Impact of Credit on Attitude towards Risks among Micro-enterprise Operators: A case of Morogoro in Tanzania

Selejio, Onesimo & Mduma, John K

Economics Department
University of Dar es Salaam

October 2005

Abstract

Intervention with credit in micro-enterprises is crucial for the establishment and growth of micro-enterprises. Intervention of this sort, however, induces changes in the behavior and attitude towards risks depending on the repayment mechanisms in place. From the entrepreneurial spirit, after accessing the loan, the borrowing agents are likely to make decisions that are associated with higher risks than would have been otherwise. However, if the repayment mechanisms are so draconian, the opposite can occur; making micro-enterprise operators more risk averse, who like to maintain the status quo, and who only strive to be able to service the loan in terms of meeting the repayment requirements. Using a case study of Morogoro region in Tanzania, the study finds that the repayment motive outweigh the entrepreneurial acumen induced by credit, making operators who have borrowed more risk averse than the potential borrowers. We argue that this tendency hinder initiatives to go for large amount of credit in the subsequent rounds and retards the expansion and growth of micro-enterprises. This finding points to the needs for new repayment mechanisms that reduce the tradeoff between the maximization of the repayment rates and the further development of entrepreneurial spirit.

1. Motivation

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 (MEs) as a source of livelihood. According to the research findings in the study of the contribution of small and micro-enterprises to employment growth in Southern and Eastern Africa, it has been found that small enterprises have absorbed close to a third of the total increase in population of working age (15 - 64) and over 40% of the total increase in the labor force during 1980s. Despite these, the incomes derive form these activities exhibit large variability and people tends to be averse towards more investments in this sector (Mead 1994).

As there seems to be not alternative, effort has been directed to increase the role micro-enterprises (MEs) can play in the livelihoods of both rural and urban population. The

---

Both authors are lecturers at the Department of Economics, University of Dar es Salaam. P.o. Box 35045 Dar es Salaam. Corresponding author: oselejio@yahoo.co.uk

intervention in this direction is based on the evidence that, even though highly variable, income from the MEs is increasingly becoming critical in maintaining living standards and in the alleviation of poverty (Wurdnmann 1998, Selejio 2002, Mduma and Wobst 2005). Furthermore, it has also been emphasized that, MEs offer basic goods and services, which are cheap and easily accessible to the most low-income earners (Bagachwa 1991). As a result, credits to small business and micro-enterprises have become a fashionable topic in development agenda, where credit has been considered necessary for MEs owned by poor people to improve performance.

In theory, access to credit is supposed to enhance households' ability to manage scarce resources more effectively and protection against risk and provision for the future. It is on basis of this assertion that many governments and donor agencies emphasize development of programs directed particularly to owners of micro-enterprises (Webster, 1991). There have been several ways in which credit intervention to the MEs has been carried out, ranging from group to individual lending. Nevertheless, whatever methods of interventions, the mortality rate of MEs is pervasive and loan defaulting even at higher rounds of access is now uncommon. Recent studies in Tanzania show that less than 30 percent of the MEs survive to their third anniversary (Selejio 2002, Mduma and Wobst 2005).

It is argued that one of the reasons for the high mortality rate and loan default is the change in agent's attitude towards risk caused by access to credit. This conclusion is based on the premise that access to credit stimulates entrepreneurial attitude which favor risky undertakings with high returns. However, in the bid to increase the repayment rate, the credit providers devise some mechanisms that force the credit recipients to concentrate on activities that would enable them to repay the loan. In this respect, very little effort is directed to the expansion of the ME (Simtowe *et al.* 2005). For large scale operators, the adverse effects caused by increased attitude toward risky undertakings are mitigated by the ability of operators to implement thorough risk analysis. However, the effects towards risky undertakings can have serious implications among financial institutions that cater for the MEs because default is likely to occur at higher rounds of loaning, which normally involves larger amounts than the initial loan.

To what extent does the risk aversion hinder further access to credit among MEs' operators and further expansion? We answer this question in a case study of MEs sector in Morogoro Urban and Rural districts of Morogoro Region in Tanzania. We use a moment based approach proposed by Antle (1987) to estimate risk-attitude parameters. We find that MEs operators are strongly opposed to risk returns and this tendency increases immediately after acquiring initial loan. This hinders more drives to new and higher amount of loans and reduces the expansions of MEs.

The rest of the paper is organized as follows: Section 2 discusses the development of ME credit financing in Tanzania. Section 3 presents a theoretical framework and the econometric strategy followed in 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 the recommendations.

2. Micro-enterprises Financing in Tanzania

The formal credit institutions in Tanzania have considerable long history. However, the formal institutions found it difficult to deal with MEs because of the latter's lack of collateral, high incidence of defaults and high transactions costs associated with issuing of small credits (Kashuliza *et al.*, 1998). The MEs needed special arrangement and since the 1970s some organizations and institutions began to undertake special credit programs for low-income people and MEs in particular. However, most of them were not sustainable due to issuing of "cheap" credits and poor recovery.

Following the economic reforms, there has been financial sector restructuring that has encouraged more participation of private and NGOs in MEs' credit schemes as stipulated in the Banking and Financial Institution of Act 1991. As such, new policies and designs known as Credit-project Approach pioneered by Grameen Bank of Bangladesh and ACCION International of Latin America were also adopted in Tanzania. Central to these developments were the quest for provision of informal credit guarantees, minimizing transaction costs and creating a cost effective delivery system (Kuzilwa *et al.*, 1997). The approach focuses on establishing rates, which would ensure sufficient amount and prompt delivery of credit and adequate profitability for the financial intermediary. The policies, however, have resulted into better performance in the credit programs.

The review in URT (1998a) shows that several public and private MFIs, including some of banks, have been reported to provide micro finance services. For those documented, the evidence shows that the majorities offer credit to women and youth entrepreneurs who are operating MEs in cities with a few operating in rural areas. Some of key micro-finance institutions (MFIs) which are presently issuing credit to MEs include Promotion of Rural Initiatives and Development of Enterprises (PRIDE-Tanzania), Tanzania Finance and Advances in Development Association (FAIDA) and Small Enterprises Development Agency (SEDA). Others include the Women Development Fund, Presidential Trust Fund (PTF) and many others.

The MFIs finance a wide range of activities. To illustrate this, Table 1 present the activities financed by the two of the largest MFIs in Morogoro region (cf. Selejio 2002). [Morogoro region is our case study as discussed in section 4]. It is apparent that eighteen (18) main types of MEs were identified in the study area. Table shows that food vending, retail (shop/kiosks, petty business, and retail general i.e. *genge*) and charcoal/fire wood selling enterprises were numerous. This group of enterprises was found to compose 74% of the total number of micro enterprises of 18 identified types of enterprises in the area. It was observed that the remaining group of 12 types of enterprises (butcher, handcrafts, carpentry/wood selling, grocery/clubs, saloons, transport/bicycles, tailoring, animal keeping/products, gardening/fruits and vegetable selling, fishing/fish selling, used cloth selling and others) were few in number, constituting 26% of the total number of micro-enterprises financed by the two MFIs.

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

Type of enterprise	Location							
	Morogoro Urban				Morogoro rural			
	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 product	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/fire wood	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
Butcher	8	0.4	7	0.4	4	3.1	19	0.4
Retail used cloth	150	7.3	59	3.4	44	3.4	253	4.9
Beauty hair saloon	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/fruits and vegetables selling	87	4.2	73	4.2	20	1.5	180	3.5
Grocery/ local brews clubs	31	1.5	9	0.5	26	2.0	66	1.3
Others (brick making, garage, labs etc.)	29	1.4	9	0.5	46	3.5	84	1.6
Total	2064	100	1749	100	1306	100	5119	100

Source: Adopted from Selejio (2002)

The recently adopted National Strategy for Growth and Reduction of Poverty (NSGRP), famously known in its Swahili acronym "MKUKUTA", clearly point to the need to promote those sectors that have the largest possible linkage (URT 2005). Table 1 shows that cooked food vending micro-enterprises formed the largest group (21.2%) of the total enterprises financed by the two MFIs. Similar pattern has been recorded in other parts of Tanzania, such as Dar es Salaam (cf. Kayunze and Twamala 2000; Chiduo 2001). Furthermore, Table 1 shows that the agro-based micro-enterprises occupied a large proportion (45%). These enterprises include food vending (raw and cooked), animal keeping/animal product selling, butcher, fishing/fish selling and gardening/vegetable and fruit selling enterprises. This implies that the encouragement of MFIs in providing credit services to MEs indirectly influences the development of the agricultural sector. They contribute directly to marketing of agricultural products, which obviously increase demand for, and production, of agricultural products. However, there are other indirect links, mainly through changes in the attitudes towards risk undertakings due to the presence of credit.

3. Theoretical Framework and Econometric Strategy

Risky returns occur because either the production or prices or both are uncertain. Often, uncertainties arise from the influence of the uncontrolled variables whose levels are unknown. In line with studies in this area (cf. Takayama, 1993), we consider a risk-averse MEs operator who produces a single output, 'cooked food' q. Let p denote the output price, $f(.)$ a production function, x a vector of inputs, including credit; and r a vector of input prices. The total profit of the operation is given as:

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

By invoking the assumption of risk aversion in the von Neumann-Morgenstern utility framework U, and appropriately normalizing the variables such that cost of private risk bearing is $R \in (0,1)$, then the ME operator's problem is to maximize the certainty equivalent of profit given as:

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

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 the sure return rather than the expected return from the uncertain prospect (Takayama 1993). By presenting the risk as random variable ξ with distribution $G(\xi)$, then the ME operators maximization problem of expected utility of profit can be written as:

$$\underset{x}{Max}\left[E(U(\pi)\right] = \underset{x}{Max}\int U(pf((f) - r'x)\,dG(\xi) \qquad (3)$$

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:

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

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

$$\frac{\partial u_1(X)}{\partial X_j} = \theta_{1j} + \theta_{2j}\frac{\partial u_2(X)}{\partial X_j} + \theta_{3j}\frac{\partial u_3(X)}{\partial X_j} + \ldots\ldots + \theta_{mj}\frac{\partial u_m(X)}{\partial X_j} + u_j \qquad (5)$$

where u_j is the usual econometric error term. In practice, the Taylor expansion is implemented only up to the third order because, the parameters θ_{2j} gives the Arrow-Pratt (AP) coefficient and θ_{3j} multiplied by negative six gives the down-side risk aversion coefficient. The risk premium is computed by:

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

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

Theoretically, standard inputs are labor, 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 include labor, own capital, and credit. 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).

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

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 credit to ζ^2 and ζ^3 are extracted. In the third stage, the estimated expected profit is finally fitted on marginal contributions of the credit to ζ^2 and ζ^3. The parameters associated with ζ^2 and ζ^3 are gives the Arrow-Pratt (AP) and the down side risk aversion measures (DS), respectively.

4. Survey Design and Definitions of Variables

The study uses primary data, which comes from a survey that was conducted by one of the authors, who was involved directly in the questionnaire design, preliminary survey, sampling and questionnaire administration. The questionnaire was designed to obtain both qualitative and quantitative information (by using of closed and open-ended questions)[2]. However, in most analysis in this paper, the qualitative data has been coded to allow rigorous quantitative analysis. In other words, open-ended questions were mainly used to exploit the freedom they give to the respondents to say what he/she thinks. The questions were designed to obtain information on general characteristics regarding household, micro-enterprise and credit. Specifically, the data collected included variables related to the operation of the MEs such as the variable costs, sales and other expenditures as well as the entrepreneurs' participation in farm activities, and management and markets (types of customers). The data collected also included the opinions of the MEs operators with regard to MFIs services.

The study followed a multi-stage sampling, by first targeting the two major providers of credits to MEs, namely Presidential Trust Fund (PTF) and PRIDE Tanzania. The reason why the two MFIs were selected is that the two the institutions have been in operation for a relatively longer time (more than four years) than other available institutions in the region. Another reason is that they had also many clients when compared to other MFIs. Furthermore, the lending model used both by PRIDE and PTF was also the same i.e. they apply the group solidarity/lending technique. Members form small groups of five members and eight (8) small groups form the large group with 40 members. The large group normally, known as Market Enterprise Committee

[2] Prior to main fieldwork, a pre-survey was carried out in the study area in order to acquire familiarity with the study area. The pre-survey enabled the researcher develop and pre-test the questionnaire so as to check the relevance of questions and comprehensiveness to achieve the required information for the study. Twenty-five micro-enterprise operators were sampled for pre-testing the questionnaire and appropriate modifications of the questionnaire were done accordingly.

(MEC) and 'Centre' for PRIDE and PTF respectively. Two branches, one for PTF and one for PRIDE were located in Morogoro municipality while the third branch for PTF was located in Morogoro rural district in Turian division[3], were then randomly selected.

For the purpose establishing the relative change in the risk premium, the study include two groups of borrowers and non-borrowers (control group), whose initial conditions (before credit) are as similar as possible. To achieve this, the borrowers for the purpose of this study were defined as clients in the second round of credit and more, while non-borrowers were the borrowers in the first round and applicants whose applications have just been accepted (but not yet effected). The sampling frame is limited to the food-vending sub-sector because they formed the largest group (see Table 1) and are easily accessible. Limiting the analysis to only one sub-sector also has advantage of minimizing all possible variations between different categories of enterprises that would be otherwise difficult to control using static regression model with a small sample size. After eliminating those who have other sources of credit, a random sample of 132 respondents was selected at weekly group meetings from a list (sampling frame) provided by the credit officer.

The Kiswahili questionnaire was administered to the micro-entrepreneurs during the main survey carried out from December 2000 to January 2001, by one of the authors, who was assisted by two trained enumerators. Generally, the cross-sectional data/information from micro-enterprises' operators was mostly limited to one year (2000).

The study was carried out in Morogoro Region. The region is located in the eastern part of Tanzania Mainland. The selection of the region was done purposefully because there are many MEs that are in operation and a good number of them have access to credit from different MFIs. After Dar es Salaam, Morogoro region is among the regions that have a higher number of active public and private (or non governmental) micro-finance institutions such as Presidential Trust Fund (PTF), PRIDE Tanzania, Action for Relief and Development Assistance (AFREDA), FARAJA Trust Fund and many others. Micro-entrepreneurs were also expected to carry out both micro-enterprises and farm activities due to high potentiality of region in agriculture. However, the study survey was conducted in only two districts of the region namely, Morogoro Urban and Morogoro Rural

5 Discussion of Results and their Implications

5.1 Descriptive Results

The study results indicated that the majority of the ME operators in the rural areas also engage in farm activities and carry MEs as a part time activities. However, MEs are more of a full time employment in the urban areas. It is found that in the aurban area, 91.7% of the respondent stated that the MEs formed the largest sources of their household incomes (only 8.3% of MEs were supplementing income). This rural-urban

[3] Turiani Division is currently in Mvomero district that has been recently formed from Morogoro Rural district.

divide is explained by differences in the markets for MEs' goods/products, where off-home made food services tends to have higher demand in the urban than in the rural due to larger population (customers) and relatively hire incomes. The importance of the MEs can not be overemphasized, since lack of formal employment in both public and private sectors and low income from other sources e.g. seasonal farming, forces many rural and urban poor to engage in MEs activities as sources of employment and income. The results are in agreement with observations made by Mead and Liedholm (1998); Mandara (1998) and O'Riordan et al., (1997), who found that MEs have become a major source of livelihood and employment in many LICs due to employment in public sector being restricted, as a result of SAPs and limited absorptive capacity of agricultural sector.

As with regards to the age of the enterprise, the results have indicated that most (56.0%) of 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 showing that the proportion of enterprises that had the age range of 1-6 years was higher compared to other age classes, partly because this was the period when the MFIs had been in operation in the study area. It may therefore be concluded that most of MEs had started and become sustainable when they had access to credit.

The results have shown that about 97.7% of the MEs were individually owned and the remaining proportion constitutes those owned by groups. Although the micro finance institutions and other credit schemes encourage group formation in securing credit and if possible in their business, the MEs operators are reluctant to have joint business. Similar studies (cf. Selejio 2002) found that this is due to lack of trustfulness among the group members, which is also a problem in both private and public sectors in Tanzania and most LICs, that could be explained by lack of contract enforcement mechanisms (among members of partnerships).

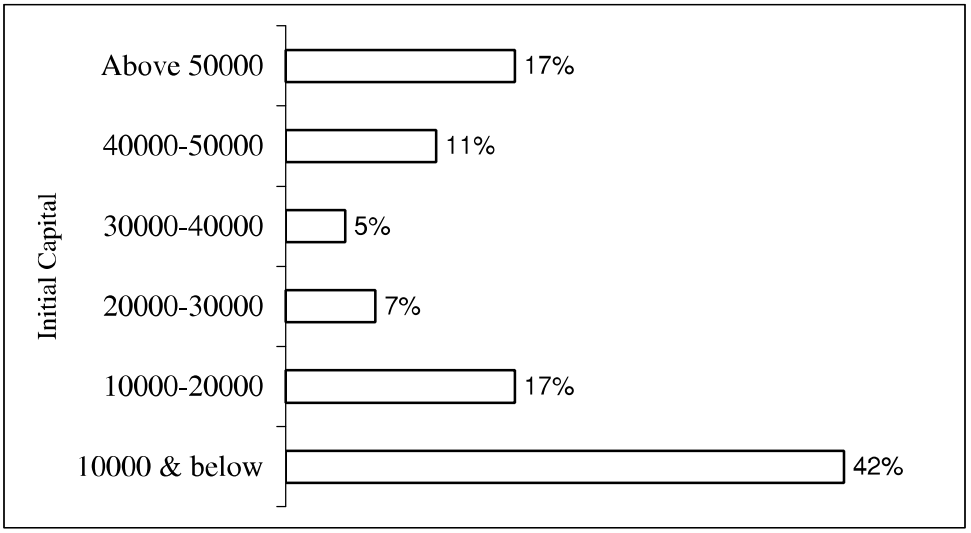


Figure 1: Distribution of the Initial Capital among MEs

Some of the problems of the ME sector has been associated with the amount of the start-up capital[4]. Figure 1 shows the distribution of the start-up capital and found that a significant proportion (42.4%) of the MEs were started with initial capital less than 10,000/= and only 17.4% of respondents started their enterprises with greater than 50,000/=. The mean start up capital for the whole sample was 34,828/=. The mean is less than the minimum loan (TShs 50,000/=) provided by the MFIs. This confirms the role of micro-enterprise financing to low-income people whose savings is too low to start the reasonable enterprises.

The results on the amount of credit indicate that a substantial proportion (29.3%) of the MEs operators have received credit above TShs 100,000/= to 300,000/= and only 7.7% of the respondents received over 300,000/=. Although the amount of credit is seems to be small, most (92.3%) borrowers interviewed admitted that the amount of credit provided was adequate for their business. In deed, this should not be surprising especially when matched with their initial capital and the extent of risk aversion which were observed from the econometric results presented in the subsequent subsection.

The results also revealed that the repayment rate was over 96%. However, this performance of MFIs in terms of paying back the loan does not definitely reflect the performance of credit clients MEs and therefore their well fair because of the new microfinance policies and designs adopted by MFIs. With the new MFI lending procedures and models (group lending method), the group members are obliged to pay back the credit of any group member credit defaulter(s). These procedures increase the risk averse syndrome among the credit clients and condition lead them to concentrate on credit repayment rather than the performance of their MEs.

The distribution of the ration of the gross margins (GMs) to the variable costs of MEs per year is summarized in Figure 2 (below). Results show also that MEs with credit had slight higher average GM per year than those without credit. However, this difference was not significant ($P>0.05$) between the two groups. This implies that provision of credit does not lead to significant better performance to borrowers than their counterparts (non-borrowers), which is not in agreement with the hypothesis. The reason behind this observation might be due to the fact that profit generated by micro-enterprise was not wholly reinvested in business but used for other purposes like consumption and/or starting/expanding other type of enterprises, which is in agreement with observation of Downing and Daniels (1992) cited by Mead and Liedholm (1998). Extra capital (credit) might have also been used to employ relatively advanced technology and more labourers to simplify MEs operation. This might not be reflected in performance of MEs under the study but in other entrepreneurs' responsibilities and activities since he/she could get time to perform them. These results imply that MEs started using the hard-earned savings of the owner (non-borrowers) have higher chances of survival than those who depend on credit. The results are in agreement with the suggestion given by Buckley (1997) that MEs start with very small own capital have higher chance of survival since owners' experience grows with capital. However, very few poor entrepreneurs have ability to save enough capital to start MEs.

[4] in the survey year the exchange rate was US$ 1 = TzS 800/=

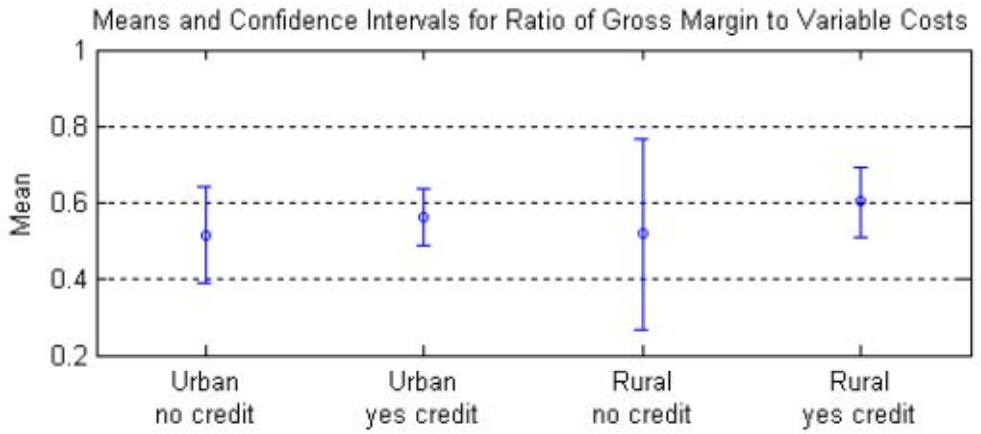


Figure 2: The distribution of the profit margin as it is influenced by the credit and location

In terms of the magnitude of the GMs, it was revealed from the study results 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 a wide variation, however. About 58% of respondents were receiving GMs between TShs. 100,000/= and 500,000/=. Micro-enterprises which received less than TShs. 100,000/= formed only 6.8% of all MEs in the study. Since cooked food vending MEs use small proportion of fixed capital inputs, the GMs in this study is a good estimate of profit and can be used as a measure of welfare of the operators. The study finds 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 respondent entered in this sector because they could not find any better alternative implies that the majority would prefer a sure but low minimum salaried job to this risky income from operating an ME. We investigate and discuss this issue further using econometric results in the next subsection.

5.2. Econometric Results

Although the descriptive results in the preceding subsection have revealed issues of great policy relevance, the discussion in that subsection needs to be complemented with rigorous econometrics estimations. Table 2 shows the econometric results of the risk parameters of the MEs operators.

Table 2: Risk Parameters

Variable	Coefficient	t-statistic	t-probability
constant	0.300971	36.759573	0.000000
Arrow-Pratt (AP)	1.045698	40.039356	0.000000
Downside-risk(DS)	-0.566504	-29.600953	0.000000

As Table 2 shows, the results are compliant with the expectation of risk aversion behavior among MEs in using credit. However, there are important things to note. The first one is that the constant term is significant which implies credit is efficiently used by

the MEs (see Groom *et al.* 2002). The parameter associated with Arrow–Pratt (AP) is positive and significant which indicates that MEs are averse towards the use of larger amount of credit. The econometric results are thus in line with the descriptive statistics discussed in the previous subsection, which indicated that the credit extended to the MEs operators was enough. This implies that, from the view point of the operators who have access to credit, the issue is not of that amount of credit, rather other inhibitors to MEs' growth, such as the frequent encounters between ME operators and the Local Government Authorities, should be addressed. In other words, while credit to the MEs can be the engine of MEs' growth, 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 Mes operators are also averse to down-side risk associated with the use of credit. Risk aversion on credit-use can have serious implications on the development of MEs, particularly when repayments of the loans are effected in short and regular intervals, such as weekly as implemented by the two MFIs covered in this study. Although this repayment mechanism has maximizes the loan recovery (which is good from the credit provider view points), it impinge substantially on the development of MEs. More research is needed to discover alternative repayment schemes that reduce this tradeoff.

The study finds that the MEs operators are generally risk averse with the risk premium, express as percentage, averaging around 12% (median). This implies that on average, the MEs operators will pay a premium of around 12% to ensure their incomes per annum. Indeed, this is relatively high rate but it reflects high income risks facing the MEs. Figure 3 shows that risk premium in rural area is higher than in the urban area. Furthermore, Figure 2 shows that the risk premium is higher among those with credit than those without. This implies that those who acquired credit become more cautious, preferring relatively low but steady income so that they can be able to service their repayment obligations.

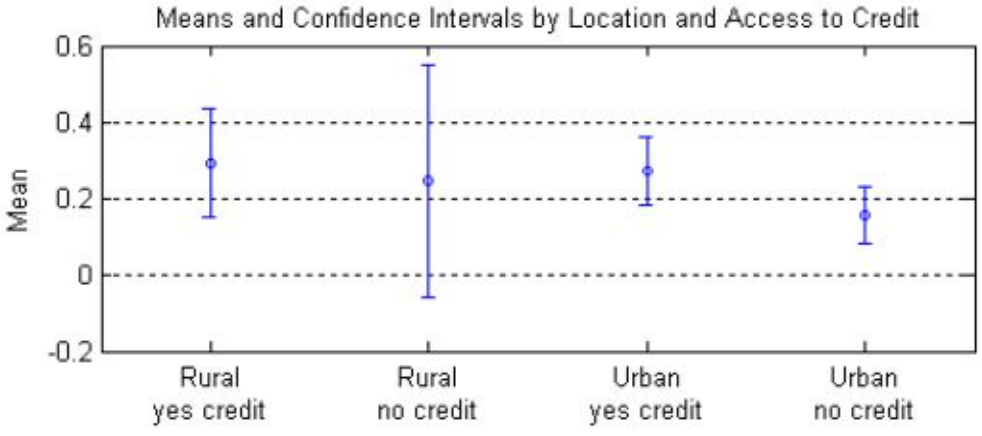


Figure 3: Risk premium of Borrowers and non-Borrowers

Further analysis of the distribution of the risk premium was conducted to see how it varies with the number of years the operator is in business and the location; we find that

there is no clear pattern in the distribution of the risk premium according to years in operations among the rural operators. Although, there is a modest upward trend in the urban area, the analysis indicated that the trend was not statistically significant. Theoretically, it is expected that as years in operations increase, the aversion to risk should be declining because of increased entrepreneurial skills. Although, the results of this study does not render evidence to this theory, the finding casts some hint as to why most MEs register low growth (expansion) and are characterized with very thigh mortality rate few years after their establishment.

6. Conclusions and recommendations

- The GMs are impressive, a bit higher than minimum salary but given high variability, the MEs was not their best alternative. They would prefer sure income from salaried job to gamble in ME self-employment sector. Implication: MEs are symptoms of struggling for surviving as result of shrinkage in the formal employment sector and it is competitive. Therefore, this calls for government and private initiatives to promote this sector which has high potential to absorb more unemployed people (mainly youth and women) in Tanzania. Relevant policies for the sector are pertinent.

- Though GMs are higher among borrowers than non-borrowers, the difference is not statistically significant. Implications: The role of credit in ME performance (in terms of profit) is not significant. On one hand, this could be caused by low reinvestment using the profit generated by the ME or the profit was used for consumption. On the other hand, little credit was offered to clients that could not bring the significant difference between borrowers and non-borrowers. Thus more building capacity of credit clients in business and entrepreneurial skills is of paramount importance for development of ME sector and lending institutions at large.

- The average amount of credit that was issued to MEs, on one hand seems to be small, but on the other hand it was claimed to be sufficient given to the nature of MEs under study. This situation is ascertained to the fact that strong attitude against risk increases with acquisition of credit. Implications: (i) credit alone is not a constraint, other issues e.g. conducive business-supporting environment such as good ME sector policy, business premises, etc Therefore, in order to address this controversy precisely, it is important for MEs lending institution to establish the optimal amount of credit for a given type of business, area/location of ME and time/season of operation.

- ME operators in rural areas are more risk averse than their counterparts in urban areas. Implication: The lending institutions should design the lending models/procedures with the element of differentiating their potential clients in rural and urban areas to meet the needs for good performance of each category of borrowers.

References:

Antle, J., (1987). Econometric estimation of Producers´Risk attitudes. American Journal of Agricultural Economics, 509-522.

Bagachwa, M.S.D. (1991). Choice of Technology in Industry: The Economics of Grain Milling in Tanzania: International Development Research Centre. Ottawa. pp 144.

BoT (1997). Integrating Financing of Rural and Micro-enterprise Activities in Liberalized Financial System: Possible Alternatives For Tanzania. In: Proceeding of 10th financial Institutions conference. 7-9 April 1997, Arusha, Tanzania. pp 21.

Buckley, G. (1997). Micro-finance in Africa: Is it Either the Problem or the Solution?. World Development Vol.25, No.7. pp 1081-1093.

Groom,B, Koundouri,P Nauges, C & Thomas, (2003) A Irrigation water management under risk: An application to Cyprus in less developed economies. Oxford Economic Papers 42 (2): 473–482.

Kashuliza, A.K., Hella, J.P., Magayane, E.T. and Mvena, Z.S.K. (1998). The Role of Informal and Semi-formal Finance in Poverty Alleviation in Tanzania: Results of Field Study in Two Regions. Research on Poverty Alleviation (REPOA). DUP Dar es Salaam No.98.1. pp 65.

Kuzilwa, J. A and Mushi, E. K. (1997) Credit Needs for Small Businesses. The Tanzanian Bankers Journal. No. 9. pp 13-16.

Mandara, E.G. (1998) Assessment of factors influencing women participation in off-farm income generating activities. Unpublished MSc. Thesis submitted to the Sokoine University of Agriculture. pp 101.

Mduma, J. and P. Wobst (2005) Determinants of Rural Labor Market Participation in Tanzania. African Studies Quarterly 8 (2).http://www.africa.ufl.edu/asq/v8/v8i2a2.pdf

Mead, D. C. (1994) The Contribution of Small Enterprises to Employment Growth in Southern and Eastern Africa . World Development Vol. 22, No 12. pp 1881-1894.

Mead, D.C. and Liedholm, C. (1998). The Dynamics of Micro and Small Enterprises in Developing Countries. World Development Vol. 26 No. 1 pp 61 74.

Selejio, O. (2002). Economic Analysis of Micro-enterprise and the Role of Micro-enterprise Financing in Tanzania: A Case Study of Morogoro Region. Unpublished MSc. Thesis submitted to the Sokoine University of Agriculture. pp 101.

Simtowe, F., J. Mduma, M. Zeller, and A. Phiri (2005), Can Risk-aversion towards fertilizer explain part of the non-adoption puzzle for hybrid maize? Empirical evidence from Malawi. Submitted to Journal of Southern African Studies.

URT (1998a) A Strategic Plan to Development Tanzania's National Policy Framework for Small Business. Unpublished Report by Common Wealth Scretariat for the Ministry of Industry and Commerce. Government printer Tanzania. pp 200.

Webster, L. (1991). World Bank Lending for Small and Medium Enterprises, Fifteen Years of Experience, World Bank Discussion Paper 113, Washington.

Wurdemann, (1998). Problems Faced by Small-Scale Food Processing Enterprises in Malawi. Support to the Development of Food Processing enterprise in Africa entrepreneur Based approach. Journal of Agriculture Development, 5, (2): 10-15.

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