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DOES A LOAN HAVE AN IMPACT ON ATTITUDE TO RISK AMONG MICRO-ENTREPRENEURS IN TANZANIA? EVIDENCE FROM MOROGORO AND MVOMERO DISTRICTS

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ABSTRACT

Intervention with small loans for micro-entrepreneurs is crucial for the establishment and growth of their businesses. Intervention of this sort, however, induces changes in behaviour and attitude to risk depending on the repayment mechanisms in place. From the entrepreneurial point of view, after obtaining the loan, the borrowing agents are likely to make decisions that are associated with higher risk than would have been otherwise. But the argument is that, if the repayment mechanisms are so draconian, the opposite can occur, making micro-entrepreneurs more risk averse. Such entrepreneurs are likely to maintain the status quo and strive to be able to service the loan in terms of meeting the repayment requirements. Using the case of Morogoro and Mvomero districts in Morogoro region, the study found that the repayment motive outweighs the entrepreneurial acumen induced by the loan, making operators who have borrowed more risk averse than potential borrowers. Those in rural areas are even more risk averse. We found that this hinders initiatives to go for larger loans in the subsequent rounds and retards the expansion and growth of micro-enterprises. This finding points to the need for new repayment mechanisms that reduce the trade-off between the maximization of repayment rates and further development of the entrepreneurial spirit.

Key words: Loan, Micro-entrepreneur and Risk

INTRODUCTION

In a number of developing countries, a substantial number of new job seekers, retrenched workers and even pensioners have turned to small and micro-enterprises as a source of livelihood. For example, in Tanzania and Kenya, small and micro enterprises have been contributing over one-third of total employment and 13 percent of the total national income (Daniels, 1999; URT, 2002; Ayyagari *et al*, 2005; Hietalahti and Linden, 2008). Despite this, the incomes derived from these activities exhibit large variability and people in this sector tend to be averse to investing more.

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As there seems to be no alternative, efforts have been directed at increasing the role micro-enterprises (MEs) can play in the livelihoods of both the rural and urban population. The intervention in this direction is based on the evidence that, even though highly variable, income from MEs is increasingly becoming critical in maintaining living standards and in the alleviation of poverty (Wurdmann 1998, Selejio, 2002, Mduma and Wobst 2005; Tesha, 2010). Furthermore, it has been emphasized that MEs utilise and add value to local resources, hence offering basic goods and services, which are cheap and easily accessible to most low-income earners (Bagachwa, 1991, URT, 2002, Ayyagari *et al.*, 2005). Thus, many initiatives to support MEs' development in Tanzania have been implemented, such as formulation of the 2002 Small and Medium Enterprise Policy, Micro-finance Policy and other initiatives aimed at creating a favourable environment for the sector. However, loans for small business or MEs have become a fashionable topic on development agenda, where loans have been considered necessary and important for MEs owned by poor people in order to improve their performance.

In theory, access to loans is supposed to enhance households' ability to manage scarce resources more effectively, to protect against risk and provide for the future. Access to loans also promotes saving and increases empowerment of poor female micro-entrepreneurs. It is on basis of this assertion that many governments and donor agencies emphasize the development of programmes directed particularly at owners of MEs (Webster, 1991; Hietalahti and Linden, 2009). There have been several ways in which loan interventions for MEs have been carried out, ranging from group to individual lending. Nevertheless, whatever the method of intervention, the mortality rate of MEs is pervasive and loan defaulting at even higher rounds of access is not uncommon. Studies in Tanzania show that less than 30 percent of MEs survive to their third anniversary (Selejio, 2002, Mduma and Wobst, 2005).

It is argued that one of the reasons for the high mortality and loan default rate is the change in the agent's attitude to risk caused by obtaining the loan. This conclusion is based on the premise that obtaining a loan stimulates the entrepreneurial attitude which favours risky undertakings with high returns. However, in the bid to increase the repayment rate, the loan providers devise some mechanisms that force the loan recipients to concentrate on activities that would enable them to repay the loan, thereby making them risk averse. In this respect, very little effort has been directed at the expansion of MEs (Simtowe *et al*, 2005). For large-scale operators, the adverse effects caused by increased concern about risky undertakings are mitigated by their ability to implement a thorough risk analysis. However, these effects regarding risky undertakings can have serious implications for financial institutions that cater for MEs, because default is likely to occur at higher rounds of lending, which normally involve

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larger amounts than the initial loan, which is not the case in Tanzania (Chiduo, 2001; Selejio, 2002; Mduma and Wobst, 2005).

Does access to a loan induce risk aversion among micro-entrepreneurs? To what extent does risk aversion hinder further access to loans and expansion? We answer these questions in a case study of MEs in Morogoro Urban and Mvomero districts in Morogoro Region in Tanzania. We use the moment-based approach proposed by Antle (1987) to estimate risk-attitude parameters.

The rest of the paper is organized as follows. Section 2 discusses the development of ME financing in Tanzania. Section 3 presents the theoretical framework and the econometric strategy used by this study. Section 4 discusses the sampling design and the definition of the variables used. Section 5 discusses the results and their policy implications and Section 6 concludes and gives recommendations.

LITERATURE REVIEW

The formal loan institutions in Tanzania have a long history. However, they have found it difficult to deal with MEs because of their lack of collateral, the high incidence of defaults and the high transaction costs associated with issuing small loans (Kashuliza *et al*, 1998; URT, 2003; Urio and Kessy, 2006). The MEs needed special arrangements and since the 1970s some organizations and institutions have begun to undertake special loan programmes for low-income people and MEs in particular. However, most of them were unsustainable due to the issuing of “cheap” loans and poor recovery.

Following the economic reforms, the financial sector has been restructured, encouraging more participation of private institutions and NGOs in ME loan schemes, as stipulated in the Banking and Financial Institution Act (BAFIA) of 1991*. As such, new policies and designs, such as the Loan-project Approach, pioneered by the Grameen Bank of Bangladesh, and ACCION International of Latin America, were also adopted in Tanzania. Central to these developments were the quest to provide informal loan guarantees, to minimize transaction costs and to create a cost-effective delivery system (Kuzilwa *et al*, 1997). The approach focuses on establishing the rates that would ensure a sufficient amount and prompt delivery of a loan and adequate profitability for the financial intermediary. The policies have resulted in better performance of the loan programmes in terms of the number of microfinance

* In the revised 2006 BAFIA, comprehensive regulation of banks and financial institutions as well as regulation and supervision of activities of savings and credit cooperative societies (SACCOs) were provided with the aim of increasing the coverage and outreach of prudent microfinance services.

institutions (MFIs) established, the amount of capital and outreach (URT 2004; BOT, 2005).

The review in URT (1998a) shows that several public and private MFIs, including some banks, were reported to be providing micro finance services. For those documented, the evidence shows that the majority offer loans to female and young micro entrepreneurs in cities, but that few providers operate in rural areas. Some of the major MFIs presently issuing loans to MEs in Tanzania are Promotion of Rural Initiatives and Development of Enterprises (PRIDE-Tanzania), Tanzania Finance and Advances in Development Association (FAIDA) and Small Enterprises Development Agency (SEDA) and FINCA, as well as the Women Development Fund, Presidential Trust Fund (PTF) and many others (BOT, 2005; FINSCOPE, 2009).

The MFIs finance a wide range of activities. To illustrate this, Table 1 presents the activities financed by the two surveyed MFIs, the largest ones in Morogoro region (Selejio 2002). The Table shows that MEs vending cooked food formed the largest group (21.2%) of all the MEs financed by the two MFIs. A similar pattern has been recorded in other parts of Tanzania, such as Dar es Salaam and Iringa (Kayunze and Twamala 2000; Chiduo 2001, Tesha 2010). Furthermore, Table 1 shows that the agro-based MEs comprised a large proportion (45%) and were engaged in food vending (raw and cooked), animal keeping/animal product selling, running butcheries, fishing/fish selling and gardening/vegetable and fruit selling. This implies that by providing loans to MEs, MFIs indirectly encourage the development of the agricultural sector. They contribute directly to the marketing of agricultural products, which obviously increases the demand for, and production of, them. Both the first and second National Strategy for Growth and Reduction of Poverty (NSGRP I&II), known by its Swahili acronym "MKUKUTA I&II", clearly point to the need to promote those sectors that have the largest possible linkage (URT 2005, 2010). However, there are other indirect links, mainly through a change in attitude to risky undertakings due to the presence of the loan.

Table 1: Distribution of main types of enterprises found in the study area

Type of enterprise	Location							
	Morogoro Urban				Mvomero			
	PRIDE		PTF Morogoro		PTF Turiani		Total	
	No	%	No	%	No	%	No	%
Cooked food vendors	351	17.0	418	23.9	318	24.3	1087	21.2
Raw food vendors	167	8.1	221	12.6	251	19.2	639	12.5
Animal/animal products	86	4.2	72	4.1	21	1.6	179	3.5
Retail kiosks/shops	217	10.5	104	5.9	67	5.1	388	7.6
Retail new clothes/hawkers	226	10.9	193	11.0	141	10.8	560	10.9
Retail general (genge)	260	12.6	238	13.6	248	19.0	746	14.6
Charcoal/firewood	172	8.3	165	9.4	45	3.4	382	7.5
Transport/bicycles	45	2.2	33	1.9	0	0.0	78	1.5
Butchery	8	0.4	7	0.4	4	3.1	19	0.4
Retail used clothes	150	7.3	59	3.4	44	3.4	253	4.9
Beauty/hair salons	26	1.3	35	2.0	12	0.9	73	1.4
Tailoring	84	4.2	37	2.1	15	1.1	136	2.7
Carpentry/Wood/timber	22	1.1	59	0.3	4	0.3	31	0.6
Handcrafts	17	0.8	11	0.6	0	0.0	28	0.5
Fishing/fish selling	86	4.2	60	3.4	44	3.4	190	3.7
Gardening/fruit and Vegetable selling	87	4.2	73	4.2	20	1.5	180	3.5
Grocery/local brew clubs	31	1.5	9	0.5	26	2.0	66	1.3
Others (brick making, garage, labs cts.)	29	1.4	9	0.5	46	3.5	84	1.6
Total	2064	100	1749	100	1306	100	5119	100

Source: Adapted from Selejio (2002)

Theoretically, accessing a loan motivates an entrepreneurial attitude which favours risky undertakings with high returns. But in some cases micro-entrepreneurs become risk averse as their entrepreneurial decisions are influenced by (linked to) conditions attached to the loan, such as the repayment rate and future consequences. In these circumstances, the entrepreneurs fail to exploit the linkage between sectors or enterprises for better performance of their MEs (Simtowe *et al*, 2005; Daly *et al*, 2010; Brown *et al*, 2011). Attitudes to risk, however, vary according to the personal characteristics of entrepreneurs, such as age, education level, business experience and concern for others (Falk and Matulich, 1996; Daly *et al*, 2010).

METHODOLOGY

Theoretical Framework and Econometric Strategy

Returns are not guaranteed because either production or prices or are uncertain. Often, uncertainties arise from the influence of uncontrolled variables, whose levels are unknown. In line with studies in this area, for example the study by Takayama (1994), we consider a risk-averse ME operator is one who produces a single output, 'cooked food', q . Let p denote the output price, $f(\cdot)$ the production function, x the vector of inputs, including loan, and r' the corresponding vector of input prices. The total profit π of the operation is given as:

$$\pi = \sum_{i=1}^n pf(x) - r'x \dots\dots\dots (1)$$

Let E be the expectations of the operator. By invoking the assumption of risk aversion in the von Neumann-Morgenstern utility framework $U(\pi)$, and appropriately normalizing the variables so that the cost of private risk bearing R is between zero and one, i.e. $R \in (0,1)$, then the ME operator's problem is to maximize the certainty of profit given as:

$$EU(\pi) = U[E(\pi) - R] \dots\dots\dots (2)$$

- Where,
- R = Cost of private risk bearing
 - E(π) = Expected profit
 - EU(π) = Expected utility of total profit

In this setting, the cost of private risk bearing, the risk premium $R \in (0,1)$ measures the maximum amount that the risk-averse individual is willing to pay to have a sure return rather than the expected return from the uncertain prospect (Takayama 1994). By presenting the risk as random variable ξ with distribution $G(\xi)$, then the ME operator's maximization of expected utility of profit can be written as:

$$Max_x [E(U(\pi))] = Max_x \int U[(pf(\cdot) - r'x)] dG(\xi) \dots\dots\dots (3)$$

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For econometric implementation of this theoretical framework presented so far, Antle (1987) proposes a moment-based approach to estimate risk-attitude parameters. Antle shows that by reparameterizing the model, the empirical equation can be given as:

$$\text{Max } E[U(\pi)] = [f(\mu_1(X), \mu_2(X), \dots, \mu_m(X))] \dots\dots\dots (4)$$

where μ_j , $j=1,2,\dots,m$ is the j^{th} moment of profit, and the first order condition is approximated by a Taylor expansion as follows:

$$\frac{\partial \mu_1(X)}{\partial X_j} = \theta_{1j} + \theta_{2j} \frac{\partial \mu_2(X)}{\partial X_j} + \theta_{3j} \frac{\partial \mu_3(X)}{\partial X_j} + \dots + \theta_{mj} \frac{\partial \mu_m(X)}{\partial X_j} + \varepsilon_j \quad (5)$$

where ε_j is the usual econometric error term. Antle (1987) shows that in practice only third order is needed. Given this order of Taylor's expansion, the parameter θ_{2j} gives the Arrow-Pratt (AP) coefficient and θ_{3j} multiplied by negative six gives the down-side risk aversion coefficient (Antle 1987). Thus, the risk premium (RP) is computed using the following equation:

$$RP = \mu_2 \frac{AP}{2} - \mu_3 \frac{DS}{6} \dots\dots\dots (6)$$

As introduced in the theoretical framework, the model proposed by Antle (1987) requires estimation of the moments of the profit function. In line with Simtowe *et al* (2005), the profit variable is estimated as the gross margin (GM) received by each ME per year. The GM is obtained from the straightforward formula of deducting total variable costs from sales revenue.

Theoretically, standard inputs are labour, capital and other forms of raw materials. However, for the purpose of this study, the vector of inputs x used in the food-vending sub-sector is labour, own capital and loan. In the first stage, the linear model with interaction terms presented in equation 6 was estimated to establish the expected profit π (see Groom *et al*, 2002).

$$\pi = \sum_j \phi_j x_j + \sum_i \sum_j \gamma_{ij} x_{ij} + \zeta \quad \forall i \text{ and } \forall j \text{ input} \quad (7)$$

In the second stage, the variance of profit ζ^2 and the skewness of profit ζ^3 are then regressed as a linear function of the inputs and the marginal contributions of the loan to ζ^2 and ζ^3 are extracted. In the third stage, the estimated expected profit is finally aligned to the marginal contributions of the loan as ζ^2 and ζ^3 . The parameters associated with ζ^2 and ζ^3 are given as the Arrow-Pratt (AP) and the down-side risk aversion measures (DS), respectively.

Survey Design and Definitions of Variables

The study used primary data, which came from a survey conducted by the author, who was involved directly in designing the questionnaire, the preliminary survey, sampling and questionnaire administration.[†] The questionnaire was designed to obtain both qualitative and quantitative information. Specifically, the data collected included variables relating to the operations of MEs such as costs, sales, expenditure, and entrepreneurs' participation in farming activities, management and markets (types of customers). The data collected also included the opinions of ME operators with regard to MFIs' services.

The study followed the multi-stage sampling approach, by first targeting the two major providers of loans to MEs, namely Presidential Trust Fund (PTF) and PRIDE Tanzania. One reason why these two MFIs were selected is that they have been in operation for a relatively longer time (more than four years) than other institutions in the region. Another reason is that they had more clients than other MFIs. Furthermore, the lending model used both by PRIDE and PTF was also the same, namely the group solidarity/lending technique. Members are formed into groups of five and eight such groups form a large group with 40 members. The large group is normally known as the Market Enterprise Committee (MEC) for PRIDE and 'Centre' for PTF. Two branches, one belonging to PTF and the other to PRIDE, located in Morogoro municipality, and a

[†] Prior to the main fieldwork, a pre-survey was carried out in the study area in order to become familiar with the study area. The pre-survey enabled the researcher to develop and pre-test the questionnaire so as to check the relevance and comprehensiveness of the questions for obtaining the information required for the study. Twenty-five micro-entrepreneurs were sampled for pre-testing the questionnaire and appropriate modifications were made accordingly.

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third PTF branch located in Morogoro Rural district in Turian[‡] division, were then randomly selected.

For the purpose of establishing the relative change in the risk premium, the study included two groups, one of borrowers and the other of non-borrowers (control group), whose initial conditions (before receiving a loan) were as similar as possible. To achieve this, the borrowers were defined as clients at least in the second round of the loan, while non-borrowers were applicants whose applications had just been accepted (but not yet effected). The sampling frame was limited to the food-vending sub-sector because they formed the largest group (see Table 1) and were easily accessible. Limiting the analysis to only one sub-sector also had the advantage of minimizing all possible variations between different categories of MEs that otherwise would be difficult to control using the static regression model with a small sample. After eliminating those who had other sources of loans, 132 respondents were randomly selected at weekly group meetings from a list (sampling frame) provided by the loan officer. Generally, the cross-sectional data/information from ME operators was limited to one year (2000).

The study was carried out in Morogoro Region, which is located in the eastern part of Tanzania Mainland. The region was selected purposefully because many MEs operate there and a good number of them obtain loans from different MFIs. Morogoro region is ranked seventh in terms of the number of active public and private (or non-governmental) MFIs. It is also one of the regions with MFIs, besides SACCOs, operating in a rural area (BOT, 2005). However, the study survey was conducted in only two districts of the region, namely, Morogoro Urban and Mvomero[§].

DISCUSSION OF RESULTS

Descriptive Results

The study results indicated that the majority of ME operators in rural areas also engage in farming and run MEs as a part-time activity. However, ME operators are more often in full-time employment in urban areas. It was found that in urban areas, 91.7% of the respondents stated that the MEs were their major source of income. This rural-urban divide is explained by the difference in the market for ME products, in that home-made food tends to be in greater demand in urban than rural areas due to the larger population (customers) and relatively higher incomes. The importance of MEs cannot

[‡] Turiani Division is currently in Mvomero district that was formed from Morogoro Rural district in 2003.

[§] Initially Mvomero was a Division of Morogoro Rural district

be overemphasized, since the lack of formal employment in both the public and private sector and the low income from other sources, e.g. seasonal farming, forces many rural and urban poor to engage in ME activities as a source of employment and income. The results support the observations made by Mandara (1998) and O'Riordan et al, (1997), who found that MEs have become a major source of livelihood and employment in many least industrialized countries (LICs), due to employment in the public sector being restricted as a result of Structural Adjustment Programmes and limited absorptive capacity of the agricultural sector.

As regards the age of the MEs, the results indicated that most (56.0%) MEs in the study area had been in operation since their establishment for between 1 and 3 years. However, after this age the survival rate declines sharply. Although we do not have strong statistical support, there is modest evidence that the proportion of enterprises that were aged 1-6 years was higher than that of other age classes, partly because this was the period when MFIs had been operating in the study area. It may therefore be concluded that most MEs had started operating when they had access to a loan. This implies that the provision of a loan is important for the poor so that they can start an ME, but is not a sufficient condition for their sustainability because of other factors such as loan conditions, the behaviour of the entrepreneurs and their attitude to risk.

The results have shown that 97.7% of the MEs were individually owned and the rest were owned by groups. Although MFIs and other lending schemes encourage groups to be formed in order to secure a loan and if possible in their business, ME operators are reluctant to have joint businesses. Similar studies (Selejio 2002) found that this is due to the lack of trust between group members, which is also a problem in both the private and public sector in Tanzania and most LICs, that could be explained by the lack of contract enforcement mechanisms (among members of partnerships).

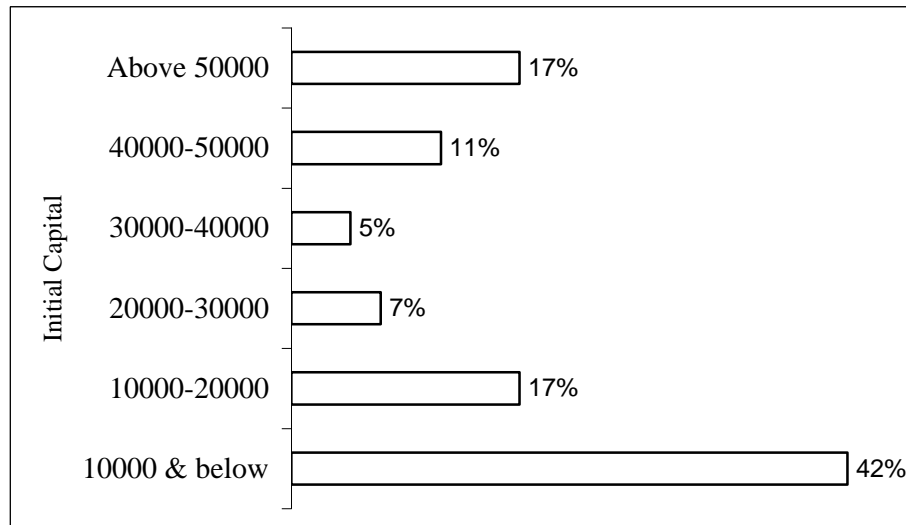


Figure 1: Distribution of the Initial Capital among MEs

Some problems of the ME sector have been associated with the amount of start-up capital^{**}. Figure 1 shows the distribution of start-up capital, revealing that a significant proportion (42%) of MEs were started with initial capital of less than TShs 10,000/= and only 17% of respondents started their enterprises with more than TShs 50,000/=. The mean start-up capital for the whole sample was 34,828/=, which is less than the minimum loan (TShs 50,000/=) provided by MFIs. This confirms the importance of providing loans for MEs of low-income people, whose savings are too low to start a reasonable enterprise.

The results concerning the amount of the loan indicate that a substantial proportion (29%) of ME operators have received a loan of TShs 100,000/= to 300,000/= and only 8% of the respondents have received over TShs 300,000/=. Although the amount of the loan seems small, most (92.3%) borrowers interviewed confirmed that the amount provided was adequate for their business. Indeed, this is not surprising, especially when matched with their initial capital and the extent of risk aversion which was observed from the econometric results presented in the subsequent sub-section.

^{**} According to Bank of Tanzania report on Money Markets in February 2012, the official exchange rate was US\$ 1 = TZS 1557/=.

The results also revealed that the loan repayment rate was over 96%. However, this performance of MFIs in terms of the repayment rate does not definitely reflect the performance of loan clients and their welfare because of the new microfinance policies adopted by MFIs. With the new MFI lending procedures and models (group lending method), group members are obliged to pay back the loan of any group member who defaults. These procedures increase the risk-averse syndrome among loan clients, which causes them to concentrate on repaying the loan rather than the performance of their ME.

The distribution of the ratio of the gross margins (GMs) of MEs per year is summarized in Figure 2. The results show also that MEs with a loan had slightly higher than average GMs per year than those without a loan. However, this difference was not significant ($P>0.05$) between the two groups. This implies that the provision of a loan does not lead to significantly better performance by borrowers than their counterparts (non-borrowers). The reason for this could be attributed to the loan recipients' risk aversion, which makes them concentrate on activities that enable them to repay the loan with less attention being paid to expansion and/or improving the performance of their MEs, as argued by Simtowe *et al* (2005; Brown *et al.* 2011). These results imply that MEs that started using the hard-earned savings of the owner (non-borrowers) have a higher chance of survival than those who depend on loans. The results are in agreement with the suggestion given by Buckley (1997) that MEs starting with very small own capital have a higher chance of survival since owners' experience grows with capital. However, very few poor entrepreneurs have the ability to save enough money to start an ME.

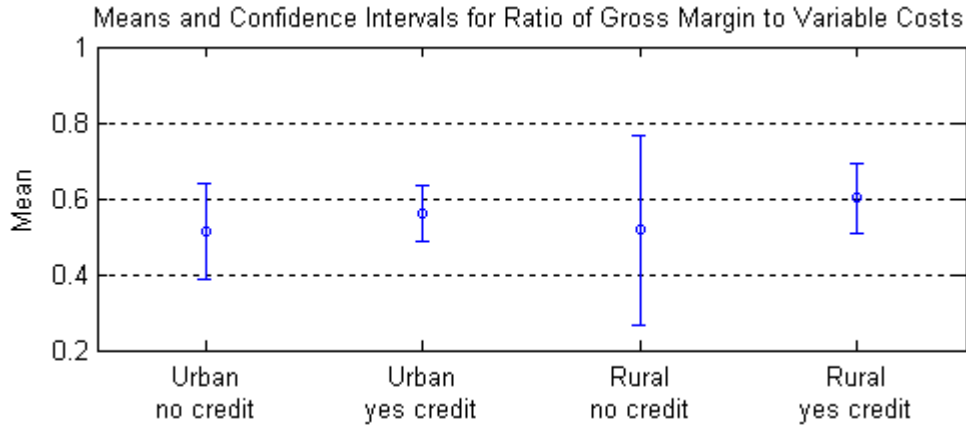


Figure 2: The distribution of the profit margin as it is influenced by the credit and location

In terms of the magnitude of the GMs, the study results revealed that all MEs in the study had positive and above zero GMs per year, implying that total variable costs were recovered in all enterprises. The distribution of the GMs shows wide variations, however. About 58% of respondents were receiving GMs of between TShs. 100,000/= and 500,000/=. MEs which received less than TShs. 100,000/= formed only 6.8% of all MEs in the study. Since cooked food vending MEs use a small proportion of fixed capital for inputs, the GMs in this study are a good estimate of profit and can be used as a measure of the welfare of the operators. The study found that the average GM for the whole sample was TShs. 533,000/= per year, which is substantially higher than the statutory minimum (TShs 360,000) wage in the survey year. The fact that the majority of the respondents entered this sector because they could not find a better alternative implies that the majority would prefer a sure although minimum salaried job to the risk of getting less income from operating an ME. We investigate and discuss this issue further using the econometric results in the next sub-section.

Econometric Results

Although the descriptive results in the preceding sub-section revealed issues of great policy relevance, the discussion needs to be complemented by rigorous econometric estimations. Table 2 shows the econometric results of the risk parameters of the ME operators. As described in the theoretical framework, this is derived from the regression results presented in Annex 1.

Table 2: Risk Parameters

Variable	Coefficient	t-statistic	t-probab
Constant	0.30	36.76	0.00
Arrow-Pratt (AP)	1.05	40.04	0.00
Downside-risk (DS)	-0.57	-29.60	0.00

As Table 2 shows, the results are compliant with the expectation of risk-aversion behaviour of MEs using loans. However, there are important things to note. The first is that the constant term is significant, which implies that loans are being efficiently used by the MEs (see Groom *et al.*, 2003). The parameter associated with Arrow-Pratt (AP) is positive and significant, which indicates that MEs are averse to using larger loans. The econometric results are thus in line with the descriptive statistics discussed in the previous sub-section, which indicated that the amount of loans extended to ME operators was enough. This implies that, from the point of view of the operators who obtain loans, the issue is not the amount of the loan, but other factors that inhibit MEs' growth, such as the unfavourable business environment, which should be addressed. In other words, while loans given to MEs can be the engine to make them grow, a friendly regulatory framework must be in place to lubricate the motion.

Further, Table 2 shows that the parameter associated with downside-risk aversion (DS), which measures the cumulative probability of getting lower returns, has the expected sign and is significant, which implies that ME operators are also averse to down-side risk associated with the use of a loan. Risk aversion to loan use can have serious implications for the development of MEs, particularly when the loans are repaid in short regular intervals, such as weekly, as implemented by the two MFIs covered in this study. Although this repayment mechanism maximizes loan recovery (which is good from the loan providers' perspective), it impinges substantially on the development of MEs. More research is needed to discover alternative repayment schemes that reduce this trade-off.

The study found that ME operators are generally risk averse, with the risk premium, expressed as a percentage, averaging around 12% (median). This implies that, on average, ME operators will pay a premium of around 12% per annum to ensure their income. Indeed, this is a relatively high rate but it reflects the high income risks facing MEs. Figure 3 shows that the risk premium in rural areas is higher than in urban

areas^{††}. Furthermore, Figure 3 shows that the risk premium is higher among those with a loan than those without. This implies that those who acquired a loan become more cautious, preferring a relatively low, but steady, income so that they are able to service their repayment obligations.

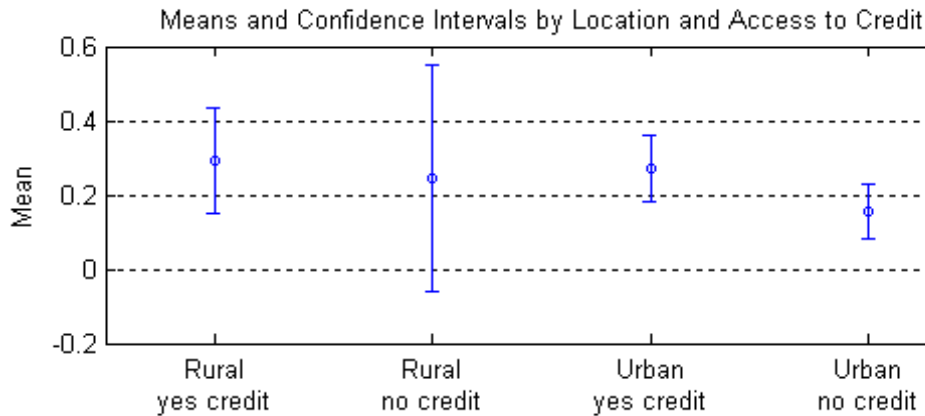


Figure 3: Risk premium of Borrowers and non-Borrowers

Further analysis of the distribution of the risk premium was conducted to see how it varies with the number of years the operator has been in business and the location. We found that there is no clear pattern in the distribution of the risk premium according to years in operation among rural operators. Although there is a modest upward trend in urban areas, the analysis indicated that the trend was not statistically significant. Theoretically, it is expected that as the number of years in operation increases, the aversion to risk should decline because of increased entrepreneurial skills, but the results of this study do not provide evidence for this theory. That is why most MEs register low growth (expansion) and are characterized by a high mortality rate a few years after their establishment, as argued by Chiduo (2001) and Mduma and Wobst (2005).

CONCLUSIONS AND POLICY IMPLICATIONS

The gross margins are impressive, a bit higher than the minimum salary, but given the high variability, running an ME was not their operators' best alternative. They would prefer a sure income from a salaried job to gambling in the ME self-employment

^{††} The risk premium (RP) is compared from the nodes of vertical lines in Figure 3

sector. Thus, we conclude that MEs are symptoms of the struggle for survival as a result of shrinkage in the formal employment sector and there is a lot of competition. Therefore, this calls for the government and private initiatives to promote this sector, which has great potential for absorbing more unemployed people (mainly youth and women) in Tanzania.

Though gross margins are higher among borrowers than non-borrowers, the difference is not statistically significant. This implies that the role of loans in MEs' performance (in terms of profit) is not significant. On the one hand, this could be caused by low reinvestment using the profits generated by MEs or that the profits were used for consumption. On the other hand, small loans were offered to clients that would not bring about a significant difference between borrowers and non-borrowers. Thus more capacity building in business and entrepreneurial skills is of paramount importance for the development of the ME sector and lending institutions at large.

The average amount of loans issued to MEs seems small, but most operators claimed that it was sufficient. This perplexing phenomenon is explained by our empirical analysis, which showed that the fear of taking risks increases with the acquisition of a loan. As such, the operators were preoccupied with the worry of repaying the loan and the associated interest that was not matched by entrepreneurial innovations. Therefore, it is important for institutions lending to MEs to establish the optimal amount of a loan for a given type of business, area/location of an ME and the time/season of operation. The design of an optimal lending policy should focus on the repayment mechanism as the current one puts seemingly excessive pressure on borrowers.

ME operators in rural areas are more risk averse than their counterparts in urban areas, which implies that lending institutions should design lending models/procedures that differentiate between their potential clients in rural and urban areas to ensure the good performance of each category of borrowers.

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O. Selejio

Annex 1. Parameter Estimates of the Expected Profit (Trans-log Specification)

Ordinary Least-squares Estimates

Dependent Variable = gm

R-squared = 0.3737
Rbar-squared = 0.3275
sigma^2 = 0.6725
Durbin-Watson = 1.9843
Nobs, Nvars = 132, 10

Variable	Coefficient	t-statistic	t-probability
constant	-0.000000	-0.000000	0.999991
owncpt99	0.731701	2.986241	0.003414
lcredit	0.564537	2.570174	0.011367
paidlab	-0.018310	-0.083452	0.933629
cap2	-0.139234	-0.527200	0.599012
cre2	-0.291928	-1.179938	0.240320
lab2	0.335604	1.387214	0.167906
cre_cap	-0.189259	-0.640832	0.522834
cap_lab	-0.065396	-0.293635	0.769536
cre_lab	-0.185053	-0.943206	0.347440

