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The determinants of access to financial services for micro-credit associations: Application on Tunisian case

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The objective of this study is to identify the socioeconomic factors which explain small farmers' access to the services of the microcredit associations in Tunisia. The results of a binominal Logit model indicate that there is no discrimination against the poor while women do not proof to be the favorite customers for these associations. The absence of a guarantor is the main obstacle for access to the microcredit. The duration of the client relation to these associations is a determining factor in the access. But, this relation does not mean any improvement in the financing conditions particularly in terms of the guarantor.

Key words: Microfinance, Rural financing, Small farmers, Access, Microcredit association

INTRODUCTION

In the country to vocation agricultural, as most of the developing countries, and in the region of the Middle East and Africa of the North, the agricultural sector particularly occupies a special place in the strategies and models of development due to the importance of the contribution of agriculture in the gross domestic product, its participation in creating jobs, as well as its contribution to the equilibrium of the balance of payments through exports of agriculture. Access to funding thus becomes the decisive factor. However, most farmers in developing countries are excluded from the banking systems. The rate of bancarisation of agriculture does not exceed 5 or 6 in Africa or in South Asia (FARM[i], 2008). But, in the context current liberalization of the economies of these countries, lack of access to financing remains a major constraint for the development of family farming[ii]. Given the absence of other financial operators, microfinance becomes a strong alternative for rural finance. The emergence of this sector corresponds to a conceptual change in the approach to rural finance. However, and in spite of the mattering development that the sector of the microfinance during these two decades knew, access to finance in developing countries remains a major problem.

In Tunisia, against the reluctance of private financial institutions to finance the agricultural sector for economic profitability of insufficiency logic, state has implemented a set of financing mechanisms suited to the particular conditions of the various categories of exploitations component small-scale agriculture, based on the development of microfinance of proximity. This funding procedure governed by the microcredit mechanism was established to encourage investment in the agricultural sector through several organizations. The Tunisian Solidarity Bank (TSB) is one of the main partners to help in the economic and social of integration of persons excluded from traditional financing system.

This Bank has favorable eligibility criteria for small farms to low viability. Thus, it ensures a good management of the line of credit made available to the associations for their micro-credit programs. These local development associations having the status of non-profit associations operate in all delegations to serve

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micro-entrepreneurs in financial services. They adopt a participatory local development integrated, which can encourage them to extend their intervention zones.

In Tunisia, there is no work that focused on the penetration rate of local development associations. However, the confrontation of different national institutions statistics to conclude that the majority of the target population rest still be excluded from funding.

Firstly, the number of micro- credits granted by the associations of local development until the end of 2006, rises to close to 164 thousand credits[iii]. Other hand, the number of non-farm micro-enterprises amounts to close to 400 thousand units in 2002(NIS: 2002)[iv] and the number of farmers belonging to the category small farming family and social rises to 186 thousand operators [National Centre of agricultural studies (CNEA): 2007]. Considering that these last two statistics, and by comparing them with those of the TSB, it appears that the rate of penetration of local development associations would still be low.

Therefore, there is a problem of financial exclusion of the majority of the micro-entrepreneurs eligible for microfinance institutions financing. In these circumstances, we wonder why these institutions cannot yet increase their rate of penetration and reach their target clientele? This question leads us to set as a goal the identification of socio-economic factors that explain the exclusion of eligible applicants in financing for the agricultural sector microfinance institutions. Base synthesizes the history of credits obtained and rejected of 2906 applicants for credits in localized studied delegations in Sfax region, since the date of creation of associations of micro-credit, until 31 December 2007[v].

A binary Logit model was specified to explain why some people are funded with the financial services of local development associations, so that others are rationed by the amount of credits.

The following section reviewed previous work having dealt with the determinants of access to financial services for micro-credit associations, and formulates the hypotheses of the study. Section 3 deals with the research methodology. Section 4 presents the results of the model, as well as their interpretation.

REVIEW OF LITERATURE

The interest of the development of the sector of the microfinance during the last twenty years is to answer a need of financing at the persons who cannot reach the financial services of banks Honlonkou and al (2006); Arch (2005); Morduch (1998).

However, despite all the efforts made by national and international bodies to ensure this development, the

majority of the micro-plaintiffs are still excluded from the services of microfinance institutions Claessens (2006), Sarah and al. (2004), Khandker (1998).

The objective of this work is to identify the socioeconomic factors that are behind this exclusion. These factors will be selected through the literature review to develop the model and formulate research hypotheses. These factors appear to be involved in the study of the relationship between the plaintiff, one hand, and access to services of microfinance institutions, on the other. In what follows, we will study the effect of each of these factors on access. These factors are poverty, gender, long-term relationship and nature of the activity. The relationship between poverty and access to the financing awakened a big debate in the literature. These last forty years, the Governments of developing countries and donors referred improved access to credit of rural households by the credit agreement to subsidized interest rates (Zeller and Sharma, 2000). They have recognized the need for the poor of access to cheaper credit and there saw a way to promote agricultural production by small landowners Ledgerwood, 1999; Diagne et al., 2000. The credit may allow households to make investments, and can take advantage of opportunities that could increase income (World Bank, 2000; Subbarao, 1997).

Despite the number of considered people served by microfinance institutions (MFIs), do not forget that the number of not served people is even more important. If there is little information on access to financial services, recent data on their use witness tracking of a large percentage of the population in payroll issues. Solution, despite these assumptions and statistics, many works has that the poor are far from representing clients of microfinance institutions. On the contrary, their access to the services of these financial institutions remains very low and subject to several constraints. These institutions are now highly diverse and cater to a wide range of the population. It thus covers a large part of financing needs, from those of the poorest people, those with micro entrepreneurs, which can hardly be considered poor.

Nevertheless, several empirical studies have shown that the poor are far from representing the privileged customer of MFIS. Their participation in the portfolio of customers of these institutions remains very low and subject to several constraints (Najavas et al. 2000 ; Mosley. 2001; Evans et al. 1999; Datta, 2004).

Studies conducted in Bangladesh, Bolivia, Malawi and Madagascar confirms that access to credit has positive effects on poor households, when they have access to other complementary inputs: seed, irrigation water, market (Sharma, 2000). There is also evidence that most loans taken out by the poor are used to finance consumer spending, particularly during periods of welds. Used in this way credit is still not lost. The results of most of the

work show that the poor suffer dun problem capitalist in microfinance. Ray (1998) emphasizes two reasons that explain the non - access of the poor to micro-credit. It is the lack of motivation and lack of collateral that can be filed against the repayment of the loan. According to Brau and Woller (2004), two main reasons are behind this exclusion. The first is that the services offered by MFIS are not adapted to their needs. Indeed, the poor are vulnerable people, who are often in need of acquiring emergency credits. However, the IMF does not this type of credit. Therefore, the poor return into the informal sector. The second reason is that the poor may not bear the costs of building a credit record, as well as the rate of interest applied by the IMF. In the light of the results of the various studies, it is possible in this work to predict the existence of a relationship between the poverty of a micro-entrepreneur, and access to the services of MFIs in Tunisia. This relationship would be influenced by three main factors: the size of the microfinance institution, age and level of education of the micro-entrepreneur. The first hypothesis of this work is therefore that poverty has no effect on access to financial services for micro-credit associations.

Today, the international community gives a place more important to combating poverty and inequalities, in particular genre, and the different ways that could reduce, or even to eradicate these phenomena. The women access to financial services is necessary, in that it allows women to lead an income-generating activity and thus gain their financial autonomy. Much empirical work focused on access of women to financial services of MFIS. According to the report by the microcredit summit campaign (2006), at the global level, 84.2 poorest microfinance clients are women.

The number of these clients is increased from 10, 3 million at the end of 1999 at 79 million at the end of 2006. Therefore, microfinance is likely to make a significant contribution to gender equality, and promote sustainable means of subsistence and better conditions of work for women. In his study on the performance of four in Bolivia microfinance institutions, Mosley (2001) noted that women are the main clientele of these institutions.

Brandsma and Burjorjee (2004)[vi] studied the rate of penetration of the microfinance sector in eight Arab countries in the region, MENA (Middle East and North Africa). The results showed that women make up 60 % of the wallet customers of these institutions.

Morduch (1999) used data from the Grameen Bank, to study women micro-entrepreneurs access to financial services of this institution. The results identified a concentration on financing for women (96%). These would be considered as serious in the operation of their business, and therefore less risky. However, other works questioning the idea. Berger (1989) explained the low women's access to the services of microfinance by their lack of technical training institutions. He reported that most women micro-entrepreneurs have not received training beforehand, and do not have the skills to manage and grow a business. Baydas et al. (1994) have tried to identify barriers to access to microcredit in Ecuador. Their study concerned on a sample of 601 micro-entrepreneurs in the area of intervention of several microfinance institutions. The results showed that women have more probability of if auto exclude.

However, other work argues that women suffer more exclusion than men. Evans et al. (1999) showed that women have less access to financing than men. Microcredit programs have attempted to combat discrimination linked to gender, directing their offer to women.

The results of the different works presented are mixed as to the relationship between gender and access to financial services for microfinance institutions. However, they predict the existence of an effect of gender on credit applicants' access to the services of MFIs in Tunisia.

In Tunisia, micro-credits for women represent slightly more than third of the value of portfolio credit of local development associations (TSB, 2006). This rate could be explained by lower demand for financing on the part of women, which record a relatively low participation in economic activity.

Presentation of Tunisian women's participation in socio-economic life, and politics of the Tunisian Government in the promotion of women, strengthens the idea of the existence of dune relationship between gender and access to financial services of associations of micro-credit in Tunisia. However, neither the results of the previous work, nor the Tunisian context analysis allow to anticipate the direction of this relationship. Allows us to formulate the second hypothesis of this work is therefore that the genus does not have an effect on access to financial services for micro-credit associations.

Access to finance is also in relation to the long-term relationship. Berger and Udell (2002) specifically define the long-term relationship, as an extension of credit technology which depends on the production of information. The positive effect of the length of the relationship on the improvement of financing conditions has been identified in the models of Petersen and Rajan (1994) and Boot and Thakor (1994). These have shown that the length of the relationship between the borrower and the Bank increases, the borrower can benefit from lower interest rates. Petersen and Rajan (1994) empirically investigated on data from small medium-sized U.S. companies, the effect of the length of the relationship of the customer on the cost and access to credit. They showed that access to credit is easier; the length of the Bank-company relationship goes on. Petersen and Rajan (1994) was used more detailed measurements of the relationship, as its temporal

dimension and its concentration, to study its impact on the availability and the cost of bank credit. Their results showed a small effect of the relationship on the price of credit, but significantly positive on availability.

The authors explained that the length of the relationship allows the Bank to collect information about the borrower and to use this information to "refine" the credit conditions.

Analyses have shown that the long-term relationship improves the efficiency of banking intermediation, as well as the credit agreement and risk-sharing. This is consistent with the literature, in the sense where a long-term relationship building is one of the best ways to reduce information asymmetries, the risk of credit problems and increase available to the lender to take more risk (Jimenez et al. 2003).

In microfinance, the relationship between the entrepreneur and the microfinance institution also plays a role in improving the access to finance for micro-entrepreneur. Pollinger, Outhwite and Cordero-Guzmau (2007) show that in microfinance, monitoring costs, credit and management of borrowers, who have defects in payment, are very high. Thus, MFIS are seeking to address this constraint, by developing relationships with micro-entrepreneurs. These relationships enable you to collect the information necessary for the financing decision, including those relating to the history of repayment. Problems related to asymmetries of information are therefore attenuated, and borrowers are more likely to access the funding. Honlonkou et al. (2006) investigated the effect of dune sustainable relationship between the entrepreneur and the microfinance institution, the performance of the repayment of the credit. The results allowed to conclude that factors related to expertise, confidence of the borrower in its project and its integration in its community (warranty immaterial) dune part, and factors related to the expertise of the IMF on the other hand, managers are critical in the happy outcome of the credits. In this work, we are interested in the relationship between the long-term relationship and access to credit.

The duration of long-term relationship may have an effect on the conditions of credits offered by micro-credit associations. These associations do not have the right to link funding to material guarantees, and are not allowed to charge positive interest rates. The decision is to limit interest rates to 5. This low ceiling does not allow associations to lower the cost of credit to borrowers what consider being reliable or solvent. Thus, we are interested only in the relationship between the lengths of the long term or customer relationship, and access to financial services for micro-credit associations. In this context, we expect a positive effect of the duration of the long-term relationship on access to financial services for micro-credit associations. Indeed, we consider that the

duration of the relationship can be an important instrument to reduce the problems related to asymmetry of information issues for the association. We set therefore; the third hypothesis of this work is that the long term relationship in a positive effect on access to financial services for micro-credit associations.

The relationship between the nature of agricultural activity and access to funding were identified by researchers. Research highlighted the existence of dune significant relationship between the sector and access to financial services. Beck et al. (2004) conducted a study on the factors constituting barriers to financing for companies. The results showed that business line has an effect on access to the financing company. In this framework, businesses operating in the agricultural sector there seem to know more funding obstacles, and even the results were different depending on the nature of agricultural activity, compared to businesses operating in other sectors. Honlonkou et al. (2006) concluded that the risk of non-repayment of microcredit is higher among micro-entrepreneurs who have agricultural activities. The author explains this result by climate risk related to the sector of agriculture, especially for farming activity. It is an activity to high risk and rates of different nature, such as the successive droughts that have resulted in a high de-capitalization of breeders, downward trend in rainfall that continues in the areas Sahelian and the degradation of natural resources.

Zeller and Sharma (2000) explained that climate risk is a source of threats, as well for farmers, for institutions that grant agricultural credits. The results of the various works noted the relationship between the agricultural sector and financial exclusion dune existence. The high risk associated with this sector can influence the decision of financing of microfinance institutions. But in cases where they agree to fund microfinance institutions adopt a number of risk mitigation strategies, which include the reduction of the amount of allocations, concentration on short-term credits, the diversification of the portfolio of loans and the priority given to large farms, at the expense of small farmers (Yaron,1992; Servet, 1996; Wampfler, 2000).

In Tunisia, the risk associated with the financing of the primary sector is represented by low rates of reimbursement of agricultural credit. According to Larbi and Moussa (1988), the bankruptcy of the mutual funds in the 1970s is mainly due to the low rate of recovery of agricultural credit. The Tunisia credit policy is centered on the agricultural National Bank which represents a share of 88 for the unpaid. The results of the study devaluation of the project's financing of small-scale farming family and social (2007) have shown that the support and fund development to Agriculture and fishing, have also recorded serious problems of recovery. On the other hand, local development associations are not able to

bear the risk of payment default of small farmers. This is explained by the refinancing conditions laid down in the contract between these associations and the Tunisian Solidarity Bank.

The presentation of issues related to the financing of the agricultural sector in Tunisia, reinforces the idea that the financing of certain well defined agricultural activities, mainly livestock, poses a risk to local development associations. As a result, associations may choose not to fund agricultural projects for breeding, resulting in problems of exclusion.

It then follows the presentation of the last research hypothesis such that the nature of agricultural activity which the small operator seeks to finance has a negative effect on access to financing of local development associations. In this paragraph, various socio-economic factors have been selected through the literature review to formulate research hypotheses. These factors help to generate some response to the access to financing by local development associations. It consists of the identification of variables measuring instruments and the choice of the method of data collection.

METHODOLOGY

Sampling

In this study, most of the data to be collected are relating to the personal characteristics of applicants for credits. We mainly used credit applications to collect data on the socio-economic characteristics of credit applicants and the characteristics of the credits. Thus, we used the database of local development associations, bringing together information about the demographic characteristics of micro-entrepreneurs, like age and gender, to determine the wording of this base. However, other data such as the long term, the existence of the guarantor and the poverty level relationship, are not contained in the database of the association. Therefore, it conducted many interviews, primarily with the charge of the Ministry of agriculture and the Ministry of Finance, and contacts were also made with officials of local development associations. On the sample, the definition of the variable access allowed to identify two groups of applicants for micro-credit: those funded by associations of local development and those who are excluded by these associations.

The population of credit applicants and the basis of the sample being defined should identify the delegations in which the study will be made. To do this, a selection criterion has been defined, namely the presence in the dune association delegation, for at least three years. This fixing aims to have at the level of each association, a list of fairly significant appropriations requests, which could

form the basis of the sample. Therefore, we formed a relatively rich and consistent database across credit reports of these associations. This database summarizes the history of credits obtained and rejected of 2906 applicants for credits in localized studied delegations in the Sfax region, since the date of creation of associations of micro-credits, until 31 December 2007. All of these associations hold the archive of credit requests that have been denied. The sample consists of people who have made a request for credit from local development associations. Thus, the study will look at a sample of 2906 people between 860 during by the amount of the credit and 2046 funded. The chosen sample is divided between 75.7 men and 24.3 in women. This distribution is dominated by the male presence. Projects managed by women are strongly represented in the areas of weaving and clothing, or in craft activities and services. Average age of applicants for microcredit is 41 years old, and more than 50 are in the range of 19-40. People who have a rating are a percentage of 47.8, while those who do not, are of 52.2.

The average annual income amounted to 2676 DT. Nearly half of the applicants for credits is classified in Group of 2 000-3500 less poor. These statistics confirm the studies previously cited on the beneficiaries of microcredit around the world: the poor are not the main beneficiaries of microcredit. The population aimed at the association for agricultural credit, essentially practical activity of small animals, seasonal crops, and a little less fishing. There is a predominance of farming (69.8), having regard to the characteristics of rural areas and national direction in the development of the agricultural sector. The statistical results show that 90.3 of credit applicants have been backed by a guarantor. This shows that local development associations set up a barrier to access to funding.

Measurement of variables

The variable to explain in this research work is micro-entrepreneurs access to financial services of microfinance institution. Coleman (2006), Amin et al., (1999) and Mosley (2001) apprehended access to financing, participation in micro-credit schemes. Also, they have differentiated between two groups of people who are, microcredit programmes members and non-members. The second group corresponds to that of the excluded. Claessens (2006) identified two major forms of exclusion, namely auto-exclusion and credit rationing. In microfinance, Morduch research (2000) and Baydas et al. (1994) used the credit rationing for measuring exclusion of micro-entrepreneurs of the services of microfinance institutions. As part of this work, the access is measured by the participation of micro-entrepreneurs to financial

services of local development associations and non - access or exclusion in other words, is measured by rationing, i.e. micro-entrepreneurs who are rationed by the amount of the credit (denied). It should be noted that the associations of local development in Tunisia, cannot use the quantity mechanism to adjust supply to demand for credit.

Poverty is a situation in which a person not having sufficient resources to maintain a normal lifestyle or access. It can be set in several ways. Citro and Michael (1995) identified poverty as economic deprivation that corresponds, in some people, to a lack of sufficient resources, allowing them to consume goods or services. However, the literature review allows to distinguish between two main concepts of poverty, namely: absolute poverty which is measured by thresholds that have been developed for the first time in the early 1960s, by Orshanskey (1963, 1965, 1969) and relative poverty, which is measured by a threshold, threshold, set at a percentage of the median income or expenses of families (Citro and Michael, 1995).

According to Pressman (2002), the advantage of the concept of relative poverty is what allows comparing the degree of poverty among the countries. As part of the research in microfinance, Amin and al (1999) and Mosley (2001) used the absolute poverty lines to classify their sample into two groups: the poor and non-poor. Other studies have used integrate able Earth to measure poverty. Morduch (1998) used the area of the land of his sample of the Bangladeshi villagers into three groups, from the poorest to the richest. This classification is made on the basis of the criteria socio-economic, demographic, and health. In this work, we will refer to the calculations of the Ministry of Agriculture in 2007 within the national centre of agricultural studies (CNEA). The method is to determine a threshold-revenue cap and a threshold - floor of income for each category or groups of farmers, and classify them according to these different thresholds to apply new mechanisms for financing small-scale farming family and social. Income determination is done through specialized software within the national agricultural research center, while setting ranges within the category agricultural income has small farmers, and taking account of income net of exploitation (RNE). Annual income cut-offs will be used as a criterion for classification. Thus, the groups will be defined as follows: Group 1 the rich [>6000DT], group 2 the easy [3500DT - 6 000DT], group 3 less poor [2000DT - 3500DT], group 4 the poor [0 - 2000DT].

Degryse and Van Cayseele (2000) measure the intensity of the relationship of long-term duration. Several empirical studies have confirmed the importance of the long term relationship in reducing information asymmetries and its impact on credit terms, such as interest rate or guaranteed Petersen and Rajan (1994),

Berger and Udell (1995). The duration of the customer relationship is measured in number of years. In microfinance, the indicator number of years is not used to measure the length of the relationship. Diallo (2006), Honlonkou (2006) and Lanaha (2002) measure the length of the relationship between the entrepreneur and the institution of microfinance by the credit cycle, in other words, by the number of credits contracted by the entrepreneur at the institution. As part of this research, the unit of measure that will be used is the number of credits contracted by the entrepreneur at the microfinance institution. Long term relationship will take the value 0 if the entrepreneur has not contracted credit at the institution, a value of 1 if he contracted a credit, the value 2 if he contracted 2 credits or more. In the work in microfinance, different indicators were used to measure the size dune microfinance institution. Cull et al. (2007) rated MFIs into three groups depending on the size of their credit portfolio: small, medium and large.

Hatarska (2005) used the log of the total assets, to measure the size of the institution. Honohan (2004) used two parameters: the total of the active log and the log of the number of clients to measure the size. In this work, we will use the log of portfolio credit (the number of distributed credits), to measure the size of local development associations. The use of the parameter log total assets seems to be inappropriate in this case. Indeed, associations of micro-credit in Tunisia are young enough.

As part of this work, the level of education will be measured by a dichotomous variable that takes the value 1 if the credit applicant is educated, 0 otherwise. The population aimed at the association for agricultural credit essentially practical activity of small animals, seasonal crops, and a little less fishing. The nature of the culture is a dichotomous variable. It will take the value 1, if the person requests access to credit to finance a farming culture, and 0 otherwise. The age of the applicant's credit expressed in number of years is a quantitative variable. The qualification variable is a dichotomous variable that takes the value 1 if the person is qualified, and 0 otherwise. This measurement is made in the association of local development based on a set of criteria. According to the officer's credit, the good reputation of the applicant's credit is an important qualification of the micro-entrepreneur criterion. In microfinance, information on the reputation of the micro-entrepreneur is collected from a person in his community. In our research, this measure is based on the judgment of the head of the village, is the OMDA (administrative head of the community) and the decision of the local Committee of the Ministry of Agriculture and fishing, while checking the profile and credibility of the proponent.

The guarantor is an incentive mechanism used in individual microcredit repayment. The purpose of this

Table 1: Description of the study variables

Variables	Description
Variable to explain:	
Acces	1= Accepted (person who has requested a credit and whose application has been accepted), 0 =refused (person who has requested a credit and the request was denied).
Explanter variables:	
Poverty	1= Poor, 2= less poor, 3= easy et 4= rich
Age	Years of age
Gender	1 = male, 0 = female
Level of education	1 for an educated person, 0 non-educated
qualification	1 = for a qualified person, 0 = unskilled
Length of the long term relationship	Number of contracted earlier credits
Size of the association	Log (number of distributed credits)
Guarantor	1 =a person who has a guarantor, 0 otherwise
Nature of culture	1 = a person who carries on the business of farming, 0 otherwise
Nature of the project	1=project creation , 0 = extension project

mechanism is to limit delays in reimbursement, main difficulty faced by the IMF, and the non-payment that it is low (Godquin, 2004). The guarantee system practiced in the association of local development in Tunisia is the commitment of a guarantor. The guarantor is a dichotomous variable, it will take the value 1 if the person requires access to credit has a guarantor, and 0 otherwise.

Table 1 shows the description of the different variables of the study:

The econometric model Specification

Suppose that there are N observations, 1... N of a coded dichotomous endogenous variable y = 1 or y = 0 by convention, when at the same time the exogenous variable K observations are x 1... N.

The econometric model is as well represented:

$$y_i = X_i \, S_i + V_i$$

With:

- y_i is the dependent variable (access) is the probability of the individual (I) to have access to the financial services of the association of micro-credit.

- X_i is the vector of explanatory variables.

- S is the associated vector of parameters to be estimated.

Table 2: Results once dun model binary Logit's access to financial services Association

Explanatory variables	Coefficients	Std Error	T-Stat	Signif
Constant	4.447107476	0.679503267	6.54464[***]	0.00000000
GENDER	0.142237018	0.129371582	1.09945[ns]	0.27157374
AGE	-0.004577412	0.003986040	-1.14836[ns]	0.25081972
INS	0.458247346	0.106722930	4.29380[***]	0.00001756
QUAL	-0.389596172	0.101718929	-3.83012[***]	0.00012808
PAUV	-0.052578189	0.075544628	-0.69599[ns]	0.48643606
CULT	0.434085951	0.115943788	3.74393[***]	0.00018116
PRJ	-1.712779324	0.114245666	-14.99207[***]	0.00000000
DUR	0.885816549	0.111612360	7.93655[***]	0.00000000
GAR	3.274761928	0.204509363	16.01277[***]	0.00000000
TAILLE	-1.152773399	0.121291064	-9.50419[***]	0.00000000
Nombre d'observations				2906
Log de Vraisemblance				-1313.067235
Log de Vraisemblance (base)				-1763.841158
Pseudo R^2				0.3011984
Test of significance of all the explanatory variables (LR test)				901.5478
				0.0000000

With significant at 1%. Significant at 5%. NS: not significant

- V_i is the risk we assume follow a logistic distribution.

It is necessary to build a model that will allow us to estimate the effect of a set of variables on the probability that an individual accessing credit. In order to estimate this model by maximum likelihood, we need to write the law of the observable variable conditionally to the explanatory variables. This observable variable is defined by:

$$y_i = \begin{cases} 1 & accés \quad si \quad y_i^* \succ 0 \\ 0 & si \quad non \quad si \quad y_i^* \leq 0 \end{cases}$$

We therefore specify a nested Logit model in the following form:

$$ACEES = S_0 + S_1 SEXE + S_2 AGE + S_3 INS + S_4 QUAL + S_5 PAUV + S_6 CULT + S_7 DREL + S_8 GART + S_9 TAILLE + S_{10} PRJ + V_i$$

WINRATS software will be used to estimate our econometric model. The coefficients of the model will be estimated by maximum likelihood estimator.

ANALYSIS OF THE RESULTS

Examination of the matrices of correlation of Pearson and Kendall's Tau - B shows that no critical correlation is found between continuous and discrete independent variables. Indeed, all correlation coefficients are significantly lower than 0.8 which corresponds to the limit proposed by Kennedy (1985) and from which it usually starts to have serious problems of multicollinearity in regression models.

The estimation of the coefficients of the model parameters will, through their sign, give the sense of influence of the variables considered, and the impact of these variables on the probability 1. This is to estimate the effects of the different variables of the model on the dependent variable. Table 2 shows results from the estimation of the Logit model estimated by the method of maximum likelihood.

From this estimate, we can infer the results explaining the access to the financial services of associations of micro-credit to the agricultural sector. Estimated from the Logit coefficients are not easy to interpret, since the type logit function is nonlinear. In fact, each of the estimated coefficients informs that on the direction and the magnitude of the correlation between each of the explanatory variables and the dependent variable.

In fact, each of the estimated coefficients informs that on the direction and the magnitude of the correlation between each of the explanatory variables and the dependent variable. Indeed, if a coefficient is greater than 0, it is the explanatory variable associated with it, is positively related to the likelihood of 1, and vice - versa. In other words, this type of regression does not interpret

Table 3: Crosstab between access and poverty

		Poverty				
		Poor	**less poor**	**wealthy**	**Rich**	**Total**
ACCES	Rejection	33 %	29,6%	26,9%	22%	29,6%
	Access	67%	70,4%	73,1%	78%	70,4%
	Total	100%	100%	100%	100%	100%

the value of the parameter estimates directly: only the sign for the coefficients must be taken into account. When an exogenous variable xi is associated with a positive regression coefficient, we consider what influence positively the likelihood that the endogenous variable takes the value 1, i.e. "access to credit". Conversely, a negative coefficient for an exogenous variable reduces the probability of y_i and systematically increases, the probability of the hypothesis reverse. The analysis of the econometric results presented in table 2 above leads to the following conclusions:

The variable GENDER is non-significant. The fact of being man or woman does not influence the probability of access to financial services of local development associations. This result is contrary to what is normally stated in the literature, namely that the genre has a significant effect on the access to credit services of microfinance institutions (Morduch, 1999). It is concluded that there is no discrimination between men and women on the part of the associations of local development for access to financial services. For associations, the genus did not accept explicitly as a strategy in the distribution of credits and there is no particular targeting of women. However, it is interesting to note that rural women were widely affected by the measures taken by the Tunisian State. Women do not leave the agricultural sector as quickly as men, they accept lower pay.

In addition, with the migration of young people and the ageing of the population, their role is becoming more crucial. But the lack of training and information, the persistence of illiteracy are brakes to women's access to credit. The results confirm the second assumption that gender has no effect on access to financial services for micro-credit associations.

The results of the analysis show that the poor variable is negative and not significant (-0.69599), that is, most applicants are poor, less they have chance of access to funding. This finding joins those Honohan (2004) and Najavas et al. (2002), which showed that for the poor, the rate of use of financial services in microfinance is still very low. Microfinance programs cater mainly to agents that have low income excluded from the traditional financial services, and not primarily to the poorest. They

do not want to access funding, for fear of the inability to honour their commitments to local development associations. This idea is confirmed by the contributions of Hashemi (1996). Moreover, the study on the financing of small-scale farming family and social has examined the reasons for refusal of the poor access to financial services and has shown that there are several reasons. These reasons include the lack of confidence in the association's services, the absence of the guarantor and the fear of non-repayment of the credit. This idea is also supported by the descriptive analysis through the cross between poverty and access (table 3), which reveals that the poor are more funded by local development associations, the poorest. This result comes close to the institutionalist view.

These statistics confirm yet once closer to the intensity of the sector instead of a realization of the institutionalist view. In fact, Brau and Woller (2004) further pushed the interpretation of Morduch (2000) and identified the institutionalist vision for the funding of a significant number of microcredits, same applicants if they are not classified among the poor. This goes in against meaning of the welfariste approach that calls for a focus on the funding of the poorest entrepreneurs. Referring to the microfinance schism, this result indicates that the penetration of the sector in Tunisia is close instead of a concretisation of the institutionalist view. Notwithstanding, and in spite of these results, it is impossible to say that local development associations are consciously choosing this institutionalist approach.

Indeed, access to a poor entrepreneur requires a huge work of initiation and mobilization on the part of Casson and Giusta microfinance institutions: 2004. But the Tunisian local development associations do not have the human and financial resources necessary to accomplish this task. Each association has two executives involved in the credits and the technical and financial review of records management. Given the size of the eligible populations in some delegations, the number more important folders to study and to finance human resources currently available to the associations seem insufficient. Similarly, financial and material resources are very limited. There are more often a computer most of the

Table 4: Crosstab between qualification and access

	Rejection	Access
Non-qualified person	47,2 %	54,3 %
Qualified person	52,8 %	45,7 %
Total	100 %	100 %

Source: Personal calculations (database)

Table 5: Crosstab between duration of the relationship of long term and access

	Rejection	Access	Total
No previous credit	35,7 %	64,3 %	100,0 %
A previous credit	16,3%	83,7%	100,0 %
Two previous credit		100,0 %	100,0 %
Total	26,6 %	70,4 %	100,0 %

Source: Personal calculations (database)

Office furniture. The associations have not specific to they way. As a result, they have a low capacity of monitoring visit on project sites and beneficiaries. Because of this, encountered associations prepare all studies of feasibility from a desk job. The terms of refinancing and the legal framework governing the activity of distribution of micro-credit, are the two main reasons that explain this lack of resources.

The results confirm the second hypothesis that poverty has no effect on access to the association's financial services. The econometric analysis shows that the level of education of the credit applicant is a factor meaning for the access to credit. The individual is educated; more it tends to get credit with the services of the local development association (4.29380). This found result confirms those of Evans et al. (1999), which showed that the low level of education has an impact on the decision of the microfinance institution. It is possible to conclude that education is a criterion for selection of beneficiaries for the association. However, descriptive analyses reveal that the highest access rate is observed in the category non-educated (57.3%). However, this can be explained by the nature and specificity of agricultural activity, which is usually for a population that is marginalized on several aspects. Thus, through the field study have revealed that there are other factors that can influence the choice of the association. Dune in General, and no matter the level of education, the credit applicant has the opportunity to have his case accepted. This distribution shows that beyond the educational level of credit applicants, the selection takes more account of their professional qualifications and professional background.

The results reveal that qualified applicants were less likely to be funded by local development associations. The estimate gave a negative and significant coefficient on the threshold of 1 between the variable access and qualification. To our knowledge, this not joined any of the results of previous research. We expect that this variable has a positive coefficient, that is, individuals who have a long period in the agricultural work, are less risky than non-qualified borrowers, and they have the highest chance of access to the financial services of the association. The acquired qualification allows them to efficiently allocate their loans in the most profitable jobs, generating sufficient profits, thereby improving their

repayment capabilities. The qualification can be thus considered as warranty dune some credit. It is possible to infer that the qualification is not for the association, a criterion for selection of beneficiaries. However, the analysis of the results of the cross-tab between the variable access and qualification, could us light a little more the result. Indeed, it turns out that 54.3 funded individuals are not qualified. This percentage declined to 45.7 %in the case of qualified persons (See Table 4).

Estimation of the coefficient of the Logit model for the variable length of the long term relationship shows that, as the number of previous credits contracted by an applicant is high, less the latter has probability of being excluded. The result reveals the existence of a positive relationship (7.93655) and significant at the threshold of 1%.

Analyses have shown that the long-term relationship significantly reduced the risk of credit. This is consistent with the literature, in the sense where a long-term relationship building is one of the best ways to reduce information asymmetries, the risk of credit problems, and increase available to the lender to take more risks (Jimenez et al. 2003). Also, this result confirms the contributions of Honlonkou (2006), who explained that for a micro-entrepreneur, a relationship evolved with the microfinance institution means a sustainable access to credit. He also joined the results of Petersan and Rajan (1994) demonstrated that the duration of the customer relationship has a positive effect on the access to credit. These authors explained that successful with a borrower experience, encourage the microfinance institution to grant the credit. However, this result can be confirmed by the correlation test already made between the duration of the long-term relationship and access, which proves the existence of a significant positive correlation and strong (see matrix of correlation-association attached).

Also the analysis of the results from the cross between the variable access and duration of the long-term relationship could enlighten us on the result. In fact, micro-entrepreneurs who have contracted two credits represent a percentage of 100% for access. This percentage declines to 83.7% in the case of persons infected with a credit (See Table 5).

Table 6: Crosstab between duration of the long-term relationship and guarantor

	Does not have a guarantor	Has a guarantor	Total
No previous credit	12,7 %	87,3 %	100,0 %
A previous credit	2,1%	97,9%	100,0 %
Two previous credit	8,8%	91,2 %	100,0 %
Total	9,7 %	90,3 %	100,0 %

Source: Personal calculations (database)

On the other hand, the guarantor could also play an important role with the length of the long term relationship. One can explain the conditions for access by other types of relationships. Through the test of correlation between guarantor and duration variables of the long term relationship, a strong positive relationship significant 0.583 (annex) has found. This implies that the longer the long-term relationship is important the entrepreneur is required to be provided by a guarantor. The use of the cross between these two variables indicates that 91 of the micro-entrepreneurs who have had once or more credits from the association are guaranteed by guarantors. This percentage drops to 87 for those who have no credit (See Table 6).

This result object with the results of Berger and Udell (1995), Harhoff and Körting (1998), Dawood and Cayseele (2000), which have shown that safeguards imposed by the Bank, decrease the length of the long term relationship with. This reflects well the difference between the commercial bank and the association of local development financing formalities. In conclusion, arguably that person with a long-term relationship with the local development association, are more likely to be accepted, since they have the ability to be backed by guarantors. Thus, the guarantor is an essential tool of decrease in problems related to the asymmetry of information and has a considerable effect on the access to the financial services of local development associations. The results confirm the third hypothesis that long-term relationship has a positive effect on access to financial services for micro-credit associations.

The relationship between the variables access and nature of agricultural activity is positive and significant at the threshold of 1%. This result is consistent with the Baydas et al. (1994) For example, the risk related to the agricultural activity Honlonkou: 2006 does not appear to influence local development associations funding decisions. This result can be explained by the important place occupied by the primary sector in the economy, in various delegations.

The latest statistics published by the Tunisian Solidarity Bank show that the agricultural sector has a share of 41 in terms of local development associations funded projects. In addition, the associations are more cautious when it comes to certain well defined agricultural activities in favors of other activities. This means that an individual who practices reduce, more likely to have access to credit, another will be operating in other cultures, whether it's fishing or irrigated. Even at the national level, aquaculture holds the largest share in the structure of production, with 39 of the value, in relative and absolute increase, followed by the fruit, vegetable, grain farming and fishing. This phenomenon can be explained by the characteristics of the various delegations, as well as by the ease of this culture in relation to the other. Farming crops planted by borrowers quickly generate them revenues, enabling them to meet their obligations towards local development association. This activity does not require great skill or even experience, which is access to the credit of the non-qualified compared to the other. The results refute the fourth assumption that the nature of agricultural activity which the small operator seeks to finance has a negative effect on access to the funding of local development associations.

The estimation of the model shows a positive and significant relationship on the threshold of 1% between the guarantor variables and access (+16.01277). This shows that micro bonded by a guarantor, are more likely to have access to credit. The guarantor appears according to the results as one of the mechanisms of selection within the local development associations. The use of the guarantor is one of the forms of guarantees the most encountered in the individual micro-credit schemes. Churchill (1999) said that, as part of microfinance institutions, the guarantor acts as a vector of social pressure on the debtor, rather than as an alternative source of reimbursement. This result joined of the Datta (2004), who explained that the guarantor may be an element of access to financial services of local development associations. This shows that local development associations have failed to find solutions to the problems of information. Hence, the introduction of the warranty (in form of a person is carrying the l These

instruments have a different use from that in traditional banking institutions that require material guarantees, whereas associations require that the entrepreneur and his guarantor are committed by bank drafts to repay the credit. However, in rural delegations, it is not always obvious to the operator find a salaried guarantor. In addition, even if it is, it is not obvious that the latter accepts to be a guarantor. Thus, procedures developed by the associations can lead to an exclusion of potentially solvent recipients, who are unable to find a guarantor employee. The found result calls into question an important dimension of microfinance. Indeed, this niche has emerged and developed for individuals who do not have guarantees for access to funding (Arch, 2005). However, the obligation for a micro-entrepreneur to find a guarantor who is committed by treaty to repay microcredit, does not match this philosophy.

Finally, it is important at the level of this research to present the reasons pushing the associations to give importance to the guarantor requirement. This procedure allowed associations to achieve very good recovery rates, in most cases exceeding 90%, and therefore the threshold required by the BTS to refinance. Recovery rates achieved indicate, on the one hand, the profitability of the projects funded, and on the other hand, the involvement of the micro-entrepreneur in the management of its activity.

Although this loan technique does not rely on the solidarity bond, the same incentive mechanism seems to be used through the guarantor to make sure of the good will of the borrower: the social pressure (Jaunaux and Varghese, 2007). The difference is that the latter not only passes by the Group of borrowers, but by the guarantor. Thus, the importance of the mechanism of the guarantor for the local development associations can be explained by the lack of tangible and intangible resources.

The first disability case agent's credit profile. According to Casson and Giueta (2004) and Aghion and Morduch (2000), it is responsible, through its field work, the decline of the moral hazard for the microfinance institution. To do this, he must have followed a specific training in the field and be adapted to the community life. This training will help them better analyze markets approach and funding. In other words, these courses will allow them to better understand the influence of socio-economic changes on the evolution of the rural behavior and better identify the financial needs and the aspirations of operators. But according to the field study, it raises a mismatch between qualification, the profile and the requirement of the positions, especially in the absence of a distribution of tasks and complementarily between the agent of credits and technical districts of the Regional Agricultural Development (RAD) commissary for agricultural projects. Similarly, the majority of loan officers has not received

training on the ground for the characteristics of the farm, and has no experience in the associative field.

The result of the estimate shows that the variable size of the *association* and access have a negative relationship (-9.50419) and significant at the level of 1. This finding joins those of Cull et al. (2007), Datta (2004), Honohan (2004) and Mosley (2001), which showed a negative relationship between the size of the micro finance institution and access to credit. However, other works have found no significant relationship between the size of the association and the access to credit Hatarska, 2005. The interpretation of this result is complex. The analysis of the characteristics of the rural environment, in which operate local development associations, to understand why the category of small-scale agriculture is not excluded from funding, regardless of the size of the association (number of distributed credits). Can explain this, first, by the pressure of the regional and local authorities, which have their origins in the policy of the State employment of young farmers, and support to needy families. In this context, regional and local government requires local development associations funding for a number of farmers from needy families, to better help the economic and social integration. In a second, the terms of refinancing of the association with the BTS, can be considered as another mode of explanation. These terms and conditions are defined by a framework and a programme agreement, signed between the two parties. But Association officials estimate that the amount is insufficient to meet the large number of funding applications received. As a result, the size of credit is rationed and the local development association can provide small credits.

Through the interpretation of the different estimated coefficients, the direction of influence of the variables considered, i.e. their signs has found. Therefore, it is interesting to measure the degree of impact of each of the explanatory variables on the access. To better interpret the coefficients, we do use the calculation of the marginal effects, which allow to appreciate the impact of the explanatory variables on the probability of adoption. The marginal impact is achieved by deriving the probability estimated with respect to the independent variable:

$$\frac{\partial p_i}{\partial x_i^j} = \frac{e^{x_i S}}{1 + e^{x_i S}} S_j$$

The calculation of the marginal effects is listed in table 7.

The results of calculation of the marginal effects show that the gender variable is assigned a coefficient which the estimator to a positive achievement. The fact of being man increases the likelihood of access to financial services of local development associations of more than 3%. The increase in the length of the relationship of the customer experience, increases access to financial

Table 7: Calculation of incremental effects of the explanatory variables

Explanatory variables	Marginal effects
GENDER	0.02701
AGE	-8.69130e-04
INS	0.08701
QUAL	-0.07397
PAUV	-0.00998
CULT	0.08242
PRJ	-0.32521
DUR	0.16819
GAR	0.62179
TAILLE	-0.21888

services associations 17%. The chances of access to credit declined 32, 5% for a new project. Finally, bonded by a guarantor, credit applicants were 62.2% likely to be accepted. These results show that the guarantor variable has the largest marginal impact on access. This shows how this condition of credit became determining access to funding from local development associations.

The length of the long term relationship also has a high and significant impact on access.

CONCLUSION

The growth of microfinance is the result of the establishment of new mechanisms that allow remedying such problems. This growth is translated by the improvement of the living conditions of many micro-entrepreneurs in the world. However, some works, like those of Hononhan (2004) and Christen et al (2004) have shown that a large part of the micro-entrepreneurs is still excluded from the services of microfinance institutions. Indeed, even if the number of micro-entrepreneurs supported by these institutions is increasing, the rate of coverage remains low in most countries. In addition, accessibility for the rural population remains clearly insufficient.

The objective of this research was to determine the socio-economic factors of access to financial services for micro-credit associations. We focused our interest on the identification of these factors in Tunisia, where local development associations operate, in recent years to finance micro-entrepreneurs can get access to bank credit. These associations with the number continue to grow since the enactment of the law governing the activity of distribution of microcredit in 1999, is a fundamental element of the policy of development of the country.

The value of this work was therefore to contribute to the implementation of a strategy that would strengthen this instrument and consolidate its intervention to its target population. The binary Logit model was specified to perform analysis of the data. The results of this analysis have led to the following conclusions: the first is that there is no discriminatory behavior on the part of the associations of local development for the poor. The low participation of the latter in the microfinance sector is due to access problems. Aversion to risk, the age and the low level of education to a large extent explain this result. The second conclusion concerns the women's access to microcredit. -Above does prove not as a preferred customer of local development associations.

Considering the slow assumption of Tunisian women in entrepreneurship, one can say that the woman holds a micro-credit and micro-enterprise is an innovative and emerged as a central change of Tunisian society actor (BEN SALEM, 1998).The third conclusion concerns the conditions attached to the financing. The absence of "guarantor" is the main barrier to access to microcredit. Development associations are based on the local information in the selection of applications for credit. The fourth conclusion relates to the nature of agricultural activity which the small operator seeks to finance through micro-credit associations. This can be explained by the important place occupied by the primary sector in the nine delegations which are located in a rural economy. And this requires to study demand in this market and develop products adapted for the benefit of a rural population needs funding less than 5000dt, so much more than against today in Tunisia, there are now 470 000 farmers, 80 %are small farmers.

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Endnotes

I.   Foundation for Word Agriculture and Rurality. 2008

II.   Family agriculture is characterized by a relationship between economic activity and family structure. This link influences the decision-making regarding choice of activities, organization of labour and wealth management. Family agriculture comprises the majority of the population of agricultural and rural of the planet, to the North, as in the South. They provide the bulk of agricultural production, occupy a crucial place in the supply of domestic and export markets.

III.   Statistics of the TSB, December 2006

IV.   National Institute of Statistics, The sector of micro enterprises in Tunisia, N ° 2. Tunis, Tunisia: National Institute of statistics, 2002.

V.   With regard to the data since 2007, these data did not influence interpretations since the regulatory framework has not changed until that date (a report was published by the Department of finance that represents different details on microfinance in Tunisia entitled vision for the development of microfinance in Tunisia 2011 - 2014)

VI.   Brandsma J. et Burjoriee D., Microfinance in the Arab States :Building inclusive financial sectors, UNCDF,New York, oct.2004(101 pages). Téléchargeable sur le site Microfinance Gateway à l'adresse http://www.microfinancegateway.org/ contenant/article/détail/ 21781

Appendix 1 :

	Genre	Age	Niveau d'instruction	Taille de l'association	Pauvreté	Garant	Nature de la culture	Qualification	Durée de la relation de long terme	Accès
Genre	1									
Age	0,01	1								
Niveau d'instruction	0,069*	-0,278*	1							
Taille de l'association	0,023	0,013	0,107*	1						
Pauvreté	0,460*	0,075*	0,111*	0,170*	1					
Garant	- 0,01	-0, 033	0,086*	-0,04	0,042**	1				
Nature de la Culture	-0,136*	-0,024	-0,074*	0,000	0,195*	0,005	1			
Qualification	- 0,068*	0,074*	0,06	-0,021	0,147*	-0,071	-0,040**	1		
Durée de la relation de long terme	0,071	0,013	0,081	0,02	0,072*	0,583*	-0,019	0,038**	1	
Accès	0,025	-0,044**	0,097*	0,244*	0,054*	0,694*	0,006	- 0,065*	0,689*	1

Appendix 2:

The binary Logit parameter estimation
Binary Logit - Estimation by Newton-Raphson
Convergence in   6 Iterations. Final criterion was 0.0000000 < 0.0000100
Dependent Variable ACC
Usable Observations   2905   Degrees of Freedom 2894
Log Likelihood   -1313.067235
Average Likelihood   0.6363526
Pseudo-R**2   0.3011984
Log Likelihood(Base)   -1763.841158
LR Test of Coefficients(10)   901.5478
Significance Level of LR 0.0000000

Variable	Coeff	Std Error	T-Stat	Signif
1. Constant	4.447107476	0.679503267	6.54464	0.00000000
2. GENDRE	0.142237018	0.129371582	1.09945	0.27157374
3. AGE	-0.004577412	0.003986040	-1.14836	0.25081972
4. INS	0.458247346	0.106722930	4.29380	0.00001756
5. QUAL	-0.389596172	0.101718929	-3.83012	0.00012808
6. PAUV	-0.052578189	0.075544628	-0.69599	0.48643606
7. CULT	0.434085951	0.115943788	3.74393	0.00018116
8. PRJ	-1.712779324	0.114245666	-14.99207	0.00000000
9. DUR	0.885816549	0.111612360	7.93655	0.00000000
10. GAR	3.274761928	0.204509363	16.01277	0.00000000
11. TAILLE	-1.152773399	0.121291064	-9.50419	0.00000000
4.4471	0.1422	-4.5774e-03	0.4582	-0.3896
-0.0526	0.4341	-1.7128	0.8858	3.2748
-1.1528				

Slope Coefficients for logit

0.84439	0.02701	-8.69130e-04	0.08701	-0.07397	-0.00998	0.08242	-0.32521
0.16819	0.62179	-0.21888					