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Sustainability, Profitability and Outreach Tradeoffs: Evidences from Microfinance Institutions in East Africa

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Abstract

The aim of the study was to examine the presence of tradeoffs between sustainability, profitability and outreach to the poor. The study was conducted in East African using a panel data of 47 Microfinance institutions for four years period.

Using Welfarists approach the study found out that profitability focus has a negative impact on outreach to the poor, implying the presence of tradeoffs. The results on financial sustainability did not show presence tradeoffs with the outreach measures. Under Institutionalist view, the study found out that outreach to the poor has a positive relationship with both sustainability and profitability measures. The study concludes that, the possibility of tradeoffs exists between outreach to the poor with profitability measures as compared to the outreach with financial sustainability. The presence of tradeoffs between financial performance and outreach to the poor also depends on the variables used and estimation model specification. Some variables which indicated the existence of tradeoffs under Welfarists views did do not show such impact under Institutionalist views.

The study recommends that Microfinance institutions in East Africa should focus on financial sustainability in order to reduce their subsidy dependence, ensure survival and growth in the future. To the policy makers the study recommends that sustainability does not compromise the outreach to the poor. The government should review their policies governing Microfinance institutions to ensure that the institutions are directed towards sustainability. The government should also allow institutions to mobilize savings and offer other financial services to broaden their activities and the outreach to the poor.

Keywords: Sustainability, Profitability, Outreach, Microfinance Institutions, East Africa

1. Introduction

Micro financing is the provision of financial services to the poor households as a means of assisting in poverty alleviation programs among the communities. The primary objective of Microfinance institutions is the outreach to the poor by providing financial services in a sustainable base. Microfinance projects were originally entirely donor funded with limited budgets, limited time period, limited economic activity and limited geographical location (Lingerwood, 2001; Christen, 1997). While the going concern of microfinance projects was limited, the poverty levels and financing needs among the communities was unlimited. There were growing needs for financial services among the poor communities especially from those who were financially constrained and vulnerable but have feasible and promising investment ideas (Morduch, 2005; Morduch & Haley, 2002). Microfinance institutions arose as a way to ensure the continuous provision of microfinance services to the poor beyond the donor budgets and the time limit of microfinance projects. The new hope brought by the rise of Microfinance institutions among the poor communities as a continuous source of finance did not last longer. Most of the institutions were highly dependent on subsidies from donors and were characterized with low repayments and poor fund management which together limited their going concern (Morduch, 2000; Ottero, 1999). The increasing focus on social welfare of the poor communities resulted into less concerns on institutional performance in most Microfinance institutions. How could the poor performing institutions provide financial services in the future, were among the major challenges faced by Microfinance institutions. There were also changes in the donor priorities causing declining of donor supports as well as increasing competition for the donor funds among the institutions. As a way to ensure the going concern of

institutions, most of stakeholder argued for efficient and sustainable operations of Microfinance institutions. Commercialization of Microfinance institutions was seen as a means to achieve the primary target of outreach to the poor. A profitable Microfinance was then considered being more able to reach more people with less dependence of the donor funds (Christen, 2001; Isern & Porteous, 2006; Ryne, 1998). Striking the balance between welfare focus through outreach to the poor versus sustainability and profitability of Microfinance institutions has been the topic for debate with little consensus. While Institutionalist stakeholders believe that a profitable Microfinance institution is better serving the poor, the Welfarists contend the presence of tradeoffs between financial performance and outreach to the poor.

In East Africa, microfinance sector has undergone a tremendous transformation since the implementations of the financial sector reforms which started in 1990's. The industry has experienced a fast growth in terms of the number of firms, geographical area covered, and the number of customers served (Triodos Facet, 2011; UBOS, 2010, MFT, 2011). The importance of microfinance sector in the region has increased recently due to a number of reasons. First is due to the recognition of the sector by governments as the powerful means for poverty alleviation and economic development. Second, more than half of the population in individual countries live in rural areas, which are not yet reached by banking sectors making Microfinance sector as the only reliable source of financing. Lastly, the lending methodologies and approaches used by Microfinance institutions in the region have made them more favoured source of finance among the low income household in both rural and urban areas (Triodos Facet, 2011; Marr & Tubaro, 2011). Most of the empirical studies on the performance of Microfinance institutions in the region have focused on the social impact of the microfinance services to the communities. Studies which have focused on the institutional performance have much dealt with financial performance of the institutions in terms of efficiency, sustainability and profitability (Kipesha, 2012: Nyamsogoro, 2010, Kiiza et al, 2004). Little is known about the extent to which Microfinance institutions in the region balance between financial performance and social performance in terms of outreach to the poor. This study seeks to provide evidences on whether tradeoffs exist between profitability and sustainability focus with outreach to the poor in Microfinance institutions operating in East Africa.

2. Literature Review

Sustainability in Microfinance institutions refers to the ability of institutions to cover their operating costs using operating revenue generated from their core activities (Woller et al, 1999; Ledgerwood, 1999). The concept of sustainability originates from natural science where it refers to the ability of a society ecosystem or any such ongoing system to continue functioning into the indefinite future without being forced into decline through exhaustion of its key resources (Robert, 1990). A sustainable microfinance institution offers services to their clients in continuous basis, and is able to meet the needs of the members through resources raised from operations and external sources (UNESCAP, 2006). The focus on institutional sustainability is based on the understanding that the choices, decisions and actions taken by the organizations today have an effect on their future and its long terms survival. If an organization makes wrong choices, decision or wrong focus today especially in their use of resources, their future going concern is at risk. Institutional sustainability is important for globalization and competitive advantages of the institutions. Organizations which focus on sustainability, invites interested partners, lending organizations and consumers who are highly interested in the going concern of the institutions (Tridos Facet, 2009). It also plays a great role in employees and managers' motivation to devote their energy for the performance and survival of the institutions.

Sustainability in Microfinance institutions is geared towards ensuring continuous operations of the institutions in the future, when donors and developing partners are not able to provide funds for operations. It is the questions of how able are Microfinance institutions to continue with operations in the future without depending on subsidies from donors (Christen, 1997; Conning, 1999, Woller & Schreiner, 2006). The need for sustainability in Microfinance institutions is a result of several factors from internal and external of Microfinance operations. Internally, the need for sustainability is a push from both employees and managers who require the going concern of the institutions to safe guide their employments especially when institutions receive no subsidies from donors (Morduch, 2000). Externally is first due to declining donor supports as a result of the increasing number of Microfinance institution requiring donor supports. Secondly, is due to changes in the operations and increased competitions as a result of

increased involvement of commercial banks in microfinance services. Lastly, is due to changes in technology in the financial sector which facilitate efficient operations and decreased operating costs (Rhyne & Otero, 2006; Hermes et al, 2011).

Microfinance sustainability is a step towards profitability, they are both achieved when the institutions are able to reduce their transaction costs, offer better products and services that meet clients need, generate enough revenues and be able to find new financing ways to the unbaked poor households (CGAP, 2004). Microfinance sustainability starts with operational sustainability (OSS) were institutions cover the operating costs regardless the sources of revenue, it is then followed by financial self sufficiency (FSS) where the institutions cover operating revenue using operating revenues and unsubsidized capital base (Ayayi & Sene, 2010; Forster et al, 2003). The last stage of sustainability is profitability where the institutions is not only covering the operating costs but also the cost of funds, cost of inflation and all non cash costs entirely without subsidized funds (Barres et al, 2005, Makame & Murinde, 2007; Rosenberg, 2009; Christen, 1997; Morduch 1999). A profitable Microfinance institution generates excess funds which can be used for reinvestment and expansion of the institution. The growth and survival of these institutions depends on fund availability to cover for the operating costs as well as for the loans offered to the clients. Microfinance institutions which do not generate enough income from its operations depend on subsidies from donors to cover for operating costs and financing costs. The subsidies received by most institutions are not only very low compared to the demands but also their availability is uncertain (Rosenberg et al, 2009; Aghion & Morduch, 2005).

To what extent should Microfinance institutions focus on sustainability and profitability versus outreach to the poor is a challenge to the policy makers and other stakeholders of the sector. The primary objective of these institutions is to facilitate poverty alleviation through the provision of financial services of to the poor and low income households. The outreach objective can only be reached if Microfinance institutions have enough funds to cover for operating costs, financing costs and the loan demands. According to Morduch, (2000), their changing needs and priorities among the donors and developing partners, as a result, donations are no longer trustable source of finance to Microfinance institutions. Without donations, the survival of Microfinance institutions depends on their profitability and the use of commercial sources for financing their activities. The supporters of institutions financial performance indicate that sustainability and profitability are the only key to expansion, growth and more outreach to the large number of poor in Microfinance institutions (CGAP, 1998; Wright, 2000). They also argue that if the objective of outreach to the poor and if the millennium development goal of poverty eradication has to be reached in developing countries, then, Microfinance institutions should focus on financial sustainability and use commercial sources of funds (Christen, 1997, Christen & Drake, 2002, Burkett, 2007).

Empirical evidences on whether outreach focus complements institutions sustainability and profitability have presented contrasting evidences. Although most of the evidences have reported the presence of tradeoffs between sustainability and profitability focus with outreach to the poor, still there potential evidences showing a positive association between them. Supporting the welfarists views, empirical evidences provided by Kablan, (2012); Annim, (2009), Crawford et al, (2011), Adongo & Stork, (2006), Nghiem & Laurenuson (2004) and Hermes et al, (2011) provide evidence for the presence of tradeoffs between financial performance focus and outreach to the poor among Microfinance institutions. These evidences indicate that the institutions which perform well in financial performance did that at the expense of outreach to the poor. Contrary to that, evidences by Makombe et al, (2005), Kabeer, (2001), Paxton & Fruman, (1998), Seibel & Parhusip (1998), Cull et al, (2007), Brau and Woller, (2004) and Schreiner, (2002) reported presences of a positive association between sustainability and profitability with outreach to the poor, hence absence of tradeoffs.

Evidences whether tradeoffs exist between profitability focus and outreach to the poor is very important for policy makers in East African countries. As in most developing countries, more than half of the population lives in rural areas characterized by high poverty level; high demands of financial services and low outreach (Marr & Tubaro, 2011, Triodos Facet, 2011). With limited formal financial sectors, Microfinance institutions are the major sources of finance to facilitate poverty alleviation among the poor population. To what extent does Microfinance institutions in the area balance between the two objectives has not been documented yet. This is important enable the government and other stakeholder in the policy formulation in order to create a better environment necessary for meeting the millennium goals of poverty alleviation.

3. Methodology and Data

The study examines the existence of tradeoffs between sustainability and profitability with outreach to the poor in Microfinance institutions. The study uses data from Microfinance information exchange database (www.marketmix.org). The study sample includes 47 Microfinance institutions operating in East African countries, which include Tanzania, Kenya, Uganda, Rwanda and Burundi. The selection of Microfinance institutions included in the sample based on the completeness of data for the four periods of 2008 to 2011.

The study uses nine indicators as proxies for sustainability and profitability of Microfinance institutions. The indicators includes operating self sufficiency (OSS), return on asset (ROA), yield on gross loan, operating expenses to asset ratio, financial revenue to gross loan portfolio ratio, gross loan to asset ratio, debt to equity ratio, cost per borrower ratio and borrowers per staff ratio. The study adopts the outreach framework by subdividing outreach to the poor into six variables of the breadth of outreach, depth of outreach, length of outreach, scope of outreach and the worth of outreach (Schreiner, 2002; USAID, 2006). The breadth of outreach is the size or scale of Microfinance institutions, depth of outreach is the value the society attach to the net gain of given client, length of outreach is the sustainability of supply of microfinance services, scope of outreach refer to the number of distinct product and services offered to clients, cost of outreach is sum of price cost and transaction cost and worth of outreach refers to the value of products and services consumed and the client's willingness to pay (USAID, 2006).

We use unbalanced panel regression analysis model with 4 years time period and 47 Microfinance institutions. The general form of panel regression analysis can be specified as:

$$Y_{it} = \lambda + \beta x_{it} + u_{it} \quad \text{---------- (1)}$$

Where: Y_{it} is the dependent variable, λ is the intercept term, β is a k x 1 vector of parameters to be estimated on the explanatory variables, χ_{it} is the 1 x k vector of observations on the explanatory variables, t denotes time period t=1,…., T, i denote cross section i=1,…..,N.

We examine the presence of tradeoffs in Microfinance institutions using two contrasting views, the Welfarists view and Institutionalist view. According to Welfarists the objective of Microfinance institutions is outreach to the poor and low income households. Increasing focus on sustainability and profitability, result into saving wealthier clients, increasing lending rates and little focus to the poor clients which affects outreach to the poor (Ahlin et al, 2011; Kablan, 2012). Using Welfarists view; outreach to the poor is used as the dependent variable while financial performance is used as independent variable. We use three measures of outreach to the poor, average loan balance per gross national product per capita, percentage of women borrower and the number of active borrowers. The three outreach regression models are;

$$AVLPGNPc_{it} = \alpha + \beta_1 x_{(OSS)it} + \beta_2 x_{(LNDTER)it} + \beta_3 x_{(GPY)it} + \beta_4 x_{(LNCPB)it} + \beta_5 x_{(GPA)it} + \beta_6 x_{(FRPAY)it} + \beta_7 x_{(OPEX)it} + \beta_8 x_{(LNBPS)it} + \omega_{it} \quad \text{---(2)}$$

$$PWBR_{it} = \alpha_i + \beta_1 x_{(OSS)it} + \beta_2 x_{(LNDTER)it} + \beta_3 x_{(GPY)it} + \beta_4 x_{(LNCPB)it} + \beta_5 x_{(GPA)it} + \beta_6 x_{(FRPAY)it} + \beta_7 x_{(OPEX)it} + \beta_8 x_{(LNBPS)it} + \mu_{it} \quad \text{---(3)}$$

$$LNABWR_{it} = \alpha_i + \beta_1 x_{(OSS)it} + \beta_2 x_{(LNDTER)it} + \beta_3 x_{(GPY)it} + \beta_4 x_{(LNCPB)it} + \beta_5 x_{(GPA)it} + \beta_6 x_{(FRPAY)it} + \beta_7 x_{(OPEX)it} + \beta_8 x_{(LNBPS)it} + \mu_{it} \quad \text{---(4)}$$

Where: $AVLPGNPc_{it}$ is the average loan balance per GNP per capita, $LNABWR_{it}$ is the number of active borrowers, $PWBR_{it}$ is the percentage of women borrowers, χ_{OSSit} is the operating self sufficiency, χ_{GPAit} is the cost per borrower, χ_{DTERit} is debt to equity ratio, χ_{GPYit} is gross portfolio yield, χ_{ROAit} is the return on asset, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ are the coefficients for each dependent variables in the model. The composite error term $\omega_{it} = \mu_{it} + \varepsilon_{it}$, where μ_{it} is the individual specific error term and ε_{it} is the combined time serial and cross sectional error term which control for all omitted variables in the study models. Among the omitted variables include, Microfinance institution type, age, regulation status, size and location.

From Welfarists views financial sustainability (OSS) and profitability (ROA) have a negative impact on outreach to

the poor. Microfinance institutions that increase its focus on sustainability saves self few wealthier clients since most of the poor cannot pay the market price of the services (Hermes et al, 2011; Kablan, 2012; Annim, 2009). We expected that, operating self sufficiency to have a negative coefficient in all outreach models. The ratio of debt to equity indicates the extent to which Microfinance institutions use commercial funds as the source of capital. The use of debts expands the capital base and enables Microfinance institutions to serve more clients. On the other hand, more debts attract higher interest payments which act as a push factor for sustainability and profitability of Microfinance institutions. We expected the ratio of debt to equity to have a negative relationship with outreach models as the increase in debts use attract financing costs and less investment in gross loan portfolio (Esperance et al, 2003). With Welfarists view the main objective of Microfinance institutions in outreach to the poor and low income households. Microfinance institutions which focus on outreach to the poor invest most of their funds into client loans which increase gross loan portfolio. The higher gross loan to asset ratio indicates that most of the institution's funds are invested in client loans, which increase outreach to the poor. The yield on gross loan is the proxy measure for interest rates charged by Microfinance institutions to the clients. Since most of the poor cannot pay the market rate of the loan, we expected yield on gross loan and financial revenue to asset ratio to increase with declining outreach to the poor. Micro financing involves the provision of small size loan to clients with shorter term duration. Small size loans with shorter duration are characterized with higher costs due to screening, monitoring and administrative of many small loans (Lupenu & Zeller, 2002; Paxton & Cuevas, 2002, Hulme & Mosley, 1996). We expected cost per borrower ratio and operating expense ratio to increase with outreach to the poor. Microfinance institutions which seek to reduce operating costs choose to offer larger loan with a longer term maturity, which are not favoured by most of the poor clients. The ratio of borrowers to staff measures the staff productivity in Microfinance institutions. The focus on outreach to the poor involves increasing the client base in Microfinance institutions. We expected this ratio to have a positive impact on the dependent variables which are outreach to the poor.

Using the Institutionalist views, financial performance of Microfinance institutions is the basis for accomplishing the primary objective of outreach to the poor. A profitable Microfinance institution generates excess funds for reinvestment allowing the expansion, and growth of the firms in terms of client base, revenues, geographical coverage and asset base (Brau & Woller, 2004; Quayes, 2012; Zerai & Lalitha, 2012). With this view, we seek to examine the impact of more outreach focus on sustainability and profitability of Microfinance institutions. We use two dependent variables, operating self sufficiency (OSS) and return on asset (ROA) as proxies for Microfinance institutions sustainability and profitability. The independent variables are the outreach indicators as proposed by six dimensions outreach framework (Schreiner, 2002; USAID, 2006). The following models were used for testing the impact of outreach focus on sustainability and profitability of Microfinance institutions.

$$OSS_{it} = \alpha + \beta_1 x_{(AVLPGNPc)it} + \beta_2 x_{(PWBR)it} + \beta_3 x_{(GPY)it} + \beta_4 x_{(LNABWR)it} + \beta_5 x_{(LLR)it} + \beta_6 x_{(NPSV)it} + \beta_7 \chi_{(GLPAR)it} + \omega_{it} \quad --(5)$$

$$ROA_{it} = \alpha + \beta_1 x_{(AVLPGNPc)it} + \beta_2 x_{(PWBR)it} + \beta_3 x_{(GPY)it} + \beta_4 x_{(LNABWR)it} + \beta_5 x_{(LLR)it} + \beta_6 x_{(NPSV)it} + \beta_7 \chi_{(GLPAR)it} + \omega_{it} \quad --(6)$$

Where: OSS_{it} is operating self sufficiency, ROA_{it} is a return on asset, $AVLPGNPc_{it}$ is average loan per GNP pa capita (Depth of outreach), χ_{PWBRit} is percentage of women borrower (Depth of outreach), χ_{GPYit} is gross portfolio yield (Cost of outreach), $\chi_{LNABWRit}$, is a number of active clients (Breadth of outreach), $\chi_{GLPARit}$ is gross loan per asset (Breadth of outreach), χ_{LLRit} is loan loss rate (Worth of outreach), χ_{NPSVit} is the number of products and services (Scope of outreach), i is the i^{th} Microfinance institution, t is the time period, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ are the coefficients for each dependent variables in the model, $\omega_{it} = \mu_{it} + \varepsilon_{it}$ where μ_{it} is the individual specific error term and ε_{it} is the combined time serial and cross sectional error term which control for all omitted variables (type, age, regulation status, size and location) in the study models.

From the literature reviewed offering small size loan with shorter maturity attract high transaction costs (Lupenu & Zeller, 2002; Cuevas, 2002, Hulme & Mosley, 1996). Microfinance institutions which offer small size loan with shorter maturity, experiences declining sustainability and profitability due to high costs in the customer screening, monitoring and loan administration. We expected that the depth of outreach measured by the average loan per GNP pa capita to have a negative impact on sustainability and profitability of Microfinance institutions reviewed. The literature also show that women are poorer and more excluded than men especially in developing countries. The

focus on more women clients increases the chances for low repayment rates which affect the sustainability and profitability of the firms (Hermes et al, 2011). We expected the depth of outreach measured by the percentage of women borrowers to have a negative impact on sustainability and profitability measures. We also expected that gross portfolio to asset ratio to have a negative impact on sustainability and profitability. The higher ratio indicates that Microfinance institutions do not invest in other profitable investments than gross loan portfolio. The number of borrowers is the measure of the breadth of outreach to the poor. Under Institutionalist views, we expected increase in the number of client's results into increases in revenue generated hence increases in sustainability and profitability. We also expected yield on the gross loan (cost of outreach) to increase with sustainability and profitability as well as the scope of outreach measured by the number of products and services offered.

We estimate the five regression models using panel data estimation models which take into account of endogeneity caused by omitted variables. Endogeneity problem in the panel regression arises when there correlation between some variable of the model with the error term. It may result from measurement error, autocorrelation of error terms, simultaneity or omission of variable that have a significant impact on dependent variable (Greene, 2003; Gujarati, 2003). We use the two panel methods fixed and random effects which controls for endogeneity problem caused by omitted variables. The fixed effect model is useful when controlling for variables that are constant over time, but they differ between cases while the random effect model is useful when controlling for variables which vary across time and across cases (Brooks, 2008). We conducted Hausman test to identify which estimation model between random and fixed effect is the best estimation model for the study models. The Hausman test shows that the random effect model is the best estimation model for the regression model 1, 4 and 5 while the fixed effect model is the best for the regression model 2 and 3 (Appendix 1). We also conducted Breusch Pagan Langrange Multiplier for random effect to examine whether we should use the random effect models or pooled regression analysis. The results also favoured the use random effect model for the regression model 1, 4 and 5. We also conducted F-test to choose between the fixed effect model and pooled regression analysis for the regression model 2 and 3, the results favoured fixed effect model.

We also tested for autocorrelation between the error terms of the models using Wooldridge test for autocorrelation in Panel data. The test results did not show any presence of autocorrelation in the error term in all five regression models. The probability values were all higher than 5% level of significance (Appendix 1). We tested for multicollinearity using variance inflation factor (VIF) to test the presence of multicollinearity between the independent variables of the models. The test results did not find any sign of multicollinearity as the tolerance value were also above the cut-off point of 0.1. We also tested for heteroskedasticity to check the presence of constant variance among the error terms. The results did not show the presence of any serious heteroskedasticity in the regression model (Appendix 1).

4. Findings and Discussion

To examine the relationship between sustainability and profitability with outreach to the poor, we conducted both association test and causality test. The partial correlation test shows a negative correlation between return on asset (ROA) with outreach measures. We also found insignificant negative correlation between return on asset (ROA) with an average loan per GNP pa capita (AVLPGNPC) and active borrowers. On the other hand, the results show significant negative correlation between profitability (ROA) and percentage of women borrowers at 10% level of significance (Table 1). This implies that the increasing focus profitability results into saving fewer women clients who are considered to be poorer and excluded than men in East Africa. The results on ROA were also supported by the correlation results between financial revenue to total asset ratio (FRPAST). We found that financial revenue to asset ratio was significantly negatively correlated with all three measures of outreach to the poor. This implies that when institutions focus on increasing the revenues earned by their assets they do that at the expense of outreach to the poor.

The test results show a positive correlation between cost operating expense ratio (OPEXPR) and cost per borrower ratio (LNCPBR) with the three outreach measures. This implies that saving the poor is associated with high operating costs, hence, the more outreach to the poor the high the costs incurred by the institutions. The ratio of debt to equity (LNDTER) was found to be positively correlated with a significant coefficient with percentage of women borrowers and the number of active borrowers. This implies that the increasing use of commercial funds in Microfinance

institutions results in saving more poor clients. On the other hand, the ratio of gross loan to asset (GLPR) and staff productivity (LNBPSR) were significantly positive correlated with outreach measures. The correlation test results also show a positive correlation between financial sustainability (OSS) with the measures of outreach. This indicates that the increasing focus on financial sustainability move in the same direction with outreach to the poor measures.

Table1: Partial Correlation results

Partial correlation results						
	AVLPGNPC	PWBWR	ABRWR		OSS	ROA
Variable	Corr.	Corr.	Corr.	Variable	Corr.	Corr.
LNDTERA	0.0675	0.2174*	0.1781*	AVLPGNPPC	0.1608**	0.0551
ROA	(0.0808)	(0.1113)***	(0.0235)	PWBR	(0.0037)*	(0.1211)***
FRPAST	(0.3632)*	(0.3037)*	(0.1134)***	LNABRWR	0.0121	0.0377
OPEXPR	0.0211	0.1218***	(0.0430)	GLPR	0.0164	0.1842*
LNCPBR	0.6222*	(0.1493)*	0.2359*	YIELD	0.0031	(0.0848)
LNBPSR	0.2632*	0.2014*	0.4523*	LLRA	(0.1786)**	(0.2061)*
GLPR	0.1661**	0.1431*	0.1104***	NPSV	0.0699	0.1083
OSS	0.376*	0.2755*	0.0347			
YIELD	0.0823	0.3405*	0.0627			
* Significant at 1%, **Significant at 5%, *** Significant at 10%						

The partial correlation results for sustainability and profitability models were much similar to the outreach correlation results. We find a significant positive correlation between average loans per GNP pa capita with sustainability (OSS) and between gloss loan portfolio ratio and profitability (ROA). The results also show a significant negative correlation between depth of outreach (PWBR) and worth of outreach (LLR) with both financial sustainability and profitability measures. We deduce that the tradeoffs between sustainability and profitability with outreach measures depends on the variables used and model specifications. Variables which measure the same construct may show different results in the same model while the same variables may show different results in different models.

We also tested causality relationship to examine the presence of cause and effect between dependent and independent variables in the five regression models. The test results show significant positive coefficients between average loan per GNP pa capita with cost per borrowers' ratio, borrowers per staff ratio, loan portfolio to asset ratio and operating self sufficiency. This implies that a unit increase in the four variables results in increases in the depth of outreach measure by the average loan per GNP pa capita, by 3.06, 1.305, 1.885 and 0.846 respectively. We also find significant negative coefficients between cost per borrower with percentage of women borrower and the number of active borrowers. On the other hand, we find significant positive coefficients between borrowers per staff ratio and gross loan portfolio to asset ratio with a breadth of outreach measured by the number of active borrowers (Table 2).

Table 2: Regression Results summary

	AVLPGPC	PWBR	LNABRW		OSS	ROA
	Coeff. (Re)	Coeff. (Fe)	Coeff. (Fe)		Coeff. (Re)	Coeff. (Re)
LNDTER	0.122	(0.008)	0.044	AVLGNPC	0.016	0.002
ROA	(1.04)	(0.101)	(0.185)	PWBR	(0.112)	(0.094)***
FRPAST	(3.924)**	(0.113)	(0.332)	LNABRWR	0.010	0.004
OPEXPR	(0.462)	0.055	0.232	GLPAR	0.098	0.113***
LNCPBR	3.060*	(0.051)*	(0.644)*	YIELD	0.068	(0.036)
LNBPSR	1.305*	0.009	0.377*	LLRA	(1.485)***	(0.269)
GLPR	1.885***	(0.039)	1.308*	NPSV	0.025	0.010
OSS	0.846***	0.001	(0.111)	CONS	1.223*	0.551*
YIELD	(0.329)	0.000	(0.112)			
CONST	(20.934)*	0.903*	10.088*			
R-sq:				R-sq:		
within	0.387	0.14	0.432	within	0.014	0.036
between	0.459	0.15	0.084	between	0.101	0.119
overall	0.451	0.15	0.095	overall	0.065	0.111
* Significant at 1%, **Significant at 5%, *** Significant at 10% ,Re- random effect, Fe- Fixed effect						

The results from sustainability and profitability regression models do not show the presence of tradeoffs with most of the outreach variables in the model. The findings show that sustainability has significant negative coefficients with loan loss rate and insignificant coefficient with other outreach variables. The results from profitability regression model show a significant negative coefficient with percentage of women borrower and significant positive correlation with gross loan to asset ratio. The results on R square show that most of the variations in the dependent variables in all five regression models were not explained by the variations in the independent variables. The R squared results on both within, between and overall were less than 0.5 in all five regression models. This indicates that the variations observed on the outreach to poor measures are less caused by the variation on sustainability and profitability measures and vice versa.

Combining the results from the partial correlation test and regression analysis, we find some evidences of the presence of tradeoffs between financial performance measures with outreach to the poor. Using Welfarists approach both return on asset (ROA) and financial revenue ratio were found to have negative coefficients with outreach measures in both correlation and regression results. This implies that focusing on profitability results into declining outreach to the poor. The tradeoffs between outreach and profitability were also observed under cost per borrower's ratios, borrowers per staff and gross loan per asset ratio. This implies that saving few wealthier clients, which improve profitability, has resulted into declining outreach. Reduction of cost per borrower which improves profitability result into declining outreach as well as focusing on other profitable investments apart from loan portfolio results into declined outreach. The findings of the study were in line with some previous studies such as Crawford et al, (2011), Ejigu, (2009), Kablan, (2012) which report the presence of tradeoffs between outreach and profitability. The results on financial sustainability did not show any tradeoffs with the outreach measures. We find a positive association and causality relationship financial sustainability (OSS) and outreach measures. These results corresponds to the previous findings by Cull et al (2007), Ayayi &Sene (2010), Quayes (2012) and Zerai & Lalitha (2012) which reported the absence of tradeoffs between outreach and sustainability.

Using Institutionalist views we find contradiction results which suggest that model specification has an impact of the nature of the results obtained. Assessing the impact of outreach to the sustainability and profitability, we find that average borrower per GNP pa capita has positive coefficients in both OSS and ROA models contrary to the results

obtained from outreach models. We also find that the tradeoffs between outreach to the poor with sustainability and profitability depend on the variables used in the model. The results from the sustainability model show positive coefficients with cost of outreach (yield), depth of outreach (AVLPGNPC), breadth of outreach (LNABRW) and scope of outreach (NPS). On the other hand, sustainability model was found to have a negative relationship with depth of outreach when measured by percentage of women borrowers. Similar results were observed under profitability regression model were depth of outreach (AVLGNPC), breadth of outreach (LNABRW) and scope of outreach (NPS) were found to have positive coefficients hence moving in the same direction. While the yield rate and percentage of women borrowers indicated the presence of tradeoffs between profitability and outreach. We also find a negative association between loan loss rates (worth of outreach) with sustainability and profitability which implies that low value attached to the products and services by clients' results in declining performance of the institutions.

5. Conclusion and Recommendation

The aim of the study was to examine the presence of tradeoffs between sustainability, profitability and outreach to the poor. The study was conducted using a sample of 47 Microfinance institutions operating in East Africa and the data from Microfinance exchange organization database. The study tested the existence of tradeoffs under two approaches, the Welfarists view and Institutionalist views of the primary objective of Microfinance institutions.

Using Welfarists approach we find that return on asset (ROA) and financial revenue ratio have negative coefficients with outreach measures in both correlation and regression results. This implies that focusing on profitability results into declining outreach to the poor hence existence of tradeoffs. The tradeoffs between outreach and profitability were also observed under cost per borrowers' ratios, borrowers per staff and gross loan per asset ratio. The results on financial sustainability did not show any tradeoffs with the outreach measures. We find a positive association and causality relationship financial sustainability (OSS) and outreach measures. Under Institutionalist view, we find that average borrower per GNP pa capita has positive coefficients with both OSS and ROA models contrary to the results obtained from outreach models. The results from the sustainability model show positive coefficients with cost of outreach, depth of outreach, breadth of outreach and scope of outreach. The results under profitability model show that depth of outreach, breadth of outreach and scope of outreach has positive coefficients with return on asset hence moving in the same direction. The cost of outreach (yield rate) and depth of outreach (percentage of women borrowers) were found to have negative coefficients indicating presence of tradeoffs with profitability. We also find a negative association between loan loss rates (worth of outreach) with sustainability and profitability indicating the importance of the client's willingness to pay for the services received on firm profitability.

We conclude from the findings that the existence of tradeoffs between financial performance and outreach to the poor depends on the variables used and estimation model specification. Some variable which indicated the existence of tradeoffs under Welfarists view did do not show such negative impact under Institutionalist views. Combining the results together we find possible tradeoffs between outreach to the poor with institutions profitability and absence of tradeoffs with sustainability measures. We argue that, Microfinance institutions can focus on financial sustainability to enable them cover operating costs and ensure their going concern with less dependence on subsidies without compromising outreach to the poor. The focus on sustainability should be controlled at certain levels above which institutions generate profit at the expense of outreach to the poor.

The study recommends that Microfinance institutions in East Africa should focus on financial sustainability in order to reduce their subsidy dependence, ensure survival and growth in the future. To the policy makers the study recommends that sustainability does not compromise the outreach to the poor. The government should review their policies governing Microfinance institutions to ensure that the institutions are directed towards sustainability. The government should also allow institutions to mobilize savings and offer other financial services to broaden their activities and the outreach to the poor.

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Appendix 1: Regression Assumptions Test Results

Hausman Test					
	Model 1	Model 2	Model 3	Model 4	Model 5
chi2(9)	14.830	49.650	49.860	13.890	5.710
Prob>chi2	0.096	0.000	0.000	0.053	0.378
Breusch Pagan Langrange Multiplier for Random Effect					
	Model 1	Model 2	Model 3	Model 4	Model 5
chi2(1)	154.390			26.190	56.430
Prob>chi2	0.000			0.000	0.000
F-test (Fixed vs Pooled regression)					
F test that all u_i=0					
	Model 1	Model 2	Model 3	Model 4	Model 5
F(46, 131)		30.900	68.920		
Prob > F		0.000	0.000		
Wooldridge test for autocorrelation in Panel Data					
H0: no first-order autocorrelation					
	Model 1	Model 2	Model 3	Model 4	Model 5
F(1, 46)	5.495	5.494	5.439	0.447	0.427
Prob > F	0.023	0.024	0.024	0.515	0.519
Collin Multicollinearity Diagnostic Test					
Model 1,2,3			Model 4,5		
Variable	VIF	1/VIF	Variable	VIF	1/VIF
OPEXPR	3.81	0.262	PWBR	1.28	0.779
ROA	3.59	0.279	LNABRW	1.25	0.802
PRPAST	3.51	0.285	YIELD	1.2	0.834
OSS	3.01	0.332	AVLPGNPPC	1.18	0.849
GLPAR	2.19	0.456	GLPAR	1.1	0.908
YIELD	2.13	0.470	NPSV	1.09	0.913
LNBPSR	2.06	0.486	LLRA	1.05	0.955
LNCPBR	1.93	0.518			
LNDTER	1.06	0.945			
Mean VIF	2.59		Mean VIF	1.16	
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity : Ho: Constant variance					
Variables: fitted values of	AVLPGNPC	PWBR	LNABWR	OSS	ROA
chi2(1)	0.040	0.090	0.590	0.632	0.576
Prob > chi2	0.851	0.767	0.443	0.387	0.425

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