The Effect of Integrated Safety Net Programs in Bangladesh and Uganda

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550332-L-bw-Misha
Processed on: 5-11-2020

This research was funded by the Rotterdam Global Health Initiative (Health Care Ultra Poverty Bangladesh).

Cover design:
Progressive Printers Pvt. Ltd.

Cover photography:
BRAC/ Farzana Misha

Design and layout:
Progressive Printers Pvt. Ltd.

Printing:
Ipskamp Printing, Enschede

ISBN 978-90-6490-127-0

The Effect of Integrated Safety Net Programs in Bangladesh and Uganda

Het effect van geïntegreerde vangnetprogramma's in Bangladesh en Uganda

Thesis

to obtain the degree of Doctor from the
Erasmus University Rotterdam
by command of the
Rector Magnificus

Prof.dr. R.C.M.E. Engels

and in accordance with the decision of the Doctorate Board

The public defence shall be held on
2 December 2020 at 10.00 hrs

by

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ABBREVIATIONS

AES	Average Effect Size
AME	Adult Male Equivalents
AMFIU	Association of Micro Enterprise Financial Institutions of Uganda
ATET	Average Treatment-Effect-on-the Treated
BBS	Bangladesh Bureau of Statistics
BRAC	Building Resources Across Communities
BWDB	Bangladesh Water Development Board
CAP	Community Agriculture Promoters
CDSP	Char Development and Settlement Program
CFPR-TUP	Challenging the Frontiers of Poverty Reduction-Targeting the Ultra Poor
CHP	Community Health Promoter
CLP	Community Livestock Promoters
CO	Credit Officers
DiD	Difference-in-difference
DPHE	Department of Public Health and Engineering
DUS	Dwip Unnayan Sangstha
EKN	Kingdom of the Netherlands
FHH	Female headed households
FINCA	Foundation for International Community Assistance
GDP	Gross Domestic Product
GoB	Government of Bangladesh
GoU	Government of Uganda

IFAD	International Fund for Agricultural Development
IGA	Income Generating Activity
IGVGD	Income Generation for Vulnerable Groups Development
LGED	Local Government Engineering Department
LRP	Land Reclamation Project
MDG	Millennium Development Goal
MES	Meghna Estuary Study
MfM	Microfinance Multiplied
MHH	Male headed household
NGO	Non-Government Organization
NNGO	Northern Non-Government Organization
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
OTUP	Other Targeted Groups
PAR	Portfolio at Risk
POPSEC	Population Secretariat of Uganda
PPP	Purchasing Power Parity
RCT	Randomized Control Trial
ROSCA	Rotating savings and credit associations
SACCO	Savings and Credit Cooperative Organizations
SDG	Sustainable Development Goals
SDI	Society for Development Initiatives
SNGO	Southern Non-Government Organization
SSUS	Sagarika Samaj Unnayan Sangstha
STUP	Specially Targeted Ultra Poor
TB-DOTS	Tuberculosis- Directly Observed Treatment
TUP	Targeted Ultra Poor
UBOS	Uganda Bureau of Statistics
UN	United Nations
UNDP	United Nations Development program
VGD	Vulnerable Group Development
VO	Village Organizations
WASH	Water, Sanitation and Hygiene
WB	The World Bank

Chapter 1

INTRODUCTION

In the past two decades, there has been a steady decline in the number of individuals living below the internationally defined poverty line of $1.90 per capita per day (World Bank, 2018b). Goals set by the World Bank and the UN's Sustainable Development Goals to end global poverty by 2030 have also put further emphasis on this issue (World Bank, 2016). With the total official flow of aid running into billions[1] and despite galvanizing efforts like the Millennium Development Goals (MDGs), followed by the SDGs, one in ten people still continue to live below the poverty line.[2] Relatively recent attempts at alleviating poverty have highlighted the potential which may be offered by integrated as opposed to single-intervention based poverty and social protection programs in a quest to achieve lasting welfare gains. Early advocates of designing interventions which are geared to simultaneously meeting the effects of various shocks were among others, Fields & Lipton (2000). In current practice, interventions that opt for integrated programming not only support the primary needs (such as income generation) but also include complementary and supplementary components to buffer the target population from other shocks. Such additional components are for example, access to insurance, provision of basic health care services, knowledge building and capacity enhancement, inter alia. For example, the Grand Addis Ababa Integrated Housing Development Program (GAAIHDP) launched in 2006 in Ethiopia, constructed houses for low-income families but also included promotional activities on effective use of scarce land, encouragement of the use of low-cost construction technology, creating job opportunities, and job training. Another integrated program is the Char Livelihood Program (CLP) which started in Bangladesh in 2004. Under this program, beneficiaries received income generating assets, access to clean water and sanitation, stipend payments, and livelihood training. Another example is the Girls' and Women's Education Policy Research Activity (GWE-PRA) initiated in Nepal in 1995, an integrated literacy program that included, literacy, reproductive health, income generating activities (IGA), community and political participation. Other integrated programs include asset transfer programs like the graduation approach Targeting the Ultra-Poor (TUP) which was implemented by the NGO BRAC in Bangladesh and in Uganda. The program which targets the ultra-poor offers a combination of livelihood assets, access to financial services, consumption support, training and social integration. As this short and by no means complete list of integrated programs shows, there is not one type of program but a myriad of different approaches. Unsurprisingly, how to design and bundle such integrated programs to achieve the largest possible impact given scarce resources is an issue of debate.

The current surge in the number of integrated programs also generates a demand to assess their efficacy. As a result, impact evaluations to better understand whether it makes sense to continue such integrated programs have also been on the rise. Impact assessments can make an important contribution to the fine tuning and scale-up of existing projects if they are found to be effective. If not, the evidence derived through impact evaluations can also provide fact-based arguments for discontinuing a project. Beyond specific projects that are assessed, the consolidated findings

[1] Official development assistance reached a total value of $105,559.89 millions in 2017 according to OECD, http://dx.doi.org/10.1787/data-00074-en (Data extracted on 03 Aug 2019 07:13 UTC (GMT) from OECD.Stat)

[2] $1.90 per capita per day.

from impact evaluations can inform future development approaches and policies. According to Fields & Lipton (2000), there are three reasons for optimism when it comes to achievements in poverty reduction. First, there are projects and programs that have been successful even in difficult environments. Second, some of the successful programs are replicable in other contexts. Third, even if some projects seem to fail, they might still contain islands of success.

This thesis contributes to ongoing debates about integrated programs for poverty reduction and presents impact evaluations of three distinct programs, all of which implemented different versions of an integrated program. All the interventions were designed and implemented by the international NGO–BRAC. BRAC is the largest NGO in the world in terms of employees and operates in all 64 districts of Bangladesh. It has offices in 14 countries and operates in 10 countries in addition to Bangladesh.[3]

Two of the interventions were implemented in Bangladesh and a third in Uganda. While each of the essays evaluates the effect of an integrated program, each essay contains novel elements. The three core essays (chapters 2, 3 and 4) examine: (i) an intervention targeting a vulnerable population in a newly created, fragile setting - the essay focuses on the effects of an integrated program transplanted from one part of Bangladesh to another (ii) a transplantation of a (successful in Bangladesh) intervention from Bangladesh to Uganda and (iii) the long-run effects of a successful short run integrated intervention. Chapters two and four deal with interventions that were implemented in Bangladesh and chapter three with an intervention implemented in Uganda.

Context of Bangladesh and Uganda

Before presenting details about the respective programs and their assessments, I introduce the two countries under study. According to the most recent poverty estimates, the two poorest regions in the world are South Asia and Sub-Sahara Africa with 16.15% (2013) and 41.05% (2015) of the population earning less than $1.90 PPP a day, respectively.[4] Thus, these two regions require attention and efforts in terms of alleviating poverty. I have chosen one country in each of the regions, namely Bangladesh and Uganda. In terms of history, both have a British colonial past and have gone through post-colonial wars (for Uganda, it was the civil war that ended in 1986 and for Bangladesh the independence war in 1971). Both countries have a significant share of their populations still living in extreme poverty and are heavily reliant on agriculture. Table 1.1 provides a comparison between Bangladesh and Uganda regarding several socioeconomic indicators.

[3] Apart from Bangladesh, BRAC operates in 10 more countries, in Africa (Sierra Leone, Liberia, Tanzania, Uganda, South Sudan) and in Asia (Pakistan, Afghanistan, Myanmar, Nepal and the Philippines). BRAC International is registered as a foundation in the Netherlands. In the USA and UK, BRAC works as an independent charity to raise its profile and to raise funds. BRAC was ranked as the number one NGO in the world for the fourth consecutive year in 2019 (see https://tinyurl.com/yxg98cft [February 27, 2019]. BRAC's vision is to empower people and communities in situations of poverty, illiteracy, diseases and social injustice through implementing interventions to achieve large scale programs that enable women and men to realise their potential (BRAC, 2017).

[4] Latest estimates based on 2015 data using PovcalNet (online analysis tool), World Bank, Washington, DC, https://tinyurl.com/y2wqkge3 on 15th August, 2019.

Table 1.1: A comparison of socioeconomic indicators of Bangladesh and Uganda

Variables	Year	Bangladesh	Uganda
GDP per capita (current USD)	1995	319.6	280.1
	2016	1358.8	580.4
Life expectancy at birth (Years)	1995	62	44
	2015	72	60
Maternal mortality rate (per 100,000 live births)	1995	479	684
	2015	176	343
Child Malnutrition -Underweight, (% under five)	2006	41	16.4
	2011	36.80	14.1
Improved sanitation facility (% of population)	1995	40	14
	2015	61	19
Improved water source (% of population)	1995	72	48
	2015	87	79
Agricultural Land (% of land area)	1995	72	60.7
	2015	70.6	71.9

Source: World Bank data https://data.worldbank.org/

Across indicators we observe an improvement between 1995 and 2015/16. Gross Domestic Product (GDP) per capita more than quadrupled in Bangladesh, in Uganda it doubled. For many indicators, Bangladesh has met the Millennium Development Goals (e.g., reducing headcount poverty and poverty gap ratio, reducing under-five mortality rate, cure rate of TB and DOTS, gender parity in primary and secondary education)(UNDP, 2014) but the country still has a long way to go when it comes to child malnutrition. Uganda is lagging behind regarding maternal mortality and improved sanitation facilities. Another similarity is that both, Bangladesh and Uganda, are very receptive to national and international development initiatives. As a result, thousands of Non-Governmental Organizations (NGOs) have an opportunity to operate in both countries.[5] Also, both countries' public spending on social assistance programs is similar, 0.7 and 0.8 per cent of their total GDP, in Bangladesh and Uganda, respectively.[6]

In addition to Bangladesh's and Uganda's similarities in terms of history and socio-economic indicators, in both countries, microfinance has been an integral part of financial services for the poor. In Uganda, for decades ROSCAs have been practiced informally but in the 1990's microfinance was formalized by a few NGOs. In Bangladesh, the piloting of microcredit started in the 1970's but it was not until the 1990's that microfinance experienced an expansion in operation.

[5] Currently 13,000 NGOs are registered in Uganda (National Bureau for NGOs, Uganda) and 2498 NGOs in Bangladesh (the NGO Affairs Bureau, Bangladesh).

[6] World Bank (datatopics.worldbank.org). Last accessed: September 23rd, 2019).

The three interventions

The first intervention analysed in this thesis focuses on the coastal population of Bangladesh. The coastal population under study does not live on the mainland of Bangladesh but on river islands called chars. These chars can be found all over the Bangladesh delta and are formed as a result of silt carried by rivers. The people living on the chars have been resettled as they have lost their homes elsewhere and thus tend to not only be (asset) poor but also outside of the existing legal and executive support structures. Consequently, this population is different from other poor target groups receiving social assistance. Moreover, the physical location of the chars influences the design of the implemented programs as protection against extreme weather events such as cyclones is a key component next to the more classical support for income generating activities. The study presented in this chapter carries out an impact evaluation of an integrated program called 'Char Development and Settlement program' (CDSP). I use a two round panel dataset to evaluate the effect of the program on calorie intake, water and sanitation practice as well as legal awareness.

The second intervention analyses the impact of a program that was implemented by the international arm of BRAC in Uganda. In 2006, BRAC started operating in Uganda. The objective was to apply BRAC's decades long expertise in microfinance and integrated programs in a different context and spread its operation to other southern countries. BRAC designed a program titled, Microfinance Multiplied (MfM) which provided microfinance and added a health-awareness component to be delivered through a Community Health Promoter (CHP) as well as an agricultural/livestock extension component which provides beneficiaries with services from Community Agricultural Promoters (CAP) and Community Livestock Promoters (CLP). I use a two-round panel data set and find no effect of the intervention on a range of outcomes. Indeed, program uptake was only 10% suggesting that transplantation of the program from Bangladesh to Uganda was not successful. The essay discusses the challenges of transplanting programs and other operational challenges which may explain the low program uptake.

Bangladesh, despite its good performance on multiple economic indicators, still has a population with 1 in 4 nationals living below the national poverty line (World Bank, 2018). To combat poverty, government and non-government organizations have employed multiple programs targeting the extreme poor.[7] Especially, the poor in the northern parts of the country have been the victims of chronic poverty and have been a centre of attention mainly due to seasonal poverty, more widely known as *Monga*. In these regions, during the two cropping seasons (September-November and March-April), most households face seasonal unemployment and part of the local population opts for occupational migration. The third intervention assesses an asset transfer program targeting the ultra-poor group residing in the north of Bangladesh.[8] The target population consists of

[7] People still living below $1.90/day (World Bank., 2016)

[8] For details, see Misha et al. (2019).

individuals living on or below the equivalent of $1.25 per day who are affected by these seasonal unemployment patterns. Prior work on this program showed statistically significant and substantial impacts on a number of indicators in the short and medium term while this essay looks into the long-term impact of the program on employment trajectories of the participants. The paper relies on a four-round panel dataset to explore whether the participants' occupational change persists over a longer period. We confirm earlier findings of the positive short-term impact of the TUP and show that participants are more likely to switch from less productive occupations (maids, begging, day labouring) to entrepreneurship (10 percentage point). While these effects are maintained in the medium-term, in the long term, a substantial proportion of participating households, switch back to their lower-income baseline occupations, causing the long-term impact to be substantially smaller (5 percentage points). This finding raises doubt about the strong claims that have been made about the sustainability of comprehensive anti-poverty programs.

Figure 1.1: Comparing the three integrated programs by their components

Char Development and Settlement Progrem (CDSP)	**Microfinance Multiplied (MfM)**	**Challenging the Frontiers of Poverty Reduction (CFPR/TUP)**
Target Group: Coastal (char) generallypoor households	**Target Group:** Potential entreprenuers from poor households	**Target Group:** Ultra Poor households
Components: ■ Microfinance ■ Health and Sanitation Practice ■ Human Rights and Legal Support ■ Agricultural and Value chain Development-training and support ■ Disaster Management	**Components:** ■ Microfinance ■ Health and Sanitation Practice ■ Agricultural, livestock, poultry-training and support	**Components:** ■ Asset Transfer ■ Health and Sanitation Practice ■ Human Rights and Legal Support ■ IGA training ■ Agricultural, livestock, poultry-training and support

Figure 1.1 compares the three programs and their respective components in an attempt to highlight the similarities and dissimilarities among them. Like many other integrated programs, all three include financial (cash or in kind) support coupled with health and agricultural support. While all programs target poor populations, the actual focus is slightly different. As already introduced, the CDSP program targets the costal char population, MfM focuses on potential entrepreneurs and CFPR-TUP on the poorest of the poor. The disaster management component is specific to the CDSP program, and the asset transfer and income generating activities (IGA) component is specific to the CFPR-TUP program. The MfM program is the most standardized program and may be considered a typical BRAC integrated program.

Chapter 2

BUILDING RESILIENCE IN THE CHARS OF BANGLADESH: AN IMPACT ASSESSMENT

2.1 Introduction

In recent years, Bangladesh has made rapid economic and social progress. In particular, the country has been successful in achieving a number of its Millennium Development Goals (MDG), such as, reducing headcount poverty and also the poverty gap ratio, reducing the proportion of underweight children and under five mortality rates, and attaining gender parity in primary and secondary education (UNDP, 2014). Despite these achievements, 14.8% of the country's population still lives below $1.90/day (WB, 2016), that is, the international poverty line.[9]

According to the country's poverty map (BBS, 2010), extreme poverty is concentrated in the north, that is, the highlands, and along the coastal regions in the south which includes river islands called chars (Annex Figure 2.1). Thus, it comes as no surprise that, over the decades, social protection and social safety net programs have targeted these areas.[10] This paper focuses on the char population living along the coastal areas of Bangladesh.[11]

There is considerable international evidence and also in the Bangladeshi context which shows that social protection and safety net programs have had positive impacts on targeted populations living in extreme poverty (Das, Raza, & Misha, 2012; Misha, et al., 2019). These programs often combine microfinance with other interventions. While there is evidence showing that microfinance programs on their own have positive effects on savings, asset holdings, food security and education (Barnes, Gaile & Kibombo., 2001; Adjei, Arun & Hossain, 2009), it has often been argued that microfinance by itself is unable to benefit everyone (Amin, Rai & Topa., 2003; Giné et al., 2011; Banerjee, A., 2013; Crépon et al., 2015). Most importantly, an occasional, single shock can push vulnerable households back into poverty. Therefore, a comprehensive approach that encompasses simultaneous efforts on income generation, health support, and access to education, among others, is thought to be more effective (Fields & Lipton, 2000). In Bangladesh, the NGO BRAC has pioneered such a multi-intervention integrated approach. More generally, such approaches include conditional and unconditional cash transfer programs (Behrman & Hoddinott, 2001; Skoufias, 2001; Gertler, 2004; Rawlings & Rubio, 2005; Haushofer & Shapiro, 2016), asset transfers (Raza, Das & Misha, 2012; Banerjee et al., 2015; Bandiera et al., 2017; Misha et al., 2019), as well as livelihood support programs (Bouis, 2000; Nielsen, Roos & Thilsted, 2003).

[9] 2011 PPP, https://data.worldbank.org/indicator/SI.POV.DDAY?locations=BD. Last accessed: September 23rd, 2019.

[10] Social safety net programs usually aim to alleviate the short-term effects of shocks through food/cash transfer and are considered as a form of insurance (World Bank, 1990). In contrast, social protection programmes adopt a broader perspective which includes policies and programs to alleviate different forms of vulnerabilities through effective labour markets, reducing exposure to risks and developing and enhancing the capacity of households to protect themselves against shocks, disruption or loss of income (Baulch, Webber & Wood, 2008).

[11] Bangladesh has a combined coastal zone of 47,200 sq km, which is almost 32% of the total area of the country. It is inhabited by about 40 million people with about 3 million living on 185 fertile silt islands, known as river chars that are formed by the dynamics of erosion and accretion in the rivers of Bangladesh (Wilde, 2011).

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Processed on: 5-11-2020

This paper deals with the effects of an integrated program implemented by BRAC in the char lands of Bangladesh. These chars offer a distinctive landscape consisting of a number of islands connected to the mainland through rivers, creeks and estuaries.[12] They are mostly newly formed land areas and a majority are located some distance from the mainland. Government administration and law and enforcement agencies are often lacking in these areas. Lack of proper infrastructure makes access to health facilities, education, and functioning markets difficult. Livelihood strategies in these areas are quite different from the other parts of the country since they are considerably more susceptible to covariate shocks due to their exposure to cyclones, erosion, water logging, droughts and salinity intrusion. Baqee (1998) characterizes the char population as "some of the most desperate people in the country". Not just in Bangladesh but also in the upper realms of the Gangetic plains and in West Bengal, India. Lahiri-Dutt & Samanta (2013) indicate that the chars are settled "by the poorest".

A number of tailored interventions have been designed and implemented to improve the livelihoods of the char dwellers (Wilde, 2011).[13] While development interventions targeting the coastal populations started during the late 70's, the current paper deals with a program called the Char Development and Settlement Program which was initiated in 1994 and has since expanded and is currently in its fourth phase (further details are provided in Section 2.2). This program includes a range of components that target both infrastructure and livelihoods in the chars.

Despite the growth of the CDSP and other similar programs, the effectiveness of integrated programs implemented in the chars remains largely unexplored. Credible evidence is urgently needed to (re-) design and facilitate further expansion of programs such as the CDSP. The evidence that does exist is based on two rounds of post-intervention data, where Raza, Bhattacharjee & Das (2011) use a propensity score matching approach followed by difference-in-differences (DiD) to examine the effect of CDSP III. They find significant impact on per capita income, living condition of the households and also on secondary school enrolment rates.

More generally, that is, setting aside impact evaluations, there is a relatively small literature on life in the chars. For instance, Adnan (2013) provides an analysis of the conjectural and empirical aspects of the interrelationships between land grabs, primitive accumulation and accumulation by dispossession through the capitalist development perspective. Ali (1999) examines the effects of climate change, in terms of tropical cyclones, storm surges, coastal erosion and backwater, on the char population and a study by Khan (2008) examines disaster preparedness and finds that

[12] *Chars* which may appear in the form of riverine islands or may also be connected to the mainland, are not unique to Bangladesh. They appear in eastern Uttar Pradesh and Bihar in India where they are called *diaras*. In Pakistan, such lands are described as *kuchha* (not permanent). For details, see Lahiri-Dutt and Samanta (2013).

[13] A range of policy documents have focused on the development of the char lands. These include, the Coastal zone Policy (2005), Coastal Development Strategy (2006), Bangladesh Climate Change Strategy and Action Plan (2009), The National Water Management Policy (1999) and National Water Management Plan: Development Strategy (2011). Few development efforts include Estuary Development Program (EDP), Char Development and Settlement project (CDSP), Regional Fisheries and Livestock Development Component (RFLDC).

a participatory approach is indispensable when planning and designing structural interventions for prevention and mitigation of natural disasters in addition to wider access to education and awareness building programs.

This study investigates the impacts of the Char Development and Settlement Program (CDSP) on the livelihood status of the people living in the char areas. First, the paper examines the impact of the CDSP on food consumption and food security. Next, considering the objectives of the program and its various interventions, the paper also examines the impact of the CDSP on outcomes associated with legal awareness and hygiene and sanitation practice.

In terms of the paper's structure, section 2.2 presents a profile of the chars and the program under study and a conceptual framework. The data is introduced in Section 2.3 while section 2.4 outlines the paper's empirical strategy. Section 2.5 presents results, which is followed by the last section that contains a discussion and concluding remarks.

2.2 Chars and the Char Development and Settlement Program (CDSP)

Bangladesh is built mainly on low lying deltaic flood plain. The country has more than 700 rivers including tributaries constituting a total waterway of approximately 24,000 kilometres.[14] During monsoons, rivers overflow and cause severe erosion along the riverbanks. The eroded silt is carried towards the coast where its gradual deposition leads to the formation of new land masses called "chars".[15] These low-lying areas are composed of soil with comparatively high salinity and low volume of other minerals (Hobley, 2003). Historical population trends show that landless peasants and households who have lost their land to river erosion elsewhere migrate to these new chars (Adnan, 2013). This type of migration is quite common due to widespread landlessness and poverty in the country. According to government regulations, each landless household is designated 1-1.5 acres of land in the char areas with the Ministry of Land ensuring the execution of this entitlement.

The isolation of the chars from the mainland and the scarcity of proper infrastructure impedes the functioning of the public administration and the implementation of laws. The lack of legal enforcement and government control in the chars provides scope for land disputes and manipulations in the char areas (Jansen & Roquas, 1998; Wilde, 2011; Adnan 2013). The *jotedars*, who are rich peasants and dominant power holders in their particular localities, generally on the mainland coastal areas, establish control over these landless people, by using gangs of *lathyals*. These gangs offer protection (against other gangs) but at the same time control the char dwellers as captive patrons and essentially play the role of rent-seekers.

[14] Banglapedia, National Encyclopaedia of Bangladesh (last accessed in July 2020)

[15] The chars in Bangladesh covers a total area of 10,722 square kilometres according to a 1993 estimation. Also the main river char lands were estimated to be 8,444 square kilometres or almost 6 percent of the area of the country (Rahman & Davis, 2005).

2.2.1 Inception of the Char Development and Settlement Program (CDSP)

During the early 80's a Land Reclamation Project (LRP) of the Government of Bangladesh with assistance from the Government of the Netherlands (1978-1991), was launched to aid development in the char areas. Later the project was divided into two separate projects. The Meghna Estuary Study (MES) and the Char Development and Settlement Project (CDSP), essentially a water-based and a land-based development project, respectively.

The first phase of CDSP (1994-1999) encompassed approximately 4,500 households in three chars.[16] The subsequent phase, CDSP II (1999-2005) was scaled up to 9,000 households in two more chars.[17] CDSP III covered the period 2005 to 2010 and included 9,500 households from a single char (Boyer char). The first three phases included components on institutional development, land settlement, peripheral and internal infrastructure building that involved government agencies, e.g., Bangladesh Water Development Board (BWDB) and Local Government Engineering Department (LGED). In CDSP IV, for the first time, the programme included a livelihood component. In total, these various editions of the CDSP have covered nearly 46,000 hectares of char islands and assisted 24,000 households (Annex Figure 2.1: Panel B).[18] The fourth phase of the programme was launched in 2012 and ended in 2016.[19] CDSP IV consisted of six components i) Safeguards from climate change through water management and social forestry ii) building climate change resilient infrastructure, iii) land settlement and titling, iv) livelihood support v) Field level institutional development and vi) studies and surveys.

This paper deals with CDSP IV and only with outcomes related to the livelihood component. This component was implemented by four NGOs - BRAC, Sagarika Samaj Unnayan Sangstha (SSUS), Society for Development Initiatives (SDI) and Dwip Unnayan Sangstha (DUS), with each NGO operating in specific pre-designated areas.[20] These partner NGOs also contributed to operational costs and some of the components were funded by the beneficiaries themselves through microfinance participation. The livelihood component consisted of eight specific interventions. These included, a) formation of microfinance group and subsequently access to microfinance b) support for health outcomes and family planning c) water, sanitation and hygiene practice and awareness d) legal awareness and human rights services e) awareness building and training on disaster management and climate change f) training on homestead agriculture and value chain development g) training and support on poultry and livestock rearing and h) training and support on setting up and managing fisheries.

[16] Char Baggar Dona II, Char Majid and Char Bhatirtek.

[17] South Hatiya (SA) and Muhuri Accreted Area (MAA). In addition, there have been a host of interventions in unprotected chars that were not yet suitably mature or appropriate for "impoldering" (e.g., Char Torabali-Gangchil, Nijhum Dwip-Bandartila, Char Mora Dona., Char Osman and Char Lakshmi).

[18] Here the term 'assisting' means establishing infrastructure for the promotion of economic and social activities in the chars.

[19] The over-all budget for this programme was USD 89.2 million.

[20] SSUS and DUS operate in both Noler and Nangolia char, SDI in Urir char and BRAC in all chars.

Thus, the CDSP program consists of various components that are bundled to enhance socio-economic conditions in the chars by providing physical (i.e., building climate change resilient infrastructure and raising awareness on disaster management), economic (i.e. land distribution and livelihood support by means of training in income generating activities, access to microfinance, development of value chains) and social support (access to legal aid services, raising awareness on human rights and legal actions). The next section discusses the program components in detail.

2.2.2 Program description: Livelihood component

The livelihood component of the CDSP program includes microfinance as a core intervention. Group formation and microfinance is BRAC's main intervention approach. BRAC has branches in all 64 districts of Bangladesh. Each branch consists of 5-6 Credit Officers (CO), each CO is responsible for managing at least three microfinance groups. BRAC operates all its programs (e.g., health, education, water and sanitation) from these branches. In total, in 2018, BRAC had 2,267 branches throughout Bangladesh. CDSP IV operated from six of these branches.[21]

Over four decades, microfinance and financial services (e.g. credit, savings, micro insurance and digital financial services) have been at the centre of BRAC's holistic approach. In the chars as well, BRAC's microfinance program follows a group-based loan disbursement model. This includes group formation where all households are invited and information on microfinance is shared.[22] Subsequently, Village Organizations (VOs) are formed, each consisting of 15 to 20 women who are sequentially provided small, collateral-free loans at low-interest (from BDT 5000 to 20,000, which amounts to roughly USD 60 to 235).[23] According to the programme agenda, the participants are recommended to save, on average 10-20 BDT per month.[24] According to BRAC staff, borrowing habits and trends are seasonal in the areas under study. From June to November, loan disbursement is low as fresh water becomes scarce, limiting the scope for irrigation. This triggers seasonal labour migration to nearby cities.

One interesting feature is that the loan repayment rate among char dwellers is higher than the average repayment rate for the overall BRAC Microfinance Program.[25] BRAC staff attributes this to the fact that, unlike other (non-char) branches, the microfinance officials were the focal persons of contact for the entire CDSP (livelihood) operation, meaning they manage all the program components (e.g. health, water sanitation, human rights and legal services). Since the participants

[21] Ziauddin bazar (Zia char), Nangulia (Selim bazar and Hazi Idris Mia Bazar), Noler char (Saddam bazar, Bathankhali and Mojid bazar (Caring char). However, later in 2016, Mojid bazar branch was merged with Bathankhali due to river erosion.

[22] Under the CDSP IV, all households from the treatment chars were eligible for microfinance.

[23] The applied BDT-USD exchange rate is 0.01177 (29 November 2017).

[24] It is mandatory for the members to save at least BDT 10/month. A member gets 5% interest on deposits up to BDT 6,000 and 9% interest if the deposit is above BDT 6,000.

[25] In 2015 the overall PAR for Brac Microfinance program was 5.3 and 3.2 in the year 2016. Whereas for CDSP it was 0.67 in 2015 and 1.24 in 2016.

have repeated interactions with the microfinance officials, considerable trust has developed between BRAC officials and the char dwellers, which is reflected in savings and loan repayments in a positive way.

The second and third elements of the CDSP livelihood support deal with health and family planning and, water and sanitation. The aim was to provide basic health support in terms of mother and child health care. In addition to that the intervention aimed at ensuring safe sources of water and safe latrines for each household and improved sanitation and hygiene practices in the community. Access to safe water was ensured through the installation and provision of access to deep-water tube-wells. BRAC programme officials identified locations for tube-wells to be installed, usually 1 per 15-20 households and followed up with the Department of Public Health and Engineering (DPHE) to confirm the execution of the task. Upon completion, a group comprised of the users of the well was created (the Tube-well Users Group) and made responsible for its upkeep and maintenance.[26] Regarding sanitation, the programme installed single pit latrines in selected locations. During the Village Officer (VO) meeting, the households were trained on how to use a latrine. They were trained in hygiene practices which includes wearing sandals while using latrines, washing hands after defecation and dental care. In total 1,297 deep tube wells (DTW) have been installed, 1,454 Tube-well users' groups have been created and 19,270 single pit latrines have been installed.

Distance from the mainland and lack of adequate infrastructure limit the char dwellers' access to suitable and timely healthcare facilities. As a third element of the livelihood component, char dwellers received education on health and nutrition, immunization, and family planning. Access to basic curative facilities was also improved. The remedial services are provided through paramedics identified as Shasthya Shebikas (female health workers) and trained traditional birth attendants. Per BRAC branch there is one paramedic and for every 150 households one Trained Traditional Birth Attendant is assigned.[27] Also, orientation meetings on family planning and health were held regularly. The trained Traditional Birth Attendants are essentially volunteers who undergo a 15-day compulsory training session that includes hygienic delivery, including the 'three cleans' (handwashing with soap, clean cord care and clean surface) and on completion of the training are provided a delivery kit. For 18 weeks prior to their due date, all pregnant women are monitored by Trained Traditional Birth Attendants and provided both ante and post-natal care. In case of emergencies, patients are referred to a hospital.

[26] Among the Tube well Users Group (TUG) one or two households were identified based on the location of their household in close proximity to the tube well as the Care Taking Family. The Care Taking Family participates in training on tube well maintenance and arsenic detection. A monthly meeting is held for every Tube well User Group. Based on available reports from Care Taking Families and Tube well User Groups, faulty tube wells were repaired. Care Taking Families and Tube well User Groups also ensured construction of platforms under every tube well.

[27] The Trained Birth Attendants also sell rudimentary medications such as oral rehydration packets, micronutrients, deworming tablets, medicine, iron tablets, and contraceptives.

The fourth element concerns legal advice under which the char dwellers were provided training on social and legal awareness through a 3 weeklong course. This is a one-time course and if needed, additional legal support is provided through the CDSP program.

Fifth, frequent meetings were held under the umbrella of the disaster management and climate change intervention on disaster preparedness and mitigation. An individual is usually selected from every micro-finance group and community. In total 2,000 beneficiaries were trained on disaster preparedness. Through this training, information on the interpretation of various warning signals, strategies to protect and preserve valuable assets, and disaster shelter locations are provided. Members also participate in an annual refresher training and in union level disaster meetings on a regular basis to stay aligned in terms of disaster management activities. In addition to this, houses were improved, and plinths raised to mitigate the effects of natural disasters. Annually, International environment day is observed in order to raise awareness amongst communities.

Sixth, the agriculture and value chain development programme facilitated seedlings production and sales at the mainland market rate for the farmers aimed at eliminating transactions by any middleman. Also, one farmer per community was chosen for demonstration plot cultivation purposes through which the remaining farmers were trained. Training on fruits and vegetables farming was provided to around 13,000 individuals.[28]

The last sub-component is the farm and non-farm income generation activities (IGA) training. Beneficiaries owning livestock, poultry and fisheries were trained on rearing practices. In total 72 poultry workers and para-vets were employed within the project area. Around 250 beneficiaries (farmers and poultry farmers) were trained on fodder cultivation and breeding. For fisheries, in total 6,660 beneficiaries were trained on fish farming and fish nursery.

As stated earlier, this paper focuses on the livelihood component of the intervention. The s eight specific interventions described above may be placed in three categories. These are interventions that focus on socio-economic outcomes (microfinance, IGA training that includes training in poultry, livestock and fisheries and also in homestead agriculture and value chain development), social awareness (legal and human rights services) and health and sanitation practices (health services and building awareness on family planning, water and sanitation).

Without specifying the exact interactions between the various interventions but keeping in mind the main goals of the CDSP and based on the tripartite categorization of the various sub-components, this paper measures the causal effects of program participation on (i) per capita food consumption and food security which is an outcome of the various economically oriented interventions, that is, microfinance and training (ii) human rights and legal awareness and (iii) water, sanitation and hygiene practice and awareness.

[28] CDSP IV (http://cdsp.org.bd).

2.3. Data

2.3.1 Survey set up

CDSP IV operated between December 2011 and December 2016 with the livelihood component commencing in 2012. This essay uses a two-round panel dataset collected in 2012 and a follow-up data set collected in 2016. The data were collected by BRAC's Research and Evaluation Division.[29] The study covers 11 chars and includes all 2,816 households living on these chars. Of the 11 chars, seven are treatment chars (1,600 households - 800 households that benefitted from BRAC interventions and 800 households where the intervention was carried out by another NGO).[30] Households in the remaining four chars serve as a control group.[31]

The control chars were chosen by local BRAC staff and an attempt was made to select chars that were as similar as possible to the treatment chars.[32] Selection criteria included distance from the main land, total population, impression of the condition of household units, local physical infrastructure (roads, buildings, schools), facilities available to the char dwellers, available modes of transportation, local market structure and access to the market place. Table 2.1 shows a comparison between the treatment and control chars in terms of infrastructure.

[29] Enumerators were recruited through a rigorous process prior to the survey and participated in a weeklong extensive training on the survey tools (that went through several rounds of piloting). Frequent and random spot checks were conducted by the relevant researchers and field operation staff from BRAC's Research and Evaluation Division throughout the data collection period. Moreover, the completed questionnaires were cross-checked and randomly verified within each team to address any inconsistency, wrong recordings and/or coding while in the field. To counter any possible missed errors, further and final checks were carried out.

[30] Noler Char, Nangolia-1, South Clark Char, Uria, Ziauddin, Nangolia-2 and Caring Char.

[31] Lakshmi, Akramuddin, Alauddin, Maksumul Hakim.

[32] BRAC has a coordinating office and six branch offices at the intervention areas.

Table 2.1: Comparison between the treatment and control char's infrastructure (on average per char)

Variables	Treatment chars	Control Chars
Age of the chars (years)[33]	17	21
Number of NGOs operating	2.00	2.71
Number of cyclone-shelters available	0.25	6.57
Paved road (km)	0.00	21.43
Road (Earthen, km)	0.88	21.00
Number of schools	0.00	7.57
Number of madrashas	2.75	6.29
Number of moshjids	4.00	12.14
Number of mondirs	0.50	1.50
Availability of any Govt. services	Not available	Not available
Access to power supply	Not available	Not available

Source. Data were collected by the Research and Evaluation Division of BRAC.

Notes: "Treated" refers to the sample of beneficiaries that was selected into the Char Development and Settlement Programme. "Control" refers to the sample of other poor households that were not selected.

On average, the treatment chars (17 years) are slightly younger than the control chars (21 years). The controls chars have better infrastructure in terms of paved roads (21 versus 0 km), the number of cyclone shelters and the number of schools. In 2012, there were no schools in the treatment chars while there were about 8 schools in the control chars. While there are marked differences between the two sets of chars, there are similarities as well, as neither set of chars has access to government services or to power supply. Nevertheless, it is clear that there are sharp differences in infrastructure, with lower endowments in the case of the treatment chars.

2.3.2 Available survey information

The survey collected detailed information from the main female member of the household. The questionnaire asked for information on household demographics and socio-economic status. In addition to these, it also collected information on awareness about health, healthcare and health expenses, hygiene practice, financial market participation (i.e., savings and borrowing record), nutrition, food security, food consumption using a 24 hour recall period, household assets (e.g., physical and financial assets), social issues, as well as information on vulnerability that included various shocks experienced in the last year and coping approaches.

The survey data were used to control for potential confounders and to create a number of outcome variables of interest. First and foremost, given the range of socioeconomic interventions we focus on the effect of the CDSP on food consumption and food security. Food consumption is measured in terms of per capita calorie consumption. We calculate the per capita nutritional value of consumption utilizing food composition tables for Bangladesh (Shaheen, Torab, & Rahim, 2014). Total consumption based on a 24-hour recall period includes consumption of grains (rice, wheat, bread, puffed rice), lentils, animal products (egg, chicken, beef, lamb, duck, fish), vegetables, oil and snacks. Based on these consumption data and food composition tables, we calculated total household calorie consumption (calories per unit of each food item multiplied by total amount of food item consumed). This was divided by total AME (Adult Male Equivalents) to obtain per capita energy/calorie consumption. Since there are several measurement challenges in terms of converting food consumption into per capita calorie consumption we also used a dichotomous variable which indicated whether a household had adequate or surplus access to food.[33]

In addition to the socio-economic outcomes, we use information on a set of six questions to examine the effect of the program on legal awareness (see Table 2.2), a set of three questions to examine CDSP impact on health and sanitation practices and a set of three additional questions on possession of sanitation/health and hygiene product/practice. In some more detail, to capture legal awareness, we used binary responses to six questions, that is, whether the respondent was aware of the legal age for male marriage, female marriage, voting, the legal process to obtain a divorce according to Muslim law, whether they had the right to physically abuse children and the penalty for taking dowry. The health and sanitation practices are captured by binary responses to a set of three questions, that is, whether the beneficiary is aware of the correct technique to purify water, wears sandals while using a toilet, washes hands after defecating. The final set of three questions includes product possession/practice and asks whether households have soap in the toilet, have toothpaste and brushes, and whether the household consumes iodized salt.

2.3.3 Summary statistics

Table 2.2 provides summary statistics of all variables at baseline across treatment and control chars. Panel A contains information on control variables while Panel B has information on the outcome variables.

[33] The exact question was "In the last one year how did your household do in terms of food supply corresponding to income?", where the options were; always had a surplus, adequate, sometimes deficit, always deficit.

Table 2.2: Summary statistics for the baseline period

Description	Baseline Averages				
	Average	Std. Dev.	Non-treated	Treated	p-value
	(1)	(2)	(3)	(4)	(5)
Panel A: Control Variables					
Year of first settlement in the chars	19.145	(4.091)	16.928	20.829	0.136
Gender of the household head (1= female, 0 otherwise)	0.065	(0.246)	0.054	0.072	0.268
Age of the household head	41.014	(12.282)	39.573	42.109	0.007
Education level of the household head (=1 if illiterate, 0 otherwise)	0.704	(0.456)	0.709	0.701	0.887
Number of household members	5.399	(1.923)	5.251	5.511	0.017
Share of male members	0.507	(0.171)	0.504	0.509	0.422
Share of children (below 15 years)	0.433	(0.200)	0.419	0.444	0.028
Panel B: Outcome Variables					
Per capita calorie consumption (Kcal)	2386.13	(690.318)	2473.51	2319.67	0.097
Food security (=1 enough or more food supply, 0 faced any kind of food deficit)	0.588	(0.492)	0.661	0.533	0.030
Legal age for male marriage (=1 has right knowledge, 0 otherwise)	0.429	(0.495)	0.443	0.417	0.722
Legal age for female marriage (=1 has right knowledge, 0 otherwise)	0.716	(0.451)	0.762	0.682	0.243
Legal divorce for Muslims (=1 has right knowledge, 0 otherwise)	0.061	(0.240)	0.093	0.037	0.072
Legal voting age (=1 has right knowledge, 0 otherwise)	0.757	(0.429)	0.822	0.707	0.033
Right to physically abuse children (=1 no right, 0 otherwise)	0.808	(0.393)	0.788	0.824	0.591
Penalty for dowry demand (=1 has right knowledge, 0 otherwise)	0.070	(0.255)	0.091	0.053	0.021
Knows how to purify water (=1 has right knowledge, 0 otherwise)	0.862	(0.345)	0.887	0.829	0.223
Wears sandals to the toilet (=1 yes, 0 otherwise)	0.941	(0.235)	0.917	0.932	0.484
Washes hands after defecation (=1 yes, 0 otherwise)	0.501	(0.500)	0.366	0.524	0.048
Has soap in the toilet (=1 yes, 0 otherwise)	0.782	(0.413)	0.600	0.732	0.108
Has toothpaste & brush (=1 yes, 0 otherwise)	0.390	(0.488)	0.284	0.273	0.911
Consumes iodized salt (=1 yes, 0 otherwise)	0.672	(0.470)	0.606	0.472	0.305
N			1216	1600	

Source. Data were collected by the Research and Evaluation Division of BRAC.

*Notes:. Taka (Bangladeshi currency) US$ exchange rate is 0.01186 (November 16, 2017). "Treated" refers to the sample of beneficiaries that was selected into the Char Development and Settlement Programme. "Control" refers to the sample of other poor households that were not selected. *, **, *** indicate significance at the 10%, 5% and 1% level respectively*

On average, households have lived in the chars for about 19 years, roughly since they became habitable and there are no statistically significant differences between households in control and treatment chars. With regard to household traits, around 6% of the households are headed by women and this does not differ across treated and control households. Household heads from the treated chars are on average two years older (42 versus 39.5) than their control counterparts. While the difference is statistically significant it is not very large. In terms of education, in both groups, about 70% of the household heads are illiterate. The average household size is similar across the two groups (5.5. for treated and 5.3 for control), albeit, larger than the national average household size of 4.06 (BBS, 2016). Household gender composition is similar as is the proportion of children below the age of 15.

Turning to the outcome variables, on average, the per capita nutritional value of consumption is higher for households residing in control chars (153.84 kcal more), although the gap is not very large and is statistically significant only at the 10% level. Although the average caloric intake per person exceeds 2,000 kcal, 41% of the households reported that they have faced food deficits in the last three months. The proportion of households facing food insecurity is substantially higher (47%) amongst households residing in treated chars as compared to control chars (34%). Differences across the two groups are not statistically significant.

With regard to legal knowledge of social issues, only 43% of respondents were aware of the legal age for marriage for men while it was 71% for the case of females. This is perhaps not surprising as the respondents were mainly females. There was very little awareness (6%) of the legal procedures involved while seeking a divorce. A large proportion of the respondents were aware of the legal voting age with a higher rate of awareness amongst control households. Information on whether they have the right to use physical force against children is widespread.

Concerning sanitation practices, 86% beneficiaries know how to purify water properly (i.e., boiling, filtering or using fitkiri [34]) and more than 90% wear sandals to the toilet. Figures are similar for both groups. About half the respondents indicate that they wash hands after defecation, and the proportion is substantially higher (15 percentage points) amongst treated households. With regard to the availability/use of soap, toothpaste and iodized salt, there are no significant differences across the two groups. Overall, 78% have soap in the toilet although a smaller proportion (50%) seem to actually use it. Consumption of iodized salt is 67% with a higher proportion amongst households residing in the control chars.

The overall impression from these descriptive statistics is that control households are more food secure and have higher food consumption. However, with regard to the various components comprising the health and sanitation indicators and legal awareness the picture is not so clear. In

[34] Fitkiri, also known as Potassium Alum, is a chemical compound used to filter water.

any case, the empirical approach outlined in the next section attempts to account for pre-existing differences.

2.4 Empirical strategy

I estimate effects of the CDSP intervention using a difference-in-difference (DiD) regression-based approach. Since the intervention occurs at the level of the chars/clusters and there are only 11 clusters, standard errors are based on bootstrapping (wild bootstrap case inference as in Matthew, 2013; Roodman, et al., 2019). The following regression model is estimated:

$$Y_{it} - Y_{it} = \alpha_t + X_{i0}\beta_t + \delta_t D_i + \varepsilon_{it} \qquad i = 1, \ldots, N; t = 2011, 2016 \quad (1)$$

where, the subscript i refers to households and t to the year. Y is the outcome of interest, and D represents the treatment group indicator. Y_{it} is the change in outcomes of interest between the years 2016 and 2011. The average treatment effect is captured by δ_t. The specification controls for time-invariant household level baseline characteristics (gender, age and education of the household head, number of household members, male and children share of the households, dummies for all chars) represented by X_0. This weakens the identifying assumption underlying the use of DiD 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.[35]

The analysis is based on two underlying assumptions – the parallel trends assumption and the stable unit treatment value (SUTVA) assumption. Considering the selection process of the chars and the treatment assignment, we expect that in the absence of the intervention and after controlling for observables at baseline, the trends in the outcomes of interest between households in the treatment and control char have followed a similar trajectory over time. For the SUTVA, the treatment and control chars are separated by considerable distance and water bodies. Further, given the nature of the intervention, it is unlikely that the control households will be affected in any way by the activities in the treatment chars. We utilize the model outlined (1) for outcome variables (*Y*) per capita calorie consumption and food security.

In addition to this standard DiD estimator, as a robustness check, I also estimate the impact of the program using weighted DiD, that is, the observations are weighted using inverse probability weights (Ho, et al., 2007; Imbens & Wooldridge, 2009).[36] 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) (see Annex Table 2.2 for the results of the probit model). The distribution of observables across treated and control groups substantially overlap as only 8 observations are not on the common support

[35] We control for baseline characteristics as with such a comprehensive intervention, a number of time-varying characteristics may have been affected by program participation.

[36] Combining regression and propensity score weighting has the advantage of either the specification of the propensity score or the regression model to be correctly specified.

(see Annex Figure 2.2.). We use a DiD specification (1) which is weighted by the inverse probability of belonging to treatment or non-treatment. Weights have been constructed equal to 1 for treated observations and $p(X_0\,;\hat{\gamma})/(1-p(X_0;\hat{\gamma}))$ for control observations.

In addition, to capture the potential effects of the hygiene related and legal awareness outcomes, three thematic indices were constructed by grouping related questions that attempt to capture similar underlying outcomes. These three include an index for legal awareness, an index for health, sanitation and hygiene practices, and a third for practice and possession of water, sanitation and hygiene products. These indices are constructed on the basis of coefficients obtained from a set of seemingly unrelated regressions (SUR) in which each dependent variable (*Y*) is a response to one of the individual questions that comprise the index. That is, for a set of J related outcomes j where the effect of CDSP on each of the components of the index is denoted as π_j the average effect size (AES) is,

$$\tau = \frac{1}{J}\sum_{j=1}^{J}\frac{\pi_J}{\sigma_j}, \qquad (2)$$

where, σ_j is the standard deviation of outcome j in the group that is not exposed to the CDSP (Kling, Liebman, & Katz, 2007; O'Brien, 1984) The benefits of using such indices is that they reduce the chance of Type I error and by reducing noise in the data, since averaging enhances statistical power, also reduce the probability of Type II error (Clingingsmith, Khwaja, Kennedy, & Kremer, 2008). We estimated both weighted (IPW) and unweighted AES estimates.

2.4.1 Attrition

In total 2,816 households were surveyed during the baseline in 2012 (1,600 treatment and 1,216 control households). Of these, 2,506 households could be traced during the follow up survey in 2016. This represents an attrition rate of 11% (among the 310 households that could not be re-surveyed, 82 were control households and 228 were treatment households). Given the precarious nature of living conditions on the chars, a 11% attrition rate over a four-year period is not particularly high.

To examine whether attrition was systematic, we estimated a probit model to identify differences in the characteristics of the households that dropped out (attrited) with those who remained in the sample (Table 2.3).

Table 2.3: Overall Attrition

Variables	Marginal Effect (dy/dx)	Standard Error
CDSP Beneficiaries (=1 if treatment household)	0.090***	(0.032)
Sex of the household head (=1 if female, 0 otherwise)	-0.050**	(0.026)
Age of the household head	-0.002*	(0.001)
Number of household members	0.006	(0.011)
Household head's education		
Illiterate	-0.01	(0.039)
Primary education	-0.033	(0.048)
Secondary education	-0.008	(0.050)
Share of male members	0.057	(0.048)
Share of children	-0.107*	(0.065)
Log of per capita income	0.003	(0.016)
Log of Per capita consumption	0.007	(0.028)
Log of household's value of total assets	-0.014***	(0.005)
Food security (1= if had enough food in last 6 months, 0 otherwise)	0.019	(0.013)
Pseudo R^2 Pseudo R^2	0.04	
N	2,815	

Source. Data were collected by the Research and Evaluation Division of BRAC.

*Notes: "Beneficiaries" refers to the sample of beneficiaries that was selected into the Char Development and Settlement Programme's . *, **, *** indicate significance at the 10%, 5% and 1% level respectively. Bootstrap results based on 400 bootstrap samples*

The bulk of the characteristics are statistically insignificant. However, the estimates do show that households living in the treated char areas were more likely to drop-out from the sample as were male-headed households. Households with older household heads, a larger share of children in their families, households with access to a safe source of water and with a larger value of assets were less likely to drop out. These patterns suggest that perhaps the more vulnerable households were less likely to drop-out.[37]

[37] Model investigating the determinants of attrition separately for treatment and control chars are presented in Annex Table 2.1. Treatment households with male heads are more likely to attrite. Treatment households with older heads, greater asset holding, and more children are less likely to drop out. Households with a larger number of males in the family and older household head are more likely to attrite. One possible explanation for the attrition of households with a larger share of male members is that they are looking for better opportunities outside the char.

Table 2.4 below presents means of the outcome variables for households that dropped out and households that remained in the sample.

Table 2.4: Summary statistics of outcomes for attrited and non-attrited households at baseline

Variables	Attrited households	Non attrited Households	P value
Per capita energy consumption (Kcal)	2380.116	2386.871	0.911
Food security (=1 enough or more food supply, 0 faced any kind of food deficit)	0.603	0.587	0.664
Dowry Sentence (=1 has right knowledge, 0 otherwise)	0.068	0.070	0.944
Legal age for male marriage (=1 has right knowledge, 0 otherwise)	0.410	0.431	0.195
Legal age for female marriage (=1 has right knowledge, 0 otherwise)	0.668	0.722	0.086
Legal divorce for Muslims (=1 has right knowledge, 0 otherwise)	0.071	0.060	0.587
Legal voting age (=1 has right knowledge, 0 otherwise)	0.739	0.759	0.519
Right to physically abuse children (=1 no right, 0 otherwise)	0.829	0.806	0.455
Knows how to purify water (=1 has right knowledge, 0 otherwise)	0.810	0.860	0.028
Wears sandals to the toilet (=1 yes, 0 otherwise)	0.900	0.929	0.347
Washes hands after defecation (=1 yes, 0 otherwise)	0.442	0.458	0.584
Has soap in the toilet (=1 yes, 0 otherwise)	0.626	0.681	0.245
Has toothpaste toothbrush (=1 yes, 0 otherwise)	0.242	0.282	0.047
Consumes iodized salt (=1 yes, 0 otherwise)	0.500	0.534	0.591
N	290	2506	

Source. Data were collected by the Research and Evaluation Division of BRAC.

*Notes: "Attrited" refers to the sample of households that were absent in endline survey. "Non-attrired" refers to the households that were present in both baseline and endline survey. *, **, *** indicate significance at the 10%, 5% and 1% level respectively*

Of the 15 variables related to the outcome, only three are statistically significantly different across the two groups (legal age for female marriage, knowledge of how to purify water, possession of toothpaste/ toothbrush).

Next to check whether attrition is random, the Verbeek-Nijman test for attrition was applied to the outcome variables. A variable indicating drop-out was added in a regression of the outcome variables on baseline characteristics and the significance of the drop-out (selection) indicator (Jones, et al., 2013) was tested. Table 2.5 shows that attrition is random for per capita calorie consumption and food security.

Table 2.5: Attrition outcome based: Verbeek and Neijman estimates

Variables	Log of per capita energy consumption	Food security
Verbeek Neijman variable	-0.001	-0.03
	(0.130)	(0.024)
CDSP Beneficiary	0.162**	0.206**
	(0.070)	(0.104)
Gender of the household head (1= female, 0 otherwise)	-0.029	-0.013
	(0.023)	(0.027)
Age of the household head (years)	0.001***	-0.002**
	(0.000)	(0.001)
Number of household members	-0.036***	0.011*
	(0.013)	(0.006)
Illiterate	0.088	-0.138
	(0.066)	(0.091)
Primary education	0.076	-0.05
	(0.054)	(0.076)
Secondary education	0.085*	-0.001
	(0.044)	(0.013)
Share of male members	0.042	0.239***
	(0.028)	(0.090)
Share of children	0.220***	-0.335**
	(0.000)	(0.133)
Year	-0.069	-0.066
	(0.070)	(0.070)
R^2	0.069	0.086
N	5280	5280

Source. Data were collected by the Research and Evaluation Division of BRAC.

*Notes: "Beneficiaries" refers to the sample of beneficiaries that was selected into the Char Development and Settlement Programme. *, **, *** indicate significance at the 10%, 5% and 1% level respectively. Bootstrap results based on 400 bootstrap samples*

Overall, the tests suggest that while attrition is not systematically related to the outcome variables, there is some evidence that attrition is not random with respect to the control variables. Given the low attrition rate and the limited differences in both outcome and control variables between those who drop out of the sample and those who remain, it is unlikely that adjustments for attrition will have a large bearing on the outcomes.

2.5 Results

2.5.1 Estimation results

Table 2.6 presents the causal effects of participating in the CDSP program, estimated using difference-in-difference (DiD) methods on an unbalanced panel. Outcomes of interest are per capita calorie consumption (log-linear) and food security. Per capita calorie consumption is widely used as a measure of poverty and vulnerability and is often the basis for poverty lines. Any increase in calorie consumption for targeted households indicates the intervention's success in addressing the vulnerability of this cohort. Results show that program participation increased per capita calorie consumption with a similar finding being reflected in terms of food security.

The (unweighted) difference-in-difference (DiD) display a 13 percent increase among beneficiary households, post intervention (significant at 1 % level). However, for food security, results are not statistically significant. Based on the weighted DiD estimates, households living in treatment chars experience an 11 percent increase (significant at 1% level) in food consumption and they are 9 percentage points more likely to report adequate access to food (significant at 5% level) (Table 2.6).

Table 2.6: Difference in difference estimates using unbalanced panel

Outcome Variables	Difference in Difference			Weighted estimates			N
	CDSP Beneficiary	Standard Error	R^2	CDSP Beneficiary	Standard Error	R^2	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log of per capita Calorie consumption (kcal)	0.130***	(0.080)	0.05	0.118***	(0.030)	0.04	2,505
Food Security	0.072	(0.112)	0.04	0.093**	(0.041)	0.03	2,506

Source. Data were collected by the Research and Evaluation Division of BRAC.

Notes: "Beneficiaries" refers to the sample of beneficiaries that was selected into the Char Development and Settlement Programme. Controlling for gender, age and education of the household head, number of household members, male and children share of the households, dummies for all chars.

, **, * indicate significance at the 10%, 5% and 1% level respectively. Bootstrap results based on 400 bootstrap samples*

Table 2.7 presents the end line averages for outcome variables for both treatment and control variables. Comparing the figures in Tables 2.2 and 2.7, it is clear that the effects on per capita calorie consumption and food security are driven by a reduction in calorie consumption among control households (58.35 Kcal) in the end-line along with an increase among the treated (257 Kcal).

Table 2.7: End line averages for outcome variables for both treatment and control char

Variables	End line Averages		
	Non-treated	Treated	p-value
Outcome Variables			
Per capita calorie consumption (Kcal)	2415.155	2577.16	0.038
Food security (=1 enough or more food supply, 0 faced any kind of food deficit)	0.655	0.733	0.28
Legal age for male marriage (=1 has right knowledge, 0 otherwise)	0.241	0.332	0.077
Legal age for female marriage (=1 has right knowledge, 0 otherwise)	0.774	0.799	0.578
Legal divorce for Muslims (=1 has right knowledge, 0 otherwise)	0.052	0.173	0.008
Legal voting age (=1 has right knowledge, 0 otherwise)	0.73	0.752	0.654
Right to physically abuse children (=1 no right, 0 otherwise)	0.965	0.911	0.172
Dowry Sentence (=1 has right knowledge, 0 otherwise)	0.011	0.128	0.001
Knows how to purify water (=1 has right knowledge, 0 otherwise)	0.867	0.873	0.894
Wears sandals to the toilet (=1 yes, 0 otherwise)	0.956	0.961	0.684
Washes hands after defecation (=1 yes, 0 otherwise)	0.608	0.504	0.105
Has soap in the toilet (=1 yes, 0 otherwise)	0.899	0.903	0.866
Has toothpaste & brush (=1 yes, 0 otherwise)	0.599	0.447	0.066
Consumes iodized salt (=1 yes, 0 otherwise)	0.903	0.772	0.008
N	1134	1372	2506

Source. Data were collected by the Research and Evaluation Division of BRAC.

Notes: "Treated" refers to the sample of beneficiaries that was selected into the Char Development and Settlement Programme's livelihood component. "Control" refers to the sample of other poor households that were not selected.

Tables 2.8 and 2.9 provide estimates of the average effect sizes on other individual level outcomes using the unbalanced panel (both unweighted and weighted estimates). We find that CDSP program participation increases the legal awareness index by 0.34 standard deviations among the treated (both unweighted and weighted estimates). This change is driven by a simultaneous increase in the index among the treated at end-line with a corresponding decline among the control over the same period (Table 2.7 and Figure 2.1).

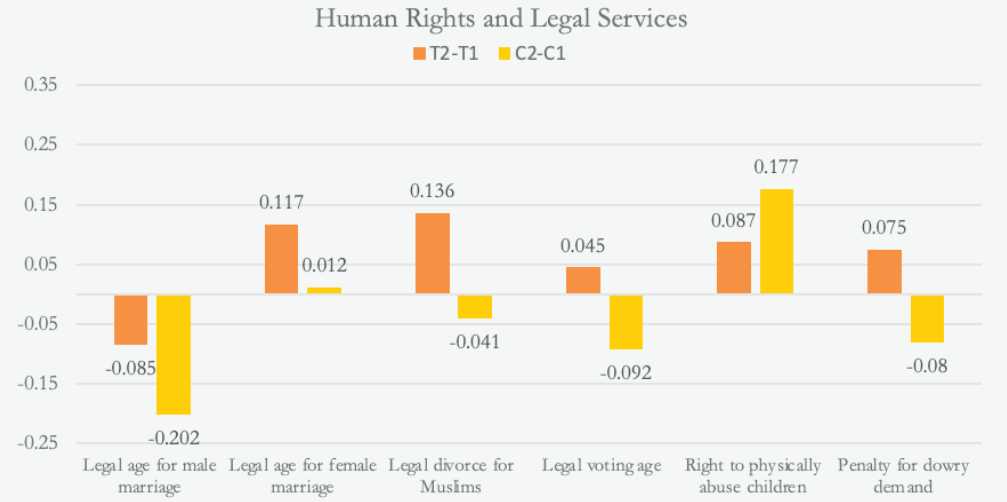
Table 2.8: AES (Average Effect Size) estimates for human rights and legal awareness

Variables	Unweighted		Weighted	
	AES	Std. Err.	AES	Std. Err.
Human rights and Legal awareness	0.341***	(0.104)	0.341***	(0.098)
N		5280		5280

Source. Data were collected by the Research and Evaluation Division of BRAC.

*Notes: "Unweighted' indicates DiD estimates. Standard errors are based on 400 bootstrap samples. Weighted" refers to the DiD estimates using inverse probability weights. Controlling for gender, age and education of the household head, number of household members, male and children share of the households, dummies for all chars. *, **, *** indicate significance at the 10%, 5% and 1% level respectively*

Figure 2.1: Changes in human rights and legal services awareness within the group across time



Source. Data were collected by the Research and Evaluation Division of BRAC.

In the case of ownership of water and sanitation products (toothpaste, toothbrush, soap), we find a statistically significant decline among the treated which is reflected in the negative average effect size. Consistent with the relative decline in the possession of soap and toothpaste-brush, there is a decline in what may be considered good water and sanitation practice (-0.12 standard deviation), derived primarily from a reduction in the incidence of handwashing after defecation(significant at 5% level for both weighted and unweighted).

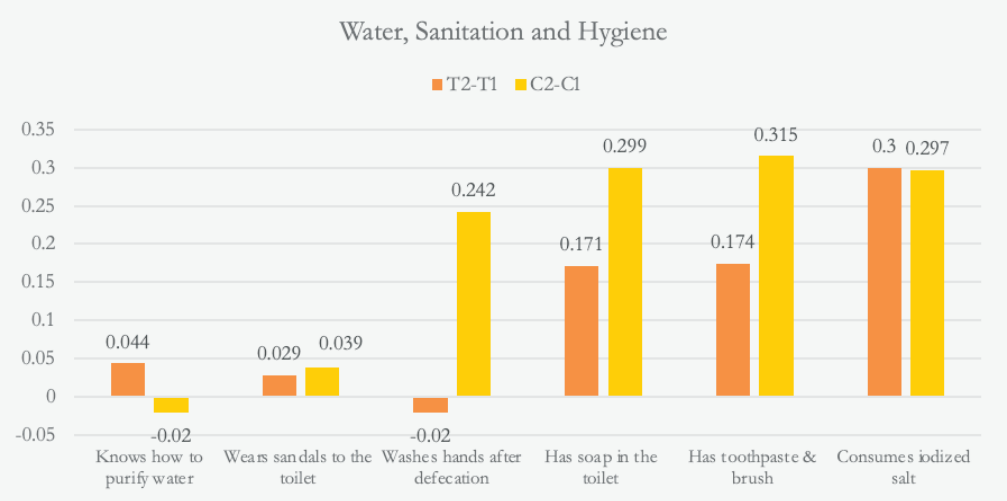
Table 2.9: AES (Average Effect Size) estimates for water and sanitation practice (for different specifications)

Variables	Unweighted		Weighted	
	AES	Standard Error	AES	Standard Error
Water and Sanitation practice	-0.122**	(0.060)	-0.122**	(0.055)
Water and Sanitation product possession	-0.188	(0.181)	-0.188	(0.165)
N		5280		5280

Source. Data were collected by the Research and Evaluation Division of BRAC.

*Notes: "Unweighted' indicate DiD estimates. Standard errors are based on 400 bootstrap samples. "Weighted" refers to the DiD estimates using inverse probability weights. Controlling for gender, age and education of the household head, number of household members, male and children share of the households, dummies for all chars. *, **, *** indicate significance at the 10%, 5% and 1% level respectively.*

Figure 2.2: Changes in water, sanitation and hygiene awareness within the groups across time



Source. Data were collected by the Research and Evaluation Division of BRAC.

The trends in outcomes are better understood when examining the summary statistics more closely. The rate of ownership of such products increased faster among the control group rather than a decline among the treated – the effects can therefore be concluded as the control group catching up to the treated (Figure 2.2).

2.6 Concluding remarks

The Char Development and Settlement Program (CDSP) was launched by the Government of Bangladesh and was funded by the International Fund for Agricultural Development (IFAD) and the Kingdom of the Netherlands (EKN). The components of the programs were implemented largely by government agencies and a number of NGOs. The program combined infrastructure development

with a livelihood support component which was lacking in previous phases of the program. This essay evaluated the impact of the livelihood component of the CDSP, which was implemented by various NGOs, including BRAC.

While multi-intervention programs such as the CDSP are not unusual, what is different is that CDSP participants live in very precarious landmasses and are more likely to be exposed to natural shocks (Shahed et al., 2016). Furthermore, despite operating for a number of years there are arguably no credible evaluations of the CDSP.

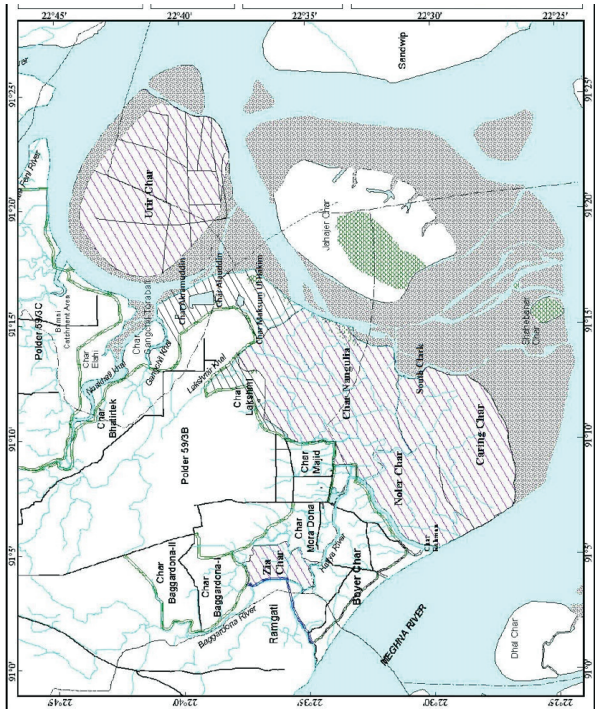
In particular, this paper investigated the impact of this livelihood component of the fourth phase of the Char Development and Settlement Program (CDSP) on food consumption, water and sanitation practice and social awareness outcomes. Using a difference-in-difference framework, the analysis showed that CDSP participation led to a positive and statistically significant increase in per capita calorie consumption and food security. Results also suggest that the program had significant positive effects on awareness regarding knowledge of human rights and legal procedures. However, with regard to water and sanitation practice, there was a decline in the proportion of households living in the treated areas that followed the recommended water and sanitation practices. It may well be that it is easier to influence socio-economic outcomes and raise awareness as compared to changing behaviour. The difficulty of influencing behaviour has often been noted. For instance, according to (Tearfund, 2007) it is not enough to 'educate' people about the health benefits of hygiene practices. In order to have a lasting impact on WASH indicators, hygiene, sanitation, and water 'hardware needs to be complemented by schemes that generate behavioural change (Peal, Evans, & Voorden, 2010).

While the analysis presented in this paper does suggest that the livelihood component of the CDSP program enhances food security and increases legal awareness there are several limitations. First, it was not possible to identify which of the specific components of the livelihood program was responsible for enhancing food security. Second, to further complicate the picture, the livelihood component was accompanied by a number of other interventions such as the construction of climate resilient infrastructure, and it is not possible to identify whether the increase in food consumption may be attributed to the livelihood component or to the other components that were also implemented at the same time. Nevertheless, what we can say is that the multi-pronged CDSP intervention does seem to have translated into greater food security and greater legal awareness of beneficiaries. While this may seem underwhelming and modest given the complexity of the program and the resources expended, it may be viewed as a first step in systematically assessing the effects of the CDSP.[38] Future research may need to consider isolating the specific effects of the various components and examining the effect of the intervention on other outcomes. The char phenomena are not unique to Bangladesh and is common for any deltaic plains (e.g., India, Thailand, Pakistan). Findings from this paper add to the limited literature that is generally available in these contexts.

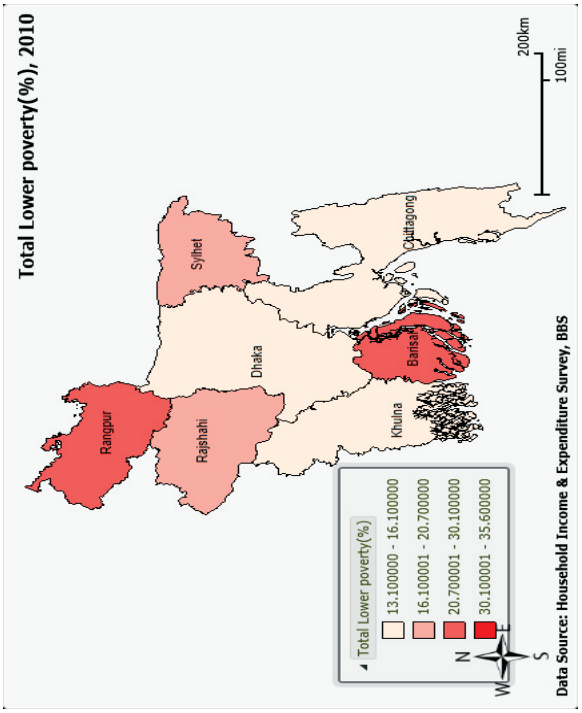
[38] Cost per household for the overall CDSP IV was USD 2,626 and for the livelihood component it was USD 126, excluding the credit fund by PNGOs (CDSP IV Technical report 2018 pg 37-38).

2.7. Annexure

Annex Figure 2.1: Poverty map of Bangladesh and location of the intervention



Panel B: Location of the CDSP IV area



Panel A: Poverty map of Bangladesh, HIES 2010

Annex Table 2.1: Determinants of attrition for both treatment and control groups

Variables	Treatment Households		Control Households	
	Marginal effect	Standard errors	Marginal effect	Standard errors
Gender of the household head (1= female, 0 otherwise)	0.075**	(0.033)	0.008	(0.052)
Age of the household head (years)	-0.003***	(0.001)	0.000***	(0.000)
Number of household members	0.009	(0.017)	-0.001	(0.007)
Household head's education				
Illiterate	-0.046	(0.088)	-0.090***	(0.033)
Primary Education	-0.092	(0.095)	-0.086*	(0.051)
Secondary Education	-0.072	(0.119)	-0.054	(0.045)
Share of male members	0.019	(0.082)	0.083***	(0.032)
Share of children	-0.153**	(0.066)	-0.039	(0.078)
Source of cooking water (=1 if safe, 0 otherwise)	-0.052	(0.125)	Note[40]	
Source of drinking water (=1 if safe, 0 otherwise)	-0.027	(0.045)	-0.015	(0.016)
Types of toilet (=1 if safe, 0 otherwise)	-0.009	(0.021)	-0.023	(0.030)
Natural disaster (=1 if faced in last one year, 0 otherwise)	0.021	(0.029)	0.001	(0.016)
Illness or death of hh member (=1 if faced in last one year, 0 otherwise)	-0.006	(0.037)	0.037	(0.058)
Conflict (=1 if faced in last one year, 0 otherwise)	0.022	(0.042)	0.013	(0.021)
Log of per capita income	0.006	(0.026)	0.003	(0.012)
Log of per capita energy consumption	0.019	(0.042)	-0.006	(0.018)
Log of the value of total asset holding	-0.022*	(0.012)	-0.006	(0.005)
Food security (1= if had enough food in last 6 months, 0 otherwise)	0.028*	(0.017)	0.013	(0.021)
N	1598		1197	

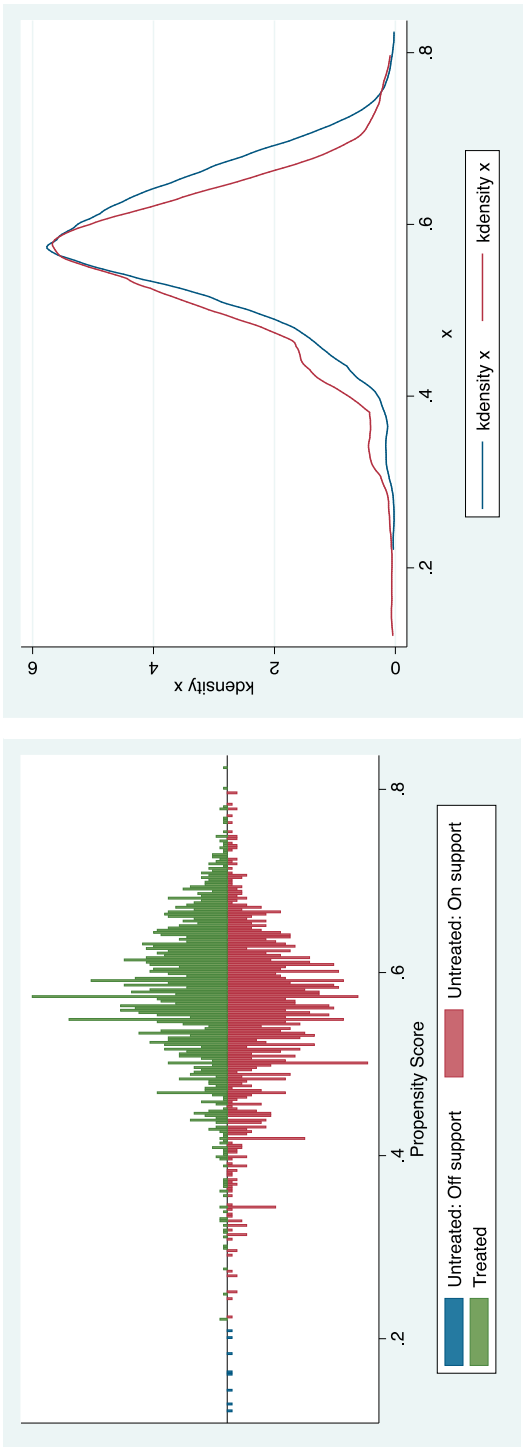
*Note: *, **, *** indicate significance at the 10%, 5% and 1% level respectively. $hh stands for household.*

[39] Among the most prominent NNGOs are the Bill and Melinda Gates Foundation, Oxfam International and Médecins Sans Frontières.

Annex Table 2.2: Matching probit estimates

Variables	Marginal Effect	Standard Error
Gender of the household head (1= female, 0 otherwise)	0.089**	(0.040)
Age of the household head (years)	0.005***	(0.001)
Number of household members	-0.000	(0.006)
Household Head's education		
Primary education	0.271**	(0.091)
Secondary education	0.354***	(0.092)
Higher education	0.284**	(0.095)
Share of male members	0.060	(0.056)
Share of children	0.252***	(0.055)
Pseudo R2	0.0214	
Observations	*4,525*	

*Notes: Table shows marginal effects from a probit model, estimated on the baseline data, with the dependent variable representing selection into the program. *, **, *** indicate significance at the 10%, 5% and 1% level respectively.*



Annex Figure 2.2: Propensity Score Matching and balancing across treatment and control groups

Panel A: Distribution of Propensity Score across treated and control group

Panel B: Kernel Density curves representing balancing of propensity scores

Pictures 2.1: Char Development and Settlement Program (CDSP) phase IV

a) Settlement in Maksum-ul-Hakim Char, these boats are used during high tide

b) Settlement in Maksum-ul-Hakim Char from a distance

c) Unpaved road in the chars

d) Fishing in the mud left by the receding tide

Chapter 3

TRANSPLANTATION OF INTEGRATED SOCIAL ASSISTANCE PROGRAMS: EVIDENCE FROM UGANDA'S MICROFINANCE MULTIPLIED PROGRAM

3.1 Introduction

The role of NGOs in development has been acclaimed (Clark, 1991; Drabek, 1987) as well as criticized (Petras, 1994). There is an on-going debate between two groups of NGOs and their roles (Elliott, 1987), that is, the role of well-endowed Northern NGOs (NNGOs)[40] that may have limited ground-level knowledge versus Southern NGOs (SNGOs) that are perhaps more interlinked with local communities, have greater awareness of the local culture and are more likely to be familiar with the local language (Banks & Hulme, 2012). While developing country based NGOs contribute only 8.4% to total official development assistance (OECD, 2013), it has long been suggested that a stronger involvement of southern NGOs, outside their home countries, may be an alternative approach to fostering development (Edwards & Hulme, 1995; Drabek, 1987). Arguably, Southern NGOs have an advantage in leading development processes due to their hands-on experience at the grassroots level. Thus, it may be expected that with sufficient funding and expertise, southern NGOs are better placed in terms of implementing programs in a developing country context. This is where BRAC, a Bangladesh based SNGO comes into the picture.[41]

BRAC, the world's largest non-governmental organization in terms of employees, started operations in Bangladesh in 1972. The organization was set-up in the wake of a war for independence and a subsequent famine, with the goal of rehabilitating the country. It started as a small-scale relief and rehabilitation project to help returning war refugees. After two years, in 1974, BRAC started its core operation, a microfinance program. Over the decades it has incorporated and implemented both discrete and integrated programs with microfinance as a central development intervention. After consolidating its position in Bangladesh, BRAC launched international operations and currently it operates in eleven countries including Uganda.[42] It has programs covering various facets of the development process such as wellbeing and resilience (e.g. disaster management, health, water and sanitation), economic development and social protection (e.g. agriculture and food security, microfinance, targeting the ultra-poor), education, gender justice, human rights and legal aid services. BRAC's, Uganda operations started in 2006 and since then it has become one of the largest NGOs in the country.

This paper explores the impact of an integrated program implemented by BRAC Uganda entitled "Microfinance Multiplied", where community health services and an agricultural extension program are coupled with microfinance. The program first promotes entrepreneurship and second, fosters resilience through health and agricultural services. In addition to evaluating the impact of the integrated project, the paper also focuses on the impediments that a SNGO faces while operating in a new context, despite its first-hand experience elsewhere.

[40] Among the most prominent NNGOs are the Bill and Melinda Gates Foundation, Oxfam International and Médecins Sans Frontières.

[41] Bangladesh has a wide range of NGOs mostly engaging in microfinance and social assistance such as Thengamara Mohila Sabuj Sangha and the Association for Social Advancement.

[42] The countries are Bangladesh, Pakistan, Myanmar, Nepal, Philippines, Afghanistan, Sierra Leone, Uganda, Liberia, Tanzania and South Sudan.

Regardless of the estimation approach, our analysis of a two-period panel data set shows statistically insignificant effects of program participation on outcomes such as income, savings, asset accumulation, food consumption, profit from agriculture and livestock. Our examination of the reasons for the lack of an impact suggests that it is not the program design, per se, but challenges associated with the replication and execution of such integrated programs in a foreign setup including the unfamiliarity of local staff with the program, the lack of knowledge of international staff of the local context combined with the pressure for rapid implementation and demonstration of success which led to superficial efforts, large fluctuation in staff and in some instances, a lack of compliance with the evaluation design. In short, the expectation that due to their experience with poverty alleviation programs in other developing countries, Southern NGOs have an edge over other development agents does not seem to be well-founded.

The remainder of the paper is structured as follows: Section 3.2 introduces integrated programs and related impact studies. Section 3.3 provides a brief country profile, discusses the role of microfinance in Uganda and the Microfinance Multiplied Program. Section 3.4 describes the data and section 3.5 introduces the empirical strategy. Results are discussed in section 3.6 while section 3.7 derives lessons from the impact estimates as well as discusses program implementation challenges. The last section contains concluding observations and policy implications for future endeavours.

3.2 Microfinance and integrated programs

Since the 1970s, microfinance has been used as a poverty alleviation strategy and is also one of the core programs implemented by BRAC. While there is a large body of mainly non-experimental evaluations which shows that microfinance has enhanced financial outcomes including savings and asset accumulation (Duvendack et al.,2011; Barnes, Gaile & Kibombo., 2001; Adjei, Arun & Hossain, 2009) and has had a positive impact on non-financial outcomes such as health (Barnes Gaile & Kibombo., 2001; Adjei, Arun & Hossain, 2009), food security (Barnes, Gaile & Kiombo, 2001; Brannen, 2010) education (Adjei, Arun & Hossain, 2009) and female empowerment (Barnes, Gaile & Kiombo, 2001), a more recent body of experimental evaluations is less sanguine. For instance, in their work on India, Banerjee (2013) find that even though microfinance is on offer, few households avail of it (19%) and even fewer households were likely to start new businesses and there was no effect on business profits in areas where microfinance was offered. Also, microfinance does not seem to have led to a sustainable path out of poverty for most of its beneficiaries (Amin, Rai &Topa, 2003; Giné et al. 2011; Banerjee, et al. 2015; Crépon et al. 2015). Occasionally, a single shock can put borrowers back into poverty with interest and loan repayments further exacerbating the situation (Schicks, 2014). Microfinance has also been confronted with criticism for over-indebting poor people and even inducing suicides (Biswas, 2010).

In contrast to microfinance, which is a stand-alone intervention, more recent programs have adopted an integrated approach. Programs in this genre include conditional cash transfer programs (Behrman and Hoddinott, 2001; Skoufias, 2001; Gertler, 2004; Rawlings and Rubio, 2005), unconditional cash transfers (Haushofer and Shapiro, 2016), asset transfer programs (Raza, Das & Misha. 2012; Misha et al. 2014; Banerjee, et al. 2015; Bandiera et al. 2017) as well as livelihood support programs (Bouis, 2000; Nielsen, et al. 2003).

BRAC is a pioneer in the space of developing and implementing integrated programs and has decades of experience in interventions which include microfinance as a core component along with other supplementary and complementary components (for instance, training for income generating activities, health support, agricultural support). One of BRAC's flagship programs, which was initiated in 2002, is called, Challenging the Frontiers of Poverty Reduction (CFPR). CFPR is an asset-based program which targets the ultra-poor in the *monga* affected areas of northern Bangladesh.[43] The program targets the extreme poor, identified as earning $0.60-$0.70/day, and provides them with income generating assets (e.g. livestock, poultry, shop, van), valued at approximately $140, followed by a two-year long training program which is geared towards developing and managing the asset. Other components include a food subsidy, education, social and legal support. Several studies have shown that the program has had a positive impact on health (Ahmed & Hossain, 2007; Ahmed, 2006; Prakash & Rana, 2006), food security (Ahmed & Rana, 2010; Haseen, 2006; Haseen & Sulaiman, 2007) and income (Das & Misha. 2010; Rabbani, Prakash & Sumaiman. 2006). A modified version of the CFPR which focused on 'other targeted ultra-poor (OTUP)' groups and provided microfinance together with health care and social awareness training was evaluated by Das & Misha. (2010).[44] According to Das & Misha (2010) significant impacts on income and food consumption were seen for the OTUP beneficiary households. Also, programs with similar design but implemented by BRAC in a different setting, that is the coastal regions of Bangladesh, have led to significant improvements in livelihoods (Raza, Bhattacharjee & Das, 2011).

Based on the positive experience gained from the CFPR intervention, BRAC developed similar integrated programs with microfinance as the core activity of the intervention and health and agricultural extension services embedded in the larger package. This integrated intervention approach labelled the Microfinance Multiplied Program was first implemented in Uganda in 2009 and was later introduced in other countries.[45]

[43] In Bangla, the term 'monga' refers to 'lean season' that leads to seasonal unemployment and food insecurity in some of the norther districts of Bangladesh. This occurs during the Bengali months of Ashwin-Kartik (mid-September to mid-November) and also during Chaittra -Boishakh (mid-March to mid-May). To be more precise, preceding the *Aman* and *Boro* harvest.

[44] Under the CFPR programme, the other targeted ultra-poor group refers to slightly better off ultra-poor, those who were initially selected for the ultra-poor program but excluded as they did not meet at least three of the five selection criteria. For details see Misha et al. (2019).

[45] Interventions which combine microfinance with community health services were initiated in South Sudan, Sierra Leone and Liberia in 2013 and in Afghanistan in 2016. Microfinance with agricultural services was started in Liberia and Tanzania in 2012 and 2013, respectively. The agricultural program was expanded to Sierra Leone, South Sudan and Afghanistan in 2016.

3.3 Microfinance in Uganda and the Microfinance Multiplied Program

3.3.1 Microfinance in Uganda

While poverty in Uganda has decreased from 53.2% in 2006 to 34.6% in 2012, the country remains at the bottom (163 out of 188) of the Human Development Index (UNDP, 2016).[46] For instance, the country has a high maternal (438 per 100,000 live births) and high infant mortality rate (53 deaths per 1000 live births). According to the World Bank (2016), between 2005 and 2009, for every three Ugandans who were lifted out of poverty, two fell back. The scarcity of safety net programs further exacerbates the situation (World Bank, 2016).[47]

In terms of its economy, Uganda remains heavily reliant on agriculture. Around 72% of its total land area is agricultural land and nearly two thirds (64%) of the working population are engaged in subsistence agriculture (GoU, 2014). Only 6% of farmers use improved seeds, 6.8% use manure, 1% use inorganic fertiliser, and 3.4% use pesticides, herbicides or fungicides (UBOS, 2007 & 2006). Micro-entrepreneurship is an indispensable part of the Ugandan economy. More than 30% of households have a household-based enterprise and more than 30% of the working age population are estimated to be own account workers (UBOS, 2015). Particularly for the working poor and those vulnerable to falling into poverty, microenterprises are an essential source of livelihood.

While microfinance institutions are relatively new in Uganda, informal financial groups like, rotating savings and credit associations (ROSCAs) have been operating for decades. During the early 1990s, NGOs first began providing small loans to micro-entrepreneurs mostly to female entrepreneurs, for example Uganda Women's Finance Trust and FINCA-Village banking (Carlton et al., 2001).[48] Prior to the introduction of such services, micro-entrepreneurs did not have access to the formal credit sector and had to rely on informal sources, such as shop keepers, for credit. During the late 1990's PRESTO/Center for Microfinance started to provide basic training and technical assistance to microfinance institutions (MFIs) such as loan tracking, interest rate setting and business strategies. In 1998, the Association of Micro Enterprise Financial Institutions of Uganda (AMFIU) was established as a practitioner platform to share experiences and technology as well as to act as a lobby and advocacy body for Ugandan MFIs (Carlton et al., 2001). In later years, mostly after 2000, policies and coordination among private and public-sector actors took place and new organizations, such as BRAC, entered the country.[49]

[46] http://iresearch.worldbank.org/PovcalNet/povOnDemand.aspx, Last accessed: April 7, 2017.

[47] Total spending on social security was 1% of GDP in 2013, compared to an average of 2.8% for Sub-Saharan Africa.

[48] Uganda Women's Finance Trust provides group lending and individual lending since 1985 and FINCA-Village banking since 1992.

[49] These actors include, for instance, the microfinance forum in collaboration with the Ministry of Finance, Planning and Economic Development, and the private sector donor sub-group (PSDSG).

BRAC International started its journey in Uganda in 2006. After two years BRAC Uganda had become the third largest microfinance provider in the country in terms of outreach, operating in 34 branches. Till 2017, BRAC Uganda programs have served 4.8 million people, which is almost 12% of Uganda's population (BRAC, 2016). Since its inception, BRAC Uganda has spread its operations across 80 of Uganda's 112 districts (BRAC, 2016). The most important programs operating currently are microfinance, agriculture extension, a poultry and livestock program, health, education and youth empowerment programs. Microfinance is the core program, providing direct support to local entrepreneurs to set up their own enterprises through microloans and small enterprise loans. The agricultural program focuses on increasing productivity through the distribution of improved seeds, fertilizers and updated cultivation techniques, in addition to raising awareness about nutritional status. The poultry and livestock program provides technical assistance to improve rearing practices. It works with livestock promoters and livestock artificial insemination promoters. The health program focuses on children under five and women of reproductive age (15-49 years).[50]

3.3.2 The Microfinance Multiplied Program

BRAC started the Microfinance Multiplied Program (MfM) in Uganda in 2009. The program takes a comprehensive approach. Its core component is the provision of microfinance services, but it also includes other service components such as community health care services and agricultural and livestock extension services. Beneficiaries of the core component, microfinance, can also benefit from the other two components. MfM targets population groups that cannot access formal credit systems such as banks and other financial institutions. This can either be due to absence of proper credit systems within their reach or the absence of individual credit history or collateral. Most importantly, the program targets women. BRAC operates its program at the village level. Each BRAC branch includes five to six credit officers.[51] Each credit officer is responsible for managing at least three microfinance groups.

After identifying a potential target village, BRAC conducts a primary survey to identify prospective female borrowers.[52] Together, with the help of the village head, actual borrowers are singled out from a list of potential borrowers and then credit groups are formed.[53] Each credit group consists of 15-20 members. Within these credit groups, smaller groups of five women who are acquainted with

[50] For a detailed description, see BRAC Uganda , Last accessed: July 2020.

[51] The credit officers are selected through a rigorous process which includes screening of their education and work experience, a written exam, face-to-face interviews and finally a five-day training. The credit officers are not allowed to work in their home villages since it might incite nepotism during loan disbursement. At the same time, it is ensured that credit officers and borrowers share the same language and tribal background in order to facilitate acceptance and communication.

[52] BRAC targeted villages adjacent to its branches. Subsequently, BRAC staff visited these villages and conducted primary surveys. Based on the number of potential borrowers a village was selected for loan disbursement.

[53] Prospective female borrowers include all female entrepreneurs. The village head verifies the information collected on these prospective borrowers. For instance, whether they have other sources of income that have not been mentioned, or they are participating in any other social safety net programs. BRAC also consults with the village head and determines whether potential borrowers need credit.

each other are created. The members within a small group sign up as guarantors for each other on the loan application form, which builds group collateral for the microloans. The groups meet on a weekly basis. In these meetings, the credit officers provide information on loan processing and repayment systems. A month after the initial meeting, disbursement of loans of between US$ 200 and 400 (30-70% of per capita income) takes place and repayment starts from the consecutive week. The interest rate is 22%. The borrowers are required to repay the entire loan in 40 instalments within 48 weeks. One loan is valid for a maximum of one year. Further loans are disbursed based on the members' previous performance.

Health is the second component of the MfM program, and the aim is to provide primary health care services to the communities. These include antenatal care services for pregnant women to ensure safe delivery and postnatal services for mothers, new-borns and infants to reduce maternal and under-five mortality. BRAC trains individuals as community health promoters (CHP) with an initial two-week course which covers maternal and child health related issues. In the course of their work the health promoters are provided with monthly refresher training to continuously renew their knowledge about signs/symptoms, prevention and management of childhood diseases. Community health promoters are expected to offer their services voluntarily but do receive a basket of health and household products at wholesale price, which they can retail to ensure the financial sustainability of their work. The health promoters are selected, to the extent possible, from the microfinance groups. The level of education, literacy and willingness to work with the health program are also taken into account. The health promoters are expected to offer the following health services: i) prevention, (ii) basic curative services, and iii) referral to the community health centres for more severe conditions.[54] The services are provided through health forums and door-to-door household visits. On average, each community health promoter looks after 100 households. The household visits and health forums are used for immunization activities, family planning education, safe water, sanitation and hygiene training, nutrition education, voluntary counselling and testing and referrals for facility-based delivery. Community health promoters are expected to perform 10–12 household visits, that is, spend two hours every day on health care related work. They are further expected to conduct three health forums per month. In addition, they should offer treatment (either for malaria or diarrhoea) to under-five year old children and have nine pregnant women under their care.

The third component of the MfM program is the agricultural extension service. The major elements of the agricultural extension service are training and access to agro-inputs (e.g. improved seeds, tools, vaccination for livestock and poultry). The agricultural extension promoters are chosen from the microfinance groups based on willingness and qualification and trained as community

[54] Prevention of diarrhoea, malaria, HIV/AIDS, tuberculosis and treatment of basic curative diseases including diarrhoea, malaria (malaria rapid diagnostic testing to confirm cases), pneumonia, common cold, helminthiasis (deworming), scabies, anaemia, angular stomatitis, heartburn, ring worms, conductivities/red eye. Referrals for comprehensive antenatal care, facility-based delivery and postnatal care. Danger sign identification for pregnant women, new-borns and new mothers; referrals for severe cases of diarrhoea, malaria and pneumonia, and any sick child under 2 months.

agricultural promoters (CAP)[55], community livestock and poultry promoters[56] and model farmers.[57] The promoters participate in an initial training of three days and then a one-day training for each cropping season.[58] The training includes information on modern agronomic practices (i.e., line sowing, proper weeding, and crop rotation), usage of improved seeds, artificial insemination, and livestock vaccination. The community agricultural promoters are responsible for maintaining the supply of quality agro-inputs to the community farmers according to their demand. In addition to this, they also provide information and encourage modern crop production practices. Community livestock and poultry promoters advise farmers on rearing, insemination and vaccination of livestock and poultry. The model farmer is responsible for creating a demo plot using BRAC seeds, selecting and training farmers of the community and providing refresher trainings during each cropping season. Ten community agricultural promoters and 15 model farmers are recruited in each BRAC branch. Each model farmer is expected to mobilize 50 general farmers from her community and motivate them to adopt new agricultural technology. The community livestock promoters mainly vaccinate the poultry and livestock to reduce mortality among the poultry population and enhance the productivity of livestock. Similar, to the community health promoters, the agriculture and livestock promoters are provided with improved seed, fertilizer and agro-inputs at wholesale price in order to give them a financial incentive for their work.[59]

Based on the interventions that comprise the MfM program, one may expect a range of effects on a wide set of outcomes. First and foremost, the program provides microfinance and supports entrepreneurship. If business activities financed through microfinance are successful, one may expect an increase in household income and subsequently on household assets. Thus, the chapter considers the impact on income indicators - per capita income and total income. Additionally, since an increase in income may influence food consumption, household asset holdings and savings, the chapter looks into program effects on these three indicators. The intervention provides agricultural support including support on managing livestock and poultry. Assuming this will translate into an increase in agricultural assets and changes in profits from agriculture, the chapter examines the effect of the intervention on the value of and profits from agricultural, poultry and livestock products. Productivity loss due to illness has a much larger impact for the poor. If the health support provided

[55] Selection criteria for CAP are the following: 1) Ownership of at least two acres of agricultural land, 2) 20-50 years old, 3) willingness to work with low income farmers in their community.

[56] The community livestock and poultry promoters must have prior livestock rearing experience and own at least a cow or two goats. For poultry promoters the requirement is to possess around 5-8 hens.

[57] Selection criteria for model farmers are the following: 1) Ownership of at least one acre of land, 2) 20-50 years old, 3) permanent resident.

[58] There are two cropping seasons in Uganda, August to January and February to July.

[59] While this paper evaluates the effect of the MfM program it is important to point out that the program is no longer in operation and was closed in September 2016. When the MfM program closed, the three components started operating individually. The agricultural component was downsized due to budget constraints. The microfinance and community health worker programs are still running although not as integrated programs. The microfinance program is operating as a separate entity and is in the process of being transformed into a credit 'bank', which will eventually enable clients to have savings accounts.

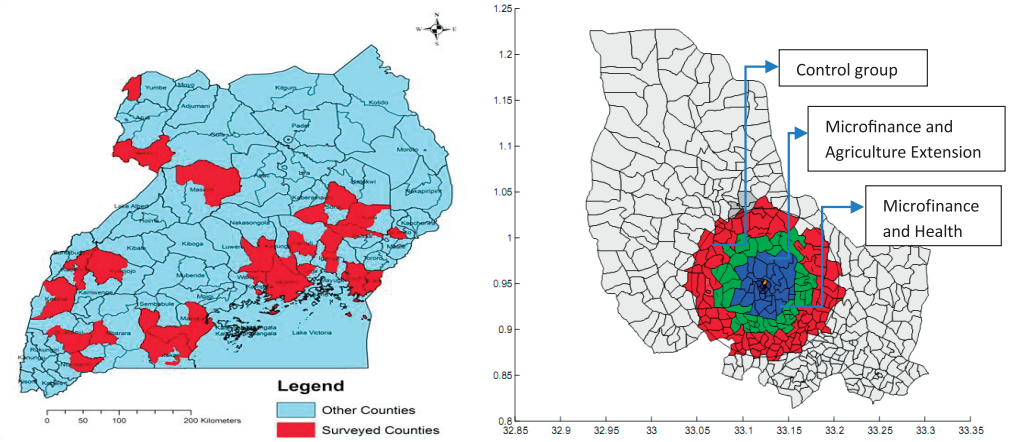
by the program is effective it may be expected to translate into better to health care outcomes. Accordingly, the chapter also considers the effect of the intervention on workdays lost due to illness.

3.4 Data and Methods

3.4.1 Data and variables

The paper uses two rounds of household data, a baseline and end line data, collected by the Independent Evaluation and Research Centre of BRAC Uganda. For the baseline survey, a total of 33 counties located in 26 districts were identified.[60] Within each county, 17 local councils (henceforward referred as villages) were randomly selected (12 treatment and 5 control).[61] From each village, 25 households were randomly selected to participate in the survey, which resulted in a target sample of 14,025 households from 522 villages. Figure 3.1 provides an overview of the sampling.

Figure 3.1: Survey sites and sampling



Source: Brac Uganda MfM program

The baseline survey was conducted between June and November 2009. A total of 13,246 households were surveyed due to absence or unavailability and lack of collaboration of some households. Following the baseline survey, the MfM program was rolled out in 12 treatment councils in each county. The different program components (microfinance, and microfinance combined with health and/or agricultural extension services) were offered in different areas of each of the treatment villages. Microfinance was offered near the location of BRAC branches, further afield, households were also offered microfinance and the health program and households located furthest from the branch offices were offered microfinance and agriculture services (see Figure 1).[62]

[60] Uganda has a total of 181 counties grouped in 112 districts. Among the 36 selected counties, three counties representing municipalities were grouped together with the respective surrounding county served by the branch office.

[61] The selection of the villages was randomly stratified by distance (within and beyond 6 km). Villages within 6 km were more likely to be included in the intervention.

[62] Figure 1 provides an illustration of the manner in which the program was offered.

The follow-up survey was conducted in the period August to November 2011. In the follow-up survey, 9,373 households were successfully tracked. A panel dataset could be built for 8,768 households (see Table 3.1). However, depending on the outcome, due to missing information, the estimates are based on a lower number of households especially for outcomes such as profit from agriculture and livestock sales. The attrition rate is 32.8% and clearly quite high. In Section 3.7, we assess attrition and discuss its implications.

The surveys collected detailed information on demographic and socioeconomic status as well as information on health status, economic and agricultural activities, livestock and poultry, financial and physical assets, borrowing and lending, consumption, food security, shocks and coping mechanisms, and social networking. Since the core intervention of the MfM program is access to microfinance, which is expected to lead to changes in economic outcomes, our analysis mainly relies on financial outcome variables which include total and per capita household income, the value of household assets, financial assets/savings, food consumption and consumption of non-durable goods. In addition, we examine the effect of access to MfM on a health-related outcome, i.e., the total working days lost due to illness, and agriculture-related outcomes such as profits from the sale of agricultural products and from the sale of livestock and poultry products.

Total household income is calculated as the sum of the annual incomes of all household members. The value of the household assets was constructed by adding up the monetary values of durable assets owned by the household, according to the information provided by interviewees.[63] Financial assets include the aggregate value of any household savings held in banks and other financial institutions, or by NGOs and at home.[64] Food consumption consists of the total monetary value as reported by the interviewee, of consumption of staples (matoke, cassava, rice, maize, bread, potatoes and cereals), poultry and livestock products (egg, milk products, meat) using seven-day recall information. The value of the non-durable goods and service variables includes rental income, imputed rent for own houses, water, electricity and fuel consumption in the month prior to the survey. Information on profits from agricultural, livestock and poultry product sales over the last six months was collected in the survey and is also used in the analysis. All financial variables are measured in Ugandan Shillings.

In addition to the outcome variables we have information on a range of other variables which may be used as controls. These include, household demographic and socioeconomic characteristics (education, age and gender of the household head). Education is split into the following categories: primary, junior, secondary and higher than secondary education.

[63] The durable assets consist of house, buildings, car, furniture, furnishing, bed nets, appliances, radio, television, bicycle, refrigerator motorbike, jewellery, mobile phone, hoe, panga and agricultural machineries.

[64] Other financial institutions include savings and credit cooperative organisations (SACCOs) and rotating savings and credit associations (ROSCAs).

Roll-out of the MfM program is observed at both the village (intent-to-treat) and the household level (actual uptake). At the village level, we identified treatment villages based on information on the availability of BRAC services in a particular village. In total, 5,566 households live in 332 treatment villages and 3,202 households live in 190 control villages. We identified four treatment groups: (i) villages with only microfinance services, (ii) those with microfinance and health care services, (iii) those with microfinance and agricultural services, and (iv) those where all three services were jointly offered.

3.4.2 Descriptive statistics

Table 3.1 shows the provision of services across villages and uptake of services by households. Among the 8,768 panel households, 18% lived in villages where only microfinance services were offered (Panel A of Table 3.1). Around 6% of households could participate in both microfinance and community health services. Households located in villages where both microfinance and the agriculture extension program were offered constitute 17% of the total sample. Around 23% of the households lived in villages where all three services were available while 37% of the households are located in villages where no services were provided through MfM.

Table 3.1: Village and household level distribution of treatment and control group

Variables	Percentage
Panel A: Village level	
Microfinance only	18.16
Microfinance and Community health service	5.93
Microfinance and Agriculture and livestock extension service	16.58
All three services	22.81
No services	36.52
Panel B: Household level	
Household level services	
Microfinance only	1.64
Microfinance and Community health service	2.21
Microfinance and Agriculture and livestock extension service	3.51
All three services	1.56
No services	91.07
N	8,768

Source. Data were collected by the Independent Evaluation & Research Cell of BRAC Uganda.

Panel B of Table 3.1 shows the actual uptake of services across *households*. Less than 2% of the households took up microfinance services. A little more than 2% accessed both microfinance and health services while 4% of households used microfinance and agricultural services. A very small proportion, a total of 137 households, that is 1.6%, used all three services during the two-year period. Later on, in the text, we discuss the reasons for the extremely low uptake. However, given such a low uptake it may be expected that the program has had a very limited effect on outcomes.

Tables 3.2 presents descriptive statistics for both outcome and control variables and compares differences in means between the control and treatment villages and households at baseline and in the follow up survey. We start by discussing differences in outcome variables across treatment and control villages.

Outcome variables

The annual per capita income is UGX 228,420 (2009 constant PPP)[65] with significant differences between treatment and control villages at both baseline and end line. Indeed, for both groups, we observe an increase in average per capita income at end line. A similar trend is observed for total household income. With regard to financial assets, the two groups of villages differ at baseline. Households residing in treatment villages have larger asset endowments, both financial and in terms of household durables. Perhaps, surprisingly, households in control villages catch up during the intervention period and at end line there are no statistically significant differences in financial assets and in the value of household durables across treatment and control villages. On average, neither at baseline nor at end line do we observe a statistically significant difference in the value of staples consumed between the two groups. However, in terms of the value of poultry and livestock products consumed and the value of non-durables, households in treatment villages display higher consumption at baseline (significant at the 1% level) but not at end line. There are no statistically significant differences, either at baseline or at endline, between the treatment and control villages with regard to profit from sales of agricultural and livestock products. Working time lost due to illness is also identical across the two groups and over time.

[65] 120.85 USD (1USD=1890 UGX, 2009)

Table 3.2: Descriptive statistics for treatment and control villages

Variables	Mean	SD	Year 2009			Year 2011		
			Mean Control Sample	Mean Treatment Sample	DiM (p-value)	Mean Control Sample	Mean Treatment Sample	DiM (p-value)
	(!)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outcome variables								
Per capita household income (,000 UGX, annual)	228.42	587.25	134.02	184.03	0.004	240.27	321.54	0.003
Total income (UGX)	1292.12	3489.51	772.85	929.05	0.128	1396.52	1899.24	0.002
Financial assets/savings (UGX)	138.66	327.76	128.80	158.44	0.037	117.71	136.55	0.171
Household assets (UGX)	3661.73	7622.28	3051.80	3909.10	0.003	3551.52	3829.96	0.363
Value of staples consumed (UGX)	25.60	24.17	28.38	28.55	0.884	23.16	22.46	0.513
Value of poultry and livestock products consumed (UGX)	14.32	673.76	5.29	6.64	0.000	40.23	12.22	0.427
Value of non-durables (UGX)	63.72	158.83	53.28	73.20	0.005	57.24	64.09	0.278
Total profit from agriproduct sale (UGX)	9428.47	219000.00	289.17	340.96	0.517	1986.91	30667.42	0.147
Total profit from livestock product sale (UGX)	2897.90	8480.00	11.47	20.59	0.157	3375.32	7506.20	0.369
Total working day loss due to illness	4.241	10.228	3.352	3.088	0.392	5.045	5.443	0.457
Control variables								
Household size	5.694	2.522	5.092	5.011	0.331	6.372	6.332	0.770
Education of household head	2.118	1.120	2.085	2.240	0.002	2.028	2.066	0.450
Primary	0.267	0.443	0.315	0.222	0.03	0.339	0.257	0.096
Junior	0.014	0.118	0.006	0.008	0.787	0.024	0.019	0.747
Secondary	0.414	0.493	0.418	0.374	0.323	0.455	0.434	0.733
Secondary and more	0.305	0.461	0.261	0.396	0.002	0.182	0.29	0.024
Age of household head	39.929	11.869	38.481	38.429	0.904	41.565	41.321	0.572
Household head is male	0.869	0.337	0.871	0.868	0.768	0.877	0.864	0.316

Source. Data were collected by the Independent Evaluation & Research Cell of BRAC Uganda.

Note: DiM stands for difference in means test

Control variables

The average household size in the sample is 5.7 (see Table 3.2), which is larger than the national rural average household size of 4.9 (GoU, 2014). Household size does not differ across treatment and control villages, at both baseline and end line. The average household head has about two years of education. The average age of household heads is almost 40 years for the whole sample with no significant difference between the groups. For both groups, more than 85% of the households are headed by males.

3.4.3 Attrition

Attrition is not uncommon when working with panel data. Often, participating individuals or households drop out of the sample between survey waves. In addition, collecting complete information on individuals/households might not be possible due to lack of cooperation from their side or because a particular question was not asked in every survey round. Also, later survey waves may include new cross-section units due to program design or to replace attrition from former waves. In short, a balanced panel constructed under the conditions described above is likely to yield misleading parameter estimates due to selection or attrition bias (Nijman and Verbeek, 1990).

In this study, a total of 13,246 households were initially surveyed. The end line survey included 9,372 households, amongst which 604 were new households that were not surveyed at baseline. This results in an attrition rate of 33.8% ((9,372-604)/13,246)) as compared to baseline. Of the 13,246 households surveyed at baseline it was possible to re-survey 8,768 households (66.2%) at end line.

This section examines attrition from two perspectives. First, we examine whether attrition is systematically linked to variables that are employed as controls and second, we examine whether attrition is systematically linked to outcomes at baseline.

Table 3.3 presents marginal effects from a probit model where attrition is treated as a function of control variables. The estimates show clear evidence that attrition is systematic. Households living in treatment villages are 13 percentage points less likely to drop out of the sample as are households with a larger number of family members, while households with better socio-economic circumstances (more educated), perhaps because they are more mobile and have greater opportunities, are more likely to drop out.

Table 3.3: Overall attrition (marginal effect output from a probit model)

Indicator	Description	Marginal effect	p-value
Treated households	=1 if treatment household	-0.130***	0.000
Household size	Total number of household members	-0.012***	0.000
Household head'e education			
Primary education	=1 if at least primary degree	0.049	0.149
Secondary education	=1 if at least secondary degree	0.050***	0.000
Higher secondary or more education	=1 if at least higher secondary degree	0.080***	0.000
Household heads age	Age in years	-0.002***	0.000
Household head's gender	=1 if household head is female, 0 otherwise	0.006	0.653
N		10577	

Source. Data were collected by the Independent Evaluation & Research Cell of BRAC Uganda.

Notes: "Treatment" refers to the sample of beneficiaries that was selected into the Microfinance Multiplied Programme. "Control" refers to the sample that were not included in the programme. ., **, *** indicate significance at the 10%, 5% and 1% level respectively*

Table 3.4 examines whether the various outcomes are correlated with dropping out of the sample (Verbeek & Nijman, 1992). That is, we add a selection indicator that is equal to 1 if a household is absent at end line and test the significance of this indicator (Jones et al., 2013) for all 10 outcomes. Across the board, the results suggest that attrition is random since the coefficient associated with sample drop-out is statistically insignificant.

Table 3.4: Verbeek Nijman estimates: Outcome based attrition

Variables	Per capita household income (log)	Log of total income	Log of financial assets	Log of household assets	Log of the value of staples consumed	Log of the value of poultry and livestock products consumed	Log of the value of non-durables	Log of total profit from agriproduct sale	Log of total profit from livestock product sale	Total working day loss due to illness
F.insamp (=1 if household absent in the second round, 0 otherwise)	-0.375	-0.549	0.176	0.049	-0.051	-0.110	-0.047	0.325	0.015	0.074
	(0.361)	(0.484)	(0.185)	(0.075)	(0.054)	(0.122)	(0.102)	(0.395)	(0.091)	(0.272)
Treated village (=1 if household belong to treatment village)	7.554***	8.472***	7.856***	4.104***	-0.012	3.604***	4.919***	0.000	0.069	0.592*
	(0.306)	(0.340)	(0.273)	(0.112)	(0.075)	(0.175)	(0.158)	(.)	(0.134)	(0.328)
Total number of household members	0.158***	0.210***	0.140***	0.102***	0.091***	0.027	0.093***	0.073	0.150***	0.514***
	(0.037)	(0.042)	(0.038)	(0.018)	(0.012)	(0.029)	(0.021)	(0.098)	(0.024)	(0.084)
Household head's education										
Primary level	0.576	0.700	0.421	0.071	-0.162	0.320	-0.317	0.474	0.241	0.723
	(0.432)	(0.485)	(0.456)	(0.193)	(0.169)	(0.340)	(0.244)	(1.011)	(0.292)	(0.898)
Secondary	0.837***	0.964***	1.029***	0.267***	0.053	0.649***	0.116	-0.122	0.037	-0.335
	(0.165)	(0.188)	(0.176)	(0.072)	(0.049)	(0.114)	(0.088)	(0.366)	(0.082)	(0.220)
Higher secondary or more	6.128***	6.805***	2.739***	0.707***	0.069	1.533***	0.330**	0.255	-0.047	-0.460
	(0.308)	(0.342)	(0.275)	(0.112)	(0.073)	(0.175)	(0.161)	(0.668)	(0.131)	(0.325)
Household head's age	-0.033***	-0.038***	-0.013*	0.019***	0.004**	-0.012**	-0.000	-0.002	0.007**	0.047***
	(0.006)	(0.007)	(0.007)	(0.002)	(0.002)	(0.005)	(0.003)	(0.017)	(0.003)	(0.012)
Gender of the household head	0.335*	0.428**	0.135	0.318***	0.140**	0.347**	0.007	0.716	-0.010	-0.498*
	(0.184)	(0.203)	(0.210)	(0.097)	(0.060)	(0.142)	(0.104)	(0.632)	(0.098)	(0.276)
R2	0.290	0.288	0.266	0.337	0.330	0.228	0.353	0.487	0.146	0.163
N	6799	6826	6824	6847	6811	6829	6844	1054	6897	6897

Source. Data were collected by the Independent Evaluation & Research Cell of BRAC Uganda.

Notes: "Treatment" refers to the sample of beneficiaries that was selected into the Microfinance Multiplied Programme. "Control" refers to the sample that were not included in the programme. ., **, *** indicate significance at the 10%, 5% and 1% level respectively*

Thus, it seems that after controlling for socio-economic attributes and the location of households (residing in treatment village), attrition is not systematically related to the outcomes of interest. In terms of guidance for the empirical work, the estimates in Table 3.3 and 3.4 suggest that it is important to control for socio-economic differences and for location in order to obtain credible estimates. As discussed in the next section, panel data does allow us to take care of these issues.

3.5 Empirical Strategy

3.5.1 Intention-to-treat effect

In the first instance, we use our two-period panel dataset to estimate the effect of being offered a chance to participate in the Microfinance Multiplied Program on a number of outcomes (see Table 3.2). That is, the intention-to-treat (ITT) effect. The model is specified as:

$$Y_{ivt} = \alpha + \beta_1 D_{vt} + \acute{X}_{ivt}\beta_2 + t_t + \mu_v + \epsilon_{ivt}\,, \quad (1)$$

where Y_{ivt} denotes outcomes for household i living in village v at time t. The key variable of interest is D_{vt}, which indicates if households in village v have been offered the possibility of participating in the MfM program at time t.

Those villages that do not receive the program constitute the excluded category. The model controls for observable household level covariates (see Table 3.2). These control variables are collected in the matrix, $\acute{X}_{ivt}$. We also control for structural differences at the village level by employing village fixed effects, which are denoted by, μ_v. The time trend is controlled for by t_t. Standard errors are clustered at the village level to control for any possible intra-village correlation in the unobserved error term. Since treatment was implemented at the village level, we opted for this village fixed effects specification.

Equation (1) only allows us to identify the combined treatment effect of the Microfinance Multiplied Program and does not distinguish between the different program components. Therefore, we also estimate an additional model that splits our treatment variable so that we can distinguish between villages that obtained (i) only microfinance services (DM_{vt}), villages with (ii) microfinance and health (DMH_{vt}), those with (iii) microfinance and the agricultural extension program (DMA_{vt}) and (iv) those that received all three services ($DMHA_{vt}$). Thus, the treatment variable is redefined as follows:

$$D_{vt} = DM_{vt} + DMH_{vt} + DMA_{vt} + DMHA_{vt}$$

3.5.2 Average treatment effect on the treated

The ITT effect is a lower bound of the effect of actually using MfM services, that is, the average treatment effect on the treated (ATT). Since households in the control villages were unable to access MfM, the ATT is essentially the ITT scaled by the proportion of those offered MfM that actually enrolled. While the offer of MfM services was not controlled by households, the use of MfM services is indeed determined by households and is not exogenous. To estimate the ATT while accounting for endogeneity, we use the offer of MfM as an instrument for actual use of services. In the first stage, we regress household level uptake of services (D_{ivt}) on offer at the village level. The model is specified as:

$$D_{ivt} = \alpha + \beta_1 D_{vt} + \acute{X}_{ivt}\beta_2 + t_t + \mu_v + \epsilon_{ivt}\,, \qquad (2)$$

From this equation, we derive an estimate of household level uptake, $\widehat{D}_{ivt}$, which is then employed in the second stage regression as follows:

$$Y_{ivt} = \alpha + \beta_1 \widehat{D}_{ivt} + \acute{X}_{ivt}\beta_2 + t_t + \mu_v + \varepsilon_{ivt}\,, \qquad (3)$$

As in (1) the standard errors are clustered at the village level and (3) is estimated with the inclusion of village level fixed effects and time trends. In addition to estimating the effect of the program as a whole, we also split the treatment variable into four components. The household-specific treatment uptake for each program component is instrumented by the respective village-specific treatment offer.

3.5.3 Multiple hypothesis testing

Our analysis includes testing for impact on 10 different outcomes. This raises questions about multiple hypothesis testing. To deal with Type 1 errors (α) due to multiple hypothesis testing, we use Bonferroni correction procedures for multiple hypothesis testing following Gibson, McKenzie, & Stillman (2011) and the critical value at which the null hypothesis is rejected are adjusted accordingly (Annex Table 3.1 and 3.2).

3.6 Results

Table 3.5 presents ITT estimates for all outcomes based on the basic and the detailed treatment indicator, respectively. The corresponding ATT estimates are presented in Table 3.6. Annex Tables 3.3 and 3.4 present the first stage results associated with the second stage ATT estimates presented in Table 3.6. Scheme uptake is about 9%, and so as maybe expected, the ATT estimates are about ten times larger than the ITT estimates (see Tables 3.6). To reiterate, since no one in the control group could access MfM and there is imperfect compliance in the treatment group, the local average treatment effect (LATE) obtained through the IV procedure as shown in (2) and (3) is equal to the ATET (also see, Becker, 2016).

ITT estimates - Village level fixed effects

Through the provision of credit along with health and agricultural support, the program is expected to help households establish a stable income generating activity, expand employment opportunities and increase sources of income for both, farm and non-farm enterprises, resulting in increased household and enterprise income, and capital and asset formation at the household level. The ITT estimates presented in Table 3.5 examine the effect of living in a village where the MfM program is active on a range of financial outcomes and one health outcome. There is a positive relationship between treatment and per capita household income and also total household income. We identify a 35% increase in per capita income for households residing in treatment villages and a 52% increase in total income. However, the effects are not statistically significant. Furthermore, living in a treatment village appears to be negatively associated with all the other financial outcomes and even suggests negative health effects. For example, the program appears to be associated with a 21% reduction in financial assets and a 16% reduction in the value of non-durables. However, none of the effects are statistically significant.

Table 3.5: Fixed level estimates at village level

Variables	Per capita household income (log)	Log of total income	Log of financial assets	Log of household assets	Log of the value of staples consumed	Log of the value of poultry and livestock products consumed	Log of the value of non-durables	Log of total profit from agriproduct sale	Log of total profit from livestock product sale	Total working day loss due to illness
Panel A: Basic Fixed level estimates										
Treatment Village (=1)	0.352	0.528	-0.214	-0.156	-0.231	-0.368	-0.165	-0.695	0.195	0.585
	(0.341)	(0.390)	(0.431)	(0.188)	(0.236)	(0.293)	(0.343)	(0.483)	(0.486)	(0.549)
Panel B: Detailed Fixed level estimates										
Microfinance only	-0.500	-0.552	0.151	-0.012	-0.423	-0.731	-0.450	-0.183	-1.202	-0.777
	(0.487)	(0.549)	(0.547)	(0.221)	(0.288)	(0.332)	(0.400)	(0.590)	(0.721)	(0.769)
Microfinance & health	1.104	1.460	0.008	-0.289	-0.216	-0.242	0.203	-0.715	0.291	1.001
	(0.649)	(0.756)	(0.915)	(0.232)	(0.434)	(0.623)	(0.672)	(0.945)	(0.858)	(1.101)
Microfinance & agri. extension	-0.184	-0.097	-0.222	-0.362	-0.008	-0.487	0.437	-1.185*	0.154	1.726
	(0.460)	(0.527)	(0.648)	(0.208)	(0.276)	(0.372)	(0.420)	(0.622)	(0.607)	(0.841)
Microfinance, health & agri	1.217**	1.577**	-0.547	0.000	-0.227	0.049	-0.417	-0.292	0.603	0.876
	(0.411)	(0.475)	(0.567)	(0.261)	(0.323)	(0.355)	(0.427)	(0.587)	(0.481)	(0.610)
N	10214	10276	10746	10754	10754	10874	10762	1430	4372	10986

Source. Data were collected by the Independent Evaluation & Research Cell of BRAC Uganda.

*Notes: "Treatment" refers to the sample of beneficiaries that was selected into the Microfinance Multiplied Programme. "Control" refers to the sample that were not included in the programme. *, **, *** indicate significance at the 10%, 5% and 1% level respectively respectively based on q values calculated using Bonferroni familywise error correction methods.*

Table 3.6: Instrumental variable analysis with village level fixed effect

Variable	Per capita household income (log)	Log of total income	Log of financial assets	Log of household assets	Log of the value of staples consumed	Log of the value of poultry and livestock products consumed	Log of the value of non-durables	Log of total profit from agriproduct sale	Log of total profit from livestock product sale	Total working day loss due to illness
Panel A: Basic Instrumental variable estimates										
Treated Household (=1)	3.39	5.283	-2.108	-1.212	-2.437	-3.589	-1.644	-3.863	-0.166	6.202
	(3.112)	(3.757)	(4.323)	(1.884)	(2.466)	(2.843)	(3.261)	(3.394)	(3.103)	(5.559)
Panel B: Detailed Instrumental variable estimates										
Microfinance only	-52.555	-53.125	19.166	6.754	-34.669	-46.534	-47.431	-9.045	-70.539	-114.075
	(81.045)	(73.018)	(47.452)	(21.704)	(31.285)	(40.602)	(48.320)	(57.077)	(65.070)	(117.231)
Microfinance & health	18.584	24.991	5.599	-14.786	0.513	-11.801	25.726	2.635	75.226	43.265
	(42.113)	(47.878)	(30.730)	(14.233)	(23.073)	(37.026)	(35.095)	(50.395)	(108.799)	(78.059)
Microfinance & agri extension	-0.984	-2.333	-8.833	-10.572	7.801	-1.37	24.536	-38.687	-3.696	65.842
	(25.391)	(23.694)	(20.977)	(9.612)	(10.756)	(15.854)	(21.722)	(91.523)	(29.413)	(49.434)
Microfinance, health & agri	29.66	31.167	-18.343	20.052	4.877	37.223	-31.773	42.835	-0.549	-24.422
	(49.280)	(57.000)	(38.905)	(20.702)	(27.219)	(41.638)	(42.335)	(141.272)	(74.633)	(92.976)
N	10214	10276	10746	10754	10754	10874	10762	1430	4372	10986

Source. Data were collected by the Independent Evaluation & Research Cell of BRAC Uganda.

*Notes:. "Treatment" refers to the sample of beneficiaries that was selected into the Microfinance Multiplied Programme. "Control" refers to the sample that were not included in the programme. *, **, *** indicate significance at the 10%, 5% and 1% level respectively based on q values calculated using Bonferroni familywise error correction methods.*

Breaking the MfM variable into its constituent components suggests that at least with regard to income, the positive effect may be attributed to the microfinance, health and agriculture supported villages. At the same time there is a negative effect for households living in villages with microfinance and agricultural support, at least with regard to profit from agricultural products (Table 3.5, Panel B). For the other outcomes there are no clear patterns. In any case, the main message which emerges from these results is that there is no effect of the MfM or its various components on any of the outcomes.

ATT estimates - Village level fixed effects

To account for self-selection in program uptake, Tables 3.6 (reduced form estimates represented in Annex Table 3.3 and 3.4) provides IV estimates with village-level fixed effects. As may be expected, the ATT effects are much larger than the ITT effects (Table 3.6, Panel A), but mimicking the earlier set of estimates, there is no effect of MfM on any of the financial outcomes or the health outcome. The detailed, component specific estimates also show that there is no effect of using the program on a wide range of indicators.

Thus, overall, we do not find any statistically significant impact of the MfM program regardless of whether we consider ITT or ATT. Disentangling the ITT estimates into the four program components yields some effects. However, these effects are not coherent and if anything, they suggest that the project components were not successful. Once we instrument treatment uptake there are no effects, either. This is perhaps not surprising as only about 9% of households living in treatment villages made use of the program. Given BRAC's intensive experience with integrated programs and the success in other parts of the world, the low uptake suggests that either the product on offer was not suited to the local context or the MfM program faced implementation challenges or both. The subsequent section examines these issues.

3.7 Discussion

The results show no statistically significant impact of the program on the outcome variables and program uptake was about 9%. Essentially, this suggests that there is no demand for the program and this section discusses potential reasons for the low program uptake and as a corollary the reasons for the lack of an impact. We discuss three issues. First, we assess the program design and the product offered to the beneficiaries. Second, we discuss implementation challenges and compliance with treatment assignment and third, we review data and evaluation challenges.

This section draws on information collected from BRAC Uganda MfM project progress documents, and BRAC Uganda annual reports. In addition to this, qualitative information was collected through five in-depth interviews with programme staff, nine interviews with programs beneficiaries, two focus group discussions (FGD) with 12 borrowers each who were aged 35 to 75 years and one FGD with community health promoters.

3.7.1 Program design and the offered product(s)

The MfM program was the first integrated program implemented in Uganda. While the design which combines microfinance with additional components seems unexceptionable in terms of its conception, as will be discussed in the next section, such multi-sector programs are far more susceptible to implementation challenges as compared to standard microfinance programs.

With regard to the microfinance product, *prima facie* there is no reason to expect that the BRAC product was inferior to other competing products. BRAC followed a 'door to door' approach which involved credit officers approaching potential borrowers at their door step. Indeed, based on discussions with borrowers in one of the treatment villages, the personal attention and care displayed by credit officers played a key role in their decisions to borrow from BRAC.

The initial interest rate on a loan from BRAC was 22% which was about 3 percentage points lower than the interest rates offered by other financial organizations.[66] Furthermore, the FGDs revealed that a loan from BRAC required no collateral, whereas, other organizations demanded collateral, and were known to list household assets, including utensils and household appliances, before providing credit.

Notwithstanding these advantages, the product also had some negative features. According to information from the two FGDs, some borrowers argued that the loan size was comparatively small (USD$ 200 and $400) and that the fixed 40-week repayment period was too long. There were cases where the borrowers became impatient and left the area without clearing their debts. BRAC also did not offer a savings option and during the roll-out of MfM it was operating as a so-called, Tier 4, unregulated NGO MFI which is likely to have reduced the attractiveness of entering into a relationship with BRAC.[67]

3.7.2 Implementation challenges

There are many factors that may have an impact on the implementation of a development program. These include *inter alia*, limited budgets, tight timelines, the pressure for quick success, political influences and lack of knowledge of the context (Bamberger et al., 2012). Furthermore, programs that adopt more comprehensive multi-sector approaches are likely to face even greater implementation difficulties (Hanna, 2000) and are often difficult to sustain without proper coordination between the different sectors. In addition, initiating and implementing a new program in a foreign setup is even more challenging. Some of these challenges include the assessment of local capacity and the training of local people while at the same time acquiring an understanding of local particularities. A number of these challenges affected the implementation of the MfM program.

[66] Initially, BRAC charged a 22% annual interest rate, which is lower compared to other MFIs in Uganda such as MICRO Uganda 26%, OPPORTUNITY 28% and PRIDE 26.5%. BRAC's interest rate was adjusted to 25% in 2011.

[67] BRAC has started the transformation of its business in November 2017 to operate as a credit institution (Tier 2), which can be referred to as a 'bank' even if it's not a commercial bank (Tier 1). The new institutional set-up allows BRAC to run savings accounts for their clients.

Rapid scale-up, managerial and local staff capacity

BRAC Uganda was launched in 2006 and started operating in Uganda in the following year. MfM was the first integrated program that was implemented at scale across 33 counties. The program was financed by the MasterCard foundation and the aim was to explore whether such a multi-sector program could be successfully implemented in Uganda. The foundation provided $45 million and was interested in rapid scale-up. Thus, BRAC faced pressure to implement the program as quickly as possible and was unable to resist. Rather than a slow process of customizing and contextualizing models developed and implemented in Bangladesh, BRAC opted for a rapid process of roll-out and implementation. To implement the MfM program, BRAC spread its activities throughout the country. This included the establishment of new branches (from 34 to 130 branches), and the hiring and training of new local staff. Thus, BRAC had to set up and manage a new team while quadrupling its operations in a country with which the bulk of BRAC managers were unfamiliar. This operational challenge required the development of new management structures to accommodate the scale of operations.

At the same time BRAC faced the challenge of identifying dedicated and skilled individuals who were willing to work with an NGO that was, at the time, not well established in Uganda. The limited knowledge the new staff had about BRAC's approach, the rapid hiring of staff who may not have been well-suited for their positions, and the lack of international managers' knowledge of the context translated into an inability to effectively reach out to potential microfinance borrowers.

As already mentioned, one of the core challenges was the assessment of local capacity. BRAC Uganda set up completely new operations while being a relatively unknown entity in Uganda. This did not necessarily attract the most qualified people in the hiring process. Yet, the implementation of a program such as MfM depends crucially on the quality and motivation of the grassroots level staff. During the early hiring rounds BRAC staff did not manage to attract the intended pool of dedicated and experienced individuals. Not only did BRAC have to learn about Uganda, the Ugandan co-workers also had to learn about operations at BRAC. Not to mention that the rapid scale up of the program required the training of newly hired staff including the health and agricultural promoters. Moreover, due to the pressure to scale-up, training of program staff took place at the same time as the program was being rolled out, thereby further increasing pressure on the newly recruited staff. This resulted in rapid turnover of program staff. Especially during the early years, employee turnover at BRAC Uganda was as high as 30% while its portfolio of microfinance clients increased from 85,335 in 2008 to 153,486 in 2009 (BRAC 2013).[68]

Moreover, initially the credit officers were provided with no mode of transportation or reimbursement of transport costs. They only got a lunch allowance of UGX 1,200, which was minimal.[69] Given the

[68] As recorded on 31st December 2008 and 2009.

[69] Currently credit officers get a UGX 45,000UGX/week transportation allowance in addition to UGX 4,000/day lunch allowance.

size of Uganda and the hilly terrain, most credit officers were reluctant to go an extra mile for potential entrepreneurs although they had to meet a quarterly target of enrolling borrowers (the target depended on the branch and population).

Multi-sector coordination

While conceptually attractive, a multi-sector intervention calls for greater management skills and coordination ability. However, the implementing units were unable to coordinate their activities effectively. For example, according to the program design the community health promoters (CHP) were expected to be selected from within the microfinance groups or at least the treatment villages. However, in many instances a person who was qualified enough to become a community health promoter could not be found in a treatment village and was hired from an adjacent village. While it is perhaps creditable that the program managed to identify and train a community health promoter, the fact that the person was not linked to the BRAC structure increased coordination problems and made it difficult for experienced BRAC staff to guide the CHP and give advice. Thus, new structures arose that required additional coordination. Similarly, the agricultural extension promoters were to be chosen from among the microfinance groups according to the classical BRAC model. However, this could not be fully realised and led to the development of additional structures at the level of the agricultural program as well.

Contextual knowledge

Another aspect that BRAC was not familiar with was the many variations in local dialects and languages. This is very different from the situation in Bangladesh, which is an ethnically and linguistically homogeneous country. BRAC management was mainly from Bangladesh and was not trained or prepared to deal with the variations in language, religion, and ethnicity. Furthermore, migration is an integral part of Uganda (both inter and intra country). Thus, BRAC's microfinance borrowers were also mobile, resulting in additional challenges. As in other sub-Saharan countries, the fact that members of the same ethnicity are separated by borders (e.g. the Pokot, Karamojong, Itesot, Bagisu and Basamia, living along the borders of Kenya and Uganda) triggers frequent migration in these regions (Mulumba and Olema, 2009). Uganda is also an important host for refugees from neighbouring (war-affected) countries such as Rwanda, Democratic Republic of Congo and South Sudan (IOM, 2013; Mulumba and Olema, 2009) which further increased the complexity of operations for all development actors, especially given that one of the eligibility criteria to obtain access to microfinance is that households need to reside in one place for at least six consecutive months.

Moreover, contrary to Bangladesh the country has a low population density (1,251.8 inhabitants per km^2 in Bangladesh versus 206.9 inhabitants per km^2 in Uganda[70]) and often borrowers live in widely dispersed and far to reach places. This situation is aggravated by poor communication and transport infrastructure which made it difficult to reach out to potential borrowers in the first instance and to

[70] World Bank, World Development Indicator 2016 (http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators) Last accessed: June 2019.

follow up on borrowers in later stages. This is also reflected in BRAC's performance in Uganda as its portfolio at risk (PAR) rose from 0.7% in July 2010 to 3.9% in October 2011 (BRAC, 2013).

3.7.3 Impact Evaluation Challenges

In addition to the impediments in implementation, further challenges were experienced in terms of data collection and the evaluation process. While it is a strong feature of BRAC that it quantitatively assesses the impact of its programs, data collection is a difficult task and compounded if it is carried out in an unknown country with inexperienced staff. As compared to microdata from accredited sources such as the living standard measurement survey (LSMS) and the demographic and health surveys (DHS), which are typically of high quality (Tasciotti & Wagner, 2018), small scale data collection efforts tend to face quality issues. In the current case, the pressure to show successful program transplantation required the collection of survey data. However, the haste with which this was conducted led to several concerns.

To start with, the questionnaire did not fully take into account that the collected data were not only meant for observational description but for an impact analysis. Even though it identified treatment and control villages, there is no question directly identifying control and treatment households. Thus, for the empirical analysis we constructed the household level treatment variable based on other indicators. For instance, whether a household was a microfinance borrower was based on the information whether any member of the household had taken a loan from BRAC. Thus, we can only identify active borrowers and not members of microfinance groups that are yet to borrow. If this information was available, the evaluation could have been based on comparing outcomes for borrowers versus potential borrowers who are likely to be similar in terms of their observed and unobserved traits.

Similarly, the questionnaire did not directly ask whether the household made use of BRAC health services. However, we were able to identify whether any member of the household received support from a community health promoter. This is a subtle yet important difference that might lead to underreporting of the use of health services since part of the services are sensitization efforts that are not likely to be reported in the questionnaire. In case a household reported that any member is a BRAC borrower and any member had made use of the community health promoter, we identified the household as beneficiary of both microfinance and health services. This leaves room for misidentification. In case a household forgets to mention one or any of the services that any household member took up, it may be erroneously designated to the control group. For example, we did find a number of households that participated in the agricultural program but were not microfinance borrowers according to their borrowing information. This should not be the case since membership in a microfinance group is meant to serve as condition for participating in the agricultural program. Furthermore, the health and agricultural component should have only been implemented in treatment villages, but we found some control villages where these services were provided. While this may be unlikely to alter the zero effect, the point is that the haste with which the program was implemented is likely to have undermined the effects that the donors were seeking to display.

Regarding data quality and the collection procedure, as mentioned in section 3.5, we have 5,493 households with complete information that can be included in the analysis. Thus, more than half of the surveyed households had too many missing observations to be included in the analysis. This calls into question the quality control measures adopted while carrying out the survey and limits conclusions that can be drawn from the impact assessment.

3.8 Concluding remarks

The study at hand is another piece of evidence highlighting the challenges of development aid. As is the case for Northern NGOs, NGOs from developing countries also have to overcome considerable roadblocks when transplanting successful models from one country to another. Despite systematic evidence collected through impact evaluations about what works and what does not, the issue of external validity of such evaluations and the challenge to make programs equally successful under different social, cultural and political conditions remains a concern.

What the study shows is simple and perhaps unsurprising, that implementation of any development intervention follows a learning curve. While NGOs from developing countries have the advantage of first-hand experience, they do not necessarily have a blueprint for fostering development in other contexts. Independent of the organization implementing an assistance program, success requires experiential learning which comes from listening, a willingness to understand local particularities and patience in training local stuff. Poverty is not homogenous and the significance of 'immersion' before designing and implementing an intervention cannot be downplayed, despite having decades of expertise (Chambers, 2012). Even developing country NGOs need to tailor the implementation approaches of their successful programs to the respective country contexts. Not surprisingly, the implementation of an existing program in a new country needs hands-on learning from experience in the field. The learning process also requires adaptation efforts to shape the existing program and make it fit in the new context. It might not be wise to implement a large-scale project together with a large-scale evaluation before knowing the country context. Clearly, this also needs to be understood by donors so that more sustainable outcomes can be achieved in the long run with the means provided.

While BRAC has spread from Bangladesh to other developing countries, which suggests that implementing social assistance programs for the poor across the globe is possible, it also highlights the need for perseverance and tenacity. Even experienced development practitioners who come from a developing country context cannot and should not expect low hanging fruit. This is not meant as a call to stop all development assistance but rather as a call for setting realistic expectations and allowing for low scale experimenting when transplanting successful programs from one country to another.

Moreover, our study highlights the challenges faced regarding the evaluation process. While generally the willingness to implement data collections to assess the effect of a program is welcome, the paper at hand shows that such data collections need more preparation, experienced staff and quality checks from the design to the implementation and analysis stage. Simply interviewing many individuals or households is not enough to overcome issues such as data quality, sample selection and attrition. More people need to be trained and standards need to be raised to ensure high quality evaluations with predetermined protocols yielding credible analyses and results that can used to feed into evidence-based policy making.

Chambers' (1987) definition of NGO priorities further helps to situate the lessons learned from BRAC's experience with the MfM program in Uganda. This entail various elements: First, the identification and matching of needs and opportunities, second an assessment of comparative advantages, i.e., identifying what one NGO does best compared to others, third learning and adaptation through action and finally having wider impacts. When it comes to the first step, BRAC met the demand for microloans in Uganda and seized the opportunity for promoting entrepreneurship. BRAC's comparative advantage stems from its decade long expertise in microloans. Yet, BRAC was new to the country context, which counteracted the comparative advantage at the product level. The assessment of the MfM program by means of project monitoring and the evaluation presented in this paper marks an important step towards learning and adaptation. Spreading an integrated program in order to maximize its impact is undoubtedly a good initiative. However, as the current example shows this comes at a cost, that is, inadequate implementation of the project due to lack of experience of the local conditions. Despite the evaluation at hand pointing at implementation problems and lack of expected impacts, it serves as a learning experience in a new context that allowed for a deepening of BRAC's understanding of the Ugandan context and an adaptation of follow up projects. Thus, if the ultimate goal is to achieve wider impacts, there needs to be a more honest discourse about the projects that have implementation challenges and more studies about unsuccessful programs. As long as the published literature mainly presents successful cases, it limits the scope for learning and adaptation. The pressure for quick success and the impression that it is easy to transplant programs offered by Southern NGOs is likely to be counterproductive for sustainable development interventions.

3.9. Annexure

Annex Table 3.1: Bonferroni adjusted critical values for fixed effect estimations

Outcome Variables	Fixed Effect Basic		Fixed Effect Detailed							
			Microfinance only		Microfinance and health		Microfinance and Agriculture		Microfinance, health and agriculture	
	p-values	Bonferroni corrected critical threshold	P-Values	Bonferroni corrected critical threshold	P-Values	Bonferroni corrected critical threshold	P-Values	Bonferroni corrected critical threshold	P-Values	Bonferroni corrected critical threshold
Per capita household income (log)	0.301	0.549	0.303	0.448	0.092	0.357	0.694	0.953	0.003	0.015
Log of total income	0.177	0.549	0.313	0.448	0.056	0.357	0.857	0.953	0.001	0.01
Log of financial assets	0.619	0.688	0.78	0.816	0.991	0.991	0.69	0.953	0.333	0.57
Log of household assets	0.405	0.579	0.816	0.816	0.107	0.357	0.056	0.187	0.924	0.924
Log of the value of staples consumed	0.329	0.549	0.142	0.448	0.619	0.963	0.977	0.977	0.483	0.69
Log of the value of poultry and livestock products consumed	0.209	0.549	0.030	0.300	0.699	0.963	0.194	0.485	0.885	0.924
Log of the value of non-durables	0.63	0.688	0.260	0.448	0.770	0.963	0.296	0.592	0.342	0.570
Log of total profit from agriproduct sale	0.151	0.549	0.420	0.525	0.985	0.991	0.000	0.001	0.802	0.924
Log of total profit from livestock product sale	0.688	0.688	0.270	0.448	0.174	0.435	0.824	0.953	0.185	0.463
Total working day loss due to illness	0.287	0.549	0.305	0.448	0.368	0.736	0.042	0.187	0.157	0.463

Notes: Tables shows pre-adjustment *p*-values from the main outcome tables of the study. P-value shows statistics from Table 6 showing the impact of MfM

Annex Table 3.2: Bonferroni adjusted critical values for IV estimations

Outcome Variables	Fixed Effect Basic		Fixed Effect Detailed							
			Microfinance only		Microfinance and health		Microfinance and Agriculture		Microfinance, health and agriculture	
	p-values	Bonferroni corrected critical threshold	P-Values	Bonferroni corrected critical threshold	P-Values	Bonferroni corrected critical threshold	P-Values	Bonferroni corrected critical threshold	P-Values	Bonferroni corrected critical threshold
Per capita household income (log)	0.283	0.566	0.515	0.702	0.66	0.935	0.977	0.977	0.551	0.998
Log of total income	0.161	0.566	0.465	0.702	0.607	0.935	0.927	0.977	0.581	0.998
Log of financial assets	0.674	0.674	0.633	0.704	0.806	0.935	0.628	0.948	0.63	0.998
Log of household assets	0.463	0.663	0.76	0.76	0.322	0.935	0.315	0.948	0.333	0.998
Log of the value of staples consumed	0.464	0.663	0.351	0.702	0.875	0.935	0.447	0.948	0.955	0.999
Log of the value of poultry and livestock products consumed	0.239	0.566	0.284	0.702	0.935	0.935	0.893	0.977	0.558	0.998
Log of the value of non-durables	0.622	0.674	0.326	0.702	0.471	0.935	0.258	0.948	0.462	0.998
Log of total profit from agriproduct sale	0.136	0.566	0.561	0.702	0.808	0.935	0.534	0.948	0.742	0.998
Log of total profit from livestock product sale	0.671	0.674	0.416	0.702	0.46	0.935	0.663	0.948	0.999	0.999
Total working day loss due to illness	0.275	0.566	0.329	0.702	0.582	0.935	0.185	0.948	0.798	0.998

Notes: Tables shows pre-adjustment *p*-values from the main outcome tables of the study. P-value shows statistics from Table 7 showing the impact of MfM

Annex Table 3.3: Reduced form regression for basic IV estimation at village level

Variable	Per capita household income (log)	Log of total income	Log of financial assets	Log of household assets	Log of the value of staples consumed	Log of the value of poultry and livestock products consumed	Log of value of non-durables	Log of total profit from agriproduct sale	Log of total profit from livestock product sale	Total working day loss due to illness
Treatment village (Instrument)	0.071***	0.080***	0.098***	0.098***	0.095***	0.095***	0.097***	0.131***	0.131***	0.097***
	(0.026)	(0.024)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.023)	(0.016)	(0.011)

*Note: *,**,*** indicate significance at the 10%, 5% and 1% level respectively*

Annex Table 3.4: Reduced form regression for detailed IV Estimation at village level

Outcome Variable	Instruments	Instrumented Variables							
		Microfinance only		Microfinance & health		Microfinance & agriculture		Microfinance, health & agriculture	
		Coefficient	Std Err	Coefficient	Std Err	Coefficient	Std Err	Coefficient	Std Err
Per capita household income (log)	Microfinance village	0.005	(0.014)	0.004	(0.015)	-0.012	(0.020)	0.008	(0.009)
	Microfinance & health village	0.019	(0.032)	0.049	(0.038)	0.031	(0.045)	0.031	(0.030)
	Microfinance & agricultural village	0.038	(0.032)	0.047	(0.038)	0.018	(0.029)	0.002	(0.002)
	Microfinance, health & agri. village	0.026	(0.017)	0.046**	(0.023)	0.002	(0.021)	0.030**	(0.015)
Log of total income	Microfinance village	0.005	(0.014)	0.003	(0.015)	0.001	(0.016)	0.008	(0.009)
	Microfinance & health village	0.017	(0.031)	0.046	(0.037)	0.044	(0.041)	0.030	(0.029)
	Microfinance & agricultural village	0.038	(0.032)	0.047	(0.037)	0.014	(0.024)	0.001	(0.002)
	Microfinance, health & agri. village	0.025	(0.016)	0.045**	(0.023)	0.014	(0.018)	0.030**	(0.015)
Log of financial assets	Microfinance village	0.015**	(0.007)	0.003	(0.004)	0.011	(0.007)	0.003	(0.002)
	Microfinance & health village	0.013	(0.011)	0.052***	(0.018)	0.013	(0.013)	0.023**	(0.010)
	Microfinance & agricultural village	0.014**	(0.006)	0.012*	(0.006)	0.046***	(0.015)	0.009***	(0.003)
	Microfinance, health & agri. village	0.023***	(0.006)	0.049***	(0.009)	0.042***	(0.010)	0.049***	(0.010)

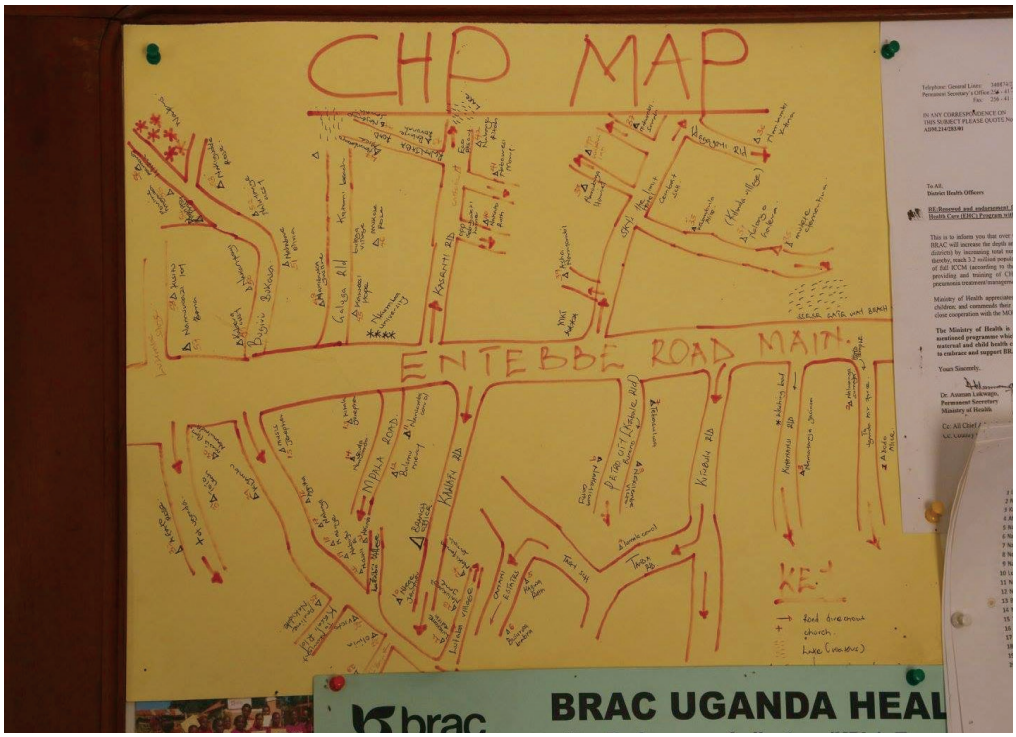
Log of household assets	Microfinance village	0.015**	(0.007)	0.004	(0.004)	0.011	(0.007)	0.003*	(0.002)
	Microfinance & health village	0.013	(0.011)	0.053***	(0.018)	0.012	(0.013)	0.026**	(0.010)
	Microfinance & agricultural village	0.014**	(0.006)	0.013**	(0.006)	0.045***	(0.015)	0.011***	(0.004)
	Microfinance, health & agri. village	0.024***	(0.006)	0.048***	(0.009)	0.040***	(0.010)	0.049***	(0.010)
Log of the value of staples consumed	Microfinance village	0.015**	(0.007)	0.003	(0.004)	0.011	(0.007)	0.003	(0.002)
	Microfinance & health village	0.013	(0.011)	0.049***	(0.016)	0.012	(0.013)	0.023**	(0.010)
	Microfinance & agricultural village	0.012**	(0.006)	0.012****	(0.006)	0.045***	(0.015)	0.010***	(0.004)
	Microfinance, health & agri. village	0.023***	(0.006)	0.047***	(0.009)	0.039***	(0.010)	0.048***	(0.010)
Log of the value of poultry and livestock products consumed	Microfinance village	0.015**	(0.007)	0.004	(0.004)	0.011	(0.007)	0.000	(0.001)
	Microfinance & health village	0.013	(0.011)	0.054***	(0.019)	0.010	(0.013)	0.020**	(0.009)
	Microfinance & agricultural village	0.014**	(0.006)	0.013**	(0.006)	0.044***	(0.015)	0.010***	(0.004)
	Microfinance, health & agri. village	0.024***	(0.006)	0.048***	(0.009)	0.040***	(0.010)	0.047***	(0.010)
Log of the value of non-durables	Microfinance village	0.015**	(0.007)	0.003	(0.004)	0.011	(0.007)	0.003	(0.002)
	Microfinance & health village	0.013	(0.011)	0.052***	(0.018)	0.012	(0.013)	0.026**	(0.010)
	Microfinance & agricultural village	0.014**	(0.006)	0.012**	(0.006)	0.047**	(0.015)	0.010***	(0.004)
	Microfinance, health & agri. village	0.023***	(0.006)	0.048***	(0.009)	0.041***	(0.010)	0.050***	(0.011)
Log of total profit from agriproduct sale	Microfinance village	0.020	(0.018)	0.010	(0.013)	0.011	(0.014)	0.001	(0.002)
	Microfinance & health village	0.045	(0.034)	0.041	(0.034)	0.031	(0.025)	0.048*	(0.027)
	Microfinance & agricultural village	0.025	(0.017)	0.003	(0.011)	0.036*	(0.021)	0.021*	(0.012)
	Microfinance, health & agri. village	0.029*	(0.015)	0.060***	(0.020)	0.074***	(0.028)	0.059**	(0.025)
Log of total profit from livestock product sale	Microfinance village	0.019*	(0.011)	0.002	(0.005)	0.011	(0.015)	0.005	(0.004)
	Microfinance & health village	0.035	(0.023)	0.037**	(0.018)	-0.015	(0.013)	0.038	(0.024)
	Microfinance & agricultural village	0.016**	(0.008)	0.021*	(0.011)	0.040**	(0.018)	0.010*	(0.006)
	Microfinance, health & agri. village	0.041***	(0.010)	0.050***	(0.013)	0.077***	(0.019)	0.067***	(0.014)
Total working day loss due to illness	Microfinance village	0.014**	(0.007)	0.003	(0.004)	0.011	(0.007)	0.003	(0.002)
	Microfinance & health village	0.012	(0.011)	0.051***	(0.018)	0.012	(0.013)	0.025**	(0.010)
	Microfinance & agricultural village	0.013**	(0.006)	0.012**	(0.006)	0.045***	(0.015)	0.010***	(0.004)
	Microfinance, health & agri. village	0.023***	(0.006)	0.047***	(0.009)	0.041***	(0.010)	0.049***	(0.010)

*Note: *, **,*** indicate significance at the 10%, 5% and 1% level respectively*

Picture 3.1: Microfinance Multiplied Program (MfM), Entebbe, Uganda

a) Weekly group meeting of a microfinance group in Abayita Ababiri, Entebbe, Uganda

b) Collecting installments



c) A map of the Community Health Promoters (CHP) coverage in a BRAC branch

d) The CHP have gathered for refresher training at the BRAC branch office.

Chapter 4

LONG-TERM EFFECTS OF AN ASSET TRANSFER PROGRAM ON EMPLOYMENT TRAJECTORIES

4.1 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 ultra-poverty (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, how-ever, raises questions about the ability of these traditional interventions to reach the ultra-poor, given that this population typically lacks the capacity and means to participate in such endeavours (Evans et al. 1999; Matin & 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.[72] An important aim of the program is to get participants to move away from traditional low-skilled and temporary occupations—such as day labouring, working as maids, or begging—and toward more entrepreneurial activities and thus graduating out of ultra poverty.

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 &Rana 2006; Ahmed & Hossain 2007), food security status (Haseen 2006; Haseen & Sulaiman 2007; Ahmed &Rana 2010), and income (Rabbani, Prakash, & Sulaiman 2006). Whereas most studies looked at impacts in the short term (2002–5), Raza, Das, & Misha (2012), Das & Misha (2010), and Krishna, Poghosyan, & 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, & Sulaiman (2006) concluded that al-though 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).

[71] This chapter, co-authored with Wameq A. Raza, Jinnat Ara and Ellen Van De Poel, titled "How far can a big push really push? Long-term effects of an asset transfer program on employment trajectories" has been published in *Economic Development and Cultural Change* 68(1): 41-62, (2019).

[72] 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).

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 in-come effect, it is crucial to establish whether participants' occupational changes 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 enrolment, 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 percent-age 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 4.2 describes the TUP program, Section 4.3 describes the data and our methods, Section 4.4 presents the results, and Section 4.5 provides a discussion and our conclusion.

4.2 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 post cropping 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.[73] 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).[74] According to these

[73] 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.

[74] 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 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.

wealth rankings, a little more than the 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 house-hold 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.[75] 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 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).

[75] 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.

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 labour activities, such as begging and day labouring, to more secure entrepreneurial activities. Earlier studies (Rabbani, Prakash, & 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 in-deed 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.

4.3 Methods

4.3.1 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 & 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 & 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.

4.3.2 Variables

The central outcomes of interest in this paper relate to occupational choices. In-formation on employment activities and income earned was obtained from all members of the household from the year preceding the survey. Avenues of in-come generation that yielded the highest remuneration over the preceding year are considered the primary occupation.[76] We classify the various employment choices into five categories: (1) entrepreneur (self-employed in either agricultural or non-agricultural labour); (2) work as a maid or servant; (3) begging; (4) day la-boring (agricultural or non-agricultural); and (5) other (service, remittance, charity, and benefits).[77]

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).[78]

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.

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

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

[78] 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 ex-planation 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).

4.3.3 Analytical Techniques

The effect of TUP participation on employment outcomes is identified by comparing the trend in employment outcomes of eligible and ineligible (de-fined 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 4.1;). 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.[79]

We estimate the effects of TUP using difference-in-differences regression with inverse propensity weights (Ho et al. 2007; Imbens & 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 ($p(X_0; g)$) from a probit model of the treatment indicator on the baseline values of all control variables (X_0) presented in Table 4.1 (see Annex Table 4.2 for the results of the probit model).

[79] Emran et al. (2014) use these assignment errors as an instrument to identify the impact of the pro-gram. 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 4.1: Summary statistics of employment categories

Outcomes	2002		2005		2008		2011	
	Treated	Control	Treated	Control	Treated	Control	Treated	Control
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Entrepreneur	0.191***	0.285	0.309***	0.273	0.330***	0.261	0.300	0.309
Maid	0.117***	0.051	0.065*	0.054	0.078	0.069	0.109***	0.065
Beggar	0.060***	0.041	0.042	0.036	0.036	0.031	0.041**	0.027
Day-labourer	0.591***	0.537	0.521**	0.553	0.451***	0.525	0.493***	0.545
Other	0.042***	0.086	0.063***	0.084	0.104	0.113	0.057	0.054
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.

*Notes: "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. *, **, *** indicate significance at the 10%, 5% and 1% level respectively*

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 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:

$$Y_{it} - Y_{it} = \alpha_t + X_{i0}\beta_t + \delta_t D_i + \varepsilon_{it}, \qquad i = 1, \ldots, N; t = 2005, 2008, 2011 \qquad (1)$$

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.[80] 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.[81] We cannot formally test for the plausibility of this parallel trends assumption, nor do we have pre-treatment 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.

We hypothesize the CFPR-TUP to have heterogeneous impact across three dimensions:

(i) baseline occupations, (ii) gender of the household head and (iii) having 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 behaviour (Thomas & Mueller 2000; Hasenmark 2003). We anticipate that participants already engaging in entrepreneurial activities and in day labouring at baseline have more of those skills and will there-fore 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 house-hold 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

[80] 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.

[81] We prefer controlling for baseline characteristics as opposed to time-varying characteristics be-cause, with such a comprehensive intervention, the latter could be affected by program participation.

whether effects of cash transfer programs vary depending on whether the money is given to males or females have not found much evidence sup-porting this assumption (Benhassine et al. 2015; Haushofer & 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.

4.3.3.1 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).[82] 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. Non-random 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 neighbouring village while still being involved in the entrepreneurial activities of the original

[82] 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.

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 4.3). 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 & 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 4.3) 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 4.4). Furthermore, we presented results from both the balanced and unbalanced panels and found differences to be minimal.

4.4. Results

4.4.1 Summary Statistics

Summary statistics of the employment outcomes across each survey year are presented in Table 4.1. Day labouring 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 in-come, 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 4.2 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).

In sum, and in line with expectations given the targeted nature of the pro-gram, 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 4.5 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.

Table 4.2: Summary statistics of control variables at baseline

Variable	2002		Variable	2002	
	Treated	Control		Treated	Control
Demographics			**Asset Holdings**		
Male headed household (1/0)	0.573***	0.737	Number of cow/bulls	0.035***	0.189
Household size	3.555***	3.802	Number of goats/sheep	0.098**	0.131
Proportion of working aged (14-55) women	0.362***	0.307	Number of poultry	0.829***	1.454
Socioeconomic Status			Owns any rickshaws or cycle vans (1/0)	0.010***	0.031
Household head with no education (1/0)	0.917***	0.865	Owns any radio/TVs	0.008***	0.018
Household head with primary education (1/0)	0.064***	0.095	Number of big trees	0.418***	1.075
Household head with secondary/high education (1/0)	0.019***	0.043	Owns any homestead land (1/0)	0.460***	0.599
Annual per capita households' income (BDT)	2511***	2779	Owns any cultivable land (1/0)	0.018***	0.078
Selection Criteria			Roof of the house made of tin (1/0)	0.445***	0.553
Households receives no government benefits (1/0)	0.817*	0.831	**Food security and Social Capital**		
Household owns any income generating assets (1/0)	0.407***	0.587	Usually can have at least two meals a day (1/0)	0.517***	0.686
Households owns less than 10 decimals of land (1/0)	0.952***	0.864	Invited to non-relatives' homes	0.245***	0.291
Location			**Financial Participation**		
Rangpur	0.321	0.311	Has formal loans from NGOs (1/0)	0.009***	0.124
Nilphamari	0.308	0.292	Has informal loans from money lenders (1/0)	0.248***	0.293
Kurigram	0.371	0.397	Has cash savings (1/0)	0.085***	0.205

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 5,626. *, **, *** indicate significance at the 10%, 5% and 1% level respectively*

Table 4.3: Effects of CFPR-TUP on employment across different time periods

Variables	Panel A: Unbalanced panel				Panel B: Balanced panel			
	2002-2005	2005-2008	2008-2011	2002-2011	2002-2005	2005-2008	2008-2011	2002-2011
Entrepreneur	0.103***	0.024	-0.073***	0.053***	0.101***	0.023	-0.073***	0.051***
	(0.014)	(0.015)	(0.017)	(0.017)	(0.016)	(0.016)	(0.017)	(0.017)
Maid	-0.047***	0.004	0.023**	-0.024**	-0.050***	0.004	0.023**	-0.023*
	(0.009)	(0.009)	(0.011)	(0.012)	(0.010)	(0.010)	(0.011)	(0.012)
Beggar	-0.018***	-0.002	0.009	-0.012*	-0.015**	-0.003	0.009	-0.010
	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)	(0.007)
Day-laborer	-0.054***	-0.041**	0.035*	-0.054***	-0.048***	-0.041**	0.035*	-0.055***
	(0.016)	(0.016)	(0.018)	(0.019)	(0.018)	(0.018)	(0.018)	(0.019)
Other	0.016*	0.015	0.005	0.040***	0.013	0.018	0.007	0.037***
	(0.009)	(0.010)	(0.011)	(0.009)	(0.009)	(0.011)	(0.011)	(0.009)
Observations	*4,525*	*4,473*	*3,823*	*3,857*	*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.

*Note:. *, **, *** indicate significance at the 10%, 5% and 1% level respectively. Standard errors are in parentheses.*

4.4.2 Impact of CFPR-TUP participation on employment

Table 4.3 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-term (2005–8), the effect on entrepreneurship marginally increases by 2 per-centage points, though the increment is not statistically significant. The likelihood of day labouring 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 in-stance, 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 un-balanced 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.

4.4.3 Heterogeneity of CFPR-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 4.4 shows the heterogeneity of TUP effects across baseline employment. For reasons of parsimony, Tables 4.4 and 4.5 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 base-line beggars (19 percentage points), maids (12 percentage points), and day la-borers (9 percentage points). No such trend appears for those engaged in entrepreneurial activities at baseline.

Table 4.5 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 percent-age 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 4.5 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 beg-gars. Among male-headed households, the increase in entrepreneurial activities comes from a decrease in day labouring. 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.

Table 4.4: Effects of CFPR-TUP on Employment by Baseline employment

Outcome variables	Baseline Employment											
	Entrepreneur			Working as maids			Begging			Day labouring		
	2002-2005	2005-2008	2008-2011	2002-2005	2005-2008	2008-2011	2002-2005	2005-2008	2008-2011	2002-2005	2005-2008	2008-2011
Entrepreneur (1/0)	0.073**	-0.040	0.031	0.113**	0.087	-0.122*	0.151**	0.030	-0.185**	0.086***	0.027	-0.089***
	(0.031)	(0.038)	(0.040)	(0.050)	(0.059)	(0.072)	(0.088)	(0.067)	(0.093)	(0.015)	(0.019)	(0.021)
Maid (1/0)	0.005	-0.029*	0.044**	-0.151***	0.025	0.027	0.011	-0.078	0.117	-0.022***	0.009	0.019
	(0.012)	(0.016)	(0.021)	(0.053)	(0.062)	(0.069)	(0.045)	(0.066)	(0.088)	(0.008)	(0.011)	(0.013)
Beggar (1/0)	-0.001	-0.008	-0.013	0.011	-0.071**	0.044	-0.263***	0.080	0.227**	-0.001	0.003	0.001
	(0.008)	(0.008)	(0.010)	(0.025)	(0.028)	(0.039)	(0.080)	(0.088)	(0.093)	(0.004)	(0.005)	(0.005)
Day-laborer (1/0)	-0.063**	0.050	-0.061	0.030	-0.051	0.049	0.186***	-0.153*	-0.120	-0.061***	-0.063***	0.071***
	(0.029)	(0.036)	(0.040)	(0.055)	(0.064)	(0.072)	(0.060)	(0.080)	(0.092)	(0.018)	(0.022)	(0.024)
Other (1/0)	-0.014	0.029	-0.009	-0.002	0.006	-0.001	0.033	-0.010	-0.036	-0.002	0.024*	-0.001
	(0.016)	(0.023)	(0.024)	(0.033)	(0.048)	(0.047)	(0.037)	(0.055)	(0.045)	(0.008)	(0.012)	(0.013)
Observations	*1034*	*1020*	*850*	*359*	*356*	*292*	*186*	*179*	*141*	*2670*	*2651*	*2314*

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.

Table 4.5: Effects of CFPR-TUP on employment by the presence of Adults sons and the Gender of household head

Variables	2002-2005	2005-2008	2008-2011	2002-2005	2005-2008	2008-2011
Panel A		With adult male children			Without adult male children	
Entrepreneur	0.066**	0.004	-0.038	0.114***	0.032*	-0.078***
	(0.030)	(0.031)	(0.036)	(0.017)	(0.017)	(0.019)
Maid	-0.049***	0.012	-0.014	-0.045***	-0.003	0.042***
	(0.015)	(0.013)	(0.016)	(0.011)	(0.012)	(0.013)
Beggar	0.005	-0.001	-0.004	-0.025***	-0.003	0.014*
	(0.007)	(0.007)	(0.005)	(0.008)	(0.007)	(0.008)
Day-labourer	0.023	-0.067**	0.053	-0.079***	-0.029	0.013
	(0.034)	(0.033)	(0.038)	(0.019)	(0.019)	(0.021)
Others	-0.045**	0.051**	-0.003	0.035***	0.004	0.009
	(0.020)	(0.023)	(0.024)	(0.010)	(0.012)	(0.012)
Observations	*1,207*	*1,199*	*1,057*	*3,318*	*3,274*	*2,766*
Panel B		Female headed households			Male headed households	
Entrepreneur	0.189***	0.041	-0.081**	0.066***	0.014	-0.064***
	(0.028)	(0.028)	(0.034)	(0.017)	(0.019)	(0.020)
Maid	-0.103***	0.002	0.047	-0.006	-0.003	0.022**
	(0.026)	(0.026)	(0.029)	(0.006)	(0.007)	(0.009)
Beggar	-0.043***	-0.004	0.009	-0.004	-0.002	0.007
	(0.016)	(0.014)	(0.016)	(0.005)	(0.005)	(0.004)
Day-labourer	-0.060*	-0.052*	-0.006	-0.072***	-0.023	0.031
	(0.033)	(0.031)	(0.035)	(0.019)	(0.020)	(0.021)
Others	0.018	0.018	0.028	0.016	0.013	0.003
	(0.020)	(0.022)	(0.022)	(0.010)	(0.012)	(0.013)
Observations	*1,457*	*1,432*	*1,185*	*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 (panel A) and by gender of the house-hold head (panel B). Cols. 1–3 show the incremental effects of the program. Standard errors are in parentheses. *, **, *** indicate significance at the 10%, 5% and 1% level respectively*

4.5. 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 enrols 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 sustain-ability, 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 re-ally 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 enrolment.

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 labourer). 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 non-random 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 spill over effects, the assumption of non-interference might be violated. While such spill over effects are likely to exist with such a broad pro-gram (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 labouring toward entrepreneurship in the short and medium terms. Even up to 7 years after graduation from the program, participants re-main more likely to be engaged in small businesses. This paper shows, however, that a proportion of participating households—especially those starting as beg-gars 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 re-search 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.

4.6. Annexure

Annex Table 4.1: Proportion of the sample meeting inclusion and exclusion characteristics across treated and control group.

	Treated		Control	
Number of criteria met	**Inclusion Criteria**	**Exclusion Criteria**	**Inclusion Criteria**	**Exclusion Criteria**
0	0.00	0.01	0.01	0.02
1	0.05	0.17	0.14	0.17
2	0.30	0.63	0.42	0.60
3	0.43	0.20	0.34	0.22
4	0.16	-	0.08	-
5	0.05	-	0.01	-
Observations	*2,921*		*2,705*	

Notes: Inclusion criteria: Household owns less than 10 decimals of land; Main source of income is by female member begging or working as domestic help; no active male adult (female household head); School going children working for pay; No productive or income generating assets. Exclusion criteria: No Active female member in the household; Microfinance participants; Household members receive government benefits. According to the program description, households selected for the CFPR-TUP need to meet 3 of the 5 inclusion criteria and all exclusion criteria. Data for this analysis was collected from three districts in northern Bangladesh (Rangpur, Kurigram, Nilphamari) by the Research and Evaluation Division of BRAC.

Annex Table 4.2: Matching regression results

Variables	Marginal Effect	Standard Error
Per capita income (BDT)	0.000	0.000
Any cash savings (1/0)	-0.120***	0.022
Formal*Informal loan (1/0)	-0.277***	0.069
Owns homestead*cultivable land (1/0)	-0.183***	0.049
Value of household structure (BDT)	-0.000***	0.000
Number of cows/bulls	-0.112***	0.019
Number of goats/sheep	0.028*	0.015
Number of rickshaws	-0.109**	0.048
Owns radio/TVs (1/0)	-0.036	0.067
Owns winter clothes (1/0)	-0.006	0.020
Number of ducks/hen	-0.002	0.004
Number of eggs consumed previous week	0.002	0.004
Meat consumed previous week (1/0)*Number of duck/hen	-0.000**	0.000
Owns less than 10 decimals of land (1/0)	0.077**	0.031
Receives no govt. benefit (1/0)	-0.053***	0.018
Proportion of women (14-55yr)	0.124***	0.030
Sex*Education of household head	-0.019***	0.005
Can manage two meals a day (1/0)	-0.125***	0.014
Owns productive assets (1/0)	-0.064***	0.020
Owns productive assets*Value of household	0.000	0.000
Roof made of tin (1/0)	-0.022	0.016
Observations	*4,525*	

*Notes: Data for this analysis was collected from three districts in northern Bangladesh (Rangpur, Kurigram, Nilphamari) by the Research and Evaluation Division of BRAC. Table shows marginal effects from a probit model, estimated on the baseline data, with the dependent variable representing selection into the program. * p<0.1; ** p<0.05; *** p<0.01.*

Annex Table 4.3: Determinants of attrition

Variables	Marginal effects	Standard error
Treated (1/0)	-0.002	0.011
Number of cows/bulls	-0.042***	0.015
Number of goats/sheep	-0.019	0.013
Number of ducks/hens	-0.001	0.002
Number of big trees	-0.004*	0.002
Has any cash savings (1/0)	-0.022	0.017
Has any microfinance loans (1/0)	-0.035	0.025
Has any high interest loans (1/0)	-0.012	0.012
Per capita income (1/0)	0.000	0.000
Entrepreneur (1/0)	0.004	0.023
Maid (1/0)	-0.021	0.027
Day labourer (1/0)	-0.040*	0.022
Beggar (1/0)	0.010	0.030
Owns homestead land (1/0)	-0.040***	0.010
Owns cultivable land (1/0)	-0.053*	0.030
Number of rickshaws	0.059*	0.031
Household roof made of tin (1/0)	0.031***	0.010
Owns a radio or TV (1/0)	-0.062	0.053
Can manage two means/day (1/0)	-0.017	0.011
Number of eggs consumed previous week	0.001	0.003
Invited to social gatherings (1/0)	-0.018	0.012

Notes: Results show marginal effects of a probit model. The dependent variable equals one for households that are not in the balanced panel, 0 otherwise. Covariates reflect baseline characteristics. Data for this analysis was collected from three districts in northern Bangladesh (Rangpur, Kurigram, Nilphamari) by the Research and Evaluation Division of BRAC.
** p<0.1; ** p<0.05; *** p<0.01.*

Annex Table 4.4: Effects of CFPR-TUP on employment across different time periods – Inverse probability weighting to correct for non-random attrition and selection into the program

Variables	2005-2002	2008-2002	2001-2002	2008-2005	2011-2008
Entrepreneur	0.103***	0.123***	0.054***	0.024	-0.073***
	(0.014)	(0.015)	(0.017)	(0.015)	(0.017)
Maid	-0.047***	-0.043***	-0.025**	0.004	0.023**
	(0.009)	(0.011)	(0.012)	(0.009)	(0.011)
Beggar	-0.019***	-0.018***	-0.012*	-0.002	0.009
	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)
Day-labourer	-0.054***	-0.092***	-0.053***	-0.041**	0.034*
	(0.016)	(0.017)	(0.019)	(0.016)	(0.018)
Others	0.016*	0.031***	0.040***	0.015	0.005
	(0.009)	(0.010)	(0.009)	(0.010)	(0.011)
Observations	*4,525*	*4,473*	*3,857*	*4,473*	*3,823*

*Notes: Results obtained from linear regression using inverse probability weights that take into account likelihood of participation and likelihood of attrition. Data for this analysis was collected from three districts in northern Bangladesh (Rangpur, Kurigram, Nilphamari) by the Research and Evaluation Division of BRAC. Standard errors are in parenthesis. * p<0.1; ** p<0.05; *** p<0.01.*

Annex Table 4.5: Summary statistics across the treated and matched control group

Variable	Treated	Control	p value
Per capita income (BDT)	2512	2456	0.890
Any cash savings (1/0)	0.08	0.08	0.950
Formal*Informal loan (1/0)	0.00	0.01	0.430
Owns homestead*cultivable land (1/0)	0.01	0.01	0.990
Value of household structure (BDT)	873	886	0.900
Entrepreneur (1/0)	0.19	0.18	0.800
Maid (1/0)	0.11	0.11	0.780
Beggar (1/0)	0.05	0.06	0.620
Number of cows/bulls	0.04	0.05	0.320
Number of goat/sheep	0.10	0.11	0.910
Number of rickshaws	0.01	0.01	0.340
Number of ducks/hens	0.83	0.85	0.700
Owns radio/TVs (1/0)	0.01	0.01	0.690
Owns winter clothes (1/0)	0.13	0.12	0.940
Number of eggs consumed previous week	0.45	0.47	0.710
Meat consumed previous week (1/0)	0.16	0.14	0.840
Owns less than 10 decimals of land (1/0)	0.95	0.94	0.580
Receives no govt. benefit (1/0)	0.81	0.80	0.390
Proportion of women (14-55yr)	0.36	0.35	0.500
Education of household head	0.29	0.30	0.580
Can manage two meals a day (1/0)	0.52	0.52	0.990
Owns productive assets (1/0)	0.42	0.42	0.560
Owns productive assets*Value of household	419	419	0.870
Roof made of tin (1/0)	0.44	0.43	0.660
Observations	*2,364*	*2,146*	

Notes: Results show means of baseline characteristics for the treated and controls in the matched sample. P-values relate to a test of the difference between both groups being equal to zero and are obtained from t-tests with inverse probability weighting. Data for this analysis was collected from three districts in northern Bangladesh (Rangpur, Kurigram, Nilphamari) by the Research and Evaluation Division of BRAC.

Picture 4.1: Challenging the frontiers of Poverty Reduction-Targeting the Ultra-Poor (CFPR-TUP)

a) BRAC researchers conducting Participatory Rural Appraisal (PRA) at Paboi, Netrokona, Mymensingh

b) BRAC field officers conducting Participatory Rural Appraisal (PRA) , Photo courtesy: BRAC

Chapter 5

CONCLUDING REMARKS

This thesis examined the effect of three integrated programs implemented by the same NGO. In the first essay, I evaluated an integrated program targeting a very marginalized group, living on small islands (i.e. chars) along the southern coastal region of Bangladesh. The population under study is exposed to recurring cyclones and seasonal storms. The second essay examined the effects of an integrated program transplanted from Bangladesh to Uganda while the last essay explored the long-term effects of an integrated asset transfer program targeting the ultra-poor (per capita income of approximately $0.60-$0.70/day) from a region disproportionately affected by seasonal unemployment. For this last analysis, I used information over a nine-year period on the participants' employment trajectories.

The first essay utilized a two-round panel dataset to measure the impact of an integrated poverty alleviation program, the Char Development and Settlement Program (CDSP). The program comprised several components including the building of physical infrastructure and livelihood support (i.e., microfinance, health services, legal aid) and targeted the vulnerable char population. The essay focused on food consumption along with other indicators including the value of assets, social and legal awareness, and WASH practices. I employed a difference-in-differences framework and found statistically significant improvements in food security and food consumption along with an overall increase in social awareness and knowledge on human rights. With regard to water and sanitation practices and ownership of toiletries, the program did not appear to have an impact. Consequently, the essay also discussed the difficulty of influencing behaviour suggesting that the installation of hardware for water and sanitation needs to be accompanied by schemes for generating behavioural change.

The exposure to natural disasters makes the char population not only vulnerable along the socio-economic dimension but also imposes psycho-social vulnerability. Yet, a crucial gap in the program is that no mental health support is provided. Existing studies show that natural disasters (e.g. earthquake, cyclone) can have long lasting psycho-social impacts, most acutely affecting children and the elderly population (Jia et al., 2010; Kar et al., 2007). Thus, future phases of the CDSP program and other programs targeting this population may include such an element. Especially, in terms of one-to-one psychological or counselling support or over-all community based mental health workshops in order to help char dwellers deal with the shock and stress caused by natural disasters. While long term effects remain to be seen, the program serves as an entry point for building resilient communities in an environmentally and socially vulnerable setting.

The third chapter in the thesis focused on the replication of a recognized integrated poverty alleviation program in a new setting. This chapter evaluated the efficacy of the Microfinance Multiplied Program (MfM) implemented in Uganda by BRAC Uganda, following the successful operation of a similar program in Bangladesh. The program combined microfinance with community health services and an agricultural extension program. I analysed a two-round panel dataset to assess the impact of the

program on income, assets, consumption and days lost to illness. However, the implementation of an almost identical program in a different setting comes with its own challenges as this thesis has shown. Uganda has a different geographical setup and a different culture. The analysis presented here found no statistically significant impacts of the Microfinance Multiplied Program on its beneficiaries. This was perhaps not surprising as program uptake was less than 10%. Considering this is the first program implemented by BRAC in Africa, a country significantly different from BRAC's country of origin, the chapter also assessed the implementation and evaluation challenges faced.[83] I tried to disentangle both, the implementation and evaluation challenges faced during roll-out and operations of this program.

For BRAC, the Microfinance Multiplied Program served as a learning experience in a new setup that allowed for deepening BRAC's understanding of the Ugandan context and an adaptation of BRAC's operations for follow up projects. I also showed that, despite NGOs from developing countries having the advantage of ground level experience, they do not necessarily have an appropriate plan for promoting development in a different set-up or context. The study emphasized that the implementation of any development intervention follows a learning curve. Most importantly, the understanding of "what does not work" is as imperative as "what works". Furthermore, complementary analysis of qualitative data is crucial in order to gauge the intricacies of the implementation and effectiveness of any program. Another rationale for digging deeper into programs that are seemingly unsuccessful is to minimize any potential publication bias that might eventually threaten the validity of meta-analyses (Ahmed, Sutton, & Riley, 2012; Mlinarić, Horvat, & Smolčić, 2017).

The fourth chapter of the thesis evaluated the effects of an integrated asset transfer program on the long term (9 years) employment trajectories of its participants. The program Challenging the Frontiers of Poverty Reduction: Targeting the Ultra-Poor (CFPR-TUP) combines an asset transfer component coupled with bi-weekly hands on trainings on various issues, health services, food stipends and social support over a two-year period. The objective of the evaluation was to see whether the aim of the program, which was to shift primarily female members of ultra-poor households from low skilled income generating activities such as working as maids or begging to an economically sustainable income generating activity. In order to do that, the program, after targeting potential households through a rigorous process and providing them with suitable income generating assets (e.g., livestock, poultry, shop, van), ensures training so that the beneficiaries may make the best use of the assets. In addition to this, other supplementary supports are also provided including health and legal support.

The thesis investigated whether this program has a transformative long-term employment effect utilizing a nine-year long panel dataset of four rounds and a difference-in-difference analysis. Results showed that in the short term, participants are likely to switch from low-skilled occupations to entrepreneurship and maintain this gain in the medium term. However, in the long-term, a substantial

[83] The first program out of Bangladesh (the country of BRAC's origin) was in Afghanistan, both SAARC (South Asian Association of Regional Cooperation) countries with Islam being the major religion (more than 90% of the total population).

portion of participating households revert to their pre-program occupations. The reversion is most pronounced for those who were making a living through begging or working as maids. To further explore the reasons driving the reversion, the thesis finds that this occurs primarily due to participants handing over their assets to (usually) their adult male children. This is evidenced further by the fact that those with male children are more likely to maintain a higher permanent income. Another reason may be that after two-years of program immersion, BRAC withdraws all support and hence from the perspective of the beneficiaries the sense of security is removed (both psychologically and materially as safety-net measures such as health and social support components are stopped at the two-year mark) making them more vulnerable. Lastly, it is feasible that after a brief honeymoon period the effects of participation begin to wear off and reinvigorate prior traits.

To further explore why the beneficiaries of the program are reverting to their original occupations the long-term effects of the CFPR-TUP program also have to be qualitatively assessed. Such an analysis can deliver substantial information about the sustainability of social assistance programs to policy makers. For instance, if a return to the original occupations is the result of an erosion of skills, then refresher training sessions can be held on a regular basis. If a return to the original occupations is caused by shocks, for example, disease spells or natural disasters, against which the program beneficiaries are not protected, safeguards such as insurance mechanisms may be introduced. If a return to the original occupations has happened due to old age, it is well worth the investment to investigate the intergenerational effects of the program on poverty. Thus, based on the existing findings the thesis advocates for further qualitative research to understand the transmission mechanisms of CFPR-TUP and to learn for future implementations of similar programs so that ultimately a sustainable shift out of poverty may be achieved for the ultra-poor.

The United Nations has put 'eradicating poverty in all its forms everywhere' as its first priority under the Sustainable Development Goals (SDGs). There is also broad agreement that alleviation of poverty goes hand in hand with addressing other social necessities like health, education, and the consequences of climate change to name just a few. Hence, there is not one single challenge that is faced by poor households but a multitude. Therefore, it comes as no surprise that development practitioners no longer exclusively advocate support programs with only one component but rather integrated programs that combine different interventions. Regarding that, the role of implementing agencies and Non-Government Organizations is important, given that in many contexts, they are responsible for the execution of the interventions. To achieve the ambitious milestones outlined by the SDGs needs careful documentation of ongoing interventions, their successes, challenges and failures. By tracking and mapping interventions across countries we may learn from previous programs and also identify the gaps in implemented programs.

The value added of this thesis derives from evaluating three relatively comparable integrated programs, all implemented by the same southern NGO, BRAC. This presents an attempt at

streamlining operations by identifying "What works" across countries and time. This potentially allows us to move towards designs that are sustainable and replicable at the same time with a focus on targeting, locality and timeline.

Nevertheless, the analysis presented here has several limitations. In an ideal setting analysing a single intervention with a unique design being implemented in the short and long run for two or more groups of individuals with different livelihood strategies and living in different countries, i.e., under different geographical and political conditions would have been even better. In reality this is not easy to achieve. While the analysed programs do differ, they overlap with respect to three core program components, namely IGA support (i.e. microfinance and/or assets transfer), health and agricultural extension services. In addition to the similarity in core program components, the designs, implementation and operations of all three programs are similar since they were implemented by the same organization. Moreover, the thesis discusses a set of common outcomes of the programs, that is, income, food consumption and asset holdings.

A second major limitation is the type of data used for the analysis. While it is considered the gold standard to assess the impact of programs with a randomized controlled trial, I only have quasi-experimental data since randomization was not possible. Therefore, the thesis employs robustness checks and controls for confounding factors to critically assess whether the identified impacts may be credibly attributed to the programs.

The thesis finds that two of these programs work well in the short-term. The CFPR-TUP shows remarkable effects in terms of income gains, food security and the asset base. The CDSP shows positive effects on food security. In brief, integrated programs like CDSP and CFPR-TUP targeting different groups with different livelihood strategies appear to have been successful in the short run. Yet, these programs have different outcomes. For the CFPR-TUP an impact on income was found, very likely because it had an asset transfer component. Whereas for CDSP it was found that food security improved significantly. While short-run and medium-run impacts are clear, the longer run impacts, at least for the CFPR-TUP are disappointing.. Yet, I would argue that this is not unforeseen as it cannot necessarily be expected that a one-time asset transfer or credit has a perpetual impact on its beneficiaries although it is certainly desirable. Therefore, it is necessary to have a complementary plan. BRAC's CFPR-TUP program has already been redesigned for the next phase and re-named as the new model of CFPR-TUP. Under the new model, three different packages are offered to three groups. The first group is constituted by women who are older than 50 years, the remaining two groups are in the age group 15-50 years and are divided according to their land holdings. Group two is referred to as Specially Targeted Ultra poor (STUP) (owning less than 10 decimals of land[84]) and group three is referred to as the Other Targeted Ultra Poor (OTUP) (owning less than 30 decimals). The groups are provided with different types of assets based on their needs and capacity as opposed

[84] A decimal is approximately equal to 1/100 acres. This is a land unit used in Bangladesh and India.

to a 'one size fit all' approach. The program adopts a learning approach to its operations, taking lessons from the previous phases and addressing challenges in the subsequent ones.

The thesis attempted to connect the dots between the different interventions and the lessons learned so far to arrive at improved versions of the ongoing interventions. One is that interventions should take into account the heterogeneity of target groups. For instance, despite both being extremely poor the CFPR-TUP and CDSP target groups follow a very different livelihood strategy. Hence, providing similar IGA assets to the seasonal storm and cyclone prone areas of the CDSP area would have been imprudent. Also, the importance of choosing the right outcome measures while evaluating an intervention is necessary.

Moreover, programs that have been tested and proven successful in one location do not necessarily show a similar success when transplanted in a different context. This is yet another example highlighting that the external validity of program evaluations is not necessarily given. It calls for many evaluations of related programs within different contexts and for meta-analyses to gauge the overall effect of the programs. Moreover, when replicating a tested program, practitioners should take into consideration the target group's socio-economic indicators alongside social, cultural and cognitive elements. In addition to this, interventions that have been successful in the short-run do not necessarily stay successful in the long-run and might require upgrading/booster interventions depending on beneficiaries' needs.

Notwithstanding the limitations of the integrated programs presented here, along the lines of Fields & Lipton (2000), I would argue that there is still room for optimism. Poverty is a multi-dimensional issue, potentially affecting many indicators of well-being, inter alia, health, income, and education. Interventions targeting a single outcome with the aim of reducing poverty may be less effective compared to integrated programs. For instance, while microfinance certainly achieves its goal if singly aiming at increased financial inclusion it is unlikely to reduce poverty rates effectively and sustainably. In short, a multi-pronged issue requires a multi-pronged approach such as the integrated interventions presented in the thesis. There is thus a need to increase efforts to understand the strengths and shortcomings of previously implemented integrated interventions and make use of the findings to improve future editions of such programs.

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SUMMARY

'Eradicating poverty in all its forms everywhere' has been set as the first priority of the United Nations', Sustainable Development Goals (SDGs). Poverty alleviation goes hand in hand with addressing other social challenges such as universal access to health, education, as well as addressing issues such as the consequences of climate change. In recent years, instead of single-component social-support programs, governments and non-governmental organizations have advocated integrated programs, that is, programs that combine different interventions, for instance, microfinance with training on health and sanitation issues or microfinance and assets transfers. This thesis which consists of three essays examines the effects of three integrated programs implemented by one of the largest international non-governmental organizations in the world, namely BRAC. BRAC is an NGO with its headquarters in Bangladesh but which now operates in eleven countries. Two of the integrated programs analysed in this thesis are located in Bangladesh and a third was implemented by BRAC in Uganda.

In the first essay, I evaluate the effects of an integrated program which targets marginalized populations living on small river-built islands (*chars*) along the southern coastal region of Bangladesh. Not only are these populations marginalized but they are also particularly vulnerable since they are exposed to recurring cyclones and seasonal storms. The analysis in this essay exploits a two-round panel dataset to measure the impact of an integrated poverty alleviation programme comprising several components including the construction of physical infrastructure and livelihood support (microfinance, health services, legal aid). The program is called the 'Char development and Settlement program' (CDSP). The study finds a 11 percent increase in per capita calorie consumption, a 9-percentage point increase in food security and a 0.34 standard deviation increase in legal awareness as a result of the program. The study also finds that the control group catches up with the treatment counterpart regarding recommended sanitation and hygiene practices and possession of sanitation and hygiene products. However, while long-term effects are yet to be assessed, the evaluation shows that the program serves as an entry point to build resilient communities in environmentally and socially vulnerable settings.

In the second essay, I assess the effects of a similar comprehensive program in a different context. The essay assesses the impact of an integrated social assistance program, entitled Microfinance Multiplied (MfM), which was successfully executed in Bangladesh by a local NGO (BRAC) and then replicated in Uganda. The program combines microfinance with community health services and an agricultural extension program. I analyse a two-round panel dataset to assess the impact of the program on income, assets, consumption and days lost to illness. There are no statistically significant impacts of the MfM program. This is not surprising as a very small proportion of the sample, less than 10%, were enrolled in any of the program components. Considering that this is the first program implemented outside of BRAC's country of origin, the paper assesses the implementation and evaluation challenges faced and draws lessons for the successful transplantation of social support programs and accompanying data collection and evaluations from one developing country to another.

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The third essay explores the long-term effects, over a nine-year period, of an integrated asset transfer program which targets the ultra-poor in Bangladesh.[85] The program called 'Challenging the Frontiers of Poverty Reduction: Targeted Ultra-Poor (CFPR-TUP) followed an asset transfer approach combined with multifaceted training over a two-year period.[86] The study examined the participants' employment trajectories using difference-in-differences techniques on panel data over the period 2002-2011. The analysis confirms earlier findings of the positive short-term impact of the TUP and shows that participants are more likely to switch from less productive occupations (maids, begging, day labouring) to entrepreneurship (10 percentage point). These effects are generally maintained in the medium-term. In the long term, however, a substantial 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 occupation, causing the long-term impact to be substantially smaller (5 percentage points). This finding raises doubt about the strong claims that have been made about the sustainability of comprehensive anti-poverty programs and calls for further research on the causes for this reversal and the extent to which it is found in other settings.

[85] Per capita income of approximately $0.60-$0.70/day

[86] This third essay, co-authored with Wameq A. Raza, Jinnat Ara and Ellen Van De Poel, titled "How far can a big push really push? Long-term effects of an asset transfer program on employment trajectories" has been published in *Economic Development and Cultural Change* 68(1): 41-62, (2019).

SAMENVATTING

Het effect van geïntegreerde vangnetprogramma's in Bangladesh en Uganda

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‘Uitbannen van alle vormen van (extreme) armoede’ is door de Verenigde Naties bovenaan de lijst met Duurzame Ontwikkelingsdoelen (Sustainable Development Goals of SDG’s) gezet. Armoedebestrijding gaat hand in hand met het aanpakken van andere maatschappelijke kwesties zoals algemene toegang tot gezondheidszorg en onderwijs, en met het aanpakken van problemen als de gevolgen van klimaatverandering. De laatste jaren pleiten overheden en non-gouvernementele organisaties voor geïntegreerde programma’s voor sociale bijstand in plaats van programma’s die op één aspect gericht zijn. Geïntegreerde programma’s bestaan uit een combinatie van verschillende interventies, bijvoorbeeld microfinanciering met voorlichting over gezondheid en hygiëne, of microfinanciering en overdracht van productiemiddelen. Dit proefschrift bestaat uit drie essays en beschrijft de effecten van drie geïntegreerde programma’s die worden uitgevoerd door BRAC, een van de grootste internationale non-gouvernementele organisaties ter wereld. BRAC is een ngo met hoofdkantoor in Bangladesh, maar is nu actief in elf landen. Twee van de geïntegreerde programma’s die in dit proefschrift worden beschreven zijn uitgevoerd in Bangladesh en een derde is door BRAC in Uganda opgezet.

Het eerste essay beschrijft de effecten van een geïntegreerd programma voor gemarginaliseerde bevolkingsgroepen die op kleine zandbanken in rivieren (*chars*) in de zuidelijke kuststreek van Bangladesh wonen. Deze bevolkingsgroepen zijn niet alleen gemarginaliseerd, maar ook bijzonder kwetsbaar omdat ze herhaaldelijk worden blootgesteld aan cyclonen en seizoensgebonden stormen. De effecten van een geïntegreerd programma voor armoedebestrijding, het zogenaamde *Char Development and Settlement Programme* (CDSP), zijn gemeten in een panelonderzoek dat in twee ronden is uitgevoerd. Het CDSP omvat verschillende componenten, waaronder de aanleg van fysieke infrastructuur en bijstand om in het levensonderhoud te voorzien (microfinanciering, gezondheidszorg, rechtsbijstand). Uit het onderzoek blijkt dat het programma ertoe geleid heeft dat het calorieverbruik per hoofd van de bevolking met 11 procent is gestegen, de voedselzekerheid met 9 procentpunt is toegenomen en het juridisch bewustzijn met 0,34 standaarddeviatie is verhoogd. Ook blijkt dat de controlegroep de achterstand op de experimentele groep inhaalt wat betreft de aanbevolen sanitaire en hygiënische gebruiken en het bezit van producten op het gebied van sanitair en hygiëne. Hoewel de langetermijneffecten nog beoordeeld moeten worden, laat het onderzoek zien dat het programma dient als ingang om veerkrachtige gemeenschappen op te bouwen in een omgeving die op milieugebied en sociaal kwetsbaar is.

Het tweede essay gaat over onderzoek naar het effect van een programma dat net zo uitgebreid is, maar in een andere context wordt uitgevoerd. Dit is een geïntegreerd programma voor sociale bijstand, genaamd Microfinance Multiplied (MfM). Het is in Bangladesh met succes uitgevoerd door een lokale ngo (BRAC) en daarna geïmplementeerd in Uganda. Het programma omvat een combinatie van microfinanciering, gemeenschapsgezondheidszorg en een landbouwvoorlichtingsprogramma. Het effect van het programma op inkomen, bezittingen, consumptie en ziektedagen is onderzocht in een panelonderzoek dat in twee ronden is uitgevoerd. In dit onderzoek zijn geen statistisch significante effecten van het programma gevonden. Dit is niet verwonderlijk omdat slechts een zeer

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klein deel van de steekproef, minder dan 10% van de onderzoeksdeelnemers, heeft deelgenomen aan een of meer onderdelen van het programma. Dit is het eerste programma dat buiten Bangladesh, waar BRAC is opgericht, is uitgevoerd. Daarom is in dit onderzoek gekeken naar de uitdagingen op het gebied van implementatie en evaluatie om na te gaan hoe sociale bijstandsprogramma's en de bijbehorende dataverzameling en evaluaties met succes overgebracht kunnen worden van het ene ontwikkelingsland naar het andere.

Het derde essay gaat in op de langetermijneffecten (in een periode van negen jaar) van een geïntegreerd programma om productiemiddelen over te dragen aan de allerarmsten in Bangladesh.[87] Het programma heet 'Challenging the Frontiers of Poverty Reduction: Targeted Ultra-Poor (CFPR-TUP) en hierin wordt de overdracht van productiemiddelen gecombineerd met een veelzijdige training gedurende twee jaar.[88] In het onderzoek zijn de werkgelegenheidstrajecten van de deelnemers onderzocht met behulp van difference-in-difference technieken op basis van paneldata over de periode 2002-2011. De eerdere bevinding dat het TUP op de korte termijn een positief effect heeft, wordt bevestigd. Verder blijkt uit het onderzoek dat deelnemers vaker overstappen van minder productieve beroepen (werken als dienstmeisje, bedelen, werken als dagloner) naar ondernemerschap (10 procentpunt). Deze effecten blijven over het algemeen behouden op de middellange termijn. Op de lange termijn valt een aanzienlijk deel van de deelnemende huishoudens echter weer terug in hun slechter betaalde oorspronkelijke beroep. Dit geldt vooral voor mensen die zijn begonnen als bedelaar of dienstmeisje, huishoudens zonder volwassen zonen en huishoudens met een man als gezinshoofd. Door deze terugval is het effect op de lange termijn aanzienlijk kleiner (5 procentpunt). Deze bevinding trekt de sterke claims over de duurzaamheid van uitgebreide anti-armoedeprogramma's in twijfel en wijst op de noodzaak van verder onderzoek naar de oorzaken van deze terugval en de mate waarin die in andere situaties voorkomt.

[87] Inkomen per hoofd van de bevolking van circa € 0,50-0,60/dag

[88] Dit derde essay, met als co-auteurs Wameq A. Raza, Jinnat Ara and Ellen Van De Poel, is gepubliceerd in *Economic Development and Cultural Change* 68(1): 41-62, (2019) met als titel: How far can a big push really push? Long-term effects of an asset transfer program on employment trajectories.

ACKNOWLEDGEMENT

It has been a long journey and there were countless moments when I prepared a draft in my mind to make sure I do not leave out a single person who contributed to the journey of this thesis in one way or another. So here I go!

Firstly, I would like to express my sincere gratitude to my Promoter, Professor Arjun Bedi. Arjun, I cannot thank you enough for everything you did to help me reach the finish line. You are among the nicest, kindest and genuinely helpful people I have come across so far. Thank you for your unrelenting support, patience, motivation, and guidance. The entire PhD process for me was peppered with transitions – not only did it involve having two children, it also included moving across three different countries in three continents over a span of three years! During this time, your support was the constant that kept me in the path. This means a lot to me and my family. I could not have imagined having a better advisor and mentor for my PhD program.

Second, I sincerely thank my Co-Promoter Dr. Natascha Wagner. I am very much grateful to you for your constant support throughout my PhD years. Whether it was me having two daughters, or you – it never had any impact on you getting back to me almost instantaneously, either through WhatsApp, emails or over skype. To me, you are a super woman who is still going strong with two toddlers, kudos!

I would like to thank the members of the PhD committee Prof. Marleen Dekker, Dr. Marrit Van De Berg, Dr. Matthias Rieger, Prof. R. Ruben, Prof. S.H. Bidisha and Prof. S.M. Murshed not only for their insightful comments and encouragement, but also for the tough questions that took my understanding of the subject and its nuances to a higher plain.

I would like to extend my appreciation to my current and ex colleagues from Brac, Brac Uganda and Brac University. From Brac International special thanks go to Dr. Munshi Sulaiman, Asif Rushd Mallick, Sharmin Sharif, Md. Hannan Ali and Dr. Mozzammel Haque for helping me out when I was struggling with the Uganda microfinance dataset. From BRAC Research and Evaluation Division-Andrew Jenkins and his team for helping me relentlessly and being patient even when it was taking years to bring out the paper on CDSP. I came across many wonderful colleagues, many with very strong personalities, during brief stints with a number of organizations. For better or for worse, I have learned valuable lessons from each of these experiences. From Brac James P Grant School of Public Health I would like to especially thank Professor Sabina F Rashid for her constant mental and professional support – it was invaluable as I was juggling a full-time job, this degree and two small children.

On this occasion I would also like to remember and show my appreciation to all the teachers from my school and undergraduate years. I would also like to remember Prof Denzil Fiebig from UNSW, who introduced me to applied econometrics and I feel blessed to come across such a mentor.

I would like to remember my father Professor Hafezur Rahman on this event. It's been almost a decade since we lost you, Abbu, but a not a single day goes by that I don't remember you and the values of humility, perseverance and discipline you instilled in me. I wish you were here today to share this moment. My mother Tahsina Hafez. Ammu, thank you for setting an example for your girls that it's possible to keep on going no matter what life throws at you. You have always been a strict mother and thank you for not changing over the years. From time to time, I still need to hear you say, 'Do you think you are the only one going through this in the whole world?' to keep me grounded and see the bigger picture! My brother Dr. Tawfiqur Rahman, for believing in me always and Nayer Sultana for letting me know I'm not the only one struggling with work-life balance. My sister Farhana Tisa for bolstering my self-confidence from time to time whenever I felt low and Masoud Kamali for keeping my sister calm enough for her to continue supporting me. My Father-in-law, Dr AMR Chowdhury for constantly encouraging me and both my in-laws for their boundless support, especially running errands with our kids after school during our time in Dhaka. I also thank all my lovely friends, extended family members, relatives and colleagues, spread all over the world at the moment, for being there for me during my hard times.

Given I have this tendency to thank everyone when I am in a better mood, the reader can imagine that today, I'm on overdrive. So here it goes – I would like to thank everyone who ever made me feel better throughout this journey, even the tiniest bit with just a polite smile, a hot cup of coffee, a bus ride home, cooked food, a cleaned house, baked cheese cake, extra *knoflook* and sambal saus on my *kapsalon, chapati, injera* with *doro wat* and *biryani* with *alur chop*. Thank you.

Finally, I dedicate my thesis to my husband and best friend, Dr. Wameq A Raza and our two daughters, Iyana Amariah and Isaya Anorah. Wameq, thank you for teaching me that the world cannot be explained in black and white and that its mostly different shades of grey. Iyana and Isaya, words cannot explain how much you two mean to me and how much each hug and smile, each fight and scream (!) of yours lighten up my every day and give me the strength to move forward, even if I'm sleep deprived for god knows how long!

Now, it would be an offence not to highlight that without you three, this thesis would have been completed two years ago! But of course, without your moral support I wouldn't have survived this far given the stress and love you three impose on me! Thank you so very much for turning this stressful journey into one hectic joyful ride..

CURRICULUM VITAE

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Synopsis

Farzana Misha is a development economist with over 11 years of experience in impact evaluations using experimental and quasi-experimental methods, research coordination and program design with a focus on social safety-nets, financial inclusion and health. She is experienced in managing large research projects and teams. She has a BA and MA in economics and currently awaiting the completion of her PhD degree in development economics (final thesis submitted). Her work has been published in several top tier peer reviewed journals.

Relevant Work Experience

2019- Current — Research Coordinator, Brac James P Grant School of Public Health (JPG-SPH),
Brac University, Dhaka, Bangladesh

Responsibilities:

- Coordinate activities in several large-scale research projects
- Lead a team of 15 to 20 researchers
- Support and lead dissemination of project outputs through publications and dissemination events
- Draft key project implementation documents
- Support business development for the institute through proposal development, fund raising and resource mobilization
- Develop and maintain relationships with various stakeholders, government, non-government organizations and donors

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Selected project titles

- Understanding sexual and reproductive health and rights (SRHR) for male youth in Bangladesh funded by the Embassy of the kingdom of the Netherlands (EKN)
- Exploring opportunities to improve health outcomes and enable better health systems delivery through mobile money in collaboration with Harvard T.H. Chan School of Public Health, Harvard University, funded by the Bill and Melinda Gates Foundation.
- Qualitative assessment of soft skills training on the Skill development Program (SDP) graduates funded by Brac SDP
- "Life in the Times of Coronavirus: A Gendered Perspective", Share Net International Community of Practice on Covid-19 (iCoP), SRHR and Gender Equality project in collaboration with Manusher Jonno Foundation
- COVID19 Rapid Survey: Impact of the pandemic on the RMG workers

2018- 2019 Senior Research Associate, BRAC Institute of Governance and Development (BIGD)
BRAC University, Dhaka, Bangladesh

Responsibilities:

- Supervise a team of researchers and relevant consultants
- Design, develop proposals, manage budget portfolio and implement multiple research projects
- Draft key project implementation documents, update donor reports and workplan
- Cultivated relationship with the donors and relevant stakeholders
- Co-ordinate different research activates and dissemination events with multiple research consortiums, government and non-government institutions

Selected project titles

- Two projects on Skills and Power sectors in Bangladesh under the *Anti-Corruption Evidence (ACE*) research consortium led by SOAS, University of London
- *Research, Policy, and Governance (RPG)* is a flagship program of BIGD, which aims to build institutional capacity and produce rigorous research in order to uplift the quality of evidence-based decision and policymaking in Bangladesh.
- Coordinated and managed the '*Mobile financial services and implication for the RMG workers*' project, funded by the Gates foundation, and authored a policy paper. Findings from the project was presented to Bangladesh Bank through multiple seminars. Efforts culminated in a cash out and P2P limit for mobile financial services to 25,000k on May 20th, 2019

- Involved in designing a collaborative research project with the Behavioral Insight Team (BIT), A2i and Brac
- Coordinated a survey and participated in a proposal bid on climate change behavioral economics with University of Murburg, Germany.
- 'Perception towards Microfinance' with BRAC Microfinance Program, Brac

2016-2017 Short term consultancies

- Northern Uganda Basic Education (NUBE) Project Baseline Survey, Uganda, Save the children
- Impact evaluation of Programme for Rural Outreach of Financial Innovations and Technologies (PROFIT), Kenya, Brac International

2012-2013 Research Assistant, Institute of Social Studies (ISS), Erasmus University Rotterdam, the Netherlands

Responsibilities:

- Developed proposals for external funding (see below for details)
- Analysis of primary data and generating reports

2011- 2012 Senior Research Associate, Centre for Policy Dialogue (CPD) Research Division, Dhaka, Bangladesh

Responsibilities:

- Generate business through proposals/ concept note development
- Secondary data analysis (such as national datasets) and report production
- Budget analysis and generating reports for publication and press briefing

2010-2011 Monitoring and Evaluation(M&E) Specialist International Finance Corporation (IFC), World Bank, Bangladesh Investment Climate Fund (BICF), Bangladesh

Responsibilities:

- Design and evaluate publicly operated development program pillars as stipulated in the donor's log-framework
- Presentation of findings and recommendations to donors and implementation agencies.

2008- 2010 Research Associate
Research and Evaluation Division (RED), BRAC, Bangladesh

Teaching Experience

January 2019- April 2019	Lecturer, Masters in Development Studies (MDS), BIGD, Brac University, Course: Statistics and Computer Skill Development, DEV691
May 2010-August 2010	Lecturer, Department of Economics and Social Sciences, BRAC University Course: International Finance ECON 431
May 2006-August 2006	Graduate Assistant, Department of Economics, North South University, Banani, Dhaka

Education

2013 – 2019	**Doctoral Candidate,** International Institute of Social Studies (ISS), Erasmus University Rotterdam, The Netherlands (EDC: 2020)
Thesis title:	The Effect of Integrated Safety Net Programs in Bangladesh and Uganda
2007-2008	**Master of Economics,** Australian School of Business (ASB), University of New South Wales, Sydney, Australia.
2001-2005	**Bachelor of Economics,** (First Class), Department of Economics, University of Dhaka, Bangladesh

Publications: Peer Review Articles

- **Misha, F**; Raza, W; Ara, J; Poel, E (2019): "*How far does a big push really push? Long-term effects of an asset transfer program on employment trajectories*". Economic Development and Cultural Change 68:1, 41-62
- Raza, W.; Das, N.; **Misha, F.,** (2012): "*Can ultra-poverty be sustainably improved? Evidence from BRAC in Bangladesh*", *Journal of Development Effectiveness*, 4:2, 257-276
- Khan, F.; **Misha, F**.; Murshid, N.; Rabbani, A.; Talukdar, B.(2020), "*The wellbeing of garment workers in Bangladesh during COVID19-does gender matter?",* International Social Science Journal: Special issue on 'The Socio-Economic Consequences of the Novel Coronavirus (Covid-19)Pandemic in Developing Countries'(under review)

Book Chapters (International)

- Bhattacharya, D; **Misha, F**;(2015), "China and the least developed countries"; "China's WTO accession Reassessed"; Vol:58. Chapter 18, Pages474, Routledge

Book Chapters (National)

- Bangladesh Priorities: Ranking the Smartest Solutions by their Benefits and Costs; Chapter Sulaiman, M; **Misha, F**; (2016) "*Comparative Cost-Benefit Analysis of programs for the Ultra-poor in Bangladesh*"; 1st January 2017, Adorn publications, ISBN-10: 9842005151
- Seraj, K.F.B and **Misha. F**. (2009) 'Natural, Physical and Financial Assets', "*Pathways out of Extreme Poverty: Findings from round I survey of CFPR phase II*", Research and Evaluation Division, BRAC, 75 Mohakhali, Dhaka, Bangladesh.

Working papers and Policy briefs

- Rabbani, A; **Misha. F**; Amin, A (2020); "*Pins and needles at the time of a pandemic: Learning from the RMG workers through a rapid survey*", COVID 19 Rapid Survey Policy brief, Brac James P Grant School of Public Health, Brac University.
- Sulaiman, M; **Misha, F**; (2019) "I*ncrease in RMG wages: Implications for Mobile Financial Services (MFS)",* Policy Notes, BIGD, Brac University
- Sulaiman, M; **Misha, F**; (2016) "*Comparative Cost-Benefit Analysis of programs for the Ultra-poor in Bangladesh*", Bangladesh Priorities, Copenhagen Consensus Center, CCBY 4.0.
- Shahed, S; Rahman M and **Misha, F;** (2016) "*Building resilience in the Char area: Baseline findings of the Char Development and Settlement Project (Phase IV)*. Monograph Series 66, BRAC Research and Evaluation Division, Dhaka.
- Debapriya Bhattacharya & **Farzana Misha**, 2013. "*China and the Least Developed Countries: An Enquiry into the Trade Relationship during the Post-WTO Accession Period*," CPD Working Paper 103, Centre for Policy Dialogue (CPD).
- Das, N.C and **Misha, F**. (2010) "*Addressing Extreme Poverty in a Sustainable Manner: Evidence from CFPR Programme*", Working Paper No 19, Research and Evaluation Division, BRAC Printers, Dhaka.
- Das, N.C, Raza, W and **Misha, F** (2010) "*An Early Assessment of CFPR II packages*", Working Paper No 9, Research and Evaluation Division, BRAC Printers, Dhaka.

Op-ed and Features

- Chowdhry, M., Misha, F, "Covid-19 and the missing data conundrum", 19th May, 2020, The Daily Star.
- Rabbani, A, Misha, F., Amin, A., "Pins and needles at the time of a pandemic: Learning from the RMG workers through a rapid survey", 20th April, 2020, The Daily Star.
- Misha, F., " Financial Mobility in an immobile world: Strengthening the footprint of mobile financial services in Bangladesh", 5th April, 2020, The Daily Star
- Misha, F., Shah, D, 'Resettling the Unsettled: Practicalities of relocating Rohingyas to Bhasan Char', 9th June, 2019, The Daily Star. Also in the IPS news agency.
- Misha. F, Sulaiman, M., 'Issues of Digitization of Salary Payments in RMG factories', 10th March 2019, The Financial Express

Blog posts

- Misha, F., "Pandora's box- what will remain?", BRAC James P Grant School of Public Health, Brac University

Conference Papers

- *'Building resilience in the chars of Bangladesh*', ERG Winter Conference, December 2019, Dhaka, Bangladesh
- '*Smart ways to Tackle Poverty: Social Protection, Trade or Migation?',* Bangladesh Priorities. Hosted by Copenhagen Consensus Center, February 2016, Dhaka, Bangladesh
- Dialogue on '*A Decade in WTO: Implications for China and Global Governance*', ICTASD & FES, Geneva, 24 June 2011.
- Global Think Tank Summit, UNDP China office, '*China's Entry into WTO'*; China Development Research Foundation (CDRF), 25-26th October 2011, Beijing, China.

Successful Bids for Research Funding

- Share-Net International Community of Practice on Covid-19, SRHR and Gender Equality Grant, a fund of €20000, 'titled 'Life *in the times of Corona Virus: a gendered perspective'* in collaboration with Brac James P Grant School of Public Health, Brac University and in partnership with Manusher Jonno Foundation (MJF).
- The RGHI (Rotterdam Global Health Initiative) fund of €25000, titled '*Health care and ultra-poverty in Bangladesh: The case of BRAC's "Challenging the Frontiers of Poverty Reduction" Program'* in collaboration with BRAC, Bangladesh and Institute of Social Studies (ISS), The Hague, The Netherlands, February 2012.

- The NWO (The Netherlands Organization for Scientific Research) fund for 'Urbanizing Deltas of the World' of €14000, titled "*Vulnerability in the Bangladesh Delta: Survival and Livelihood Strategies of the Poor*", in collaboration with the Institute of Social Studies, BRAC and HDRC, Bangladesh.

Professional Training and Workshops

- Workshop on '*Impact Evaluation Methods*', by Professor Robert Sparrow, ISS, Erasmus University, 31st May- 7th June, 2012, The Hague, The Netherlands.
- Workshop on capacity building for trade research, '*Recent Advances in the Field of Trade Theory and Policy Analysis Using Micro-Level Data',* WTO/ESCAP ARTNeT, 12-16 September 2011, Yogyakarta, Indonesia.
- Workshop on '*Input-Output Analysis, Social Accounting Matrix and CGE Modeling: Understanding and Application",* by Rob Davis, Trade and Industrial Policy Strategies (TIPS), 5th-15th April 2011, Centre for Policy Dialogue, Dhaka, Bangladesh.
- Workshop on '*Embedding Global Compact and Sustainability into Your Organization'* by UN Global Compact Network, 22nd-24th November 2010, ACI Centre, Dhaka, Bangladesh.
- Workshop on '*Challenging the Frontier for Poverty Reduction- Innovations, Impacts and Influence'* organized by BRAC, 19th July 2009, 75 Mohakhali, Dhaka, Bangladesh
- Workshop on '*The Stages-of-Progress method*' by Professor Anirudh Krishna, Duke University, organized by Research and Evaluation Division, BRAC. 3rd-12th June 2009, Mymensingh, Bangladesh

Reviewed scientific articles for the following peer review journals

- Journal of International Development,
- Development in Practice,
- Journal of Business and Finance