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The Effect of Microcredit on Socio-Economic Outcomes

**A Case Study of BRAC Microfinance among women beneficiaries
in Gulu, Northern Uganda**

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List of Acronyms

AMFIU	Association of Microfinance Institutions of Uganda
BRAC	Bangladesh Rural Advancement Committee
CI	Confidence Interval
DRT-U	Development Research & Training-Uganda
FAO	Food and Agriculture Organization
ISS	Institute of Social Studies
ILO	International Labour Organization
MFI	Microfinance Institutions
MOFPED	Ministry of Finance, Planning and Economic Development
MOLG	Ministry of Local Government
OLS	Ordinary Least Squares
NGO	Non-governmental organization
UBOS	Uganda Bureau of Statistics
UN	United Nations
UNICEF	United Nations International Children's Emergency Fund
UNDP	United Nations Development Programme
WFP	World Food Programme
VO	Village organizations

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Abstract

This study attempts to use empirical evidence to understand the effect of participation in micro credit programs on the socio-economic outcomes of women borrowers. It was accomplished by comparing primary data from a cross section study of two borrower groups belonging to BRAC microfinance. The study empirically evaluates whether those that hold microcredit register improvement in socioeconomic outcomes of their businesses, households, and social development. The outcomes assessed include average profits for businesses registered for loan benefits, household average monthly expenditure, household savings, household expenditure on children's education and health as well as social factors that indicate empowerment of women like participation in household decision making and community leadership. The study also extends to assess the role of microcredit helping borrowers to cope with financial shocks arising from effects of the COVID 19 pandemic.

The study finds that access to microcredit has a positive effect on profits of businesses registered for credit benefit, household savings and empowerment of women as measured by their participation in household decision making. The study also finds that microcredit has a positive effect in helping households cope with financial shocks, but the benefits of microfinance are offset by detrimental effects where tight loan repayment cycles lead to sale of household assets.

Relevance to Development Studies

There have been many publications on the operation and contributions of Microfinance institutions in poverty alleviation (Chemin, 2012, Develtere and Huybrechts, 2002). However, little research has been empirically conducted and published on MFI in Uganda particularly Northern Uganda. This study aims at assessing the contribution of microfinance support to household social and economic welfare. It will enrich the collection of literature on the ability of microcredit to better the livelihoods of resource constrained households. The study will act as a basis for further research. The conclusions highlighted here can be used by for NGOs, entrepreneurs, development economists and government institutions intending to explore in Microcredit activities in Northern Uganda.

Keywords

Micro loans, Poverty, Women, BRAC, Socio-economic outcomes, Gulu-Northern Uganda.

Chapter 1 : Introduction

1.1 Background

In the recent decades, development planners and governments have focused on efforts to reduce the global challenge of poverty. In 2019, the World Bank estimated that approximately 9.2% of the world population, approximately 689 million people, live in extreme poverty with an income of less than \$1.9 a day. The poorest of these groups have limited resources for livelihood due to lack of access to financial support (Chen & Ravallion, 2007; Yunus, 1998).

Microcredit has been appreciated globally as one of the most influential means of poverty alleviation in developing countries. Several studies have shown that programmes rendered by Micro Finance Institutions (MFIs) play significant roles in the advancement of small and micro enterprises (Chliova et al., 2015; Afroze et al., 2014). In the beginning, micro-credit was predominantly provided by NGO led MFIs (Afroze et al., 2014). Recently, however, government policy makers have started provision of micro-credit services (Hulme & Moore, 2006) in the formal sector.

Micro-credit programmes may take different forms although the core principle of implementation remains the same. According to Chowdhury (2008) micro-credit refers to small scale credit, provided to micro or small enterprises. In comparison to formal lending institutions that shy away from the poor due to lack of collateral, high transaction costs and information asymmetry, (Armendáriz & Labie, 2011; Armendariz & Morduch, 2010; Matin et al., 2002; Morduch, 2000), MFIs' programs are hinged on the core objective of bringing financial services to resource constrained communities. They provide support in the form of micro loans payable with interest. The expectation is that these micro-loans will be used to support poorly financed microenterprises and enable borrowers to make strategic decisions on survival and growth of the microenterprises (Guiso et al., 2004; Matin et al., 2002; Sen, 1999). The loans are expected to increase personal and business income and reduce poverty in the long run (Matin et al., 2002).

Microcredit is typically targeted towards women, allowing them to have better control over resources, management or ownership of businesses, and the ability to contribute to their household's income (Woller, 2004; Sen, 1999). In Uganda, up to 40% of registered businesses belong to women. and yet 60% of females in Uganda do not have access to credit

compared to 38% males (AMFIU, 2011). Traditional banks often require land as the main collateral for lending credits. However, the land distribution practice in Uganda shows that women own only 7% of the registered land distribution in the country (Ellis et al., 2006). In addition, Uganda's laws make it hard to use non-land assets as collateral and women often lack control of resources in the marriage (Ellis et al., 2006). MFIs and other financing models have attempted to reduce the gender gap in access to financial services by providing women with specialized services (Bongomin et al., 2020)

The success of microcredit programmes and benefits to beneficiaries are determined by the features of the lending program and characteristics of recipients (Cohen & Snodgrass, 1997). Though the programmes have been applauded for their positive impact on poverty alleviation, the scope of microcredit programs has evolved from human development and provision social services to being more profit and business focused. Microfinance institutions charge prices high enough to cover costs that are necessary for-profit generation and business survival (Fernando, 2006). Increasingly, questions are being raised over the cost of providing services by micro finance institutions and their ability to protecting the client's interests (Arsyad, 2005).

On the other hand, outcomes of microcredit programmes have also been affected by financed ventures with low profit-generating potential (Bradley et al., 2012; Karnani, 2007; Hulme, 2000), entrepreneurs with poor management skills (Evers & Mehmet, 1994); and overall high interest rates (Webb et al., 2013). This poses the question whether business owners can earn income that is enough to support their livelihoods and ensure payback of loans with the associated expenses. As a result, debate in the theoretical realm casts doubt on the impact of microcredit on socio-economic outcomes for borrowers (Kent & Dacin, 2013).

1.2 Problem Statement

Following the successful results of the Grameen Bank experiment in Bangladesh, several actors including bilateral donors and NGOs have supported microfinance and microcredit facilities as means to reduce poverty and promote access to economic capital, in the form of ownership of and control over resources, income (Armendáriz & Labie, 2011; Armendariz & Morduch, 2010; Matin et al., 2002). Microfinance institutions target borrowers of different characteristics related to age, sex, and education, which may influence the benefits realised from the programs.

While microfinance has been viewed as a relevant instrument to address credit limitations and foster development (Kent and Dacin, 2013; Stewart et al., 2010), its contribution to community livelihoods has also been heavily contested. Some scholars argue that the severe dependence on short-term and high-interest loans may lead to indebtedness further worsening the credit position of beneficiaries (Yunus, 1998). Consequentially, individuals in this bracket are faced with difficulties in start-up, maintenance, and expansion of existing economic activities, as well as varied impact on their socio-economic situations.

1.3 Research objectives and question

The research aims to provide substantive empirical evidence on the effect of microfinance on both financial and non-financial development outcomes of women beneficiaries in Northern Uganda. By studying these outcomes, this paper will also investigate the validity of such programmes in alleviating poverty among borrowers.

This research sets out to explore the above-mentioned objectives by asking the question, “Does participation in micro-credit programs affect the social and economic status of women beneficiaries in Northern Uganda?”

1.4 Chapter outline

This research is organized into five chapters. After this introductory chapter covering introduction to the topic, the rationale of the study, the research objectives, and the research question to be answered, chapter two presents conceptual background, a brief literature review and lays out the theoretical framework guiding the analysis of the paper. Chapter three covers the methods used in performing the research and outlines the data collection process and analytics used. Findings of the empirical study plus discussions on the findings are presented in chapter four and chapter five concludes the paper.

Chapter 2 : Laying the groundwork.

This chapter explores the concepts of poverty, microfinance and the problematisation of the relationship between micro-credit and poverty alleviation in Uganda. It outlines the conceptual background and the theoretical considerations that guide the motivation and analysis of the paper as well as a brief literature review on likely effects of micro-credit on the livelihoods of beneficiaries.

2.1 The conceptual background of poverty and micro-credit

Poverty is often portrayed as an evolving concept connected to prevailing development ideologies (Misturelli Heffernan, 2010). Although it is one of the most familiar situations known to humanity, consensus has not been reached on its meaning and definition (Fasoranti, 2010; Carney, 1992). According to Fasoranti (2010) “poverty has become a general phenomenon that is perceived to mean different things to different people at different times and places” (Fasoranti, 2010: 1439). It is influenced by one’s experience, education, vocation, environment as well as their definition of what is considered a ‘good life’.

Historical definitions of poverty classify it either as a lack of financial income or belonging to a lower social status (Carney, 1992). Haughton and Khandker (2009) provide are two conceptualizations of poverty. The first is a conventional monetary approach where poverty is viewed as lack of adequate resources to meet household basic needs. In this approach, poverty is measured against a defined monetary threshold on income or expenditure, below which households are classified as poor. The second approach measures poverty in terms of access to consumption goods such as food, shelter, education, and healthcare. This approach surpasses the traditional monetary measures of poverty by looking at other materialistic boundaries and socio-economic indicators (Haughton & Khandker, 2009).

Generally, the World Bank portrays poverty as a “pronounced deprivation in wellbeing.” (World Bank, 2000). This description extends beyond monetary factors by including non-monetary factors such as health, nutrition, education to a state of voicelessness, exposure to risks and powerlessness within the state and society (World Bank, 2000.)

As can be understood from the alternative definitions provided above, poverty is a multifaceted issue that cannot be characterized simply by increasing the income of the poor or consumption levels; rather, it necessitates an integrated approach to enable the poor to acquire the capacities required to improve their overall well-being. Microcredit programs are

regarded as one of the most successful tools in enabling the poor to improve both their household income and well-being in society.

Schreiner and Colombet (2001: 339) define microcredit as an “attempt to improve access to small deposits and small loans for poor households neglected by banks”. Similarly, Awojobi and Bein (2011: 160) define microcredit as “the mobilization of savings and disbursement of micro-credit to the economically active poor, so as to provide employment and means of sustainability to improve the living standard in an economy”. Generally, microcredit is aimed at extending small loans to the poor to enable them generate income to develop their businesses and care for their families (Taha, 2012). The loans obtained from microfinance institutions usually have a short repayment period (two years and below) and are conditioned for use in productive projects than consumption (Taha, 2012). Compared to loans from traditional banks, microcredit loans are offered with higher interest rates (Jaffer, 1999).

As discussed above, microcredit involves the provision of microloans to adorn the development endeavours targeting low-income individuals (Awojobi & Bein, 2011), but the term is often used interchangeably with microfinance (Khandker, 1998) although microfinancing may be larger and extends to providing other financial services like insurance, saving, and trainings in addition to credit (Taha, 2012). However, both programmes are founded on the same theory of using loans and credit to enhance development with payment of interest to microfinance providers.

There are different kinds of microcredit programmes and the Grameen Bank ¹(2000) highlights about fourteen different microfinance models including Associations Community Banking, Bank Guarantees, Co-operatives, Credit Unions, Rotating Savings and Credit Associations, Small Business and Village Banking among others. In all these programmes, microfinance institutions extend credit facilities either through group lending or individual-based lending. Individual lending models are similar to bank models due to the direct link between the program and the borrowers, but group lending models require a group of borrowers accountable for loan repayments (Armendariz & Morduch, 2010; Morduch, 1999). The Grameen Bank group lending model is a programme mainly targeted towards reducing rural poverty among women. It starts with formation of a borrowing group comprising 5 to 25 women and loans are provided to each member of the group individu-

¹ Grameen Bank is a microfinance organisation and community development bank founded in Bangladesh in 1976 to provide micro-loans to the impoverished without the need for collateral (Yunus, 1998)

ally (Namayengo et al., 2016). In this situation, if one of the group members defaults on the loan, the other group members pool funds to cover for the defaulting as the entire group would be denied future loans from the program otherwise (Hermes & Lensink, 2007). This model comes with an advantage to the microfinance institutions as it ensures peer screening therefore reducing issues associated with moral hazard and information asymmetry (Niels & Lensink, 2007; Morduch, 1999). This implies a low probability of defaulting loans even in the absence of collaterals (Ghatak, 1999; Ghatak and Guinnane, 1999). Weekly group meetings are held to build social capital (McKernan, 2002; Pitt et al., 1999) and serve as venues for social marketing (Namayengo et al., 2016).

2.2 Poverty and microcredit and in (Northern) Uganda.

Uganda is a tropical country located in East Africa with a population of approximately 41.6 million, 51% of which are women (UBOS 2014). The country is divided into four regions and into 135 districts administratively (MOLG, 2017). Over the past three decades, the country has registered significant milestones in its fight against poverty. National poverty rate declined from 56% in 1993 to 21.4% in 2016 according to the national poverty line (Owori, 2021; World Bank, 2016). Although levels are higher according to the international poverty line, the trend represents an overall decline in this period (Figure 1).

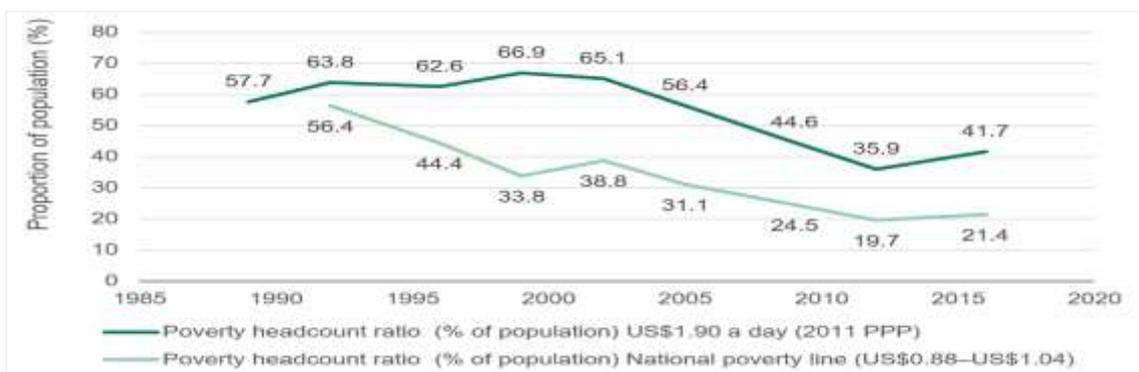


Figure 1 Poverty trends in Uganda (1990 to 2020)

Source: Development Initiatives, based on poverty headcount data from the World Bank

Despite the remarkable achievement in reducing poverty rate in the country, Uganda remains one of the poorest countries in the world with a per capita GDP of \$ 935 (Owori, 2021; World Bank, 2021). In 2019, the country's human development index was reported at 0.544 ranking it at 159 out of 189 countries recognized by the UN (UNDP, 2020)

Moreover, while the country's poverty rate has fallen over time, the fraction of Ugandans categorized as "Not poor but vulnerable" and prone to falling below the poverty line has increased (Owori, 2021). The term "Not poor but vulnerable" refers to individuals whose income is greater than the national poverty line but less than double the national poverty line. The increase in the number of these vulnerable individuals suggests that Uganda successfully lowered income poverty than prevented it. (DRT-U, 2016). According to the World Bank, Uganda has experienced a slow rate of economic growth leading to a diminished impact on poverty. From 2011 to 2016, the country had an average annual growth rate of 4.5%, compared to 7% in the years before (World Bank, 2021).

Furthermore, although the national level poverty rate has generally declined in the last decade, the country still faces an increase in regional inequalities. According to World Bank (2016), the pace of poverty reduction in Northern and Eastern Uganda has been significantly slower, and as a result, the concentration of poverty is larger in these two regions. The report further indicates that the proportion of impoverished individuals living in the Northern region grew from 68 percent to 84 percent between 2006 and 2013 respectively. Furthermore, households in the country's North, East, and Western areas have much lower levels of assets, human capital, and poor access to services and infrastructure compared to those in the Central region. Poverty is especially persistent in the rural areas of these regions, where agriculture is the backbone of rural livelihoods (MoFPED, 2014).

The slow progress in development and poverty alleviation in Northern Uganda is mainly attributed to the long-term impacts of the civil war fought between the Lord's Resistance Army (LRA) and the Uganda government forces for twenty-one years (Muyinda & Whyte, 2011). There were over 1.2 million internally displaced persons with Gulu district hosting over 90% of the population in temporary settlements. (UNICEF, 2004:5; Refugee Law Project, 2004:1). The war and displacement led to loss of livelihood, agricultural land, and livestock among other productive items. Trade was constrained with markets and agro-processing plants destroyed (Muyinda & Whyte, 2011). The abduction and killing of the working age groups during the war led to food insecurity and increased poverty (Muyinda & Whyte, 2011; Refugee Law Project, 2004).

Women make up a large proportion of the poor in many countries (UNDP, 1996; Fletschner, 2009) and suffer the burden of financial constraint. In Uganda, the national bureau of statistics estimates that 23% of Ugandan households were female headed in 2005/2006. Out of these 33.7% live below the national poverty line compared to 29.8% male headed households under the national poverty line (Ssewanyana, 2009).

Female microentrepreneurs often lack collateral such as land and other larger assets that are often used to access credit facilities hence limiting their enterprise growth. The 2013–14 Uganda National Panel Survey showed that 84 percent of rural land in Uganda is held under unregistered customary tenure (Ali & Duponchel, 2018). In such a setting, a woman's access to and control over land is typically conditioned on her relationship to a male spouse or relative that is, she has secondary use rights rather than ownership rights (Rugadya, 2010). Widowed female household heads are particularly susceptible to asset depletion and poverty since they have limited opportunities to inherit assets from their husband. In some cases, they are thrown off the land by the husband's family after the death of the husband (Ellis et al., 2006)

Female-owned microenterprises in Uganda generate 30 percent less profits than the male owned enterprises (World Bank, 2019). This is attributed to lower levels of innovation, capital, and labour usage, as well as sector-based sex segregation (Copley et al, 2021). Women are less likely to allocate their working hours to their businesses due to more domestic and care responsibilities compared to men. (Schreiner & Woller, 2003).

In the Northern region of the country, the civil war caused a dynamic shift in household power relations between men and women (Ahikire et al, 2012). Several women have become anchors for the survival of their families as most of the men were either abducted or died during the war (Ahikire et al, 2012). To expand their livelihoods, some of these women set up micro enterprises often with small financial outlays and low returns (Schreiner and Woller, 2003). However, they still suffer the burden of poverty and financial and social deprivation (Lakwo, 2006; Wakoko, 2004).

In a bid to empower women and improve livelihoods in Northern Uganda, several micro-finance institutions have come up with programmes that target women. Women are preferred because they make up over 80 percent of the poorest microfinance clients (ILO 2000). From a public policy perspective, support to women will accelerate progress toward poverty reduction by creating resilient livelihoods for vulnerable women entrepreneurs and boosting their ability to provide to drive inclusive economic growth (Copley et al., 2021) From a business perspective, women were noted to have higher loan repayment rates compared to their male counterparts (ILO, 2000).

2.3 Impact of micro-credit on poverty outcomes

The impact of microcredit programs on decreasing poverty and improving the social well-being of the poor has received much attention. A review of the research on the impact of microfinance on alleviating poverty and enhancing socioeconomic outcomes for borrowers reveals mixed findings between the proponents and opponents of microcredit. In this section, we look at two main directions of arguments on the impact of microcredit on both the material and social outcomes of borrowers.

The first line of argument looks at the positive influence of microcredit on borrowers. Proponents of microcredit argue that the rationale for adopting microloans as a development intervention is based on its theoretical capacity to lift people out of poverty (Yunus, 1998). Microfinancing aims to establish institutions that deliver financial services to the poor. It addresses market failure arising from the constant exclusion of the poor from the financial services sector of the economy (Littlefield & Rosenberg, 2004). Otero (1999) noted that access to productive capital for the poor in combination with human capital and social capital enables people to move out of poverty and therefore at its core, microfinance combats poverty. This is also supported by Littlefield and Rosenberg (2004) who agree that microfinance institutions provide financial services and products that smooth consumption among the poor and helps them to obtain social benefits, guard against economic shocks, and gradually lift families out of poverty.

Coming to microfinance focusing women, empowerment has been the motive underlining establishing microfinance targeting women (Chliova et al., 2015). In most developing countries, there is a large gap in women's independence and rights which restrict their participation in entrepreneurship as well as their contributions to the labour market and mobility beyond the limits of their families (Mair et al., 2012). As discussed in Hashemi et al. (1996) and Zaman (1999), the participation of women in microcredit enables them to cut across gender barriers, gain experience and confidence in public spaces therefore increasing their mobility, participation in decision making, and understanding of politics. Similarly, Sanyal (2009) argues that exposure to microcredit social groups increase social capital for support and protection of common interests. Following the same line of argument, Otero (1999) discusses that provision of material capital leads to empowerment and enhances a sense of dignity among poor people.

The opponents of microcredit like Adams and Pischke (1992) argue that microcredit is ineffective in improving well-being of the poor since financial service is not the main

problem faced by the poor and placing the poor into more debt does not solve their impoverishment. Hulme and Mosley (1996), while acknowledging the role of microfinance in reducing poverty, concluded that “most contemporary schemes are less effective than they might be” (Hulme and Mosley, 1996:134). They argue that microfinance is not a remedy to mitigate poverty and that the poorest people have been made worse-off by microfinance in some cases. Based on his study on micro entrepreneurs in the informal sector in Kenya, Malawi and Ghana, Buckley (1997) found that credit “capital injections” results in the “illusion” of fixing the main problems of borrowers, which rather need more structural changes in the socioeconomic settings that outlines their activities. Rogaly (1996) found five major faults with MFIs. These are encouraging a single-sector approach to the allocation of resources to fight poverty, irrelevance of microcredit to the poorest people, usage of an over-simplistic notion of poverty, an over-emphasis on scale and inadequate learning and change taking place.

Coleman (2006) showed that wealthier individuals are more likely to join microfinance programmes than the impoverished and that positive effects on socioeconomic welfare of households were more attributed to wealthy households. He argues that the eligibility criteria for such programmes should have more vigilance in better targeting the poor. This argument was also supported by the findings from Kondo (2007). He found that microcredit enhanced per capita income and expenditure among the more affluent loan receivers compared to poor borrowers in the Philippines.

MFIs target clients of varying characteristics regarding education sex, and age, which may influence the outcomes of the programs. The assessment of microcredit programme impacts is subject to the methods used (Khandker 2003). The use of qualitative approaches alone is uncommon (Montgomery, 1996) and previous research studies have employed both quantitative and qualitative approaches (e.g., see; Husain, 1998; Mustafa et al., 1996). In the current research, Mixed research methods have been used because they improve the legitimacy of information and build authenticity in study conclusions (Hulme, 2000).

2.4 Theoretical framework

Theoretically, micro-credit is embedded on the principle that access to microloans enable the poor to enhance or start up income generating projects that can improve their livelihoods and hence reducing household poverty. According to the literature reviewed in the previous section, the impact of microcredit on borrowers varies in accordance with the estimation methodology used to measure such impacts. For this research paper, the theoretical framework captures the impact of microcredit on borrowers at four different levels as presented in Figure 2.

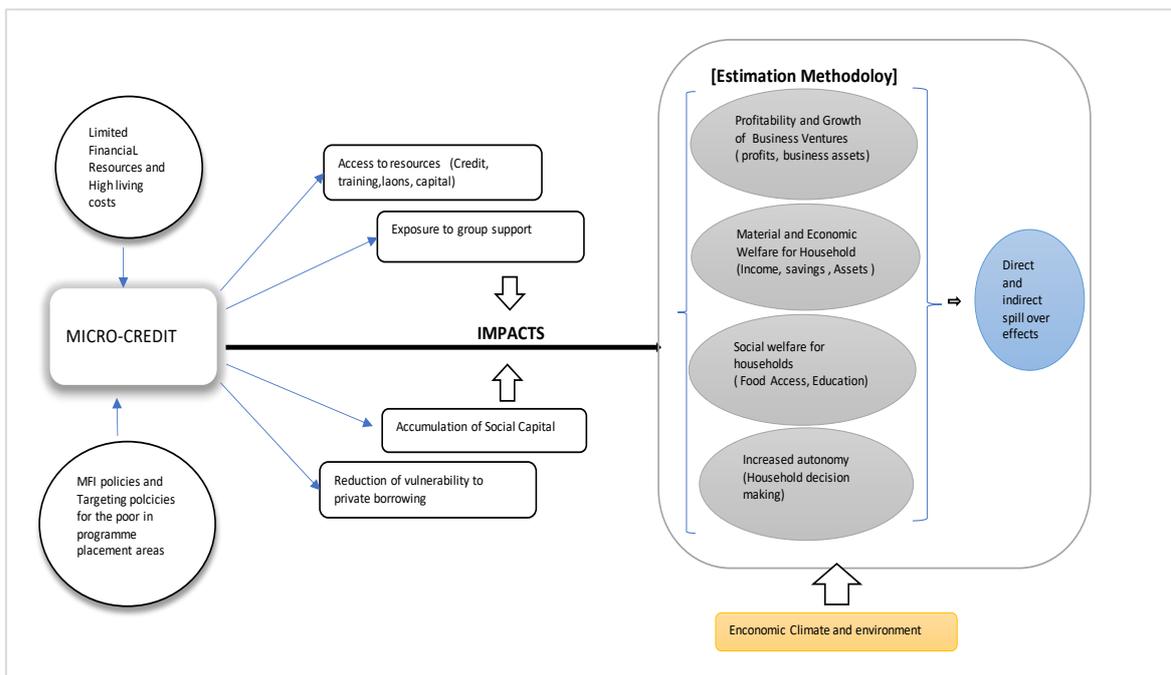


Figure 2: Theoretical framework

2.4.1 Microcredit and business ventures profits

Micro-credit is based on the principle that affordable credit positively influences entrepreneurship and financial well-being (Sen, 1999; Yunus, 1998). Access to credit enables entrepreneurs to seek opportunities without the burden imposed by their current level of financial resources. (Guiso et al., 2004; King & Levine, 1993). According to Bradley et al. (2011), credit capital buffers shocks that may affect small and vulnerable businesses. Lack of resources, on the other hand, can limit the ability of small ventures to execute promising strategies that would increase profitability (Parker & Van Praag, 2006). Microcredit provides entrepreneurs with the necessary resources to establish or expand their busi-

nesses, allowing them to make profits and improve their lives (Chliova et al., 2014). Therefore, we hypothesize that:

Hypothesis 1. *Microcredit has a positive effect on profitability of the clients' businesses.*

2.4.2 Microcredit and household financial outcomes

The provision of credit for operating business ventures can increase the financial wellbeing of beneficiaries, especially those that solely rely on entrepreneurship as the only possible way to earn money (Chliova et al., 2014). The finances obtained from successful business ventures can enable beneficiaries to repay their loans while the excess can act as additional household income (Bradley et al., 2012; Woller, 2004). Access can, therefore, smooth the income-expenditure relationship within households leading to enhanced financial wellbeing of borrowers (Morduch, 1999) and access to microcredit can positively affect household financial budgets (Chliova et al., 2014). The role of microcredit in increasing the financial wellbeing and savings of borrowers is supported by the findings from several studies (Khandker, 2005; McKernan, 2002) We therefore hypothesize the following.

Hypothesis 2a. *Microcredit has a positive effect on average household expenditure.*

Hypothesis 2b. *Microcredit has a positive effect on household savings.*

2.4.3 Microcredit and Human development measures and household welfare

Sen (1999) conceptualizes human development as the “process of enlarging people's choices”. He particularly emphasizes basic needs like food, health, education, and women empowerment as significant components of development. In the current study, we focus on the ability of microcredit to impact social and human development outcomes like education expenditure, medical expenditure, and inclusion of women in decision spaces and protection of households from shocks.

Wright (2000) noted that microcredit has a non-financial impact in improving education outcomes. Availability of financial income enables borrowers to send their children to school leading to improvement in education of their children. Research by Holvoet (2004) also finds that group repayment schemes utilized by many microfinance institutions also have a positive effect on children's education and literacy levels. Moreover, improved household financial situation from entrepreneurship could allow for the allocation of some funds towards health and nutrition needs (Barnes et al., 2001). Hence, we hypothesize:

Hypothesis 3a. *Microcredit has a positive effect on children's educational expenditure.*

Hypothesis 3b. *Microcredit has a positive effect on household expenditure on health*

Sanyal, (2009) defines women empowerment as the capacity to enhance self-reliance, exercising the right to determine choices and the ability of women to gain control over material and non-material resources. As discussed earlier, in most developing countries women's autonomy has a significant gap. The gap affects their participation in entrepreneurship and labour markets and limits their mobility outside the confines of their homes (Chliova et. al, 2014; Mair et al., 2012). The provision of microfinance can affect empowerment increasing women's bargaining power of and their overall independence in decision making. Additionally, gender inequality reduces in line with poverty. Thus, the effect of accessing microcredit on reducing households escape poverty could translate to enhancing gender equality. From this, we hypothesize that.

Hypothesis 4. *Microcredit increases participation in community and household decision making.*

Microfinance products that are designed and targeted towards women have the potential to increase in business opportunities and the ability to cope with shocks. In a study by Calis et al (2007), microfinance was found to be relevant in coping with the effects of natural disasters. From this, we hypothesize that.

Hypothesis 5. *Microcredit shields households from the negative effects of shocks*

2.4.4 Other effects

Microcredit also has direct and indirect spill over effects that positively impact the local community and the economy. Such effects will not be covered in this paper, but they include and are not limited to increase in productivity, investments, employment, and curbing shark money lenders from taking advantage of borrowers in the local community. For microcredit programs to make a successful impact on borrowers, there are several external and internal contributing factors (Taha, 2012). External factors include the economic climate in which these institutions operate and the business environment. Within the economic climate are issues like inflation, competition, and government policies. Borrower characteristics such as general socio-demographic characteristics and possession of skills and knowledge to churn credit into profit also influence these programmes. Internal factors are those that are inherent to the microfinance institutions such as institution policies, cost of providing services and proper targeting among others.

Chapter 3 Research design and methodology

This chapter presents information on the research area, the microfinance organisation in the case study, the technique used to collect data and gives an overview of the sample. It also outlines the empirical strategy used in the paper.

3.1 Research area and Programme of Study

3.1.1 Research Area

This study was conducted in the district of Gulu located in Northern Uganda. The district was selected for two major reasons. First, it is the administrative centre of the Northern region. Second, there is a strong presence of BRAC microfinance activities. The district is the largest metropolitan city in Northern Uganda and is located approximately 333 kilometres from the county's capital city Kampala by road (UBOS and UNFPA, 2014).

3.1.2 BRAC-Uganda programme

This study is based on the impact of microloans (*Dabi*), provided by BRAC, on the socio-economic outcomes of women borrowers. Founded in 1972 as the Bangladesh Relief Assistance Committee, BRAC's initial role was to provide humanitarian needs to the thousands of refugees returning to their homes after Bangladesh's War of Independence. In 1973, BRAC changed its emphasis to long-term community development with primary focus on women and girls. The major reason for primarily targeting women is to address the socio-cultural barriers that prevent women from accessing microcredit (Meyer, 2013). The other reason is that women allocate a large proportion of their time and resources in maintaining household welfare (Kabeer, 2005; Cheston & Kuhn, 2002). Supporting women, therefore, implies benefit to the entire household (Namayengo et al. 2016).

BRAC-Uganda was founded in 2006 as a credit institution and attained a Tier II Financial Institution Licence to operate as a Micro-Finance Bank under the supervision of the Bank of Uganda in 2019 (Waswa, 2019; Segawa, 2019). Currently, BRAC-Uganda operates in 113 districts with 163 branches of the BRAC-Uganda Bank Ltd, and 101 branches of the BRAC-Uganda NGO (BRAC Annual Report, 2020). With more than 213,072 microfinance members, the organization is among the largest microcredit institutions in Uganda. The organization was chosen as a data source for this study because it follows a form of group

lending microcredit programme that targets poor women (20-50 years) with stable businesses to enhance their self-productive capacity (Namayengo et al., 2016).

Following this model, BRAC-Uganda provides individual loans to women belonging to a village organisation (VO) consisting of approximately fifteen (15) to twenty-five (25) members from the local community (Namayengo et al., 2016). Results of our key informant interviews with BRAC management revealed that managers and credit officers oversee the extension of BRAC activities into new communities by encouraging VO creation and registration, as well as admitting new women to the program. Prior to setting up a new branch, a survey is conducted to assess the prospects of new borrowers. Once deemed feasible, a new branch is opened, and credit officers are tasked with informing women about the availability of a microfinance programme by going door-to-door.

Newly formed VOs select a cashier, secretary, and chairman in charge of executing weekly meeting agendas. At the weekly meetings, the VOs meet with BRAC credit officers, who explain about the BRAC policies and borrowing process. After a VO is established, credit officers, branch managers and area managers are tasked with inspecting the homes and businesses of borrowers to confirm the physical residence of each woman and viability of the income generating project to be used for weekly loan repayments. The loan applications are guaranteed by every member of the group and the amounts are jointly agreed upon. The women are given individual cash loans after a month's orientation period.

Members of an existing VO can also admit new borrowers until the VO reaches a maximum of 25 members. The admittance is dependent on the judgement of the probability of defaulting. Upon admission, the new member must produce a letter of introduction form to the local village chairperson, three passport photographs and physically present a guarantor who will repay the loan in case of default. Independent inspections of their home and business are also carried out by VO credit officer, branch manager and area manager on three different occasions.

BRAC microloans (*Dabi*) ranging from USD 100-2,500 and is given exclusively to individual women who are served by the village organisations (BRAC, 2015). The loans are repayable in either 20 or 40 equal weekly instalments at flat interest rates of 12% and 25% respectively. Loan repayments commence a week after the receipt of the loan and is collected by the VO chairperson during the weekly meetings. The VO chairperson passes the cash to the credit officer for checking and the latter gives the cash to the branch cashier to deposit in a bank. Borrowers that are unable to make the week's instalment may request support from the VO members before the day of the meeting. In case of a default, the VO chair-

person and credit officer, during the meeting, will request the VO members to pool funds and cover the shortage. If all members fail to raise the required amount, the individuals loan guarantor is contacted to pay the loan instalment. If the credit officer adjourns the meeting before recovery of the amount, the deficit is deducted from his monthly salary by the branch cashier. When there is a high probability of default, loan guarantors are requested to either pay the full amount of the loan or make weekly payments until the entire value is recovered. In extreme cases, property of the borrowers or guarantors may be confiscated until the payment is recovered.

BRAC does not have a mandatory savings group however most of the women belong to Rotating Saving and Credit Associations (ROSCAs) where they mobilize savings for loan refunds and other costs.

3.3 The Research design

This research followed a quasi-experimental model approach to assess the impact of microcredit on socio-economic outcomes of borrowers. Quasi-experimental models are used to compare between two groups of borrowers comprising those that are receiving microcredit or the “treatment group” and those that are registered with the microfinance institution but have not yet received the credit i.e., “the control group”. Either panel data (Khandker, 2003) or cross-section (Pitt & Khandker, 1998; Morduch, 1998; Morduch, 1999) can be used in conducting such studies. In our study, we use cross-sectional data. We compare the socioeconomic outcomes of two groups of BRAC beneficiaries. The control group comprises of women from newly formed village organizations who have registered with BRAC but are undergoing a month-long orientation before receiving their first loan.

Quasi-experimental designs, such as the one employed in this study, are prone to bias resulting of unobserved features of the region where the microcredit program is located and selection bias (Taha, 2012). In this study, all loan holders and non-loan holders were selected from sub-counties of villages that were covered by the BRAC microfinance programme. To control for selection bias, the control group was chosen from women who have met the eligibility criteria to join the BRAC and are already registered to receive loans. As in the case for borrowers, these women comprise of small-scale producers, farmers, and micro business owners. They presumably have similar characteristics to the borrowers at the base year.

3.4 Data sources

Primary Sources

Primary data was obtained through structured interviews held with selected loan holders and control group respondents on the different social and economic conditions of their households. The original questionnaire for the study was designed in English and uploaded on an online data collection tool 'KoBoToolbox' (Kobocollect). For easy communication and to limit the extent of variation between interviewers during administering of the questions, a questionnaire copy was translated to *Acholi* language (local dialect). The translated copy was printed for each enumerator for reference while in the field. The data collection questionnaire was divided into five sections. Section one included questions on demographic information and loan history. Section two contained questions on household income and expenditure patterns while section three contained questions on household asset ownership. Section four and five contained questions on food access and participation in household decision making respectively.

Three enumerators fluent in both English and *Acholi* language were chosen, interviewed, and trained for a period of four days on the data collection process and utilization of the kobo collect tool. During the training, the enumerators were oriented on the study objectives, the design and sequence of the questionnaire, as well as the data quality required by the researcher. Role-play on self-introduction, introduction of questionnaire topics and approaching the respondents was also practiced during the training. Following the training, a pilot study on 10 respondents was carried out. This data collected was briefly analysed for meaningfulness of results and based on the responses some parts of the questionnaire were modified.

Sample selection criteria

BRAC microcredit services involving Dabi loans is being implemented under the Ultra poor programme in in three districts of Gulu, Amuru and Nwoya in Northern Uganda. The sampling methodology used is a multi-stage sampling. In the first stage, we clustered the locations of BRAC support, and the three districts represented the clusters (Gulu- cluster 1, Amuru-cluster 2 and Nwoya- cluster 3). At this stage, Gulu was purposively selected as the cluster of the survey study as it had 92% of the registered female BRAC members in the Ultra Poor programme (1320 members). Within Gulu district, Dabi loans were issued to beneficiaries from three sub-counties of Bardege, Layibi and Pece.

The sample size of respondents was calculated using the Tarro (1967) formula shown below.

$$n = \frac{z^2 p(1-p)N}{z^2 P(1-P) + N(e)^2}$$

Where.

N = Total number of members in Gulu district (1320)

e = level of precision or permissible error which is assumed to be 0.05

Z = Value of the standard normal distribution (C.I 95%) such that z= 1.96 at 95% level).

P = probability of success estimated at 0.5

The unit of sampling considered is the individual member of the BRAC project. Based on the above values, the estimated sample size of households was 306 individuals. In the next stage, stratified sampling was employed, whereby the sub counties where BRAC is being implemented represent the different strata. The sample size was thus divided using probability to proportionate sampling such that sub counties with a high number of BRAC members have a higher sample size as shown in table 1. For comparison between the two group of borrowers, we aimed at a relatively equal number of loan holders and non-loan holders as seen in the table 1.

Table 1: Sampling criteria

Subcounty	Total BRAC members under the project	Percentage representation	Targeted Sample Size	Target sample distribution	
				<i>Loan holders</i>	<i>Non-Loan Holders</i>
Bardege	515	39%	119	60	59
Layibi	488	37%	113	57	56
Pece	317	24%	74	37	37
Total	1320	100%	306	154	152

During data collection, we were able to reach 153 loan holders and only 141 non loan holders equivalent to **294 samples** used in the study. The loan holders were 55 in Bardege, 65 in Layibi and 33 in Pece while the non-loan holders were 59 in Bardege, 45 in Layibi and 37 in Pece. The participants were randomly selected from the BRAC register of borrowers by assigning random numbers in an excel programme and were independently interviewed during the weekly VO meetings for easy access. Overall, there was a non-response of 4% equivalent to 12 individuals who could not be accessed. This was minimal and did not significantly affect the study. The non-loan holder group met all criteria for selection into the

BRAC Ultra poor programme and were registered with BRAC. They were due to receive loans in a month's time from the date of the interview. For purposes of this study, they represent a control group with condition before treatment

3.5 Empirical strategy

3.5.1 Empirical strategy

The impact evaluation was determined using the regression model below

$$Y_i = \beta_0 + \beta_1 Loan_i + \beta_2 V_i + \beta_3 X_i + \epsilon_i$$

Where:

Y_i = outcome of interest for the household

$Loan_i$ = Treatment dummy variable indicating if the individual participates in Microfinance (1/0)

V_i = Village fixed effects

X_i = Individual characteristics

and ϵ_i is the error term.

Depending on the nature of the outcome of interest, the function can be linear or non-linear. Choosing a control group with presumably the same unobserved characteristics as the treatment loan holders' group will address the possible self-selection bias in our model. To control for non-random programme placement bias, we use village fixed effects characteristics as controls.

Chapter 4 Results and Discussion

This chapter is divided into two sections. The first section gives detail descriptive statistics and the characteristics of the sample while the second section gives results of the regression models and discussions of results.

4.1 Descriptive statistics

We obtained data from 294 females registered under the BRAC microfinance programme, 153 respondents were already receiving funding from BRAC (“loan holders”/ treatment group) and 141 were beneficiaries in the training phase who were due to receive funding in a month’s time from the date of the interview (“non-loan holders”/control group).

Before estimating the relationship between our outcomes of interest and the independent variables, we examined the data for quality, outliers, missing variables as well as determining the relationship between different variables. Table 2 presents descriptive statistics.

Table 2: Table of descriptive statistics

Variables		N	mean	sd	min	max
<i>Outcome Variables</i>						
Log business profit	Log monthly profit from main business registered for credit benefit	288	10.95	0.844	8.517	13.30
Log expenditure	Log of average of total expenditure per month on food, education, medication, cloth, electricity, gas, transportation, house rent, loans instalments and any other expenses.)	294	9.866	0.783	6.859	12.00
Log saving	Log monthly household savings	290	11.52	1.034	8.517	13.82
Profit	Average monthly business profits	294	77,337	67,942	0	600,000
Log education expense	Log of total household expenditure on education per school term	206	11.57	1.544	0	13.59
Log medical expense	Log of total expenditure of health and medication per month	273	10.56	0.829	8.517	13.82
Household Decision	Dummy =1 if the respondent is involved in decision making at household level = 0 if she is not	294	0.803		0	1
Community Leadership	Dummy =1 if the respondent holds any leadership position in the community = 0 if she does not	294	0.167		0	1
Ability to buy food	Dummy =1 if the respondent’s ability to buy food was affected by the pandemic and lockdown = 0 if no effect	294	0.0748		0	1

Variables		N	mean	sd	min	max
Number of meals during pandemic lockdown	Dummy =1 if pandemic caused a reduction in the number of meals in respondents' household, 0=if no effect	294	0.585		0	1
Sale of assets during pandemic lockdown	Dummy =1 if respondent sold off some assets, 0=If the respondent did not sell off any assets	294	0.167		0	1
<i>Covariates</i>						
Loan status	Dummy =1 if respondent has a loan with BRAC=0 if she does not	294	0.520		0	1
Age of Borrower	Age in years	294	35.06	8.208	20	57
Household Size	Number of people in household	294	5.031	2.629	1	14
Duration in program	Years spent in the microcredit program	294	1.452	1.771	0	10
Current loan amount	Outstanding loan in Uganda shillings	294	211,092	441,032	0	5.000e+06
Number of income earners in household	Number of income earners in household	294	1.616	0.680	1	4
Business is only income source	Dummy =1 if the registered business for credit is the only source of income =0 if not.	294	0.680		0	1
Sex of household head	Dummy =1 if household head is male = 0 if female	294	0.650		0	1
Bardege ssubcounty	Dummy =1 if respondent is from Bardege =0 if not	294	0.388		0	1
Layibi subcounty	Dummy =1 if respondent is from Layibi =0 if not	294	0.374		0	1
Pece subcounty	Dummy =1 if respondent is from Pece =0 if not	294	0.238		0	1
No formal education	Education Dummy = 1 if the respondent has no formal education = 0 if not	294	0.0816		0	1
Primary Education	Education Dummy = 1 if the respondent has primary education = 0 if not	294	0.323		0	1
Secondary Education	Education Dummy = 1 if the respondent has secondary education = 0 if not	294	0.371		0	1
University Education	Education Dummy = 1 if the respondent has university education = 0 if not	294	0.0986		0	1
Other Tertiary /Vocational education	Education Dummy = 1 if the respondent has vocational or other tertiary training = 0 if not	294	0.126		0	1
Divorced or widowed	Marriage Dummy=1 if respondent is Divorced or widowed=0 if not	294	0.0102		0	1
Married	Marriage Dummy=1 if respondent is Married =0 if not	294	0.398		0	1
Domestic partnership/Cohabiting	Marriage Dummy=1 if respondent is in a domestic partnership =0 if not	294	0.340		0	1
Separated but not divorced	Marriage Dummy=1 if respondent is separated but not divorced=0 if not	294	0.0918		0	1
Single/never married	Marriage Dummy=1 if respondent is single=0 if not	294	0.160		0	1

All respondents were randomly chosen from village organisations located in three sub counties in Gulu district which constitute the strata: Bardege, Pece and Layibi. Respondents from Bardege subcounty account for 39% of the total sample, while Pece and Layibi account for 37% and 24% respectively. Borrowers had been in the programme for an average of 1.5 years as seen in table 2.

40% of the respondents were married while 34% were in domestic partnerships the remaining 26% were either single, separated or divorced. 65% of the respondents indicated that their household is led by a male with 92% of these coming from beneficiaries that were either married or in a domestic partnership. 16% of respondents that had never been married and only 1% is divorced or widowed.

The average household size in the sample is five people. On average most respondents were educated up to secondary education level which represents 37% this is followed by primary school education which represents 32% of the sample. Most of the respondents were between 20 and 57 years with an average age of 35 years. There is no wide dispersion in the continuous variables as indicated by the small values of standard deviation from the mean which also suggests a lack of outliers.

68% of the respondents indicated that the business registered for the credit benefit is their main source of income. Of these, 42% were loan holders and 58% were non loan holders. Among the loan holders, 71 percent of the respondents took the loan to expand their business followed by 13 percent who took the loan to supplement education of their children. Only 3% took the loan for household consumption and 1% used the loan to repay existing debts. Figure 3 presents the different reasons given for taking micro-loans among the borrowers.

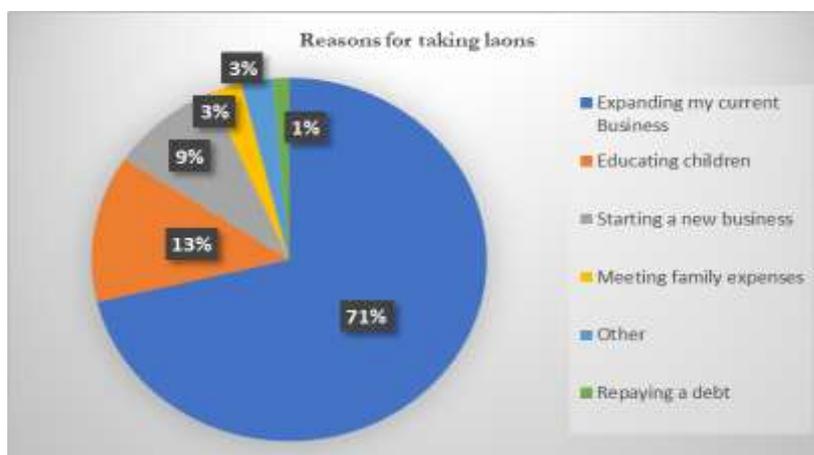


Figure 3 Reasons for taking micro loans.

The outcomes of interest were then assessed against the main independent variable to test the null hypothesis that there is no difference in the means between the two types of borrowers. Table 3 gives details of the corresponding p-values for various outcomes of interest. There are significant differences noted between the two groups in relation to the means for the outcomes of interest hence a plausible relationship for regression models. Significant differences were observed in the mean for monthly profits log expenditure, average savings, log savings, health expenditure, involvement in household decision making, number of meals per day during the covid season and the household's ability to buy food during Covid 19 pandemic

Table 3: Summary of t-tests of outcomes by loan holder type

Variable	N	Non-Loan holders		Loan holders		95% CI <i>p-value</i>
		Mean	SD	Mean	SD	
Average monthly Profit	294	68205.67	64593.29	85751.63	5663.078	0.026
Log average Profit	288	10.76	0.93	11.11	0.71	0.0004
Average expenditure	294	101871.3	95236.2	130867.4	130220.7	0.0293
Log expenditure	294	11.14	0.91	11.45	0.78	0.0026
Average savings	294	94326.24	157314.8	186607.8	142871.1	0.0000
Log education expense	206	12.3	1.16	12.2	1.18	0.7416
Log medical expense	273	10.5	0.83	10.5	0.60	0.07
Household Decision	292	0.61	-	0.97	-	0.000
Number of meals during pandemic	292	1.67	-	1.5	-	0.0029
Ability to buy food dur- ing pandemic lockdown	294	0.43	-	0.1	-	0.043

4.2 Regression Results

4.2.1 Effect of microcredit on business/venture profits

A single OLS regression was run to assess the impact of microcredit on profits realised from business ventures of respondents. The estimates from this model are presented in Table 4

Table 4: Effect of microcredit on business profits

Variables	Log business profits
Loan status	0.345** (0.176)
Age of borrower	0.0199** (0.00853)
Duration as borrower (Years)	0.00829 (0.0605)
Household Size	0.0496** (0.0246)
Business only source of Income	0.270*** (0.103)
Primary school education	0.192 (0.237)
Secondary school education	0.366 (0.232)
University Education	0.949*** (0.265)
Other tertiary /Vocational school	0.646** (0.257)
Married	-0.482 (0.298)
Domestic Partnership/Cohabiting	-0.470 (0.315)
Separated but not divorced	-0.503 (0.312)
Single /Never married	-0.364 (0.320)
Layibi Subcounty	-0.0980 (0.106)
Pece Subcounty	-0.0290 (0.120)
Constant	9.754*** (0.498)
Observations	288
R-squared	0.201

Robust standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

As can be seen from Table 4, access to microcredit has a significant positive effect on relative business profits. Being a loan holder increases business profits by 35% compared to non-loan holders. In addition, an increase in age is associated with a positive and significant increase in profits. A year increase in age is associated with a 1% increase in business prof-

its. Moreover, we also see a significant increase in profits among individuals that have been educated. Those that have been educated up to university level experience a 94% increase in business profits compared to those that did not receive any formal education (base category) while those that have received any vocational training or other tertiary education experience a 64 % increase in business profits compared to those in the base category. If the registered business for credit benefit is the only source of household income, there is also has a significant positive effect on the business profit. The business profits are seen to increase by 27% compared to households that have multiple sources of income. Profits also significantly increase by 4% for every unit increase in household size. Surprisingly, business profits are not affected by duration of the borrower in the microfinance programme and their marital status.

With respect to profitability of business ventures, the availability of microcredit appears to facilitate entrepreneurship by enhancing profitability of businesses registered for loan purposes. This develops on the study conducted by Cooper et al., 1994; King and Levine, 1993 who noted that the availability of credit enables entrepreneurs to increase business capital to the level at which margins on sales are realized as profits.

Profits increase with education levels due to increased skills and competencies imparted by formal education and vocational training. Workers with more skills tend to be more productive and greater productivity translates to income for the business. These findings go in line with the findings by Yúnez-Naude and Taylor (2001) who noted a strong linkage between education, productivity, and economic growth. Psacharopoulos and Patrinos (2018) also found that there is a strong correlation between education and earnings especially for women. Regarding vocational trainings, our findings agree with the works of Lee (2006) who points out that small enterprises' owners are given the required assistance, they make adequate investment and can improve their productivity in an effective and sustainable manner. Where business is the only source of income, micro entrepreneurs will concentrate their efforts on improving its productivity so that they can generate enough income for the household and for loan repayments.

Age of borrowers affect their maturity and reasoning in making sound business decisions for the business. This finding agreed with a study by Patton and Lokan (2001) who noted a strong correlation between age, decision making and career maturity while comparing different age groups. As observed in the table, the increment associated with age

is only 1 % because all the borrowers are above 18 years old and other factors like education have a larger influence on profits.

Household size translates to the number of people working in the business as well as the need to generate higher profits to cover large expenditure costs associated with having a large household. In a highly subsistence economy like Northern Uganda, large household sizes provide more productive capital for farming and other small businesses (Okurut et al., 2002). This can boost production and lead to an increase in profits as seen in our results. However, large household sizes are also associated with a higher dependency ratio (Okurut et al., 2002). Though large households can generate enough income, an increased dependency ratio affects profit growth causing it to increase only slightly (Only by 4%) as observed.

4.2.2 Effect of microcredit household finance outcomes

Expenditure or consumption is considered as a better welfare indicator compared to income since it is not subject to seasonal fluctuations as income (World Bank, 2000). After controlling for variables that affect household expenditure and savings, we ran two linear models to assess the impact of microcredit on household expenditure patterns and household saving to address hypotheses 2a and 2b in our theoretical framework.

As seen in Table 5, microcredit has a positive relationship with both household expenditure and household savings. However, being a loan holder does not significantly affect household expenditure as it relates to a 3% increase and the estimated coefficient is not precise. Household expenditure is significantly affected by age of borrowers, household size, level of education, marital status, and whether the business registered for credit purpose is the only source of income for the household. A year increase in borrowers age and a unit increase in household size are associated with a significant 1% and 5% increase in household expenditure respectively. If the business registered for credit is the only source of income, household expenditure is positively affected, and it increases significantly by 20% compared to households that have multiple sources of income. In comparison to individuals that have no formal education, education up to university level is associated with a 7% increase in household expenditure (95% CI) while the estimated coefficient is 30 % for those with vocational trainings (90% CI). There is a significant reduction in household expenditure among married borrowers by 50% (90% CI) in comparison to divorced and widowed individuals. The amount of outstanding loan and duration in the programme do not significantly affect expenditure.

Table 5: Effect of microcredit on household expenditure and savings

Variables	(1) Log Expenditure	(2) Log Saving
Loan status	0.0299 (0.157)	0.621*** (0.189)
Age of borrower	0.0170** (0.00807)	0.0128 (0.0112)
Duration in program	0.0392 (0.0415)	-0.108** (0.0515)
Current loan amount held	9.03e-08 (1.33e-07)	4.40e-07*** (1.43e-07)
Business is only income source	0.247** (0.0969)	-0.293** (0.126)
Number of income earners in household	-0.0996 (0.0712)	0.179* (0.106)
Household Size	-0.0589** (0.0235)	0.0915*** (0.0291)
Primary school education	-0.187 (0.198)	0.198 (0.238)
Secondary school education	0.123 (0.193)	0.220 (0.229)
University Education	0.725*** (0.220)	0.944*** (0.263)
Other tertiary /Vocational school	0.367* (0.201)	0.451* (0.243)
Married	-0.517* (0.289)	-0.416 (0.460)
Domestic Partnership/Cohabiting	-0.388 (0.300)	-0.582 (0.477)
Separated but not divorced	-0.508 (0.313)	-0.207 (0.495)
Single /Never married	-0.128 (0.307)	-0.126 (0.475)
Layibi Subcounty	-0.0543 (0.101)	0.0837 (0.144)
Pece Subcounty	-0.0868 (0.0975)	0.0738 (0.133)
Constant	9.809*** (0.475)	10.27*** (0.703)
Observations	294	291
R-squared	0.268	0.362

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Contrary to the findings from Hossain, (1988), Khandker, (1998), Pitt et al., (2003), PlaNet, (2008) and Nader, (2008) who showed significant impact of microcredit on respondents' average income and expenses, this case study revealed no significant effect on household expenditures. This is reasonable because the loan (Dabi) given to the women is not targeted towards household consumption but towards business ventures. Our results in the previous section highlight the increase in business profits implying that the loans are invested in the businesses. The lack of precision in results for expenditure is associated with the size

of the loan in this programme (ranges from 100-2500 USD). Although being a loan holder is associated with positive business profits, the average profit from credit financed business among loan holders is Uganda Shillings 85,751.63 (USD 23) and average household expenditure is Uganda Shillings 130, 867.4 (USD 25) as seen in Table 2. This amount of profit is significantly too low to be apportioned between savings, weekly loan repayments and household consumption. Increase in household size also increases expenditure due to high dependency ratio as mentioned in the previous sub section.

Estimated coefficients on household savings show that microcredit has a significant positive effect on savings where being a loan holder is associated with a 62% increase in household savings compared to that by non-loan holders. A unit increase in the total outstanding loan amount also shows a positive effect on savings although the magnitude is very small. However, the duration of the borrower in the program is associated with a negative significant effect on savings. Household savings decrease by 10% for a unit increase in the years spent by women in the borrowing programme.

Additionally, if the registered business is the only source of income, household savings will significantly decrease by 20% compared to households that have multiple sources of income. In comparison to individuals that have received no formal education, being educated up to university level is associated with a 9% increase in household savings (95% C.I) while having vocational training is associated with a 45% increase in household savings (90% CI). Moreover, increase in the number of income earners in the household shows an increase in household savings by 1% (90% CI).

Generally, loan holders have access to credit resources that is used to boost capital and generate income from their business ventures. This, therefore, means that the profits from the business can be used to smooth the income-expenditure relationship within households leading to enhance their savings. Our findings are similar to findings from Morduch (1999) and Chliova et al. (2014) who argued that access to microcredit positively influences household financial budgets. Our findings further support the findings reflected from the works of other researchers who showed an increase in savings for microcredit borrowers (Hossain, 1988; Khandker, 2005; McKernan, 2002).

University education and Other Vocational training positively affect both household expenditure and savings. As explained in the previous section, education is associated with increased productivity of individuals resulting in higher earnings from businesses. Among loan holders, the surplus of these earnings is kept as savings. This finding agrees with findings by Aydemir (2021) who noted that the increase in years of schooling increases the

propensity to save and the amount of monthly savings among women. Vocational training and other tertiary education also impart skills and competencies that promote the growth in productivity (ILO, 2008). Increased productivity is also associated with increased income and expenditure.

With the difference in expenditure in relation to age, the productivity of older micro entrepreneurs is likely to be more consistent than younger micro-entrepreneurs often due to the multiple responsibilities. These findings agree with the results of a Cogito Study² in 2010 by Schmiedek et al (2010) who found that older individuals work more consistently over time compared to the young. Married individuals utilize spouse income to cover the rest of the expenditure irrespective of the loan status, this will be discussed in the next section.

The outstanding loan amount level and duration in the programme have significant effects on household savings but the effect is low for the former and negative for the latter. From interviews with the BRAC borrowers, we found that when women have just joined the programme, they are motivated to save to repay the loans on time and retain a good credit profile. However, once they have established a good profile, they tend to borrow money to cover immediate pending costs and not for investment in businesses registered for credit benefit. This, therefore, reduces the need to save. From one of our respondents, we learnt that sometimes weekly repayments are made using the spouse's income and not from the business because the loan may be for building or other significant costs.

Compared to households with one source of income, loan holders that have multiple sources of income are knowledgeable about their cash/liquidity cycles and will have lower tendency to save as they can obtain income from other sources to pay the loans.

4.2.3 Effect on human development measures and household welfare

To assess the impact of microcredit on human development outcomes and household welfare, ordinary least square (OLS) regression and logit models were employed depending on the nature of the outcome of interest.

a) Education and Health

OLS models were employed to assess household spending on health and children's education as a reflection of improved household budget to cater for health and children's education. This is in line with hypotheses 3a and 3b in the theoretical framework.

² The study compared 101 young adults (20–31) and 103 older adults (65–80) on 12 different tasks over 100 days.

Table 6: Effect of microcredit on education and medical expenditure

Variables	(1) Log education expense	(2) Log medical expense
Loan status	-0.925** (0.468)	-0.160 (0.172)
Age of borrower	0.0145 (0.0255)	0.000941 (0.0102)
Duration in program	0.182* (0.107)	0.0698 (0.0496)
Current loan amount held	3.86e-07 (3.17e-07)	1.08e-07 (1.18e-07)
Primary School education	-0.402 (0.325)	0.0947 (0.243)
Secondary school education	-0.239 (0.261)	0.298 (0.243)
University education	0.486 (0.460)	0.945*** (0.259)
Other tertiary/Vocational education	-0.366 (0.663)	0.464* (0.270)
Married	-1.305** (0.503)	0.608*** (0.226)
Domestic partnership/cohabiting	-0.856 (0.558)	0.420* (0.248)
Separated but not Divorced	-0.906** (0.433)	0.402 (0.248)
Single/Never Married	-0.607 (0.568)	0.487* (0.258)
Number of income earners in the house	-0.177 (0.133)	0.130 (0.0869)
Household size	0.114 (0.0713)	0.00417 (0.0274)
Business is only source of income	0.183 (0.261)	0.216* (0.111)
Layibi Subcounty	0.296 (0.260)	0.0485 (0.115)
Pece subcounty	0.528* (0.294)	-0.134 (0.116)
Constant	11.72*** (0.920)	9.323*** (0.532)
Observations	206	273
R-squared	0.125	0.171

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

As observed in Table 6, access to microcredit has a significant negative effect on education expenditure where being a loan holder decreases expenditure on education by 93% compared to non-loan holders. Being married also has a negative effect on education expenditure as it decreases the expense by 13% compared to widowed and divorced individuals. Additionally, at 95% C.I, individuals that are separated but not divorced spend 9% less on

children's education compared to those that are divorced or widowed. At 90% C.I, we observe that duration in the program positively affects expenditure on children's education where a unit increase in time spent as a loan holder significantly increases expenditure on children's education by 18% and individuals from Pece subcounty show a 52% increase in expenditure compared to borrowers from Bardege. Surprisingly, the education level of the borrower, the amount of outstanding loan, household size and whether households have multiple income sources does not affect expenditure on education.

The results on children's education contradicts findings from various scholars, for example, Zaman (1999), Pitt et al. (2003) and Khandker (1998, 2003), who found that females were more efficient in managing the loan and spending on their children's education. At the same time, our results agree with findings from Bruno et al. (2015), Angelucci et al. (2015), Karlan and Jonathan (2011) and Banerjee et al. (2015), who found no effect on children's schooling while measuring the impact of microcredit among micro entrepreneurs in low and middle-income countries.

With this group of loan holders, the reason can be two-fold; one is that the benefits of microcredit are offset by detrimental effects (Chliova et al, 2014) as some parents with family businesses may take out their children to work on the family business as it becomes more profitable (Morduch, 1999; Wydick, 1999). The other reason is among the loan holders married women account for 39% and women in domestic partnerships account for 41%. Some of these use their partners income to foot bills like education and other significant costs. This argument also agrees with findings by Rao (2012) who observed that male work is always recognized as a source of bread winning for the family compared to female work. This is also confirmed from one of the comments from the borrowers. As discussed by one participant,

"I received a loan of one million Uganda shillings as a loan to be paid in six weeks installments, but my husband is employed as a driver so he can pay the school fees since he is the man and I buy some little food in the house; otherwise, I will not be able to pay back the loan in time." [Discussed August 26, 2021].

Table 6 also shows a negative effect of microcredit on medical expenditure where being a loan holder is associated with a 16% decrease in expenditure on medication. However, this result is not precise. Medical expenditure is significantly affected by marital status at both 99% confidence interval and 90% confidence interval. Being married increases medical expenditure by 60% compared to those who are widowed or divorced while being single or separated increases medical expenditure by 48% and 42% respectively

compared to those who are widowed or divorced. As with the case on average household expenditure in the previous section, if the business is the only source of income, medical expenses will increase by 21% compared to households that have multiple sources of income. Based on the findings and interviews conducted with microcredit clients, it was found that expenditures on health and education are infrequent compared to food. Since health expenditure is only dependent on frequency of disease or illness, respondents could not judge an exact estimate on health per month. This could explain the reason why there is an insignificant impact noted in the study. Overall, a comparison between expenditure and business profits in the previous section showed that the amount profits generated from these loans are too low to cover other household costs in addition to weekly repayments.

b) Women empowerment

Two logistic regression models were used to assess the effect of microcredit on women empowerment as measured by their participation in decision making spaces. As with several other studies on the relationship between women's empowerment and credit program participation, there is a possible bias due to endogeneity of unobserved household characteristics, individual characteristic and area characteristics and the decision to be involved in program participation. One of the unobserved heterogeneity that could bias the estimates is the unobserved attitudes and characters of spouses, community members and other family members. By basing this study in a rural setting and a high poverty area, our study attempts to control for such heterogeneity by using qualitative responses to distinguish women's autonomy and using a large dataset to test assertion that participation in the program is enhancing empowerment of women whose life choices have been affected by poverty, male patriarchy, and overall social norms. We asked respondent whether they were involved in making decisions that significantly impact the household and we also asked respondents if they were currently holding any leadership positions in their community after their social interactions were enhanced by participation in village organisations. (VOs). Both the outcomes are captured by dichotomous variables and the estimated models controlled for age, marital status, household size among other variables.

Table 7 presents the marginal effects from the two logistic regression models. The logistic regression on participation in household decision making shows that microcredit has a significant positive relationship with household decision making where being a loan holder increases the probability of being included in household decision making by 31 percentage point. Moreover, women educated up to university level are significantly more likely to be

included in household decision making compared to those that have not received any formal education. The results show a significant 7 percentage point increase in the likelihood of participating in household decision making for university level compared to those that have had no formal education at all. Surprisingly, household decision making is not affected by the sex of the household head and the marital status of the respondents.

Table 7: Effect of microcredit on women empowerment

Variables	Marginal effects	
	(1) Community Leadership	(2) Household decision
Loan status	-0.135** (0.0682)	0.315*** (0.0906)
Age of borrower	0.0104*** (0.00279)	-0.00489 (0.00251)
Duration in programme	0.0297* (0.0170)	-0.00671 (0.0294)
Primary school education	0.117 (0.0952)	0.0575 (0.0415)
Secondary school education	0.226** (0.110)	0.0187 (0.0480)
University education	0.304* (0.175)	0.0768** (0.0303)
Other tertiary/Vocational education	0.215 (0.152)	0.0480 (0.0368)
Married	0.995*** (0.00324)	0.0434 (0.0857)
Domestic partnership/cohabiting	0.997*** (0.00171)	-0.0511 (0.118)
Separated but not divorced	0.969*** (0.00702)	0.0126 (0.0965)
Single/Never Married	0.988*** (0.00352)	0.0149 (0.0887)
Household size	0.0143* (0.00766)	-0.00381 (0.00736)
Sex of household head	-0.00336 (0.0472)	-0.0311 (0.0431)
Layibi subcounty	-0.0400 (0.0347)	0.0103 (0.0333)
Pece subcounty	-0.0357 (0.0396)	-0.0829 (0.0578)
Observations	294	294

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The model for involvement in community leadership shows that microcredit is associated with a negative significant probability of participation in community leadership. Loan holders are 13% less likely to take up community leadership positions compared to non-

holders. However, participation in community leadership increases significantly with education level, marital status, and household size.

In comparison to individuals that have no formal education, the chance of participating in community leadership (95% C.I) increases by 22 percentage points for individuals that have been educated up to secondary school level and 30 percentage points for those that are educated up to university level (90% CI). The likelihood of participating in community leadership for those that are married, those in domestic partnerships and those that are single is 99 percentage point, 96 percentage point and 98 percentage point respectively compared to widowed and divorced individuals. The likelihood of participation also increases by 1 percentage point with a unit increase in household size. Both participation in household decision making and community leadership is not affected by the sex of the household head and subcounty of origin.

In relation to social welfare of women, empowerment can be viewed by the ability of microcredit to enhance entrepreneurship ability of women to run profitable businesses, have savings as well as contribute to household expenditure and decisions. Microcredit may have a psychological effect related to being an entrepreneur and contributing money to support the family (Hashemi et al. 1996 and Sanyal, 2009). The study has revealed a positive effect, a positive impact on household savings as well as a higher probability of involvement of women in household decision making. With the latter, access to social capital and repeated social and economic interactions ultimately confer more power to women and facilitate the joint pursuit of common causes that improve welfare of their respective households (Sanyal, 2009). Education affects the intersectionality of women whereby less educated individuals are seen to have a lower skill set to handle community leadership positions compared to highly skilled individuals. Our findings agree with the studies of Burke and Egaru (2011) who noted a high correlation between power, control, and level of education in the overall involvement in dispute settlement in rural societies.

c) Coping with shocks

The COVID-19 pandemic is the most recent widespread disaster that affected the microcredit industry. Borrowers suffered from interruptions in their businesses that are meant to generate income for weekly loan repayments and profits to support household consumption. household income and consumption and that these could worsen the poverty level in

developing countries. This was affirmed by the African Union Ministers of Agriculture (African Union, 2020:1), when they remarked that:

“the COVID-19 pandemic poses significant challenges to the already strained health, food and nutrition security and broad socio-economic conditions in Africa. ...With the spread of the virus in the continent, containment measures, including social distancing and lockdowns, closing of schools, the prohibition of public gatherings and the closure of non-essential businesses and economic activities, will have far-reaching consequences.”

To capture the side effects COVID-19 on household socioeconomic conditions, we asked the respondents if the pandemic affected their ability to buy food and whether they had to change the number of meals consumed per day to cater for the difficulty in accessing food. We also asked respondents if they sold any household assets to generate income for consumption during the period from the onset of the pandemic lockdown in March 2020 to the end of July 2020. Three logistic regressions were employed to evaluate the differences between loan holders and non-loan holders

As can be seen from Table 8, the marginal effects from logistic regression models reveal that microcredit has a negative impact on coping with effects of financial shocks as measured by sale of assets to raise income for household consumption. As observed, being a loan holder increased the likelihood of sale of assets during the pandemic lockdown of Uganda by 8 percentage points compared to the non-loan holders. However, the sale was significantly lower for individuals that had attended university education or other vocational training in comparison to those that had received no formal education at all.

All respondents educated to these levels show a 9 percentage points less likelihood of selling assets at 99% and 95% CI respectively. Households that considered the registered business as their only source of income showed a significantly low likelihood of selling assets by 12 percentage points compared to that had multiple sources of income. The likelihood to sell assets was also significant with all levels of marital status compared to widowed and divorced individuals. All levels of marital status showed a 9-percentage point likelihood to sell assets during the pandemic

During the lockdown period of Uganda, many informal entrepreneurs had no income and hence had to dip into their own savings, rely on government food support, or ask for help from family or friends to survive (GIGA, 2020). The lockdown directives by the Ministry of Health did not absolve small enterprises and leading to income insecurity (The Ob-

server Team, 2020). Loan holders had a debt obligation relating to weekly loan repayments which increased the likelihood of sale of assets compared to non-loan holders.

Where the business is the only source of income, the likelihood to sell assets reduces because there are not enough assets to sell. The pandemic affected every individual's financial status irrespective of their marital status hence the likelihood to sell assets across all marital status dummies in comparison to divorced or widowed respondents.

Table 8: The effect of microcredit on coping with shocks of COVID-19:

Variables	(1) Ability to buy food	(2) Number of meals during pan- demic lockdown	(3) Sale of as- sets during pan- demic lockdown
Loan status	0.0119 (0.0237)	-0.158* (0.0877)	0.0782** (0.0371)
Age of borrower	0.00600*** (0.00185)	-0.00303 (0.00561)	-0.00204 (0.00294)
Duration in programme	7.81e-08** (3.90e-08)	-2.70e-07 (1.64e-07)	3.63e-09 (3.82e-08)
Primary School education	0.103 (0.0977)	0.0156 (0.121)	-0.0556 (0.0576)
Secondary school education	0.0929 (0.0932)	0.00270 (0.122)	-0.0586 (0.0595)
University education	0.0853 (0.141)	-0.271* (0.145)	-0.0989*** (0.0373)
Other tertiary/Vocational education		-0.286** (0.128)	-0.0938** (0.0392)
Married	-0.0863* (0.0467)	0.125 (0.272)	0.996*** (0.00260)
Domestic partnership/cohabiting	-0.0801* (0.0451)	0.163 (0.278)	0.997*** (0.00147)
Separated but not Divorced	-0.0357* (0.0212)	0.195 (0.233)	0.965*** (0.00738)
Single/Never Married	-0.0268 (0.0282)	0.157 (0.257)	0.987*** (0.00298)
Household size	-0.00206 (0.00455)	0.0291* (0.0149)	0.0152 (0.0103)
Sex of household head	0.0194 (0.0305)	0.0291 (0.0862)	-0.0109 (0.0511)
Business is only source of income	0.0223 (0.0249)	0.0658 (0.0735)	-0.122*** (0.0326)
Layibi subcounty	-0.0324 (0.0203)	0.122 (0.0732)	-0.0729** (0.0368)
Pece ssubcounty	-0.00633 (0.0219)	-0.148 (0.0830)	0.0297 (0.0444)
Observations	257	294	294

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

During the data collection process, we also received comments from borrowers who indicated that it has become difficult to repay the loan since their business and income generating projects have been affected by the lockdown. Loan holders also indicated that they worked harder than before to repay their weekly instalments and the weekly repayment policy imposed by BRAC is too tight. To comply, some loan holders mentioned that they have used part of the loan received to make repayments in the weeks just after borrowing or sold off some assets. Others indicated that they had to get multiple sources of income to make the weekly amount. Following are examples of these discussions.

“Sometimes, I receive the money but before I can buy capital for my business, I am already required to go for the weekly meeting and pay it back. I end up taking back a portion of it.”

[Discussed August 26, 2021]

Looking at access to food, the ability to buy food was not significantly affected by microcredit as the coefficient is not precise. Though significant, there was also a less than one percentage point likelihood that increase in a unit increase age or duration in the programme affected the ability to buy food. The coefficients associated with marital status show a significant negative relationship across all variables in comparison to being widowed or divorced implying that the ability to buy food was a problem for many households irrespective of their marital status.

There is a significant negative relationship between microcredit and whether the respondent reduced the number of meals per day during the pandemic lockdown. Being a loan holder lowered the likelihood of reducing the number of meals consumed by 15 percentage points compared to being a non-loan holder. Loan holders tend to have disposable income from the loan which they use in consumption. Additionally, loan holders had a higher likelihood to sell assets to support consumption hence no less likelihood to reduce number of meals.

The likelihood also decreased significantly with education level whereby individuals educated up to university level were 27 percentage points (90% C.I) less likely to reduce the number of meals and those with vocational training were 28 percentage points (95% C.I) less likely to reduce the number of meals. As observed in the previous sections, education imparts skills necessary for individuals to make informed decisions for households. Household size also increases the dependency ratio which in turn affects expenditure. In a period

of income insecurity as during the pandemic lockdown, a significant 12 percentage point increase in the likelihood to reduce number of meals consumed per unit increase in household size is associated with high dependency.

In this section, we find that microcredit can help borrowers to cope with financial shocks as access to microcredit caused households to retain the same number of meals per day during the lockdown period. Our findings are supported by Stephen (2020) who found that access to microfinance has helped to mitigate the impact of COVID-19 on the income and income-generating activities of households in low-income countries in Asia hence availability of surplus income for consumption. However, when loan repayment cycles are short, borrowers are forced to sell assets to generate income when their businesses are unproductive for loan repayment. This also agrees with findings by Kiiru and Mburu (2007) who noted that as the magnitude of debt increases, borrowers' resort to selling off personal property to obtain finances to cover their microcredit.

Chapter 5 Limitations and Conclusions

This chapter is divided into two sections. The first section gives a limitation of the study and the second and conclusions and policy recommendations

5.2 Limitations and research enhancements

Several limitations have been highlighted in the use of primary studies to assess the impact of microcredit. Microcredit literature often points selection, self-selection and thus endogeneity as the main source of bias. Hermes and Lensink (2011) and Roodman and Morduch (2009) noted that experimental research designs are less prone to such issues of selection, but these are often costly to employ, and complete randomization is rarely feasible or ethical. However, even without the complete randomization of treatments, most studies on microcredit make use of control groups with similar characteristics to reflect the post treatment differences between treated and control group. Though use of similar control groups enables us to have reasonable confidence in our findings, this study was not able to control for all source of bias especially endogeneity relating to outcomes on women empowerment as this is a multifaceted phenomenon. Additionally, outcomes relating to shocks may not be completely controlled for because the COVID 19 pandemic is a relatively new area of study. It was particularly difficult to conclude on the effect of microcredit on health outcomes used in this study as this is an infrequent expenditure usually pegged to the frequency of illness. Moreover, single survey data could force respondents to rely on recall data for health expenditure which may not be accurate.

There is a lack of relevant research that gives a clear theoretical model (Hermes and Lensink, 2007) be used to differentiate the direct and indirect effects as well as the sequential stages of the effects of microfinance on dependent variables. Key variables used to measure development are often interrelated (Sen 1999) and unravelling these interrelationships can lead to complex models to study the cause and effect of relationships. I hope that these findings point to more fertile ground for future research that aims to identify key effects and distinguish more clearly between immediate and ultimate effects of microcredit.

5.3 Conclusions

Microcredit programmes are often seen as an efficient tool for alleviating poverty and a bottom-up development engine. Targeting women as borrowers has often been associated with empowerment. However, the ability of microcredit to alleviate poverty and influence household socioeconomic conditions has been widely questioned in various literature. Based on this, the effect of microcredit programmes on poverty alleviation varies widely according to the research methods used.

In this study, we observe that microcredit has positive effects on profitability of business ventures and savings of loan holders. However, average household expenditure, expenditures on children's education and health are impacted by other factors more than just participation in the programme. Beyond the credit received, households either need multiple income generating projects, multiple persons earning within the household and/or good education levels. Regarding social factors like empowerment of women, our research agrees with the proponents of microcredit who assess empowerment in line with the involvement of women in household decision making. The programmes do not necessarily cushion households against abrupt financial shocks as tight debt repayment cycles could lead to sale of assets.

In this study, the coefficients of education levels point out its significance in determining socioeconomic outcomes and the success of microcredit programmes. A policy recommendation from this is to provide training and education to borrowers to enhance the utilization of microcredit products and the fight towards poverty alleviation.

In line with the research objective and the research question, we conclude that participation in micro-credit programs has a positive effect the social and economic status of women beneficiaries in Northern Uganda when coupled with other factors mostly education.

Appendices

Appendix 1: Pearson's correlation matrix and Spearman correlation matrix

Pearson's correlation matrix for interval independent variables

Variable	Age	Household Size	Number of earners
Household size	1		
Household Size	0.47*	1	
Number of earners	0.08	0.46*	1

Note: *p<0.05

Spearman correlation matrix for independent variables

Variable	Loan (1/0)	Education Level	Marital Status	Business is only income source
Borrower Type	1			
Education level	0.06	1		
Marital status	0.05	0.07	1	
Business is only income source	-0.29*	-0.08	0.11*	1

Note *P<0.05

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