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# Determinants of Participation of Micro and Small Enterprises in Microfinance in Kenya

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#### **Abstract**

Microfinance development is one of the avenues that can potentially promote performance of Micro and Small Enterprises (MSEs) especially in developing nations. Despite the development, MSEs continue to suffer from high levels of financial exclusion as well as low participation in microfinance. In the period 2011-2016, at least 2.2 million businesses closed largely due to financial exclusion and shortage of operating funds. In addition, only about 25% of the firms used microfinance credit in the year 2015. This level of usage is considered low in light of the microfinance developments that have taken place in the last decade. Therefore, an understanding of factors that affect participation of MSEs in microfinance is necessary for designing policies and products towards promoting greater participation in microfinance. This is because MSEs are key contributors of income and employment to the economy. Studies on determinants of participation have tended to focus on the household and not MSEs. This study drew data from the 2016 FINACCESS data set and estimated the determinants using a probit model. The results revealed that, age of firm owner, tertiary education level, financial literacy level, numeracy level, ownership of radio, possession of business permit and age of firm are some of the key determinants of participation in microfinance. It is therefore suggested that government and microfinance providers should encourage and upscale financial literacy programmes so as to influence greater participation in microfinance. In addition, the government should create incentives that will increase acquisition of permits and licences by MSEs.

**Keywords**: Micro and small enterprises; Participation; Microfinance; Probit

#### Introduction

The development of microfinance is a potential avenue for helping MSEs overcome their challenges of financial exclusion especially in developing countries. Apart offering services such as microcredit, microsavings and microinsurance at affordable rates and flexible terms, microfinance institutions (MFIs) provide social intermediation services which include facilitating formation of groups, training their members on enterprise development, financial literacy and management capabilities [1].

The nature and innovations of microfinance makes the sub-sector a useful tool of addressing problems of financial exclusion for MSEs. Through group lending, firm owners without collateral come together and form groups with allow for, positive assortative matching, where only the less risky individuals group themselves in order to receive a loan. In addition, peer monitoring enables group members have an incentive to take remedial action against a partner who misuses his or her loan which in effect overcomes moral hazard [2-4].

Microfinance institutions (MFIs) are generally preferred by MSEs because of their attributes such as: short-term loans, frequent repayment schedules, simple application procedures, short processing periods, dynamic incentives, little or no collateral required and use of tapered interest rates (decreasing interest rates over several loan cycles) as an incentive to repay on time. In light of these innovations, studies view microfinance as an important tool for overcoming challenges such as inadequate capital, lack of access to affordable credit, lack of collateral and inadequate managerial and technical skills [5-7].

The MSE sub-sector in Kenya makes an important contribution to economic growth, employment and welfare of the households. On economic growth, the sub-sector accounted for 33.8% of the Gross Domestic Product (GDP) in the year 2015 [8]. In relation to employment, the sector employed at least 14.9 million people in 2015

accounting for at least 90% of the total employment in Kenya. Overall, micro enterprises comprised 81% of the total employment while the remainder was for small and medium enterprises.

The sub-sector may be classified by licensing status, number of employees, registration status and economic activity. In the year 2015, there were about 7.4 million business establishments in Kenya of which, 1.5 million businesses were licenced while 5.9 million were unlicensed. On characterization by number of employees, 81% of the total businesses were microenterprises (1-9 employees) while 19% were either small or medium enterprises (50-99 employees). On registration type, 73% of all businesses were under sole proprietorship while the rest included partnerships, groups, cooperatives, private companies and public companies. Regarding economic activity, the sector reported an average normalised monthly turnover in the years 2011–2016, thus representing a major income contributor to the economy.

To support the growth of MSEs, the Government of Kenya has initiated a number of policies and programmes such as, Sessional Paper No 2 of 1992 on Small Enterprises and Jua Kali Development, Sessional Paper No 2 of 2005 on Development of Micro and Small Enterprises, Micro and Small Enterprises Act, 2012 and creation of government administered funds to support MSEs. The main aim of these policies was to address challenges relating to limited access to financial services, high transaction costs, inadequate business skills, inadequate financial information by MSEs and limited access to appropriate technology [9-12].

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To this end, microfinance is one of the avenues through which MFIs would potentially overcome the said challenges and therefore promote their growth [13,14]. Through various policy efforts, the microfinance sub-sector has recorded considerable developments including; increase in gross lending by leading microfinance banks from Kshs 707 million in 1999 to Kshs 254 billion in 2015; increase in the number of licensed microfinance banks from one in 2009 to 13 in 2016 and; increase in the usage of informal microfinance from 32% in 2006 to 41% in 2016.

Despite the development of the microfinance subsector in Kenya, MSEs continue to face challenges of financial exclusion from financial services as well as low participation in microfinance. In the period 2011-2016, at least 2.2 million businesses closed largely due to financial exclusion and shortage of operating funds. In addition, only about 25% of the firms used microfinance credit in the year 2015. This level of usage is considered low in light of the microfinance developments that have taken place in the last decade. Therefore, an understanding of factors that determine participation of MSEs in microfinance is necessary for designing policies and products towards promoting greater participation in microfinance.

Studies on determinants of participation have tended to focus on the household and not MSEs [15,16]. As such, the motivation for borrowing for household needs is different from borrowing for business purposes. Therefore, the purpose of the study is to assess the determinants of participation of MSEs in microfinance in Kenya.

## Methodology

#### Theoretical framework

The theory of a firm is a neo-classical theory that may be used to describe the behaviour of a firm in relation to profit, production and cost [17]. A firm with multiple inputs and multiple outputs is assumed to maximize its profits subject to a production constraint has an indirect profit function that can be given as:

$$\pi(p, w, m, F^h) = pf(x^*(p, w, m) - wx^*(p, w, m))$$
 (1)

where  $\pi$  (p, w, m,  $F^h$ ) is profit of the firm, p is output price, w is input price, x is a vector of inputs,  $F^h$  is a set of firm, firm-owner and institutional characteristics that may affect production, m represents firm participation in microfinance where m=1 if a firm participates in microfinance and m=0, otherwise.

Eqn. (1) asserts that firm profit is a function of output prices, input prices, microfinance participation and firm, firm-owner and institutional characteristics. Firms that are thought to be financially excluded by requirements such as high collateral and high transaction costs, may benefit from microfinance since its services are often designed to be in relatively small transactions and are accessible and affordable [18,19].

Firms will choose to participate (m=1) or not (m=0) by comparing the level of profits due to participation with the level of profits due to non-participation. The firms will choose to participate if the profits due to participation  $(\pi_p)$  are greater than profits due to non-participation  $(\pi_n)$  such that:

$$\pi_{n}(p, w; F^{h}/m = 1) > \pi_{N}(p, w; F^{h}/m = 0)$$
 (2)

Eqn. (2) provides a framework for estimating the determinants of microfinance participation by MSEs. In modelling MSE participation in microfinance, the firm's optimal decision that maximizes profit is a discrete comparison of the expected profits from participation with those profits from non-participation.

Let  $\pi_p$  be the profit of a firm that is due to participation and  $\pi_N$  be the profit of a firm that is due to non-participation. For firms to choose to participate or not, it must that they have an unobserved critical level of profit that would make them take the decision to participate or not. The unobserved critical level of profits may be given as:

$$\pi^{*=}\pi_{\mathbf{p}}^{-}\pi_{\mathbf{N}} \tag{3}$$

Since this decision stage is not observable, it can be represented by a latent variable (F<sub>i</sub>) which is defined as:

$$F_{i}=1 \text{ if } \pi^{*} > 0 \text{ and } F_{i}=0 \text{ if } \pi^{*} \leq 0$$
 (4)

Eqn. (4) implies that firms will participate in microfinance  $(F_{i=}1)$ , if the critical profit is greater than zero, otherwise, they will not participate  $(F_{i=}0)$ .

To estimate determinants of MSE participation in microfinance, the binary decision choice can be estimated using observed covariates such that:

$$F_{i} = T'\delta + \eta \tag{5}$$

Where  $F_i$  is the decision to participate or not, T is an observed vector of the firm, firm-owner and institutional covariates that affect participation in microfinance,  $\delta$  is a vector of unknown parameters and  $\eta$  is a random error term.

In estimating the determinants, the probit model used was specified as

$$Pr(F_i = 1) = \phi(T'\delta) \tag{6}$$

Where, T',  $\delta$  are described as before and  $\varphi$  is the cumulative distribution function of a standard normal random variable, that is, a normally distributed random variable with mean of zero and a constant variance for the error term [20].

## **Empirical model**

Based on eqn. (6), the probit model that estimated the determinants of MSE participation in microfinance is given as

$$F_i = T'\upsilon + \eta \tag{7}$$

Where  $F_i$  is the firm's decision to participate or not, T is a vector observed covariates of participation, v is an unknown vector of parameters to be estimated and  $\eta$  is the error term.

## Data and variables

To achieve the objective of the study, data was collected from the 2016 FinAccess Dataset. The data is a cross-sectional survey that was conducted by Central Bank of Kenya, Kenya National Bureau of Statistics & FSD-Kenya in the year 2015. The dataset contained modules whose data included that of firm, firm-owner and finance variables. Table 1 presents the definition and measurement of variables used.

## **Empirical Results and Discussions**

## Descriptive statistics

The descriptive statistics of the variables that were used to analysis are described in Table 2. From Table 2, the total sample for analysis was 1,827 micro and small enterprises (firms). Of the sample firms, about 25% participated in microfinance while 75% did not. This implies that microfinance credit use is still low among firms. While this level of use is low, microfinance use is higher compared to commercial bank finance whose level of use was 6.26%. Therefore, more firms were

Variable	Definition and Measurement
MSE participation in microfinance	If an MSE (firm) borrowed microfinance credit from an MFB/ROSCA/ASCA/Supplier where, 1=MSE participates and 0=Otherwise
Annual Firm Income	The annual gross income earned by an MSE (firm) in the past year in Kshs
Number of business units	The number of independent businesses operated within the firm in the past year.
Age of firm owner	The age of the firm owner in years
Age of firm	The number of years the firm has been in operation
Number of employees	The number of employees of in firm in the past year (whether casual or permanent )
Education level of firm owner	The highest education level attained by the firm owner where, 1=No Education 2=Primary, 3=Secondary and 4=Tertiary
Gender of firm owner	The gender of firm owner where, 1=male and 0=female
Financial literacy level of owner	Whether a firm owner correctly answered a set of simple financial questions where, 1=Financially Literate and 0=Otherwise
Numeracy level of owner	Whether the firm owner correctly answered a set of numerical questions where, 1=Numerate and 0=Otherwise
Ownership of radio by owner	Whether the firm owned a functioning radio in the past year where, 1=Yes and 0=No
Location type of the business	The type of location of the business whether fixed or not fixed in the past year where, 1=Fixed and 0=Not Fixed
Business Permit	Whether a firm possessed a valid business license or permit in the past year where, 1=Yes and 0=No
Formal Registration	Whether a business was formally registered either as a sole proprietorship, company or partnership in the past year where, 1=Yes and 0=No
Motorbike	Whether a firm owned an operational motorbike in the past year where, 1=Yes and 0=No
Bicycle	Whether a firm owned an operational bicycle in the past year where, 1=Yes and 0=No
Credit policy (Outward)	Whether a firm ever issued credit to its customers in the past year where, 1=Yes and 0=No
Credit policy (Inward)	Whether a firm ever received credit from its suppliers in the past year where, 1=Yes and 0=No
Bank finance participation	Whether a firm ever borrowed credit from a commercial bank in the past year where, 1=Yes and 0=No
Source: Study Data (2017).	

Table 1: Definition and measurement of variables.

Variable	Sample Mean (SD)	Participants (N=471) Mean (SD)	Non-Participants (N=1354) Mean (SD)	Difference Mean
Participation in Microfinance	0.2588			
Annual Firm Income	1,38,495 (137,669)	1,70,466 (170,134)	1,27,326 (121,491)	43,140***
Number of business units	1.09 (0.452)	1.142 (0.620)	1.074 (0.383)	0.759**
Age of firm owner	37.09 (14.27)	40.14 (12.75)	36.03 (14.62)	4.11***
Age of firm	7.01 (8.015)	7.746 (8.005)	6.753 (8.006)	0.993**
Number of employees	1.576 (1.639)	1.909 (2.323)	1.46 (1.300)	0.449***
Education (No education)	0.991	0.0233	0.1256	-0.1023**
Education (Primary)	0.4603	0.4016	0.4807	-0.0791
Education (Secondary)	0.3246	0.4208	0.291	0.1298**
Education (Tertiary)	0.116	0.1543	0.1027	0.0516
Gender of firm owner	0.7712	0.7949	0.7629	0.32
Financial literacy level of owner	0.757	0.9006	0.7068	0.1938***
Numeracy level of owner	0.6984	0.797	0.664	0.1330**
Ownership of radio by owner	0.6196	0.7167	0.5857	0.131**
Location type of the business	0.6935	0.7505	0.6736	0.0769
Business Permit	0.2332	0.3594	0.1891	0.1703***
Formal Registration	0.1034	0.1438	0.0893	0.0545
Motorbike	0.1429	0.165	0.1352	0.0298
Bicycle	0.2129	0.2558	0.198	0.0578
Credit policy (Outward)	0.7088	0.7378	0.6987	0.0391
Credit policy (Inward)	0.3897	0.4397	0.3722	0.0675
Bank finance participation	0.0626	0.1235	0.0415	0.082

N=Number of Observations; S.D=Standard deviation in parenthesis; Asterisks \*\*\*, \*\*, \* denote levels of statistical significance at 1%, 5% and 10%, respectively. **Source:** Own Computation from Study Data (2017).

Table 2: Descriptive statistics.

thought to use microfinance services than the formal banking services for their businesses.

Regarding annual income, the average annual income was Kshs 138,495 with participant firms earning Kshs 43,140 more than the non-participant firms. This significant difference may be associated with the view that microfinance may increase profits through more accessible and affordable credit for expansion and increasing financial literacy training in management of business. In addition, the average number

of employees for the total sample was 1.56. This means that on average, a typical firm did not employ more than two persons thus most of the firms fitted the description of a micro enterprise.

The overall financial literacy and numeracy levels of the firm owners were 75.70 and 69.84% respectively. This means that most firm owners had good knowledge of financial and numeracy skills necessary for business and financial decision making. The differences between the participants and non-participants in both variables were statistically

significant. For financial literacy, the proportion of financially literate owners was 19% higher than that of non-participants. On numeracy, the proportion of numerate owners was 13% higher than that of non-participants. This difference is key in light on how financial literacy may influence access and usage of financial products and services.

On whether firms were running their business under some trade licence or permit 23.32% of them reported to possess a license while 76.68 did not have any. The study further observed that 35.94 of participants had licences compared to 18.91 of non-participants. This significant difference may ascribe to why participants had higher incomes than non-participants since business licences may unlock certain opportunities of trading in high traffic areas, accessing more credit opportunities and engaging in formal-type business contracts.

## Determinants of MSE participation in microfinance in Kenya

The study sought to establish the determinants of participation of MSEs in microfinance in Kenya. To achieve this, a probit regression model was estimated using the maximum likelihood estimation procedure (MLE). Based on the output, a number of post-estimation diagnostic tests were undertaken to check for validity of the model. A multicollinearity test done using the Variance Inflation Factor (VIF) showed that the model did not suffer the multicollinearity problem as all the VIFs for all variables were less than 10. The results of the Link test showed that the model was correctly specified while Hosmer-Lemeshow test showed that model fitted the data well. To check for heterokedasticity, the null hypothesis of no heterokedasticity was tested using the Langrage-Multiplier test (LM test). Based on the results, null hypothesis of no heterokedasticity was not rejected. Overall, the diagnostic tests imply that the model was suitable for analysis. To estimate the factors that determine MSE participation in microfinance, the marginal effects of the model were estimated and are presented in Table 3.

From the results in Table 3, it can be deduced that the determinants of MSE participation in microfinance include, number of business units, age of firm owner, tertiary education level, financial literacy level, numeracy level, ownership of radio, possession of business permit, age of firm, number of employees and bank finance participation. The factors that are not important in determining participation include, primary and secondary education levels, gender of firm owner, location type of the firm, registration status of firm, ownership of motorcycle or bicycle and credit policy of the firm.

On the number of business units owned by a firm, the marginal effects revealed that an increase in the number of business units of a firm by one unit increased the probability of participation in microfinance by 3.89%. Such a finding may mean that more business units increase liquidity needs of the business hence the need to rely on microfinance for these needs. In addition, more business units may signify a higher scale of operation and complexity especially among small business owners who often prefer to expand horizontally. Therefore, a need for liquidity services which may be readily offered by microfinance is plausible. Another variable that may measure scale of operation is number of employees of the firm. From the results, an increase in the number of employees by one person increased the probability of participation by 1.16%. This implies that scale of operation may result in higher participation in microfinance.

In the case of age of firm owner, the marginal effects were positive and statistically significant at one percent level. An increase in age by one year increased the probability of participation by 2.69%. However, when age squared was introduced in the model, the relationship became negative. This implied that beyond a certain age of firm owner, the probability of participation started to decline. Such a finding may be associated with accumulated incomes of the firm owner which may diminish the need for liquidity needs by the firm and therefore reduce the probability of participation.

Model	Probit  Dependent variable=1 if an MSE participated in microfinance and 0 otherwise				
Dependent variable					
Independent Variables	Marginal effects (dy/dx)	Robust standard errors	P Value		
Number of business units in a firm	0.0389**	0.0197	0.049		
Age of firm owner	0.0269***	0.0038	0		
Age squared of firm owner	-0.0002***	0.0004	0		
Education (No Education)	-0.1373***	0.0373	0		
Education (Primary)	-0.0077	0.0337	0.818		
Education (Secondary)	0.0346	0.0338	0.306		
Gender of firm owner	0.0273	0.0232	0.24		
Financially literacy level (Literate)	0.1237***	0.0236	0		
Numeracy level (Numerate)	0.0436*	0.023	0.059		
Ownership of radio (Yes)	0.0470**	0.0211	0.026		
Age of firm	0.0027**	0.0012	0.033		
Number of employees	0.0116*	0.006	0.056		
Location type of firm (Fixed)	0.0267	0.0226	0.238		
Permit (Yes)	0.0923***	0.0303	0.002		
Registration of firm (Yes)	-0.0083	0.0354	0.816		
Ownership of motorcycle (Yes)	-0.0067	0.0278	0.81		
Ownership of bicycle (Yes)	0.027	0.0253	0.285		
Credit Policy – Inward (Yes)	0.0232	0.0234	0.321		
Credit Policy – Outward (Yes)	0.0208	0.0223	0.352		
Bank finance participation (Yes)	0.1859***	0.0502	0		
Source: Own Computation from Study Data (	(2017).				

Note: Tertiary education is the reference level; the asterisks \*\*\*, \*\*, \*denote level of statistical significance at 1%, 5% and 10%.

 Table 3: Marginal effects of determinants of MSE participation in microfinance.

On education of firm owners, the coefficient of no education was negative and statistically significant. This showed that, on average, the probability of participation of firms whose owners had no education was 13% lower than those firms whose owners had tertiary education. Therefore, this finding ascribes to the view that moving from no education status to tertiary education increases the probability of participation. A tertiary education level may equip owners with a better understanding of microfinance products and services hence increase the probability of participation in microfinance.

Considering the financial literacy and numeracy levels of the firm owner, the findings revealed that the coefficient of these variables were positive and significant at standard levels. On average, the probability of participation for financially literate owners was 12.37% higher than that of the financially illiterate owners. On the other hand, the probability of participation for numerate owners was 4.36% higher than that of the owners who did not have the numeracy skills. Higher financial and numeracy levels may increase the firm owner's knowledge on financial markets and products increasing the use of microfinance products [21]. With regard to age of the firm, its coefficient is positive and significant at 5% level. An increase in age by one year increased the probability of MSE participation by 0.27%. A higher age of the business denotes business experience and understanding of financial market dynamics.

Regarding possession of a business permit, the coefficient was positive and statistically significant at one percent level. On average, the probability of participation for firms with permit was 9.23% higher than that of firms without permits. Generally possession of licences and permits unlocks access to more credit opportunities and business opportunities. Therefore a focus on potential hindrances on acquisition of business permits for any economy is critical in promoting the investment and productivity of businesses. Potentially such constraints may include long pre-registration and post-registration procedures, inter-county licencing procedures, long application procedures and high cost of permits [22].

The coefficient of bank finance participation was positive and statistically significant at 1% level. On average, the probability of participation in microfinance for MSEs which engaged in bank finance was 18.59% higher than those MSEs which did not engage in any bank finance. This finding points to a potential complementary relationship between microfinance and bank finance.

# **Conclusions and Policy Implications**

The study concludes that increasing the education levels, financial literacy levels and numeracy levels of the firm owner would increase levels of participation in microfinance by MSEs. Also, targeting MSEs that have a higher scale of operation would increase participation [23-25]. Finally, engaging firms with operating permits or licences would increase microfinance participation.

To encourage greater participation in microfinance by firms, it is suggested that government and microfinance providers encourage and upscale financial literacy programmes so as to influence financial literacy levels of firm owners. The government and providers may use short-course modules that may delivered through partnerships with relevant universities, colleges and training companies. Possession of permits was found to increase participation in microfinance among firms. In light of this, national and county governments should create incentives that will increase acquisition of permits and licences by MSEs. These incentives may include, streamlining all pre-registration and post-registration procedures, harmonising inter-county licencing

procedures, simplifying application procedures for different businesses and reducing the cost of the permits.

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