X_0) presented in table 1 (see annex table 2 for the results of the probit model). We do not find substantial problems with overlap in the distribution of observables across treated and control groups, as only 62 observations are not on the common support. In a second step, we use a linear regression in which we weigh the objective function by the inverse probability of treatment or nontreatment. More specifically, we construct weights equal

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[8] Emran et al. (2014) use these assignment errors as an instrument to identify the impact of the program. While this paper attempts to build on this approach, the attrition rate in the latter rounds of the survey leads to small samples of treated and control groups (further discussed in Sec. III.D). Discussions with the field staff suggest that members of the TUP implementation staff often had to use their own judgment during the selection process for unconventional cases. These include households with microfinance loans from informal sources identified as fraud institutions and households with active male or female members with partial or seasonal disabilities (e.g., rheumatic arthritis, respiratory diseases). In several cases, a household was initially selected for the program but later withdrew itself as other family members or relatives discouraged participation, mostly based on religious or cultural values or stigma.

TABLE 1
SUMMARY STATISTICS OF EMPLOYMENT CATEGORIES

	2002		2005		2008		2011	
	Treated (1)	Control (2)	Treated (3)	Control (4)	Treated (5)	Control (6)	Treated (7)	Control (8)
Entrepreneur	.191***	.285	.309***	.273	.330***	.261	.300	.309
Maid	.117***	.051	.065*	.054	.078	.069	.109***	.065
Beggar	.060***	.041	.042	.036	.036	.031	.041**	.027
Day laborer	.591***	.537	.521**	.553	.451***	.525	.493***	.545
Other	.042***	.086	.063***	.084	.104	.113	.057	.054
Observations	5,626		5,320		4,831		4,121	

Source. Data were collected from three districts in northern Bangladesh (Rangpur, Kurigram, and Nilphamari) by the Research and Evaluation Division of BRAC.
Note. "Treated" refers to the sample of ultrapoor that was selected into the Challenging the Frontiers of Poverty Reduction: Targeting the Ultra Poor program. "Control" refers to the sample of other poor households that were not selected.
* Significance at 1%.
** Significance at 5%.
*** Significance at 10%.

to 1 for treated observations and $p(X_0; \hat{\gamma})/(1 - p(X_0; \hat{\gamma}))$ for control observations. We estimate the following regression model:

$$Y_{it} - Y_{it'} = \alpha_t + X_{i0}\beta_t + \delta_t D_i + \epsilon_{it} \quad i = 1, \dots, N \quad t = 2005, 2008, 2001, \quad (1)$$

where i refers to households, t refers to year, Y is the outcome of interest, D represents the treatment group indicator, and $Y_{it'}$ refers to the outcome in the year to which we are comparing. To begin, we compare outcomes in 2005, 2008, and 2011 with those in 2002 to establish effects in the short, medium, and long terms, respectively; thereafter, we compare 2008 with 2005 and 2011 with 2008 to quantify the incremental effects.[9] The average treatment effect is captured by δ_t. Controlling for household-level baseline characteristics X_0 weakens the identifying assumption to the requirement that, conditional on baseline observables, outcomes for the treated group would have evolved in the same way as those of the controls in the absence of treatment.[10] We cannot formally test for the plausibility of this parallel trends assumption, nor do we have pretreatment trends in outcomes, but the substantial overlap in the distribution of the propensity scores suggests that both groups are at least comparable in observables at baseline.

[9] We also estimated short-, medium-, and long-term effects from one model on the pooled data with interactions between the treatment indicator and survey year indicators. This led to similar results. Robustness of results to having a more flexible specification of the time trend is also confirmed.
[10] We prefer controlling for baseline characteristics as opposed to time-varying characteristics because, with such a comprehensive intervention, the latter could be affected by program participation.

We hypothesize that the TUP will have a heterogeneous impact across three dimensions: (i) baseline occupations, (ii) gender of the household head, and (iii) presence of adult children in the household.

First, we assume that baseline occupation is a proxy for participants' innate capacity to maintain entrepreneurial activities. Internal mechanisms such as attitude, management skills, performance, and strategic thinking are strong drivers of entrepreneurial behavior (Thomas and Mueller 2000; Hasenmark 2003). We anticipate that participants already engaging in entrepreneurial activities and in day laboring at baseline have more of those skills and will therefore be more likely to remain in or shift to entrepreneurial activities in the long run, compared with those starting off as beggars or maids.

Second, we hypothesize that the effects of TUP will vary based on gender of the household head for several reasons. TUP specifically targets female household members because it is expected that this will positively affect women's bargaining power in the household and thus lead to increased investments in children's schooling and health. However, experimental studies that have evaluated whether effects of cash transfer programs vary depending on whether the money is given to males or females have not found much evidence supporting this assumption (Benhassine et al. 2015; Haushofer and Shapiro 2016). Roy et al. (2015) find that although women do retain ownership of the livestock transferred to them by TUP, their overall mobility and resource control is reduced, and men are more likely to own newly acquired assets. Effects of TUP on female empowerment and control over the entrepreneurial activities and newly acquired assets may therefore be larger in female-headed households. On the other hand, women who head households in this context are mostly single mothers, and lack of support within the household might complicate maintaining a business. The expected direction of the heterogeneity of TUP effects across the gender of the household head is therefore unclear.

Third, we hypothesize that aging household members need to rely on their children to maintain their business. As intergenerational transfers of assets are particularly common in Bangladesh between elderly parents and male adult children, we expect the presence of adult male sons in the household to increase the long-term effectiveness of TUP on increasing entrepreneurial activities.

For each of these heterogeneity analyses, we estimate the propensity scores and regression models separately for each subgroup.

D. Attrition

As the data cover a time span of 9 years, the rate of attrition is relatively high, with 71% of the households being observed in every wave. Of the total 5,626 households interviewed in 2002, 3,984 households were included in all four rounds of the survey. The rate and pattern of attrition across the years

were found to be comparable across the treated and control groups (a total of 32% and 33%, respectively, across the 9-year period).[11] During the final round of data collection, an administrative mishap caused enumerators to exclude two branches from the list, leading to a loss of 136 households (70 participants and 66 nonparticipants). Within both treated and control groups, the (female) primary participant is tracked within the boundaries of her respective village. Participants who leave the households (e.g., children who move out) are also followed within the boundaries of the village. No information is available for household members moving outside village boundaries.

Migration, as well as the absence of data for those moving outside the village boundaries, has consequences for our analysis. Nonrandom attrition patterns may compromise the generalizability of results, such that our impact estimates may not generalize to that part of the target population that is likely to migrate. To the extent that migration outside the village is correlated with the success of TUP, our results might underestimate the true impact of the program. If male children move to a neighboring village while still being involved in the entrepreneurial activities of the original household, we also have a downward bias on program effects for the sample of households without adult sons. Interviews with BRAC implementation staff members revealed that although marriage-related migration is common, it is mostly daughters who move away. Also, many participants return to their home villages after a spouse has passed away.

We investigate patterns of attrition by regressing an indicator of belonging to the balanced panel on the set of baseline covariates mentioned before and including baseline employment (annex table 3). Except for the ownership of physical assets such as livestock, land, or roof material, none of the other baseline characteristics is a significant predictor of attrition. If attrition is related to factors that also correlate with participation in the TUP program and the outcomes of interest, our findings may be biased. To test for such attrition bias, we use the test suggested by Verbeek and Neijman (1992), which consists of adding a leading selection indicator to the difference-in-differences model (model 1), and do a t-test for the significance of this indicator (Jones et al. 2013). The null of no effect was rejected at the 5% level for the models of entrepreneurs ($p < .02$) and maids ($p < .01$). To account for attrition bias, we constructed inverse probability weights from the probit of belonging to the balanced panel (annex table 3) and multiplied these with the inverse propensity weights explained in the previous section (Jones et al. 2013). This correction led to negligible changes in the results (annex table 4). Furthermore, we presented results from both the balanced and unbalanced panels and found differences to be minimal.

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[11] Attrition rates for the treated and control groups were 6% and 8%, respectively, until 2005. Between 2005 and 2008, the rates were around 10% for both groups, whereas between 2008 and 2011, the attrition rate was around 15% for both groups.

IV. Results

A. Summary Statistics

Summary statistics of the employment outcomes across each survey year are presented in table 1. Day laboring is the most common source of income for both treated and control groups throughout the study period (59% and 54%, respectively, at baseline), followed by entrepreneurial activities (19% and 29%), working as a maid (12% and 5%), begging (6% and 4%), and other (4% and 9%). At baseline, the control group appears to be somewhat better off in terms of relying more on entrepreneurial activities and less on other sources of income, especially working as a maid, compared with the treated group. Employment outcomes of the control group are quite stable over time, which lends credibility to the parallel trends assumption. For the treated group, we see an increase in entrepreneurial activities in the short term (12 percentage points) and the medium term (14 percentage points) but no further increase in the long term. The changes in entrepreneurial activities appear to be mostly driven by changes in the proportions of day laborers and maids. The former falls by 7 percentage points by 2005 and by another 7 percentage points by 2008 but slightly increases again thereafter. Also, working as a maid becomes less prevalent in the short term (down by 6 percentage points) but slightly increases again thereafter. A similar pattern is visible for begging, although changes are smaller in size.

Table 2 presents summary statistics of control variables at the baseline in 2002. Male-headed households are more prevalent in the control group (74%) compared with the treated group (57%). The household size is significantly smaller for the treated households (3.55 vs. 3.80), but other demographics are quite comparable across both groups. Both the proportion of household heads with any education and per capita income are higher for the control (treated: 92% with no education and BDT 2,511 per capita income; control: 87% and BDT 2,779).

Looking at the TUP selection criteria, we see that the large majorities in both groups receive no government benefits (82% vs. 83% for treated and control, respectively). Approximately 95% of the treated group owns less than 10 decimals of land, compared with 86% of the control group. Whereas 58% of the control group owns at least one income-generating asset, the proportion among the treated is only 41%. Asset ownership (e.g., livestock, land, and quality of housing) among the treated group is typically half that of the control group at baseline. Respondents in the treated group had a lower degree of food security at baseline, with 52% being able to manage two meals a day (compared with 69% of controls). The treated group is also disadvantaged in terms of participation in financial markets at baseline. The percentage of households in the control group having any cash savings is more than double that of the treated group (21% vs. 9%, respectively).

TABLE 2
SUMMARY STATISTICS OF CONTROL VARIABLES AT BASELINE (2002)

	Treated	Control
Demographics:		
Male-headed household	.573***	.737
Household size	3.555***	3.802
Proportion of working-age (14–55) women	.362***	.307
Socioeconomic status:		
Household head with no education	.917***	.865
Household head with primary education	.064***	.095
Household head with secondary/higher education	.019***	.04
Annual per capita household income (BDT)	2,511.80***	2,779.3
Selection criteria:		
Household receives no government benefits	.817*	.83
Household owns any income-generating assets	.407***	.58
Household owns less than 10 decimals of land	.952***	.864
Location:		
Rangpur	.321	.311
Nilphamari	.308	.292
Kurigram	.371	.397
Asset holdings:		
Number of cows/bulls	.035***	.189
Number of goats/sheep	.098**	.131
Number of poultry	.829***	1.454
Owns any rickshaws or cycle vans	.010***	.031
Owns any radios/TVs	.008***	.018
Number of big trees	.418***	1.075
Owns any homestead land	.460***	.599
Owns any cultivable land	.018***	.078
Roof of house made of tin	.445***	.553
Food security and social capital:		
Usually can have at least two meals a day	.517***	.686
Invited to nonrelatives' homes	.245***	.29
Financial participation:		
Has formal loans from NGOs	.009***	.124
Has informal loans from moneylenders	.248***	.293
Has cash savings	.085***	.205

Source. Data were collected from three districts in northern Bangladesh (Rangpur, Nilphamari, and Kurigram) by the Research and Evaluation Division of BRAC.
Note. "Treated" refers to the sample of ultrapoor that was selected into the Challenging the Frontiers of Poverty Reduction: Targeting the Ultra Poor program. "Control" refers to the sample of ultrapoor that was not selected. $N = 5,626$.
* Significance at 1%.
** Significance at 5%.
*** Significance at 10%.

In sum, and in line with expectations given the targeted nature of the program, we generally find the treated to be worse off at baseline. Our models take into account these differences by combining inverse propensity weighting with regression-adjusted difference in differences. Annex table 5 shows baseline characteristics across both groups within the reweighted sample (using inverse propensity weights) and confirms that no significant differences remain in observable characteristics between the two groups.

B. Impact of TUP Participation on Employment

Table 3 shows the main TUP impact estimates on employment trajectories as estimated from model 1. Two sets of results are presented: Columns 1–3 show the incremental effects of the TUP for each of the survey years from the unbalanced and balanced samples. Column 4 shows the cumulative effects of TUP over the entire time period.

Looking at the results from the balanced sample, we find—as expected from the descriptive analysis—the likelihood of adopting entrepreneurship to increase by 10 percentage points in the short term (2002–5). This appears to be driven by a reduction in work as maids (5 percentage points), beggars (2 percentage points), and day laborers (5 percentage points). In the medium

TABLE 3
EFFECTS OF TUP ON EMPLOYMENT ACROSS DIFFERENT TIME PERIODS

	2002–5 (1)	2005–8 (2)	2008–11 (3)	2002–11 (4)
	A. Unbalanced Sample			
Entrepreneur	.103***	.024	−.073***	.053***
	(.014)	(.015)	(.017)	(.017)
Maid	−.047***	.004	.023**	−.024**
	(.009)	(.009)	(.011)	(.012)
Beggar	−.018***	−.002	.009	−.012*
	(.006)	(.006)	(.006)	(.007)
Day laborer	−.054***	−.041**	.035*	−.054***
	(.016)	(.016)	(.018)	(.019)
Other	.016*	.015	.005	.040***
	(.009)	(.010)	(.011)	(.009)
Observations	4,525	4,473	3,823	3,857
	B. Balanced Sample			
Entrepreneur	.101***	.023	−.073***	.051***
	(.016)	(.016)	(.017)	(.017)
Maid	−.050***	.004	.023**	−.023*
	(.010)	(.010)	(.011)	(.012)
Beggar	−.015**	−.003	.009	−.010
	(.006)	(.006)	(.006)	(.007)
Day laborer	−.048***	−.041**	.035*	−.055***
	(.018)	(.018)	(.018)	(.019)
Other	.013	.018	.007	.037***
	(.009)	(.011)	(.011)	(.009)
Observations	3,823	3,823	3,823	3,823

Source. Data for this analysis were collected from three districts in northern Bangladesh (Rangpur, Kurigram, and Nilphamari) by the Research and Evaluation Division of BRAC.
Note. Results were obtained by linear regression with inverse propensity weighting. Cols. 1–3 show the incremental effects of the program Challenging the Frontiers of Poverty Reduction: Targeting the Ultra Poor (TUP); col. 4 represents the cumulative effects of TUP over the entire time period. Standard errors are in parentheses.
* Significance at 1%.
** Significance at 5%.
*** Significance at 10%.

term (2005–8), the effect on entrepreneurship marginally increases by 2 percentage points, though the increment is not statistically significant. The likelihood of day laboring further reduces by 4 percentage points during this time. The changes in working as maids or beggars are negligible.

In the long term (2008–11), however, we see the onset of a reversal to the baseline employment categories. With regard to the entrepreneurs, for instance, the likelihood of remaining as so decreases by 7 percentage points. Concurrently, 2 percentage points of the maids and 4 percentage points of the day laborers revert to their baseline occupations. The overall effects of TUP (2002–11) cumulate to a 5 percentage point increase in entrepreneurship, driven largely by a shift from working as maids (2 percentage points) and day laborers (6 percentage points). The effects on beggars do not vary significantly from zero after the 9-year period.

The results from the balanced panel are largely similar to those from the unbalanced sample. This suggests that attrition—and particularly migration correlated with positive program impact—is not likely to be a major source of bias, at least not in the short term.

C. Heterogeneity of TUP Impact on Employment

Having established the average treatment effects on the employment trajectories, we next investigate the heterogeneity of effects of TUP across three dimensions: baseline employment, presence of adult sons in the household (in 2008), and gender of the household head. Table 4 shows the heterogeneity of TUP effects across baseline employment. For reasons of parsimony, tables 4 and 5 show only incremental effects between each survey year. We find that baseline entrepreneurs who participate in TUP are 7 percentage points more likely to remain entrepreneurs compared with controls in the short term. Participants who worked as maids, beggars, or day laborers at baseline are, respectively, 11, 15, and 9 percentage points more likely to switch to entrepreneurship in the short term. Although we generally see no significant changes in the medium term, we see a significant shift back from entrepreneurship for baseline beggars (19 percentage points), maids (12 percentage points), and day laborers (9 percentage points). No such trend appears for those engaged in entrepreneurial activities at baseline.

Table 5 shows the TUP effects on employment trajectories across households with adult sons by 2008 and those without. Although we see that those without adult sons are more likely to move to entrepreneurship in the short term (11 vs. 7 percentage points), households without adult sons are 8 percentage points more likely to move away from entrepreneurship to working as maids (4 percentage points) or beggars (1 percentage point) in the long term.

TABLE 4
EFFECTS OF TUP ON EMPLOYMENT BY BASELINE EMPLOYMENT

	Entrepreneur			Maid			Beggar			Day Laborer		
	2002–5 (1)	2005–8 (2)	2008–11 (3)	2002–5 (4)	2005–8 (5)	2008–11 (6)	2002–5 (7)	2005–8 (8)	2008–11 (9)	2002–5 (10)	2005–8 (11)	2008–11 (12)
Entrepreneur (1/0)	.073**	−.040	.031	.113**	.087	−.122*	.151**	.030	−.185**	.086***	.027	−.089***
	(.031)	(.038)	(.040)	(.050)	(.059)	(.072)	(.088)	(.067)	(.093)	(.015)	(.019)	(.021)
Maid (1/0)	.005	−.029*	.044**	−.151***	.025	.027	.011	−.078	.117	−.022***	.009	.019
	(.012)	(.016)	(.021)	(.053)	(.062)	(.069)	(.045)	(.066)	(.088)	(.008)	(.011)	(.013)
Beggar (1/0)	−.001	−.008	−.013	.011	−.071**	.044	−.263***	.080	.227**	−.001	.003	.001
	(.008)	(.008)	(.010)	(.025)	(.028)	(.039)	(.080)	(.088)	(.093)	(.004)	(.005)	(.005)
Day laborer (1/0)	−.063**	.050	−.061	.030	−.051	.049	.186***	−.153*	−.120	−.061***	−.063***	.071***
	(.029)	(.036)	(.040)	(.055)	(.064)	(.072)	(.060)	(.080)	(.092)	(.018)	(.022)	(.024)
Other (1/0)	−.014	.029	−.009	−.002	.006	−.001	.033	−.010	−.036	−.002	.024*	−.001
	(.016)	(.023)	(.024)	(.033)	(.048)	(.047)	(.037)	(.055)	(.045)	(.008)	(.012)	(.013)
Observations	1,034	1,020	850	359	356	292	186	179	141	2,670	2,651	2,314

Source. Data for this analysis were collected from three districts in northern Bangladesh (Rangpur, Kurigram, and Nilphamari) by the Research and Evaluation Division of BRAC.
Note. Results were obtained by linear regression with inverse propensity weighting. Shown are the heterogeneous effects of the program Challenging the Frontiers of Poverty Reduction: Targeting the Ultra Poor (TUP) across baseline employment status. Three columns are presented for each baseline employment category to show the incremental effects of TUP. Standard errors are in parentheses.
* Significance at 1%.
** Significance at 5%.
*** Significance at 10%.

TABLE 5

EFFECTS OF TUP ON EMPLOYMENT BY PRESENCE OF ADULT SONS AND GENDER OF HOUSEHOLD HEAD

	2002–5 (1)	2005–8 (2)	2008–11 (3)
	A. Adult Male Children		
With:			
Entrepreneur	.066**	.004	−.038
	(.030)	(.031)	(.036)
Maid	−.049***	.012	−.014
	(.015)	(.013)	(.016)
Beggar	.005	−.001	−.004
	(.007)	(.007)	(.005)
Day laborer	.023	−.067**	.053
	(.034)	(.033)	(.038)
Other	−.045**	.051**	−.003
	(.020)	(.023)	(.024)
Observations	1,207	1,199	1,057
Without:			
Entrepreneur	.114***	.032*	−.078***
	(.017)	(.017)	(.019)
Maid	−.045***	−.003	.042***
	(.011)	(.012)	(.013)
Beggar	−.025***	−.003	.014*
	(.008)	(.007)	(.008)
Day laborer	−.079***	−.029	.013
	(.019)	(.019)	(.021)
Other	.035***	.004	.009
	(.010)	(.012)	(.012)
Observations	3,318	3,274	2,766
	B. Household Head		
Female:			
Entrepreneur	.189***	.041	−.081**
	(.028)	(.028)	(.034)
Maid	−.103***	.002	.047
	(.026)	(.026)	(.029)
Beggar	−.043***	−.004	.009
	(.016)	(.014)	(.016)
Day laborer	−.060*	−.052*	−.006
	(.033)	(.031)	(.035)
Other	.018	.018	.028
	(.020)	(.022)	(.022)
Observations	1,457	1,432	1,185
Male:			
Entrepreneur	.066***	.014	−.064***
	(.017)	(.019)	(.020)
Maid	−.006	−.003	.022**
	(.006)	(.007)	(.009)
Beggar	−.004	−.002	.007
	(.005)	(.005)	(.004)
Day laborer	−.072***	−.023	.031
	(.019)	(.020)	(.021)
Other	.016	.013	.003
	(.010)	(.012)	(.013)
Observations	3,068	3,041	2,638

Source. Data for this analysis were collected from three districts in northern Bangladesh (Rangpur, Kurigram, and Nilphamari) by the Research and Evaluation Division of BRAC.

Note. Results were obtained by linear regression with inverse propensity weighting. Shown are the heterogeneity of effects of the program Challenging the Frontiers of Poverty Reduction: Targeting the Ultra Poor (TUP) with the presence of adult male children (A) and by gender of the household head (B). Cols. 1–3 show the incremental effects of the program. Standard errors are in parentheses.

* Significance at 1%.
** Significance at 5%.
*** Significance at 10%.

Table 5 also shows the heterogeneity of TUP impact across the gender of the household head. Although the likelihood of adopting entrepreneurship for both groups increases during the short term (2002–5), the effect is more than double for the female-headed households (19 vs. 7 percentage points). This shift is driven by a corresponding move away from work as maids or beggars. Among male-headed households, the increase in entrepreneurial activities comes from a decrease in day laboring. Similar to the main results, a reversal to baseline employment in the long term is seen for both groups, though the probability of having an entrepreneurial occupation remains significantly higher for female-headed households (higher by 11 percentage points) compared with the baseline, whereas this is not the case for male-headed households.

V. Discussion and Concluding Remarks

TUP was launched in Bangladesh by BRAC, an international NGO, in 2002. With the backdrop of traditional poverty-alleviation tools failing to reach the most marginalized, the program aims to explicitly target the ultrapoor. The TUP enrolls participants for a period of 2 years, during which they receive income-generating assets and hands-on training in developing these assets, in addition to education, health support, nutritional information, and social support. TUP thus far has encompassed 1 million households in Bangladesh and has been replicated across 20 countries. Past studies have investigated the short- and medium-term impacts of the program on a host of core outcomes. They demonstrate marked effects on income, asset ownership, food security, and health (Rabbani, Prakash, and Sulaiman 2006; Haseen and Sulaiman 2007; Raza, Das, and Misha 2012; Emran, Robano, and Smith 2014). For reasons of sustainability, TUP places a large emphasis on promoting self-reliance through entrepreneurial activities. Bandiera et al. (2013) found substantial positive effects of the second phase of TUP on employment in the medium term. However, evidence for the long-term effects of large-scale poverty-alleviation programs on employment is lacking but crucial to understanding whether such programs really have a transformative impact on the lives of the poor. We attempt to fill this gap by studying the effects of TUP on employment choices across three time frames: 3 years (short term: 2002–5), 6 years (medium term: 2002–8), and 9 years (long term: 2002–11) after enrollment.

We confirm earlier findings that, in the short term, TUP causes participants to switch to entrepreneurship (up by 10 percentage points) from what can be considered less productive occupations (maid or servant, beggar, and day laborer). These effects are generally maintained in the medium term. In the long term, however, a substantial proportion of the treated group switches back to their initial occupation. Consequently, the long-term impact of TUP on working as an entrepreneur is only an increase of 5 percentage points.

Investigating the heterogeneity of the impact of TUP across various dimensions provides further insight into these disappointing long-term effects. First, we find that those initially working as beggars and maids (and, to a lesser extent, day laborers) are less likely to sustain their small businesses and tend to switch back to their original occupations. This might reflect heterogeneity in baseline capabilities between the participants and call for an even more targeted approach of the program. Second, we find that households with male adult children are more likely to remain engaged in entrepreneurial activities (a 7 percentage point increase) in the long term, which suggests that intrahousehold support for maintaining the small business is crucial. Third, we find that female household heads are more likely to remain working as entrepreneurs compared with their male counterparts, even though a decline in long-term effects is found in both groups.

Although we cannot determine the reasons for the decline in some of the program's effects, we can offer some hypotheses. First, whereas the participants receive intensive training in various skills over the course of 2 years, they have little or no interactions with the BRAC staff on completion. It is likely that such skills training needs to be repeated over time to have sustained impact. Second, the target districts where TUP takes place are traditionally associated with near-famine conditions and covariate shocks between September and December each year. This phenomenon, coupled with the fact that participants no longer have access to specially designed safety nets provided by the TUP after the program ends, leaves them vulnerable to the consequences of health and socioeconomic shocks (e.g., death of livestock, layoffs), among others. Because both our treatment and control households are located within the villages and exposed to similar shocks, we cannot investigate empirically whether program effects are more sustained in areas that did not experience weather shocks. Data from the randomized rollout of this program might be able to shed light on this issue.

This study has some limitations. The first and most important is related to the nonrandom rollout of the program. Our results can only be interpreted as causal under the assumption that no time-varying unobservable factors are correlated with both the program rollout and the employment outcomes. Such an assumption cannot be formally tested, but controlling for a large battery of baseline observable characteristics (both through regression and inverse propensity weighting) should limit the scope for such unobserved factors. The stable trend in employment outcomes in the control group lends credibility to the parallel trends assumption. Selection into treatment based on transitory negative shocks on past outcomes could also bias our estimates (Ashenfelter 1978; Chay, McEwan, and Urquiola 2005). Again, we cannot test for this, but we argue that the intensive selection process, which focused on indicators of long-term wealth, should limit this possibility. The similarity between our

short- and medium-term effects and those found from evaluations of the second phase of TUP (rolled out as a randomized controlled trial) further suggests that our effects are not merely driven by such a selection bias.

A second limitation arises from the comparison of treated and control households in the same village. To the extent that these control households are affected by spillover effects, the assumption of noninterference might be violated. While such spillover effects are likely to exist with such a broad program (and have been shown to exist by Bandiera et al. 2012), they are unlikely to affect employment outcomes in particular. This is also confirmed by the absence of any meaningful trend in employment among the controls.

Notwithstanding these limitations, we can conclude that TUP participation encourages departure from lower-level income sources such as work as maids, begging, or day laboring toward entrepreneurship in the short and medium terms. Even up to 7 years after graduation from the program, participants remain more likely to be engaged in small businesses. This paper shows, however, that a proportion of participating households—especially those starting as beggars or maids, those without adult sons, and those headed by males—switch back to their lower-income baseline occupations, causing the long-term net effects to be comparatively small. This finding raises concerns about the strong claims that have been made about the sustainability of these comprehensive antipoverty programs (Banerjee et al. 2015) and suggests a need for further research on the causes for this reversal and the extent to which it is found in other settings. The large scale at which this program is currently operating and the randomized rollout of some schemes provide a unique opportunity to deliver such evidence.

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