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Eliminating Extreme Poverty: Comparing the Cost-Effectiveness of Livelihood, Cash Transfer, and Graduation Approaches

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Executive Summary

Targeted interventions that sustainably improve the lives of the poor will be a critical component in eliminating extreme poverty by 2030. The poorest households tend to be physically and socially isolated and face disadvantages across multiple dimensions, which makes moving out of extreme poverty challenging and costly. This paper compares the cost-effectiveness of three strands of anti-poverty social protection interventions by reviewing 30 livelihood development programs, 11 lump-sum unconditional cash transfers, and seven graduation programs.¹ All the selected graduation initiatives focused on the extreme poor, while the livelihood development and cash transfer programs targeted a broader set of beneficiaries. Impacts on annual household consumption (or on income when consumption data were not available) per dollar spent were used to benchmark cost-effectiveness across programs.² Among all 48 programs reviewed, lump-sum cash transfers were found to have the highest benefit-cost ratio, though there are very few lump-sum cash transfer programs that serve the extreme poor or measure long-term impacts. Livelihood programs that targeted the extreme poor had much lower benefit-cost ratios. Graduation programs are more cost-effective than the livelihood programs that targeted the extreme poor and measured long-term impacts (i.e., at least one year after end of interventions). More evidence is needed, especially on long-term impacts of lump-sum cash transfers to the extreme poor, to make better comparisons among the three types of programs for sustainable reduction of extreme poverty.

1. Livelihood development programs refer to a wide range of approaches to help poor people acquire productive assets and build the skills to use them. Lump-sum unconditional cash transfers are a large lump-sum transfer of money to help the poor invest in income-generating assets. Graduation programs use a holistic approach to tackle simultaneously the interrelated challenges faced by the poorest with a set of services including access to saving services, intensive mentoring, technical skills training, and a grant of a productive asset or seed capital.

2. Impacts refers to changes that are attributed to the program or intervention.



Introduction

The share of the world's population living in extreme poverty has dropped dramatically. Between 1990 and 2011, the population in developing countries living on less than \$1.90 a day dropped from 37 percent to 14 percent (Ferreira et al. 2015). Despite this progress, almost 900 million people still live on less than \$1.90 a day. Moreover, there is an important geographical disparity among the progress: 43 percent of the people in sub-Saharan Africa are currently living below this line, the poverty rate in South Asia is 19 percent, and progress in Latin America has slowed in recent years. Continued reduction of extreme poverty will require targeted interventions to help the poorest increase their standard of living.

Effective social protection programs are critical to this effort. Livelihood development programs, lump-sum cash transfers, and graduation programs

have the potential to help the very poor increase incomes to move out of extreme poverty (Table 1). Livelihood development programs encompass a wide range of interventions supporting income growth of poor people, including training on new agriculture technologies, business development services, agricultural value chain development, and access to market information. Unconditional cash transfers are a relatively simple intervention of providing a lump-sum, one-off unconditional grant. Graduation programs, on the other hand, take a holistic approach of combining livelihood promotion and safety nets to create time-bound pathways out of extreme poverty (Figure 1). Graduation programs are also rigorously targeted to the extreme poor through a sequence of geographical and participatory methodologies and means testing (typically through a poverty scorecard). It is important for policy makers to understand which of these three program types (livelihood development programs, lump-sum unconditional cash transfers, and graduation programs) generates the greatest and most sustainable impact for the extreme poor to ensure effective use of scarce resources.

To address this question, this research identified 30 livelihood development programs, 11 lump-sum cash transfer initiatives, and seven graduation programs and compared results from impact evaluations and project-specific cost data (see Table 1). This research did not screen out studies based on the targeting approach of the respective interventions, since only the graduation programs focused solely on the poorest (Annex 1). A large proportion of the evaluation reports for livelihood and lump-sum cash transfers do not adequately discuss targeting or use a sufficient set of indicators in explaining the profile of targeted beneficiaries.³ Keeping in mind important methodological limitations, the



Photo by CGAP.

3. Annex 2 in Sulaiman (2016) explains the assessment of targeting extreme poverty for each program.

TABLE 1 Three Types of Social Protection Approaches

	Livelihood Development Programs	Lump-Sum Cash Transfer Programs	Graduation Programs
Overview	A wide range of approaches to help poor people acquire productive assets and build the skills to use them (e.g., promotion of new farming technologies, farmer group organization). Livelihood development programs are usually implemented in rural areas and may combine cash or in-kind grants and access to financial services.	A large lump-sum (ranging from \$84 to \$480) cash transfer to help the poor invest in income-generating assets.	A holistic approach to tackle simultaneously the interrelated challenges faced by the poorest with a set of services, including access to saving services, intensive mentoring, technical skills training, and the grant of a productive asset or seed capital (Figure 1).
Coverage	These programs are usually government implemented (or implemented by a consortium of nongovernment organizations on behalf of a government) at a national scale. Over 40% of the 30 programs studied in this review reach more than 100,000 beneficiaries. ^a They have a long history of implementation, often dating back to the 1970s.	These types of transfers generally have been implemented as pilots for research on business investment and poverty reduction. The exception is GiveDirectly, which has reached thousands of households in Kenya and Uganda and continues to scale.	The graduation approach was initiated by BRAC in Bangladesh in 2002 and reached over half a million households by 2013. CGAP and the Ford Foundation tested the approach between 2006 and 2014 in 10 different sites (see below). The approach is now being substantially scaled up in a number of countries, including India, Pakistan, and Peru.
Evaluation	These programs have rarely been rigorously evaluated. Only 30% of studies used randomized evaluations, and the rest used comparison groups.	These programs have been extensively studied since they have mostly been delivered in the context of randomized impact evaluations to learn about poverty reduction (e.g., Fafchamps et al. 2013).	Seven sites have conducted randomized evaluations: The BRAC program in Bangladesh (Bandiera et al. 2016) and six sites [Ethiopia, Ghana, Honduras, India, Pakistan, and Peru] published together in Banerjee et al. (2015).

a. Examples of livelihood programs include farmer-based organization (FBO) training in Ghana by Millennium Development Authority (MiDA) covering 67,000 direct beneficiaries and National Agriculture Advisory Services (NAADS) by the Government of Uganda reaching 716,000 direct beneficiaries.

cost-effectiveness of each approach was compared using the simple indicator of impacts achieved on consumption or income per dollar spent.

These anti-poverty programs either include a broader set of beneficiaries (most livelihood and lump-sum cash transfer programs) or are specifically targeted to the poorest (graduation programs).

For example, livelihood programs that promote new technologies often target households with access to a minimum amount of land; unconditional cash transfers target households with an existing nonfarm business.⁴ Such households are excluded from graduation programs because of their focus on the extreme poor.

4. In several cases, this is because the lump-sum cash transfers were used by researchers to measure returns to capital among entrepreneurs.



Photo by CGAP.

FIGURE 1. What Is the Graduation Approach?

THE GRADUATION INTO SUSTAINABLE LIVELIHOODS APPROACH

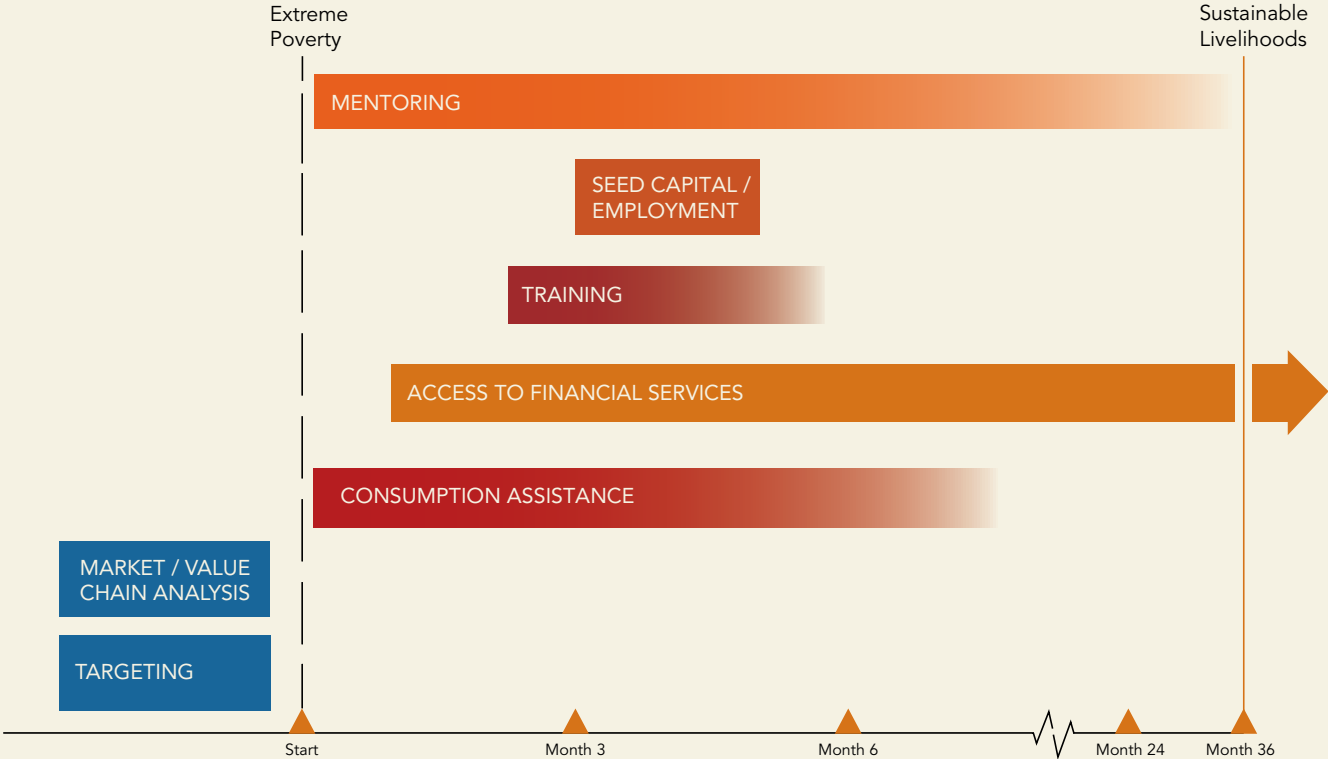




Photo by IPA.



Methodology

For livelihood and lump-sum cash transfer programs, we gathered information through a literature search, primarily relying on existing systematic reviews to ensure that studies had already been screened for quality and relevance. Out of 198 evaluations, we excluded 63 evaluations because they did not involve working directly with households (instead, they were macroeconomic policy reforms, trade reforms, etc.) and another 22 evaluations of microcredit interventions. Following this program screening, we included all studies that measure impacts on consumption (or on income) and have adequate information for calculating per beneficiary cost of interventions.

We ended up with a total of 41 cases, resulting in a geographical distribution covering 19 countries in Africa, Asia, and South America (see Annex 1). While all the cash transfer cases are randomized control trials (RCTs), only nine of the livelihood

cases are RCTs. Therefore, livelihood programs vary in terms of attribution of changes on the interventions. For graduation programs, we focused on randomized evaluations only, and included seven evaluations from two studies on graduation programs (Bandiera et al. 2016 and Banerjee et al. 2015). See Table 2.

For calculating benefit-cost ratios, we used impacts on annual household consumption (or income, if impact estimates for consumption were not available) and intervention costs per beneficiary household. Therefore, a ratio of 0.2 indicates that the impacts need to sustain for at least five years to equalize costs. This is a limited measure of benefit, but it allows for comparability across programs. When cost information was not provided in the published studies, we compiled information from various sources including evaluation reports by donors.

TABLE 2 Study Methodology

Study screening criteria	The criteria for inclusion in the study were (1) programs designed to help the poor build livelihoods, (2) availability of impact measurements on consumption or income, and (3) information of project budget and scale available to measure per household cost.
Measuring cost-effectiveness across sites	To allow cross-comparison, we constructed our own simple measure of cost-effectiveness for each program: the ratio of impacts on consumption (or income) to the cost of the intervention per beneficiary household.



Impacts

Livelihood Development Programs. There is a wide diversity in the design of livelihood development programs, including in their duration and targeting (focus on the extreme poor only or a broader set of beneficiaries). One-third of livelihood programs included in this review targeted the extreme poor. Our review shows that the impacts of livelihood programs tend to be higher when targeted toward the less poor, though there are examples of livelihood programs generating somewhat more equitable impacts. Livelihood programs have generally not been evaluated through randomized impact evaluations, and only 10 of the 30 cases in this study assessed impact more than a year after the end of the intervention.

Lump-sum Cash Transfers. Lump-sum cash transfers in this comparative study are typically short-term research projects with a transfer of cash (averaging about US\$230) delivered in a single payment or in a few installments within a single year. Although a few of these cash transfer programs involve additional activities such as the approval of a business proposal or a second follow-up grant, the interventions are typically completed within one year. Only three of the eight cases in this study target the extreme poor. In Sri Lanka, Ghana, and Kenya, studies show positive impacts from cash transfers on consumption, assets, and food security, but preliminary evidence in Kenya suggests that the impacts may dissipate relatively quickly (de Mel et al. 2012, Fafchamps et al. 2011, and Haushofer and Shapiro 2013). Six out of the 11 cases do not find any significant positive effect on consumption or income. The one-off nature of the intervention combined with the possibility of using mobile money for the transfer explains the low cost associated

with this type of program. These programs typically have been evaluated with randomized impact assessments, but there is a lack of data on the long-term effects of these programs.

Graduation Programs. Graduation programs last 18 to 36 months from selection to the end of interventions for a specific household, and they target the extreme poor. By pooling results from six RCTs, Banerjee et al. (2015) find that the graduation program has statistically significant impacts on beneficiaries' assets (12 percent increase) and savings (96 percent increase) one year after program end (which is three years after the assets are transferred and training is conducted). Impact assessments also show that beneficiaries spent more time working, went hungry for fewer days, experienced lower levels of stress, and reported improved physical health. Another randomized impact evaluation by Bandiera et al. (2016) of the graduation program implemented at a much larger scale by BRAC in Bangladesh finds similar positive impacts on employment, income, assets, and consumption that are sustained after two years from the end of the intervention (i.e., four years after asset transfer). There is also evidence of the impacts of this BRAC program being even larger seven years after the asset transfer. Using only consumption data (which tend to deflate the evidence of program benefits in comparison with income data) we find that the positive impact of graduation programs is widespread, with only one site (Honduras) not demonstrating positive impact.^{5, 6} These impact findings are long term (over a year after the program intervention is over) and align with the positive findings of qualitative evaluations conducted at BRAC and the 10 graduation sites.

5. Banerjee et al. (2015) discuss the apparent reason for such failure in Honduras being transfer of chickens that died within weeks after transfer.

6. All the point estimates of the impact evaluations have been converted into annual gain in income or consumption. For programs with impact estimates available for both income and consumption, we took the consumption estimates since these tend to be more reliable for poor households with irregular sources of income. These impact estimates have been converted into U.S. dollars using the same exchange rate used for respective cost calculations.

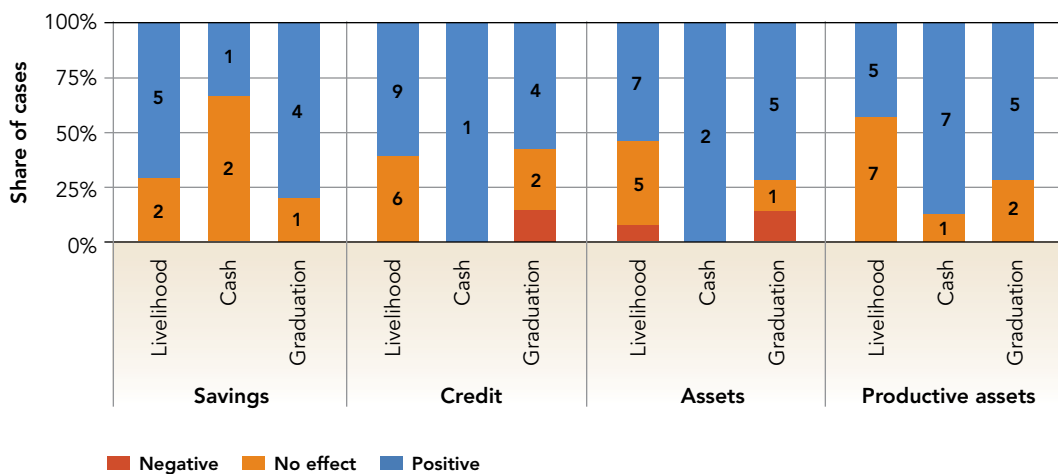
BOX 1

What Are the Impacts on Financial Services?

Though most social protection programs aim to promote financial inclusion, only evaluations of the graduation programs have systematically tracked impacts on assets, access to savings, and credit (Figure 2). This is partly due to design: The graduation approach includes financial access (facilitated access to savings accounts, specifically), and in several sites it includes offers of microcredit loans at the end of the program. Thus the studies naturally measured take-up of financial products as a primary outcome measure, whereas standard livelihood and cash transfer programs did not include financial access as a primary outcome in the theory of change, typically, and most did not report financial in-

clusion outcomes. Out of the 30 livelihood programs reviewed for this study, only seven cases report any findings on savings, out of which five are positive impacts (i.e., higher savings). Among the 11 cash transfer programs, only three report impacts on savings, and only one estimate is positive. For graduation, four of the seven cases show positive impacts on savings, with the impact estimates ranging from US\$45 in Peru to US\$272 in Ethiopia (where saving was compulsory). As graduation programs scale up, it will be important to understand the relative importance of accessing finance for the success of the approach.

FIGURE 2. Impacts on Access to Finance and Assets



Note: Positive impact on savings and assets indicates the program has increased savings or asset ownership, and vice versa. For credit, positive impact refers to increase in likelihood of borrowing or amount of credit accessed.



Costs

Programs targeting the extreme poor are costlier than nontargeted interventions. The graduation approach uses a systematic, multi-stage process to target the poorest and screen out the slightly better off. Few other livelihood or lump-sum cash transfer programs have similar emphasis on serving exclusively the extreme poor. A qualitative assessment of programs' targeting suggests that only three (27 percent) of the lump-sum cash transfers and 10 (33 percent) of the livelihood programs targeted and included predominantly the extreme poor. The ability to make comparisons between programs of each type is therefore limited, but some conclusions may be made.

Lump-sum cash transfers had an average transfer of US\$232, with the size of cash grants in the 11 evaluations selected in this study ranging from US\$84 to US\$480. Since almost all these evalua-

tions are conducted as research projects, the administrative costs are not reported. We used a 10 percent administrative cost, following the overhead cost estimates of the nongovernment organization GiveDirectly, in calculating benefit-cost ratios for these evaluations.

Livelihood programs had a large range in cost per beneficiary household, starting as low as US\$2.36 and going as high as over US\$3,700. The average cost (US\$796) was much higher than cash transfers, and the average for the 10 targeted livelihood programs was even higher (US\$1,147). Graduation programs also had a high average cost (US\$1,148), with wide heterogeneity across sites (Banerjee et al. 2015), but their interventions were very similar (see Figure 1). The difference in costs across sites is likely driven by the variances in staff salaries, price of inputs, and population density.

7. The costs reported here are in U.S. dollars, using the exchange rates prevailing at the time of program implementation.

8. Simple average of programs, not weighted for population served.

9. Costs per beneficiary household are estimated by dividing total project cost with number of direct beneficiary households.



Benefit–Cost Comparison

The overall benefit-cost ratio is the highest for lump-sum cash transfers (0.29), followed by livelihood programs (0.20), and graduation programs (0.11).¹⁰ When considering only the cases with impacts measured at least one year after the end of intervention, graduation comes out as having both a high cost and a high long-term impact, with evidence showing the graduation program’s impact on economic indicators persist over time. Among programs that target the extreme poor and for which there is long-term evidence, graduation programs had a greater impact per dollar with a benefit-cost ratio of 0.11 compared to 0.09 for livelihood programs. In Bangladesh, the estimated impact of the graduation program on total consumption significantly increased between the end of the intervention and two years after. According to the six-country impact study done by IPA and J-PAL, the effect of the graduation program on daily consumption did not decline after the intervention stopped. Furthermore, over one year after the graduation programs ended, households had more productive assets (mostly livestock) and increased their labor supply. In some countries, they even acquired livestock other than the ones provided by the program.

Livelihood and cash transfer cases show a reverse trend. There are five cases (three livelihoods

and two cash transfers) with impact estimates at multiple points of time. These show a declining trend between their respective midlines and endlines. All three livelihood cases show substantial decline in effect sizes, while the cash grant experiment in Sri Lanka (de Mel et al. 2012) finds that the impacts are much higher in the four quarters immediately after transfers than a year later while another experiment involving training and grant transfers in Sri Lanka (de Mel 2014) shows that the initial improvements in business practices dissipate after two years.

The livelihood programs targeting the poorest and with long-term impacts are widely varied, including agricultural reform, irrigation, a women’s income-generation program, land redistribution, and ex-combatant reintegration. The diversity of these programs, high variation in treatment effects (including both positive and no effect), and lack of experimental variation and data help to explain why some programs work and others do not, and lead to no clear policy recommendation. Lump-sum cash transfers have the highest benefit-cost ratio at 0.29, but thus far evidence is concentrated only for the moderately poor (and not the extreme poor). Moreover, the existing evidence of cash transfers is primarily limited to the short-run effects.

10. These ratios are not the same as typical benefit-cost ratios that estimate total benefit assuming longevity of the impacts, but the meta-average of the ratios of impact on annual consumption to cost, which is used as a benchmark indicator. In other words, an average of 0.1 shows that the impacts on annual consumption is 10 cents for every dollar spent per household for the interventions. On the other hand, benefit-cost analysis generally assumes the impacts to sustain for specific durations.





Conclusion

A comparison of three strands of social protection interventions (livelihood development programs, lump-sum unconditional cash transfers, and graduation programs) shows the highest impact per dollar is lump-sum cash transfers, but current evidence is lacking for their long-term impact among the extreme poor. In comparison with the livelihood programs that target the extreme poor and have long-term impact estimates, graduation programs fare better. More evidence is needed to make more robust comparison between the graduation approach and lump-sum cash transfers in sustainable poverty reduction among the extreme poor. In particular, we need answers to questions such as: What are the impacts of lump-sum transfer programs targeted specifically to the extreme poor? How long do these impacts last? Based on available evidence, the graduation approach is the clearest path forward to reduce extreme poverty in a sustainable manner. A direct comparison of long-term impact among specific livelihood development interventions serving the extreme poor, lump-sum cash transfers also serving the extreme poor, and graduation would provide useful additional evidence for policy purposes.



Photo by CGAP.



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ANNEX 1

Livelihood and Cash Transfer Programs Included in the Study

SI	Case Title	Country	Method ^a	Benefit-cost ratio (Standard error)	Year of start	Target extreme poor ^b
LIVELIHOOD PROGRAMS						
1	MiDA Farmer Based Organization (FBO) Training	Ghana	RCT	0.057 (0.119)	2006	No
2	Rural Business Program	Nicaragua	RCT	0.056 (0.093)	2006	No
3	National Agriculture Advisory Services (NAADS)	Uganda	PSM and DiD	0.617 (0.025)	2001	No
4	Productive Safety Net Program (PSNP)	Ethiopia	PSM and DiD	0.015 (0.024)	2005	Yes
5	Sipi organic coffee contract farming scheme	Uganda	FIML	1.061 (0.466)	2001	No
6	Farm Input Subsidy Program (FISP)	Malawi	PSM and IV	0.146 (0.063)	2005	No
7	Comprehensive Agrarian Reform Program (CARP)	The Philippines	Diff-in-Diff	0.037 (0.240)	1988	Yes
8	Agricultural Recovery Program (ARP)	Zimbabwe	With-without	0.177 (0.076)	1993	No
9	Agroforestry in Western Kenya	Kenya	With-without	-0.005 (0.019)	1997	No
10	National Titling and Registration Program in Peru (PETT)	Peru	PSM and DiD	2.020 (3.810)	1992	No
11	Land-Use Certificate	Vietnam	Diff-in-Diff	15.627 (19.113)	1993	No
12	Ruti Irrigation Scheme	Zimbabwe	PSM	0.981 (0.539)	2009	Yes
13	Productive Business Services (PBS)	El Salvador	RCT	0.096 (0.093)	2008	Yes
14	Water to Market (WtM)	Armenia	RCT	0.657 (0.479)	2006	No
15	Farmer Training and Development Project (FTDP)	Honduras	PSM and DiD	0.003 (0.007)	2005	No
16	Plataformas	Ecuador	PSM with WLS	0.431 (0.167)	2003	No
17	Kenya Dairy Development Project (KDDP)	Kenya	Diff-in-Diff	14.495 (6.534)	2002	No
18	Participatory Livestock Development Project (PLDP)	Bangladesh	With-without	0.179 (0.064)	1998	No
19	Farmer Field Schools in Cajamarca	Peru	With-without	0.432 (0.126)	1998	No
20	Income Generation for Vulnerable Group Development (IGVD)	Bangladesh	PSM	0.467 (0.170)	1975	Yes
21	Women's Income Generating Support (WINGS)	Uganda	RCT	0.090 (0.017)	2007	Yes
22	DrumNet	Kenya	RCT	8.048 (10.176)	2003	No
23	Development of Sustainable Aquaculture Project (DSAP)	Bangladesh	Diff-in-Diff	0.489 (0.181)	2001	No
24	Input subsidy program	Mozambique	RCT	8.275 (5.893)	2009	No
25	Land title reform by SOMALAC	Madagascar	With-without	0.194 (0.076)	1975	No
26	Community Based Rural Land Development Project	Malawi	PSM	0.097 (0.026)	2004	Yes
27	Peruvian Irrigation Subsector Project	Peru	Discontinuity with DiD	0.084 (0.031)	1997	No
28	Microentrepreneurship support program	Chile	RCT	0.499 (0.165)	2006	Yes
29	Ex-combatant reintegration program	Liberia	RCT	0.022 (0.114)	2006	Yes
30	Fadama	Nigeria	PSM and DiD	0.851 (0.432)	1993	Yes

SI	Case Title	Country	Method ^a	Benefit-cost ratio (Standard error)	Year of start	Target extreme poor ^b
CASH TRANSFER (UNCONDITIONAL LUMP-SUM) CASES						
1	Self-selection into credit markets in Mali	Mali	RCT	0.302 (0.110)	2010	No
2	Agricultural decisions after relaxing constraints	Ghana	RCT	0.014 (0.124)	2009	No
3	Transfers, diversification, and household risk strategies	Nicaragua	RCT	0.271 (0.068)	2005	Yes
4	Returns to capital in microenterprises	Sri Lanka	RCT	0.533 (0.311)	2005	No
5	Experimental evidence on returns to capital and access to finance	Mexico	RCT	3.145 (2.134)	2005	No
6	Unconditional cash transfer	Kenya	RCT	0.532 (0.115)	2011	Yes
7	Stimulating microenterprise growth	Uganda	RCT	-0.046 (0.313)	2012	No
8	Youth opportunities program in Northern Uganda	Uganda	RCT	0.300 (0.080)	2007	No
9	Human and financial capital for microenterprise development	Tanzania	RCT	5.396 (8.245)	2008	No
10	Business training and female enterprise start-up	Sri Lanka	RCT	0.184 (0.897)	2009	Yes
11	Returns to capital in microenterprises	Ghana	RCT	0.697 (0.532)	2008	No
GRADUATION PROGRAMS						
1	Targeting the hardcore poor	India	RCT	0.238 (0.068)	2006	Yes
2	Pakistan graduation pilot	Pakistan	RCT	0.111 (0.063)	2007	Yes
3	Holistic improvement of rural families (MIRE)	Honduras	RCT	-0.122 (0.085)	2009	Yes
4	Ethiopia graduation pilot	Ethiopia	RCT	0.161 (0.035)	2010	Yes
5	Graduation from ultra-poverty program	Ghana	RCT	0.100 (0.036)	2010	Yes
6	Peru graduation pilot	Peru	RCT	0.080 (0.046)	2010	Yes
7	Targeting ultra-poor programme	Bangladesh	RCT	0.115 (0.034)	2002	Yes

^a Methods: RCT—Randomized Control Trial; PSM—Propensity Score Matching; DiD—Different-in-Difference; with-without—comparing between intervention and comparison group after intervention; IV—Instrumental Variable regression; FIML—Full Information Maximum Likelihood.

^b Details of the targeting performance assessment for each program can be found in Sulaiman (2016).



