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**Sustaining Small and Medium Enterprises through Financial Service Utilization: Does
Financial Literacy Matter?**

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ABSTRACT

Promoting a dynamic operating environment for Small Medium scale enterprises (SMEs) is seen as a priority amongst economic development goals, in both developed and emerging economies. SMEs are a primary driver for job creation and GDP growth. They greatly contribute to economic diversification and social stability and they play an important role for private sector development.

It must be emphasized, that the utilization of these financial products does not only promote the growth of the SMEs themselves but also their active participation in the financial services market leads to financial development which is widely recognized as an important determinant of economic growth and also recognized as important for enhancing the social and economic impact of the financial sector.

In the past, SMEs, particularly, in developing countries, lacked access to financial products and services. The SME market was perceived by banks as risky, costly, and difficult to serve. However, with the advances in information and communications technology, the cost differential of serving poor customers has fallen and banks now perceive significant opportunities in the SME sector. Survey data from multiple studies show that banks have begun to target SMEs as a profitable segment. For example, a recent survey of 91 banks in 45 developed and developing countries – Bank Financing for SMEs around the World – found that these banks overwhelmingly perceived the SME sector as a large market with good prospects. There exists an array of financial products - microcredit, savings, and loans, insurance, mutual funds, etc. – in both the formal and informal sectors in Ghana. Opportunities to utilize these financial services are now plentiful than about a decade ago. However, available studies have shown that about 44% of Ghanaians are financially excluded and have/use no financial products. This paper uses a direct measure of financial knowledge to empirically investigate the linkage between financial literacy and utilization of financial services by SMEs. However, since people's level of knowledge can improve through utilization of financial service, we establish a bi-causality problem. In the analysis, two equations were estimated: (1) financial literacy level, and (2) utilization of financial service which includes financial literacy as an endogenous variable. The equation determining the level of financial literacy was estimated using the OLS while the equation for the utilisation of financial service was estimated using logistic regression. The IV method was used to correct for the problem of endogeneity.

Overall, the results show that there was modest level of financial literacy among small and medium entrepreneurs in Ghana. Moreover, it was discovered that the better and more financially literate entrepreneurs were more likely to utilize financial service. The most commonly utilized financial service was operating a bank account. This has important policy implication. Finally, the instrument for financial literacy, recipient of financial education, also had positive relationship with utilization of financial service.

Introduction/background

In both developed and emerging economies, promoting a favourable environment for the development of Small and Medium scale enterprises (SMEs) is seen as critical. SMEs are a primary driver for job creation and GDP growth. They greatly contribute to economic diversification and social stability and also play an important role for private sector development. In Ghana, the SME sector is recognized as one of the key sectors in the economy which has the potential of helping achieve the '*Stimulating and Growth for Development and Job Creation*' agenda of the government. Most businesses in Ghana fall within the category of micro, small and medium enterprises, with the potential of employing close to 70 percent of the Ghanaian labour force. SMEs, thus, can be said to be the linchpin in efforts towards socio-economic development and the attainment of the millennium development goals (MDGs) especially in developing economies such as Ghana. Despite these benefits, the tremendous potentials of SMEs have not been fully realized.

In the past, the problems of SMEs, particularly, in developing countries, was blamed on lacked access to financial products and services. This phenomenon led to an extensive research on the supply of funds with substantial attention on bottle necks constraining the supply of banking and financial services. The results of most of these research revealed that, the SME market was perceived by banks and financial institution as risky, costly, and difficult to serve (see?).

With the advances in information and communication technology, the cost differential of serving poor customers has fallen (United Nations, 2006) and financial institutions now perceive significant opportunities in the SME sector. Survey data from multiple studies show that banks have begun to target SMEs as a profitable segment. For example, a recent survey of 91 banks in 45 developed and developing countries – Bank Financing for SMEs around the World – found

that these banks overwhelmingly perceived the SME sector as a large market with good prospects (Beck, Demirgüç-Kunt, and Pería, 2008). Following the changing perception about the SME sector, several products and services being developed by both existing and newly established financial institutions are mostly designed to meet the needs of SMEs. The evidence that several informal savings, credit, and insurance markets have emerged and functioning reasonably well in emerging markets (see for example, Besley, Coate, and Loury (1993), and Townsend (1994) prove the point that the availability (supply) of financial services is really not the issue now. Opportunities to utilize these financial services are now plentiful than about a decade ago.

If supply is not a problem then what explains SMEs lack of finance? We argue that, to completely deal with this issue, the intricacies of the determinants of the demand for a financial service by SMEs should be much well understood especially in developing countries.

One trend that emerges from the literature concerning low utilization of financial services as well as lack of participation in the financial market by both household and firms is the role of financial literacy. Existing studies indicate that financial illiteracy is widespread and people lack knowledge of even the most basic economic principles (Lusardi and Mitchell (2006, 2007a,b), National Council on Economic Education (NCEE, 2005), and Hilgert and Hogarth (2002). Findings of widespread illiteracy are also reported in studies on smaller samples or specific groups of the population (Agnew and Szykman (2005), Bernheim (1995, 1998), Mandell (2004), and Moore (2003)). Lusardi and Mitchell (2006) found that financial illiteracy is widespread and is particularly acute among specific groups of the population, such as women, the elderly, and those with low education. Agarwal, Driscoll, Gabaix and Laibson (2007) further show that financial mistakes are prevalent among the young and the elderly, who display the lowest level of financial knowledge and cognitive ability. Again a study by the OECD (2005) and the work by Lusardi and Mitchell (2007b) which review the evidence on financial literacy across countries show that financial illiteracy is a common feature in many other developed countries, including European countries, Australia, and Japan. These findings are confirmed in the work of Christelis, Jappelli and Padula (2006), which uses micro data from European countries finds that most respondents in Europe score low on financial numeracy and literacy scales.

Given the increased complexity of day-to-day financial transactions, the evidence of illiteracy does not only raise important questions for policy but also has implications for household and firm financial behaviour. Bernheim (1995, 1998) point out that most households cannot perform very simple calculations and thus lack the basic financial knowledge. He also observed that the saving behaviour of these households is dominated by crude rules of thumb. Abubakr (2009) observed that firm's financial resource endowment is a vital determinant of firm growth and that firm's inability to meet financial demands is mainly caused by market imperfection that triggers due to information asymmetry.

Consequently, financial literacy has attracted increasing attention in both the developed and developing world due to its role in financial decision. For example, in January 2008, the United States government set up a President's Advisory Council on Financial Literacy. The council was tasked to promote programmes that would improve financial education at all levels of the economy. This was to improve access to and utilisation of financial services. In the developing world, the Indonesian government declared 2008 as "the year of financial education" with a stated goal of improving access to and use of financial services by increasing financial literacy. Similarly, in India, the Reserve Bank of India launched an initiative in 2007 to establish Financial Literacy and Credit Counselling Centres throughout the country which would offer free financial education and counselling to urban and rural populations. In Ghana, the financial literacy week celebrated each year proves the recognition the government of Ghana accords financial literacy. The critical questions that need to be answered are: Do owners of SMEs possess enough level of financial literacy? Does the level of financial literacy significantly explain their demand for financial service?

While many studies have provided documentary evidence suggesting that financial literacy education is effective, there is surprisingly little rigorous, academic evidence. With the exception of Cole, Sampson, and Zia (2009), which used two surveys from two of the most populous countries in the world (Indonesia and India), to show that financial literacy is an important predictor of financial behaviour in the developing world, we are aware of no completed study testing the significance of financial literacy in utilising basic financial services particularly in sub-Saharan Africa and for that matter Ghana. This paper aspires to fill in this gap by providing

an empirical analysis of the relationship between financial literacy and utilization of available financial services by SMEs in Ghana. Specifically, the paper empirically identifies the channels through which financial knowledge translate into financial decision making. In this way the paper contributes to the literature by analyzing the role of financial literacy in addressing the problem of voluntary financial exclusion of small businesses in Ghana. In some ways, our analysis takes a different perspective from previous research. Unlike previous studies which concentrated on households and individuals, this study focus on SMEs.

Moreover, our work improves substantially upon previous studies by recognizing the problem of endogeneity which has not been adequately addressed. Up to date, few studies have addressed the issue of endogeneity in a convincing manner. Utilize financial service may increase their financial knowledge through experience. This potential reverse causality create endogeneity problem.

We also consider the study to be ingenious because it is the first of its kind in Ghana. In this study, we overcome the shortcomings of some of the previous studies by expanding the measures of financial literacy. For example, Lusardi and Mitchell (2006, 2007a) rely on only three questions to measure financial literacy, while Stango and Zinman (2006) rely on one question. We use five questions.

Objectives

The main objective of this paper is to examine the relationship between financial literacy and financial decision of SMEs in Ghana.

1. To measure the level of financial literacy of SMEs in Ghana
2. Identify the correlates of financial literacy
3. To estimate the relationship between financial literacy and utilization of financial services by SMEs

Literature Review

Lusardi Households with low levels of financial literacy are unable to make wise financial decisions (Lusardi and Mitchell, 2007a) and participate less in the formal financial system relative to their more financially-literate counterparts (Alessie, Lusardi and van Rooij (2007); Hogarth and O'Donnell (1999).

Hastings and Tejeda-Ashton(2008) examined the links between investor characteristics such as financial literacy, information format, and investment choice using data collected from a survey and field experiment in Mexico's privatized social security system. They found that while many participants in the system were well informed about their choices, few had experience investing in financial assets such as stocks, bonds, or mutual funds outside of their mandatory savings and retirement account. In addition, they showed that financial literate respondents placed much higher importance on fees relative to brand name when selecting funds.

Testing the theories of low demand for financial services in emerging markets, Cole, Sampson and Zia(2009) combined novel survey evidence from Indonesia and India with a field experiment and found a strong correlation between financial literacy and behaviour. However, a financial education program had a modest effect, increasing demand for bank accounts only for those with limited education or financial literacy. The study also demonstrated that prices matter both for opening of bank accounts and for savings, and that, individuals who opened bank accounts in response to incentives tended to keep them open for the long term.

Rooij, Bank and Lusardi (2007) show that one important determinant of stock market participation that needs to be incorporated in our theoretical and empirical work is financial literacy. Lack of understanding of economics and finance is a significant deterrent to stock ownership. Other variables that have been found to influence financial service utilization are income, as well as education (Bertaut and Starr-McCluer, 2001)

Lusardi and Mitchell (2006, 2007a) reveal that those who display low literacy are less likely to plan for retirement and also accumulate much less wealth. It also find that among older adults,

those who displayed better financial knowledge were more likely to plan, to succeed in planning, and to invest in complex assets.

(see also Hilgert, Hogarth and Beverly (2003)..

Hilgert, Hogarth and Beverley (2003) find that individuals with more financial knowledge are more likely to engage in a wide range of recommended financial practices, while Lusardi and Mitchell (2006, 2007a). Similarly, Stango and Zinman (2007) show that those who are not able to correctly calculate interest rates out of a stream of payments end up borrowing more and accumulating lower amounts of wealth while Bayer et al., (1996) and Bernheim (2003) suggest that workplace financial education initiatives increased participation in savings plans (), while financial education mandates in high school significantly increased adult propensity to save.

Defining Accessibility and Utilisation

Access to finance and use of financial services do not mean the same thing. Whereas “access” refers to the availability of a supply of reasonable quality financial services, “use” refers to the actual consumption of financial services. In a standard demand–supply framework, it can be said that access refers to supply, whereas use is the intersection of the supply and demand schedules. Based on Claessens’ conceptualization, illustrated in Figure 1, consumers of financial services can be categorized into three: those who have access and therefore use the service (let’s call them Group A), those have access but do not use (voluntary exclusion) (we call group B), and a third group; those that have no access and thus do not use financial service (involuntary exclusion), (group C).

Figure 1: Consumers of financial services

Category	Status
Group A Current consumers	Have access and therefore utilizes the available financial services
Group B Voluntary exclusion	Has access but does not want to utilize the available financial services Plausible Reasons: <ul style="list-style-type: none"> - No need for financial services - No awareness of financial services - No income - Due to high cost of utilisation
Group C Involuntary exclusion	Does not have access hence does not utilize the services Plausible Reasons: <ul style="list-style-type: none"> - Rejected: High risk /bad credit = No access - Rejected: Discrimination = No access - Excluded due to price, product, income, or respondent features=No access

Source: Adapted from Claessens (2006)

By definition, access to financial services equals groups A + B. Since those in group A use financial service; it is clear that they have access. Those in group B do not use financial service (voluntary exclusion). However, this does not necessarily reflect unavailability of services nor does it necessarily mean rationing. Some households or firms have access to financial services but decide not to use them because they have no need, have no savings, rely on nonfinancial means of transacting (barter), or decide the prices are too high.

METHODOLOGY

Theoretical Framework

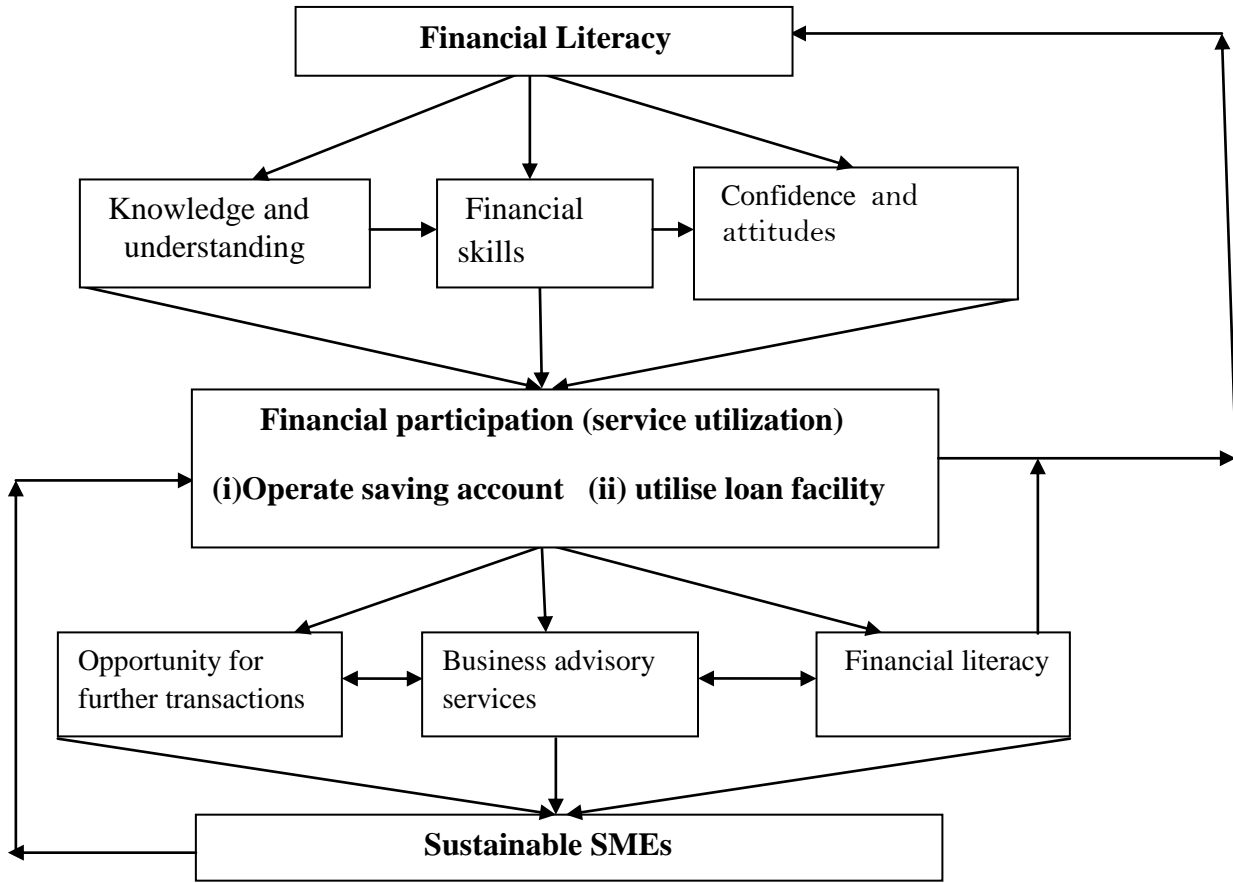
Based on the life cycle hypothesis (See Ando & Modigliani ,1963) economic agents derive utility from consumption/savings over their lifetime. In the simplest format, the consumer has a lifetime expected utility, which is the expected value of the sum of per-period utility discounted to the present from the consumer's current age to his/her oldest attainable age. Assets and consumption in each period are determined endogenously by maximizing this utility function subject to an intertemporal budget constraint, which represents the present discounted value of future resources. In this basic formulation of the saving decision, the actual requirements for making saving decisions are demanding: economic agents should be assumed to have information and make forecasts about many variables such as rates of interest, investment returns, incomes and projected inflation. The economic agent uses that information to formulate and execute optimal consumption/saving plans. Moreover, they have to perform calculations that require, at minimum, an understanding of compound interest and the time value of money. Decisions about how much to accumulate and how much to borrow to be able to smooth consumption over the life-cycle also require an understanding of the working of interest rates. Borrowing can be envisioned as a two-step process. The decision of whether or not to borrow is the first step in that process. Once a decision is made to borrow, the next step is to decide how much to borrow, taking the cost of borrowing into consideration.

Analysis of the borrowing decision is complicated by the need to both have and understand credit market information. Difficulties can arise when this information is complex, incomplete, or otherwise not sufficient for making effective market decisions. Economic decision-making theory underscores the importance of product knowledge in making effective consumer choices. Aryeetey, Baah-Nuako, Duggbeby, Hettige and Steel (1994), has shown that the desire for financial service may only remain a potential demand because it cannot be actualized due to market imperfection arising from information asymmetry. This underscores the fact that information is critical in demand for financial service. Theoretically, we posit that greater financial knowledge should enhance understanding of all costs and benefits associated with using

financial service; whereas, a lack of knowledge of financial markets and instruments makes it difficult to judge actual costs and benefits.

The framework below illustrates how we conceptualise the link between financial literacy and sustainability of SMEs. From the adopted definition of financial literacy, which is the knowledge of basic economic and financial concepts, as well as the ability to use that knowledge and other financial skills to manage financial resources effectively for a lifetime of financial well-being, we see that financial knowledge, financial skills and financial confidence represents particularly basic forms of financial literacy. Financial knowledge, in turn, is reflected in perceived financial knowledge and influences financial skills. Knowledge of how financial systems works is an important underpinning for financial skills (e.g., negotiating terms, navigating low cost facilities). Growth in knowledge increases the confidence of the economic agent. Parker, Yoong, Bruine de Bruin, and Willis (2008) found that confidence in knowledge predicts self reported retirement planning and savings. On the third level we see that financial knowledge, skills and confidence culminate into financial behaviour (e.g., operating saving account and utilizing microcredit facility). We also see that the experience gained through financial behaviour feeds back to financial literacy through improvement in knowledge, skills and confidence. Downwards on the framework, we reason that as firms and individuals participate in the financial market and continue to utilize financial services, they create the opportunity for further business transaction with the financial institution which increases access to finance by SMEs. Moreover, SMEs can benefit from business advisory services once they operate savings account or utilizes loan facilities with financial institutions. This may include proper bookkeeping etc. Besides, as SMEs and financial institutions continue to relate, it provides an opportunity for both to know more about the operations of each partner. This knowledge will help SMEs to explore all the benefits from the financial institution which will consequently build up healthy SME.

Figure 1: Conceptual framework



Source: Researchers' conceptualisation

Empirical Model

Following from Pauly & Satterthwaite (1981), we specify a basic empirical model for our analysis as

$$Fu_i = b_0 + b_1 Y_i + b_2 K_i + v_i \quad (1)$$

$$K_i = \gamma_0 + \gamma_1 X_i + e_i \quad (2)$$

K_i = financial knowledge level of owner/manager of SME i

X_i = vector of owner characteristics relevant to obtaining K

Fu_i = utilization of financial service (0, 1)

Y_i = firm characteristics

v_i and e_i = random error terms

Equations 1 and 2 provide reduced form expression for utilization of financial services and financial literacy

Variables

The dependent variable for the study is utilization of financial service. Demand for three basic financial products was used as proxy for financial service utilization. These are savings accounts, microcredit and insurance. All three were dichotomous variables taking the value 1 if the individual participated in the outcome of interest and 0 if otherwise. Saving account allows SMEs to deposit money at any time and it also provides an opportunity for further transaction between SME and financial institution. SMEs were asked whether they had at least a saving account with any financial institution. The question demanded yes or no for an answer. As a follow up to this question, respondents were asked to state the reason for opening an account with a financial institution. Two questions were asked on microcredit. First, respondents were asked whether or not they had applied for any loan from any financial institution. Second, they were asked to indicate the number of times they had applied for loan. Both were used in the estimation. Since the main interest of the study was utilization, we did not find out whether SMEs were successful in acquiring the loans applied for. The third proxy was the demand for insurance. The respondents were asked if they had bought any formal insurance for their businesses. To better understand barriers to use of financial service, respondents were asked whether they would buy if cost of utilization was a barrier to utilization. Separate estimations were done for each of the proxy.

Our major variable of interest is entrepreneurs' level of financial literacy. Unfortunately, a universally accepted measurement scale for financial literacy has not been developed yet (for an overview see OECD, 2005). Thus, researchers usually construct their own scale. Following the approach of Choi et al. (2006) and Kimball and Shumway (2006) which was also employed by MÄuller and Weber (2008) and Lusardi and Mitchell (2007), we construct an aggregate financial literacy score based on 5 quiz-like statements. SME entrepreneurs were asked to choose a correct answer from at least two options. The questions covered knowledge on interest rates, inflation, savings and insurance. The score of each respondent was used to generate a financial literacy index, which was used in additional analysis.

In addition to financial literacy, the surveys also captured entrepreneur and firm characteristics as well as other plausible determinants of financial behaviour. These include the cost of financial service utilization, which consists of monetary price of the service and other monetary cost such as transportation to and from service facility, Size of firm (measured by the number of employees), location of firm (rural or urban), monthly income/returns and attitude towards risk . To measure attitude towards risk, we followed the approach of Cole et al (2009) and Binswanger (1980). In the question, respondents were offered a choice between two projects A and B with project A having a 50% chance of yielding GH¢ 200 and 50% chance of losing GH¢ 30 of GH¢ 100 while project B, have 100% chance of getting additional GH¢ 20. It is expected that risk averse entrepreneurs would go in for project B because it gives a risk free returns while risk loving entrepreneurs would opt for project A. Other demographic characteristics of the entrepreneur such as sex, age and level of education were also captured.

Analyses and Estimation technique

In equation 1 we estimate the relationship between financial literacy and financial service utilisation. A *probit*-model is used to estimate equation (1), since the dependent variables; having a savings account, application for a loan and utilization of insurance are all dichotomous. Separate estimations were done for saving account and application for loan. The regression for insurance was dropped because the sample size was too small for a regression. The model estimated was in the form

$$\mathbf{Sav} = \beta_0 + \beta_1 Y + \beta_2 K + \beta_3 C + \beta_4 Y + \beta_5 \text{Size} + \beta_6 \text{Yrs} + \beta_7 \text{Act} + \beta_8 \text{Risk} + \mu \quad (3)$$

$$\mathbf{MiCredit} = \gamma_0 + \gamma_1 Y + \gamma_2 K + \gamma_3 C + \gamma_4 Y + \gamma_5 \text{Size} + \gamma_6 \text{Yrs} + \gamma_7 \text{Act} + \gamma_8 \text{Risk} + \mu \quad (4)$$

Where Sav = SME has opening account

Microdit = firm has ever applied for a microcredit

Y = income of the firm,

K = financial literacy level

C = cost of financial service utilisation

Size = size of the firm

Yrs = years of operation

Act = nature of economic activity

Risk = whether or not the entrepreneur is a risk averse

Equation 3 specifies the equation for whether or not SME has a saving account while equation 4 expresses the equation for microcredit.

We also estimate equation 2 using OLS. Here we regress financial literacy on the owner characteristics. The variables included in the model are the level of education of the owner, the age of the owner, the number of times he has received financial education, and sex of owner.

While it is accepted that the level of financial literacy influences participation in financial market (specifically, the decisions to open account, apply for loan facility) we also recognise that utilization of these financial services can improve financial knowledge. Due to this bi-directionality of the effect, we consider the issue of endogeneity of financial literacy. In order to address the endogeneity we used a two-stage probit regression model proposed by Maddala (1983). In the first stage, ordinary least squares regression was used to predict the financial literacy variable as a function of instruments and the exogenous variables of the main equation. In the second stage, the predicted value from the first-stage regression replaced the financial literacy variable in the main probit regression. In order to obtain asymptotically correct standard errors, we used a strategy similar to the strategy used by Case and Katz (1991) and Gaviria and Raphael (2001). Level of education of SME owner and the number of times he/she received financial education were used as instruments. Level of education and number of times he/she received financial education would not directly influence the decision to open an account and apply for a loan, but have an indirect effect.

Data and Survey Design

In Ghana, the most important criterion used to classify business is the size of the workforce (Boon, 1989). The ministry of local Government and Rural Development considers any establishment that employs 1 to 9 people as small-scale enterprise, 10 -20 as medium scale and

above 20 as large scale enterprises. For the purpose of this study, we adopted this definition. The data for the study was mainly primary. Data was collected from 556 SMEs selected randomly from four districts in the Greater Accra Region of Ghana. The districts were selected by employing simple random sampling. Two of the district was predominantly urban, one was predominantly rural while one was both rural and urban. All the selected SMEs were registered with the National Board for Small Scale industries (NBSSI). The sampled size was obtained by randomly selecting from the list obtained from the NBSSI. Interviews were conducted with all the owners/managers of the selected SMEs. In order to ensure that respondents did not collaborate with other people to provide responses especially for the questions that measured the financial literacy levels, interviewers did not leave any survey with any respondent.

Validation of research instruments

The questionnaire was pretested with 35 respondents after which modifications were made for final survey. Moreover, the questionnaires were given to two experts for review and suggestions. The quality and consistency of the survey was also assessed using Cronbach's alpha. The reliability test conducted gave a large Cronbach alpha of 0.81.

RESULTS

Descriptive statistics on Firm and Owner Characteristics of SMEs

The means, standard errors and the maximum and minimum figures for the continuous variables are reported in Table 1. The mean age of owners of the SMEs was about 40 years with the years of operation being about 8 years. The monthly income of the firms ranged from 50 to 2984 Ghana cedis. The mean monthly income is about 614 Ghana cedis. The cost of using financial services with transportation cost, charges and others had a mean of about 5 Ghana cedis.

[Insert Table 1]

Financial literacy score ranged from 1 to 5. A score on the scale of 1 to 5 was assigned with the least score being 1 and the highest 5. The mean score was 3.4. Eventhough the level is not the best, it cannot also be said it is be too bad. This indicates that majority of owners of SMEs had

considerable level of knowledge on financial matters. This means owners of SMEs can make informed financial decisions. However, only about 16% of the SMEs sampled had a score of two and less while about 84% of the SMEs had three and above. This finding lends support to the work of Muller and Weber (2008) which recorded high financial literacy. However, it is in contrast with the work of Lusardi and Mitchell (2006), Hilgert and Hogarth (2002) which reported high financial illiteracy among respondents especially among women and the elderly. The study also discovers that male entrepreneurs had a higher score than female counterparts. This again confirms the work of Lusardi and Mitchell (2006).

The type of economic activity undertaken by the various SMEs and their location are presented in Table 2. Services accounted for about 54%. This is in line with the current facts in Ghana where the services sector contributes the highest to GDP. The least number of SMEs was found in Agro-processing (8%). The highest number of SMEs was selected from District 2 which also happened to have the highest number of SMEs in the service sector with 60%. Manufacturing followed services closely in all the districts. About 77% of the total number of SMEs was located in the urban area whereas 23% in the rural area. This gives a true reflection of Greater Accra region, from which the sample was chosen. Considering the fact that majority of the financial institutions are located in the urban centers, it can be said that geographical access to these facilities by SMEs is not a hindrance to utilization of the services of the financial institutions.

[Insert Table 2]

The descriptive statistics also reveal that, about 53% were males while females constituted 47%. This is shown in Table 3. The services enterprises were mostly owned by females (56%) while about 69% of firms owned by male were in the manufacturing category. Moreover, majority of the respondents had some level of education. About 49% of owners of SMEs had basic education, 30% with secondary or technical education and about 2% had tertiary education. Only 19% of the owners of the SMEs sampled had no education. The lower percentage of tertiary education confirms the fact that in Ghana, tertiary graduates in Ghana find themselves in paid employments instead of self-employment. Putting the level of education and the level of financial literacy together, it is not surprising that the mean score for the financial literacy level was about 3.4.

[Insert Table 3]

Utilization of Financial Service

Table 4 shows utilization of financial service by SMEs. We run a crosstabs between the SMEs classified into small, medium and large and financial service utilized. Ownership of a saving account, insurance policy and whether the firm has applied for microcredit/loan before was used to measure utilization of financial services. The data shows that 480 (representing 86.3%) out of the 556 SMEs sampled were small scale, 75 (representing 13.5 %) were medium while only one (0.2%) was in the large category. As can be seen on table 4, about 73% of the small scale firms have not taken any micro credit within the past 12 month. For those who had taken some form of micro credit, about 53% of them have had only one circle of loan within the past 12 month. Some of the reasons cited for not applying are that financial institutions sometimes seize the properties of default clients and perceived the cost of borrowing to be too high. Some also said they had not applied for any credit because they were afraid of debt. For those who had applied microcredit, they said they applied for loans to expand their business and also to meet unexpected cash demands. The descriptive statistics also reveal that only 19.4% of the small scale firms had purchased an insurance policy. Those who had not subscribed to any insurance policy said that they did not make enough money to buy insurance. Majority also said they did not perceive any danger so there was no need to buy insurance. The most utilized financial service by the small scale firms was the operation of a savings account. About 85% of SMEs interviewed had saving accounts with a financial institution. The medium scale firms also utilize the savings accounted operation offered by the financial institutions with 96%. About 65% of them have not accessed any micro credit from the financial institutions. Among the three indicators of financial service utilization, the most used is operating a savings account (86.7%) while subscription to an insurance policy to protect the firm is the least (22.3%). The reasons cited for operating a saving account was to facilitate transfer of money, to increase the chances of getting loans from financial institution and to provide security for incomes. These reasons confirm the work of Cole et al. (2009).

[Insert Table 4]

Determinants of Financial Literacy

In Table 5, we present OLS regression results for the determinants of explanatory variable of interest. The table reveals that, sex of the owner of the SMEs, secondary/technical level education as well as receiving financial education were statistically significant in explaining financial literacy. Since sex is a dummy, the results suggest that male owners of SMEs are more likely to be financial literates than their female counterparts. This is in consonant with the descriptive statistics. There was a positive relationship between completions of secondary/technical schooling and financial literacy of SMEs owners. This was significant at 1%. At the basic levels of education pupils are exposed to no financial education since the curriculum does not include issues on financial matters. The number of times one had received education on financial matters was positively related to level of financial literacy. Age of the owner of the SMEs not significant in explaining financial literacy. The adjusted R-squared was about 12%.

[Insert Table 5]

Financial literacy and Financial Service utilization

The relationship between financial literacy and financial service utilization was estimated using the probit model. Two separate models were estimated: One for whether the firm has applied for a micro credit in the past 12 month or not and whether the firm operated a savings account.

The results are show that financial literacy, size of firm, location of firm and, risk attitude were found to be significant in explaining, saving account and applying for microcredit.

However, in view of the endogeneity between utilization of financial services and financial literacy, we use the 2-stage probit regression to estimate the relationship between the varble of interest and utilization of financial services. The results for the 2-stage probit regression are presented in table 6. Model 1 has the dependent variable as whether the firm has apply for a

micro credit in the past 12 month. From the table the age of the owner of the firm and the residual of the financial literacy are the only variables that are significant in explaining financial services utilization by SMEs. The positive sign for the financial literacy variable support the fact that firms whose owners are financially literate are more likely to utilize financial services - take micro credit, thereby increasing their chances of being sustainable. The whole model was seen to be significant based on the probability of the chi-squared value at 1% level.

Model 2 shows the estimation for the second proxy for financial service utilization: whether a SME operates a savings account or not. The location of the firm whether at the urban or rural area, size of the firm, risk and financial literacy were significant in explaining whether a firm will operate a savings account. The financial literacy, location and risk were at 1% level while the size of the firm was significant 5%. The negative sign of the location variable suggest that it is SMEs in the rural areas that are less likely to utilize financial services. This is because most of the banking and non banking financial institutions are located in the urban areas and many in the urban centers are more financially literate. SME owners who are risk averse are less likely to operate saving account. Thus our variable of interest is significant in explaining financial service utilization. This finding is consistent with the current empirical findings, notably the work of Lusardi and Mitchell (2006), Stango and Zinman (2006) and Bernheim (2003).

The issue of insurance policy SMEs subscribe to in order protect their businesses was not used because the responses were very small. Their use did not generate and result in Stata.

[Insert Table 6]

Conclusions

This study surveys 556 SMEs from four districts in the Greater Accra region of Ghana to examine how financial literacy influences in SMEs utilization of financial services. The study also investigated the determinants of financial literacy as well as the financial service utilization by SMEs.

The literature on financial literacy has shown it is crucial in stimulating both the financial and the SME sectors, two important sectors which play important roles in the development process of the economies of developing countries.

The benefits of better financial literacy may be great. SMEs may save more, and better manage risk, by purchasing insurance contracts. There may even be general equilibrium effects: increased demand by firms for financial services may improve risk sharing, reduce economic volatility, improve intermediation, and speed overall financial development. This in turn could facilitate competition in the financial services sector, and ultimately more efficient allocation of capital within society.

The results of the study have proved that financial literacy of owners of SMEs is very critical in explaining utilization of financial services by SMEs in Ghana. Moreover; the study has revealed that financial literacy of owners of SMEs is modest. The study has also illuminated that number of times financial education was received significantly explains financial literacy. Moreover, the study has revealed that women are less likely to be financially literate.

Putting these findings together suggest that for SMEs to be sustained (both technically and financially) there is the need to step up financial education in Ghana especially among SMEs. We therefore recommend that the nationwide financial literacy week campaign instituted by the Ministry of Finance should be intensified and well targeted. Since SMEs in the rural areas are less likely to utilize financial service, we suggest that financial literacy education should be target more at those in the rural areas.

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Appendix

Table 1: Statistical summary of variables

Variables	No. of Observation	Mean	Standard Error	Minimum	Maximum
Age of Owner	556	39.9622	0.4058	23	76
Years of Operation	556	8.0126	0.2412	1	37
No. of time received Financial Education	556	2.2752	0.0605	0	4
Cost of Financial Literacy	556	4.7428	0.1232	0	10
Monthly Income	556	613.7194	20.7584	50	2984
Size of firm	556	7.4227	0.1097	5	33
Financial Literacy Score	556	3.4245	0.9615	1	5

Source: Field work, 2011.

Table 2: Description of economic activity and location by district

	Economic Activity				Location	
District	Agro Processing	Manufacturing	Services	Agric	Urban	Rural
1	14 (10.1%)	43 (30.9%)	68(48.9%)	14 (10.1%)	140 (100.0%)	0 (0.0%)
2	10 (6.7%)	45 (30.0%)	90(60.0%)	5 (3.3%)	150 (100.0%)	0 (0.0%)
3	14 (9.6%)	46 (31.5%)	71 (48.6%)	15 (10.3%)	140 (95.2%)	7 (4.8%)
4	8 (6.7%)	25 (21.0%)	71 (59.7%)	15(12.6%)	0 (0.0%)	119(100.0%)
Total	46 (8.3%)	159 (28.7%)	300 (54.2%)	49 (8.8%)	430 (77.3%)	126 (22.7%)

Source: Field work, 2011.

Table 3: Description of level of education and sex by district

District	Level of Education				Sex	
	No Education	Basic Education	Sec/Tech Education	Tertiary	Female	Male
1	15 (10.7%)	69 (49.3%)	56 (40.0%)	0 (0.0%)	75 (53.6%)	65 (46.4%)
2	72 (48.0%)	56 (37.3%)	22 (14.7%)	0 (0.0%)	52 (34.7%)	98 (65.3%)
3	17 (11.6%)	72 (49.0%)	57 (38.8%)	1 (0.7%)	79 (53.7%)	68 (46.3%)
4	2 (1.7%)	77 (64.7%)	32 (26.9%)	8 (6.7%)	56 (47.1%)	63 (52.9%)
Total	106 (19.1%)	274 (49.3%)	167 (30.0%)	9 (1.6%)	262 (47.1%)	294 (52.9%)

Source: Field work, 2011.

Table 4: Description of financial services by SMEs

SME's	Microcredit		Savings Account		Insurance		No. of Loans				
	No	Yes	No	Yes	No	Yes	0	1	2	3	4
Small	349 (72.7%)	131 (27.3%)	71 (14.8%)	409 (85.2%)	387 (80.6%)	93 (19.4%)	347 (72.2%)	70 (14.6%)	49 (10.2%)	7 (1.5%)	7 (1.5%)
Medium	49 (65.3%)	26 (34.7%)	3 (4.0%)	72 (96.0%)	45 (60.0%)	30 (40.0%)	47 (62.7%)	6 (8.0%)	10 (13.3%)	7 (9.3%)	5 (6.7%)
Large	1 (100.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)	1 (100.0%)	1 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
TOTAL	399 (71.8%)	157 (28.2%)	74 (13.3%)	482 (86.7%)	432 (77.7%)	124 (22.3%)	395 (71.0%)	76 (13.7%)	59 (10.6%)	14 (2.5%)	12 (2.2%)

Source: Field work, 2011.

Table 5: Results of the Ordinary Least Square estimation

Dependent Variable: Financial Literacy Score		
Estimation Technique: OLS		
	Coefficient	Standard Error
Sex	0.3448***	0.0794
Age of Owner	-0.0350	0.0263
No. of time received financial education	0.0423***	0.0144
Income	0.0002	0.0007
Experience	0.0003	0.0003
Basic Education	0.0702	0.1035
Sec/Tec Education	0.4094***	0.1133
Tertiary	0.4400	0.3100
Constant	3.8960***	0.5547
No. Observation	556	
F-stats	10.72	
R-squared	0.136	
Adj R-squared	0.123	

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

Source: Field work, 2011.

Table 6: Probit regression correcting for endogeneity

	Dependent variable: Microcredit (Model 1) Estimation Technique: Probit			Dependent variable: Savings Account (Model 2) Estimation Technique: Probit		
	Coefficient	Standard Error	Marginal effect	Coefficient	Standard Error	Marginal effect
Age of firm owners	0.0239***	0.0085	0.0079	0.01088	0.0106	0.0022
Type of Activity	-0.0722	0.0774	-0.0240	-0.0796	0.1005	-0.0159
Location	0.2308	0.1980	0.0793	-0.9916***	0.2666	-0.1267
Years of operation	-0.0060	0.0138	-0.0020	-0.0066	0.0172	-0.0013
Income	-0.00002	0.0001	-7.75e-06	0.00002	0.0001	4.24e-06
Size of firm	0.0337	0.0245	0.0112	0.0797**	0.0391	0.0132
Risk	0.0257	0.1305	0.0110	1.2510***	0.1684	-0.1460
Residual of Financial literacy	0.5825***	0.2418	0.1935	0.7679***	0.2970	0.1531
Constant	0.3470	0.8691		-2.0061*	1.1112	
No. of observation	554			554		
Pseudo R ²	0.039			0.096		
LR chi ² (7)	25.26			41.74		
Prob> chi ²	0.014			0.0000		

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

Source: Field work, 2011