An Evaluation of the Impact of Microfinance on Poverty Alleviation: Evidence from Uganda

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Abstract: This paper aims to reveal the role of microfinance on poverty alleviation in Uganda. Using a probit regression model, a principal component analysis (PCA)and the analysis of variance technique, the impact of microfinance is evaluated using variables, such as gross income, loans, among others. The study is based on primary empirical data collected from 170 clients in 2017. The study revealed that access to microfinance loans had a positive impact on poverty reduction. The study concluded that, through the interplay of loan sizes, family employment, gross income and education, MFIs could play a significant role in poverty alleviation in Uganda. The study recommended that MFIs should provide non-financial assistance, such as facilitating business and management skills, and assist the poor, who would otherwise slide into further poverty, by including them in the financial stream in the country. risk. It further recommended that MFIs should provide low-interest loans to SMEs and that sensitization on borrowing should be introduced to increase the number of borrowers. Moreover, outreach programmes, low interest rates and the promotion of saving be encouraged. Lastly, it recommended a reduction in bureaucratic tendencies in lending methodologies.

Keywords: Poverty; Poor; MFIs; Uganda

JEL Classification: G21; 132

1. Introduction

Most developing countries, especially those in Africa, are faced with severe economic adversities, particularly that of poverty. The World Bank (2000) notes that 2.8 billion out of 6 billion people in the world live on less than US$2 a day, 1.2 billion live on less than US$1 a day, and 24.3% are found in Sub-Saharan Africa. Chirwa (2002) notes that one of the major causes of poverty in developing countries is a lack of access to productive resources, with formal institutions mostly excluding the poor in their lending programmes. However, most developing

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countries have adopted the highly effective strategy of implementing microfinance programmes by offering credit to those who cannot access it from formal financial institutions

Microfinance has gained importance in helping the poor in both developed and developing countries, such as India, Bangladesh, Bolivia, Nigeria, Ghana and Uganda. Microfinance institutions in Uganda are of different categories, including Microfinance Deposit-taking institutions (MDIs),credit institutions andothers that are a combination of both. These are regulated by the Bank of Uganda through the MDI Act of 2004. Moreover, there are Savings and Credit Cooperatives (SACCOs)and other money lending institutions, which are regulated by the Company Act 1969, the Money Lending Act, 1952, and the NGO regulation Act 1989.The article sought to address the extent to which MFIs in Uganda have alleviated the challenge of poverty. Moreover, it aimed topropose policy recommendations that can be adopted by microfinance service providers and government to ensure the effective implementation of MFI programmes to meet this challenge. Furthermore, the study examined the extent and magnitude of MFIs and the poverty situation in Uganda. Microfinance may be defined as any financial institution that offers not only small loans to micro enterprises, SMEs, groups and individuals but also provides other financial services, such as savings, insurance and investment advice including training programs to its clients (Addae Korankye 2014). The purpose of introducing microfinance was to promote access to financial services for the poor and their participation in productive economic activities. Kalpana (2005) argues that microfinance is there to promote access to formal financial services, while Little Field et al (2003) maintain that its purpose is to reduce poverty among low-income earners, which is Goal 1 of the Sustainable Development Goals (SDGs). Access to financial services in Uganda is still a challenge, especially for the poor rural population. It is estimated that formal financial institutions serve only 14 percent of the rural population, while informal institutions, such as village saving and loan associations, serve another 12 percent (MFPED 2000).The introduction of the microfinance program was intended to address a critical missing link for the poor that could not access formal financial institutions, to end hunger in Africa, which is the SDGs' Goal 2 and to ensure the economic empowerment of the most, but least, supported food producers on the continent. The Poverty Assessment Report (2016)revealed that, between 2006 and 2013, there was an increase in poverty levels in the North and Eastern Uganda from 68 to 84 percent. The Directorate of Social Protection in Gender Ministry revealed that 67 percent of Ugandans are either poor or highly vulnerable to poverty.

Given the magnitude of poverty in Uganda, it makes sense, therefore, that a large number of people would depend on microfinance for their livelihoods. MFIs are there to offer flexible financial services to poor people, who are not able to access

financial services from formal financial institutions, so that they can escape poverty.

1.1 The Concept of Poverty and its Measurements

It is critical to understand the concept of poverty, both at a micro and macro level, since it may not be sufficient to look at it only in terms of basic needs (Hulme& Mosley, 1997). Poverty is a complex phenomenon influenced by a large number of factors, which can be studied from many different perspectives, and interpreting it is not a simple task as there are many ways of measuring and defining it (Hagenaars 1994). The World Bank (2004) defines poverty as a condition of insufficient resources or income, while in its extreme form it is the lack of basic human needs, such as health services, education, drinking water and other basic needs. Klaas and Asghar (1997) describe a poor person or household as a person whose resources are so limited as to exclude them from the minimum acceptable way of life in which they live. The World Bank (2003) maintains that poverty relates to income, and poverty measures are based on the percentage of people living below a fixed amount of $1 dollar earned per day. A person earning less than $2 dollars per day is considered as poor, and earning less than $1 dollar implies extreme poverty. If measurement is the operationalization of the definition, it follows that different definitions involve show different measurements. The measuring of poverty is crucial for the cognitive purpose of understanding how the situation is. Wiren (2014) argues that attempts have been made to measure the levels of poverty. For example, the one dollar a day parameter is not a scientific measure but rather just a comparative statistic. Addae Korankye (2014) analyses the meaning of poverty using the statistical approach and concludes that poverty can be measured in terms of either relative poverty or absolute poverty. Tavanti (2003) explains that absolute poverty is a situation where a person has very little money. This explanation does not consider whether poverty is in line with food consumption or not, so long as one is extremely poor. Tavanti (2003), however, notes that poverty should only be measured on the grounds of money, since the best way to consider someone as being poor is the fact that they cannot afford basic needs of life, such as health care, shelter, water, food and transport among other needs.

2. Statement of the Problem

The formal sector in Uganda only marginally lends money to the rural poor owing to perceived risks and the costs of managing portfolios of small loans. Inadequate financial services to the rural poor constrain experiences of economic activities for sustained employment and higher income at the national level (Omara-Ojungu,

2000). Uganda, like most sub-Saharan countries, lacks a well-developed financial sector, which is small in both depth and breadth (Popiel, 1994). Uganda's financial sector mostly comprises of the commercial banks that dominate it. The number of MFIs that provide microfinance services continues to grow rapidly in Uganda. Over the years. Deposit rates have been increasing; for example, the weighted average deposit ratewas 2.43% in 2014, as opposed to 1.63% in 2013.. The transferrable deposits increased by 15.4% from 5244.9 billion shillings in June 2013 to 6052.61 billion shillings in June 2014, within increase of 2.37% in June 2015. However, the wide presence and activities of MFIshave not led to a reduction in poverty in the country. Despite the wide spread of MFIs in Uganda, almost 30 percent of the rural population of Uganda, which is approximately 10 million people, still live below national poverty line (IFAD, 2015). In 2011, Uganda was ranked 161th among 187 countries on the United Nations Development Programme's Human Development Index in the Low Human Development category. Despite the increase in microfinance, poverty levels in Uganda have remained high, with 24.5% people living below the national poverty line. There were other studies on the relationship between access to microfinance and poverty reduction, but these were anecdotal. In other words, although the role of MFIs in poverty reduction and well-being improvement has attracted the attention of policy makers in developing countries across the world, clear evidence of the positive impact of microfinance is inexistent (Sayid*et al.*, 2014). The study may help to make strategies for poverty alleviation at district, national and international levels. This is because the impediments might be reduced by the recommendations of the study. The Ministry of Finance, Planning and Economic Development and the development partners (donors) that support MFIs might acquire knowledge about the current programmes and policies. Thus, they might know whether these affect poverty alleviations and draw new programmes or improve on the existing ones if necessary

3. Literature Review

The microfinance sector dates back to the early 1990s, although there were no formal financial institutions delivering microfinance services to the public. In 1999, the Bank of Uganda created a policy statement concerning microfinance regulations, which marked the true birth of formal institutions, enabling them easy access to finance to the poor, especially in rural areas. Since then, institutions have been mobilizing saving. Although the major challenge in Uganda's financial sector is the predominance of commercial banks,900MFIs emerged in Uganda between 1990 and 2005, of which 630 were SACCOs. The recognized MFIs in Uganda came into existence in the mid-1980s: The1984 Uganda Women's Finance Trust,

which became the Finance Trust Bank on 11November 2013; and the 1986 CERUDEB Trust, which became CERUDEB in 1993.

4. Methodology

The study used survey design involving both the qualitative and quantitative approach. Both probability and non-probability sampling techniques were used. A total of 170 respondents were considered. The research instruments used were questionnaires and an interview guide. The study employed a Principal Component Analysis and an econometric model in a multivariate context to measure the impact of microfinance on poverty reduction. This was done by testing the primary hypotheses:H_o: MFI loans do not reduce poverty in Uganda.H_A: MFI loans reduce poverty in Uganda. The model specified as Poverty status = f(MFLoan + Educ + Employment+ Hhy + gender + Occupation + number of school going children.Poverty was estimated by a binary variable, taking the value‘1’ for poor and ‘0’ for non-poor. Before estimating the model, a sensitivity test was conducted using the Receiving Operating Curve (ROC) that indicated 96.2% as the level of accuracy. The variables in the model included employment, income, gender, marital status, occupation, education and loan size.

5. Analysis and Discussion of findings

Social demographic characteristic indicated that 56.5% of the respondents were femaleand43.5% were male. The findings indicated that 26-35 years were 48.2%.and 20-25 were 11.8% and40%fell into the 36-65age group. Respondents 20-40 years were 83,7% of the total respondents. Results on education indicated that 48.2% attended secondary education, 25.3% attended primary education,206% were exposed to tertiary education and only 11.3% had obtained a diploma and undergraduate.The Principal Component Analysis (PCA). To state the variables that were important in each aspect, the PCA model was estimated, and a table with eigenvalues was drawn up. The model considered 9 components, which were selected as important, from the 28 components. The results are presented,

Table 1. Principal Component Results on the Economic Status of a household

Component	Eigenvalues	Differences	Proportion	Cumulative
Comp 1	5.00767	2.43525	0.1788	0.1788
Comp 2	2.57242	.682732	0.0919	0.2707
Comp 3	1.88969	.162732	0.0675	0.3382
Comp 4	1.72731	.207701	0.0617	0.3998
Comp 5	1.51961	.0433384	0.0543	0.4542
Comp 6	1.47627	.3333997	0.0527	0.5069
Comp 7	1.14228	.0762756	0.0408	0.5477
Comp 8	1.066	.0572998	0.0381	0.5858
Comp 9	1.0087	.0819618	0.0360	0.6218
Comp 10	.92674	.0148117	0.0331	0.6549
Comp 11	.911929	.0679216	0.0326	0. 6875
Comp 12	.844007	.0224879	0.0301	0.7176
Comp 13	821519	.0856674	0.0293	0.7469
Comp 14	.735852	.0416508	0.0263	0.7732
Comp 15	.694301	.0154816	0.0248	0.7980
Comp 16	.67882	.0480748	0.0242	0. 8223
Comp 17	.630745	.0809027	0.0225	0.8448
Comp 18	.545762	.00377851	0. 0196	0.8468
Comp 19	.545984	.0491913	0.0195	0.8644
Comp20	.496792	0.41833	0.0177	0.8839
Comp 21	.454859	.0236492	0.0162	0.9017
Comp 22	.43191	.0179251	0.0154	0.9179
Comp 23	.413985	0.564068	0.0148	0. 9333
Comp 24	.357578	.0298926	0.0128	0.9481
Comp 25	.336686	.0480984	0.0126	0.9609
Comp 26	.288587	.0396644	0.0103	0.9832
Comp 27	.248923	.0279726	0.0089	0.9921
Comp 28	.22095		0.0079	1.0000

Source: Primary data, July 2017

The results from Table I indicated that there were two components withthe highest eigenvalues of 5.0076 and 2.57242 respectively. They were components 1 and 2. The two combined components accounted for 27% of the variation in the dependent variable, and the rest was explained by the remaining variables in the model. To state or decide what the most important components were, a scree plot of eigenvalues after PCA was drawn in Figure 1. A scree plot is a simple line segment plot that indicates the fraction of the total variance in the data as explained by each principal component. A scree plot was used to graphically determine the optimal number of factors to retain. The scree plot involved finding the place where the smooth decrease of eigenvalues appeared to level off to the right of the plot. This is illustrated in Figure 1 below.

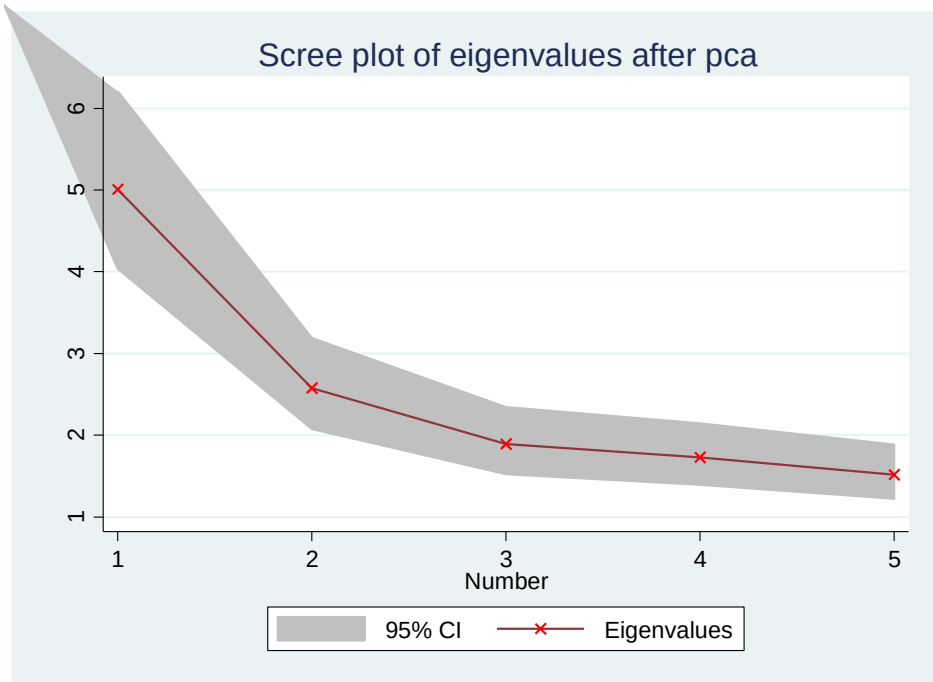

Figure 1. Scree Plot of Eigenvalues after PCA

5.1. Probit Regression model

The study was based on two profound approaches: component analysis to estimate the important variables that best explain poverty, and an econometric model in a multivariate context to measure the impact of MFIs on poverty reduction. This was done through testing the primary hypotheses. These were as follows:H_O: MFI loans do not reduce poverty in Uganda and H_A: MFI loans reduce poverty in Uganda.These were tested using the econometric model specified as Poverty status = f (MFI_{loan} + Educ + Employment status + HHy + Gender +Loan use + Marital status + Individual income +Occupation + No school-going children + E).

Where;

Poverty	:	(1: Non-poor, 0: Poor person) (Dependent Variable)
HHy	:	Gross monthly income of the household
MFI_{loan}	:	Total amount of the loan to the respondent
Education	:	Education level of the respondent.
Employment status	:	(1: Employed, 0: Unemployed)
Occupation of the household	:	(Professional, 0: Non-professional)
Gender	:	Gender of the respondent (1. Male, 2. Female)
No. school children	:	Number of school-going children in family
Individual income :	:	Income earned per month

Marital status : (1 married, 0 otherwise)
Poverty : (1: Non-poor, 0: Poor person) (Dependent Variable)

After the analysis of the PCA of the MFI loan, the next investigation involved ascertaining to what extent microfinance reduces poverty. To this effect, aprobit model regression was estimated using STATA, and the findings are represented in Table 9.3. This model was used, as it was the best model for performing a regression for the binary outcome variable. Binary outcome variables are dependent variables with two possibilities. The model had 170 observations with a log likelihood of -36.218 with LR chi2 (9) 157.91 and Pseudo R2 0.685.Before estimating the probit model, a sensitivity/specific test was performed using a Receiving Operating Curve (ROC). In this curve, the test indicated that a perfect discrimination (no overlap in the two distributions), had an ROC that possessed the upper left corner (100% sensitivity, 100% specific). Thus, the closer the ROC was to the upper left corner, the higher the overall accuracy of the test. The results are indicated in Figure below:

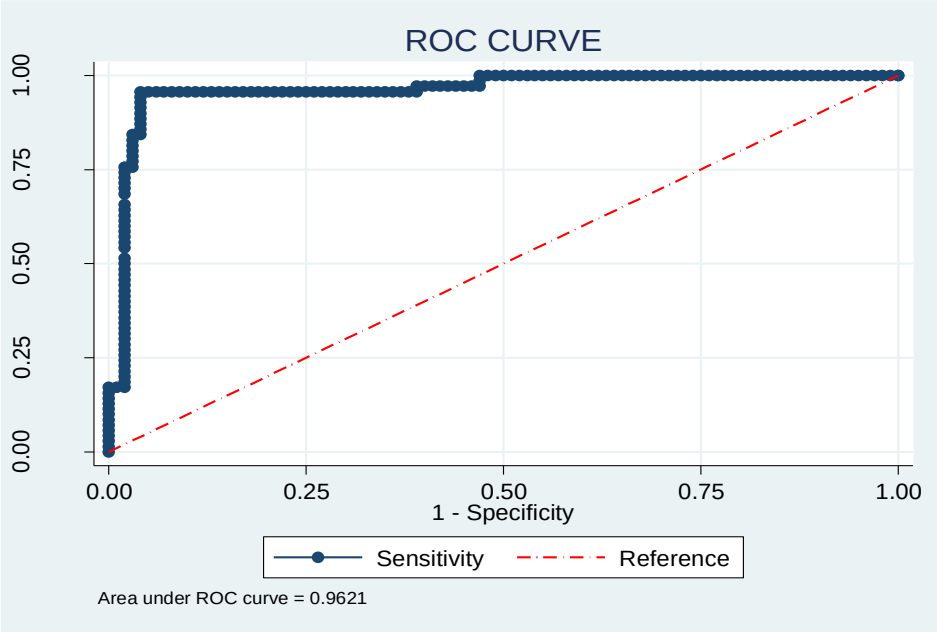

Figure 2. ROC Curve for the Probit Model

The curve in the figure indicated that the area under the ROC is 0.9621, which was 96.2%. This impliedthat the model was accurate and reliable. The figure 10.6 indicated that the model was an excellent one because the ROC curve was near one, which implied that it was a good measure of separability. When it is near zero, the implication is that it has worst measure of separability. If the figure is 0.5, the implication is that the model has no class separation capacity.

Table 2. Results of Probit Regression Model

Poverty Dummy	Coefficient	Standard error	Z	P>|z|	95% Conf.	Interval
Education level	.5812585	.2958797	1.96	0.049	.0013449	1.161172
Gender	.2615648	.3545977	0.74	0.461	-.433434	.9565636
Marital status	.3643202	.2576382	1.41	0.157	-.1406414	.8692818
Family employment	-.1066579	.2882183	-0.37	0.711	-.6715554	.4582396
Gross income	-.5551993	.2990984	-1.86	0.063	-1.141421	.0310229
Individual income	-.0000142	1.87e-06	-7.57	0.000	-.0000178	-.0000105
Occupation	-.3423667	-5113993	-0.67	0.503	-1.344691	.6599574
School-going children	-.0619286	.1888387	-0.33	0.743	-.4320457	.3081884
Total loan	-2.54e-10	5.68e-08	-0.00	0.996	-1.12e-07	1.11e-07
Constant	2.958726	.9956912	2.97	0.003	1.007207	4.910245

Source: Primary data, July 2017

Results with regard to education indicated that it does not matter whether one is educated or not. because of the unemployment situation in Uganda, one is not able to earn an income; hence there is less impact on the probability of one being poor or not. As regards gender for women, there was a possibility of women being poorer than men .With regard to family employment, which had a p-value of 0.71,the results indicated that an improvement in family employment would reduce the probability of that family being poor. Marital status increases the probability of a household being poor. When people are married they increase a household's chances of being poor. Individual income wasanother variable with a p-value 0.000.This indicated that an increase in individual income led to a reduction in the probability of a person being poor. Moreover, a unit increase in income implied an increase in economic welfare, which confirms the early findings of The findings with regard to gross income indicated a p-value of 0.063, which implied that an improvement in gross income would reduce the probability of a family being in an impoverished situation. The findings with regard to occupation with a p-value of 0.503 indicated that a professional hadareduced probability of being poor. School-going childrenwouldreduce the probability of the family being poor. From the table the total loan amount results with ap-value of 0.996 indicated that an increase in the total loan amount might reduce the probability of a person beingpoor.

6. Conclusion and Policy Recommendations

MFIs should provide non-financial assistance to the poor, such as facilitating business and management skills, borrowers should be trained, MFIs should provide loans with low interest rates to SMEs and that there should be sensitizationof borrowers. In addition, increased outreach programmes, low interest rates, the promotion of household savings and an increased monitoring and supervision of MFI clients. There is a need for further studies to be conducted in other districts, since the study was limited to Mukono, Mpigi, Luweero and Wakiso to broaden the knowledge and scope in microfinance, and the role played by non-financial services offered by microfinance

7. References

Addae-Korankye, A. (2014). Causes and control of loan default/delinquency in microfinance institutions in Ghana. *American International Journal of Contemporary Research*, 4(12), pp. 36-45.

Carlton, A. & Wien, L. (2001). *Microfinance in Uganda*. L&R Sozialforschung.

Chirwa, E. W. (2002). Microfinance and Poverty reduction in Malawi: What has happened to the Microfinance Revolution? *Wadonda Consult Working Paper WC.*

Hagenaars, A. J.; De Vos, K. & Asghar Zaidi, M. (1994). *Poverty statistics in the late 1980s: Research based on micro-data*.

Hulme, D. & Mosley, P. (1997). Finance for the Poor or Poorest? Financial Innovation, Poverty and Vulnerability. *Who Needs Credit? Poverty and Finance in Bangladesh*. Edited by Wood, GD and Sharif, IA.

IFAD, F. & WFP (2015). *In The State of Food Insecurity in the World.*

Imai, K. S.; Arun, T. & Annim, S. K. (2010). Microfinance and household poverty reduction: New evidence from India. *World Development*, 38(12), pp. 1760-1774.

Kalpana (2005). *Rural Microfinance and Microenterprises Informal Revolution*. Social Mobilization and microfinance programmes.

Klaas, De Vos & Asghar, Zaidi, M. (1997). Equivalence scale sensitivity of Poverty Statistics for the Member States of the European Country. *Review of Income and Wealth*.

Littlefield, E.; Morduch, J. & Hashemi, S. (2003). Is microfinance an effective strategy to reach the Millennium Development Goals? *Focus note*, 24(2003), pp.1-11.

Ministry of Finance, Planning and Economic Development (2000). Draft Final Report on the *District Resource Endowment Profile Survey* (DREPS), Vol. II, Survey of Microfinance.

Omara-Ojungu, P. (2000). Environmental resources and development. *The Geography of South Afirica in a Changing World*. Cape Town: Oxford University Press, pp. 419-438.

Popiel, (1994). *Financing small and Microenterprises in Africa Uganda –Poverty*. Assessment Report (2016) Main Report.

Sayed Samar, et. al (2014). Conceptual Frame work: The role of microfinance on wellbeing of poor people: Cases studies from Malaysia and Yemen. *Asian Social Science*.

Tavanti, M. (2013). Before microfinance: The social value of micro savings in Vincentian poverty reduction. *Journal of business ethics*, 112(4), pp. 697-706.

World Bank (2004). *World Development Indicators & Global Development Finance*.

World Bank (2003). World Development Report (2004). (Overview). *Making Services Work for Poor People*. World Bank.

World Bank (2000). *World development report 2000-2001: attacking poverty*. World Bank Group.