

The Determinants of Micro Credit in Morocco: The Case of the Northern Region

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Abstract: The objective of this paper is to assess the impact of microcredit on the socio-economic performance of microenterprises in Morocco. It is also to examine the determinants of granting loans by microcredit institutions. The approach used consists on developing a model based on the Probit model for its flexibility and analytical empirical validation using data from a survey undertaken on forty microenterprises which benefited from micro credit financing in the northern region of Morocco.

Keywords: Micro credit, microenterprises, probit model, socio-economic performance.

INTRODUCTION

No one can dispute the international scope of the success of microcredit and its role in development and the fight against poverty. In Morocco, this financial formula adapted to the specificities of micro-commercial, artisanal and agricultural activities represents a breath of fresh air for micro-entrepreneurs by allowing them the access to finance and integration into the financial inclusion process through in-depth study of the activity, accompaniment and personalized assistance, geographical proximity and presence even in the remote areas, and so on.

This growth of microcredit in Morocco since the beginning of the 1990s should not be seen solely from the side of microcredit institutions, whose number and volume is increasing, but must also be examined from the side of beneficiaries through an impact study.

In other words, the relevance of microcredit as a tool for socio-economic development depends not only on studying its position in the national financial sector, but also on its impact on micro-activities and their micro-entrepreneurs. It is within this framework that the objective of this work is to study and show the impact of microcredit on the socio-economic performance of microenterprises in Morocco.

This socio-economic performance is measured by several criteria, in particular the increase of income, the activity's development, the creation of new activities, the improvement of living standards, housing development, job creation, the formalization of the microenterprise and the improvement of its results.

The methodology proposed in this paper consists on processing the data from a survey of sample of microenterprises who benefited from this way of financing and using the Probit model because of its analytic flexibility. Thus, the present paper is organized around the following three axes:

- An overview of the growth of microcredit in Morocco during the last decade, in both quality and quantity terms (institutional and performance

aspects), based on the factors determining this growth.

- The presentation of the model and hypotheses of the study of determining factors in the decisions of granting loans by MCI (Microcredit Institutions).
- The presentation of the results of the survey on the impact of microcredit on the socio-economic performance of beneficiary microenterprises based on the Probit model.

**Conceptual framework of microcredit in Morocco
 Genesis and development of microcredit in Morocco**

As an introduction to microcredit in Morocco, it is crucial to focus on conceptual reminders of the different concepts related to the subject. It is to explain the microcredit, its genesis and its development in Morocco, its regulatory framework as well as the characteristics of microcredit companies in Morocco.

Thus, before tackling the subject of microcredit in Morocco, it is essential to define it. Basically, Microcredit refers to the supply of short-term loans to a poor population that is excluded from traditional financial systems. Established and popularized by Professor Muhammad Yunus [1], who

in 1976 created in Bangladesh first Microcredit bank, which he named Grammen Bank, Microcredit's business has grown to include other products such as Savings, insurance, money transfer, etc. With this development, we nowadays refer to microfinance as a more global term that includes, besides microcredit, other financial services [2].

In Morocco, although access to credit has largely been democratized in recent years, a large segment of the population with low incomes or unstable incomes could not have loans from traditional financial systems. Strongly inspired by the Grammen-Bank model, the Moroccan Association of Solidarity and Development (AMSED) was created and in 1993 granted the first microcredit to a rural woman. This loan marked the beginning of the introduction of microcredit in Morocco. With the success of this experiment, the second half of the 1990s witnessed the birth of several associations specializing in microcredit. Thus, the period from 1996 to 2000 witnessed the creation of seven associations [19-23].

With the development of these specialized micro-finance associations and the success of their poverty reduction activities, some international organizations such as UNDP and USAID have begun supporting them in their extension by offering them both technical and Financial support. The Moroccan State also participated in the development of these associations through a subsidy of 100 million DH granted in 2000 to the sector. The objective is to be able to increase the number of beneficiaries of these credits as well as to increase the amount granted to them.

With the multiplication of microcredit associations, the Moroccan State began in 1997 to draft a bill governing these associations. Thus, in 1999, the 18-97 Law entered into force. According to the latter, microcredit is "any credit whose purpose is to enable economically weak persons to create or develop their own production or service activities with a view to ensuring their economic integration". Although this law has been contested by the sector players, several professionals agree that it has allowed a fast development of microcredits in Morocco and has ensured the financial viability of microcredit associations.

Several provisions of the 18-97 Law have been introduced to regulate this sector in order to ensure a certain continuity. Thus, this law grants to microcredit associations with a valid license of exercise granted by the Ministry of Economy and Finance, the right to grant loans with prohibition to collect funds. These loans granted to individuals are capped at 50,000 DH with an interest rate fixed annually by the Ministry of Economy and Finance. The latter is responsible not only for fixing

the ceiling of interest, but also for the granting of licenses and the supervision of such associations.

With the evolution of the microcredit sector in Morocco, the legal framework regulating this sector had to accompany, follow and participate in the development of this activity. Thus, in 2004, Law 18-97 was amended to allow microcredit associations to grant loans not only for the creation and development of production activities or services but also for improving beneficiaries' housing conditions by enabling them to acquire, construct or improve their homes as well as to provide themselves with electrical installations or to supply their homes with drinking water [3]. The amendment also provides for the creation of a body representing microcredit associations in public bodies as well as a microcredit consulting board.

Subsequently, under Article 23 of the 18-97 Law on Microcredit promulgated by Dahir n ° 1-99-16 of 18 Chaoual 1419 (5 February 1999), the National Federation of Microcredit Associations (FNAM) is responsible of representing the associations of the sector with the public administration. The latter are obliged by Article 21 of the aforementioned law to accede to this federation. In addition to its representative nature, the National Federation of Microcredit Associations is also responsible for drawing up a code of ethics, proposing measures to promote the development of microcredit, ensuring that its members comply with the regulations and designating its representatives on the Microcredit Consulting Board.

This board, also created by this law, is made up of representatives of the administration, associations of professional chambers, the National Federation of Microcredit Associations, a representative of Bank AL-Maghrib, the Professional Group of Banks in Morocco (GBPM) and the Professional Association of Financing Societies (APSF). Its main task, laid down in Article 20 of the aforementioned Law 18-97, is to advise the Ministry of Finance on all issues related to the granting and development of microcredit. Thus, the Microcredit Advisory Board is consulted by the Ministry of Finance on matters relating to applications for authorization to practice, the ceiling for microcredit, the accounting models to be followed, the interest ceiling applicable to microcredit operations, The ratios to be maintained by the microcredit associations, the statutes of the federation of microcredit associations and the amendments thereto, the withdrawal of the authorization to practice and the dissolution procedure.

To date, there are thirteen microcredit associations authorized by the Ministry of Economy and Finance and which are members of the National Federation of Microcredit Associations. A large part of these associations was created between 1994 and 2003.

Infact almost 85% of microcredit associations in Morocco were created during this period. The average age of these associations is 13.5 years. Table1 below

shows the evolution of the creations of microcredit associations from 1994 to 2014:

Table-1: The Evolution of the creations of microcredit associations from 1994 to2014

Years	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Number AMC	1	0	0	1	1	2	2	2	0	1	0	0	0	1	0	0	0	1	0	0	0
Associations	Attadamoune		FONDEP	Al amana	ISMALIA	Al Karama et INNMAA	AMOS et Attawfiq	Ardi et Atil		FMCN				Tawada				BabRizq			

Data from FNAM plateforme [4]

General characteristics of microcredit in Morocco

In terms of financial analysis of microcredit activity in Morocco, it should be noted that the microcredit associations of the Kingdom are not classical enterprises. These entities are characterized by objectives quite different from those of ordinary businesses. In fact, apart from their obligation to reinvest profits into equity, micro-credit associations in Morocco aim to develop their number of beneficiaries by ensuring on the one hand high rates of repayment and the other fairly reasonable interest rates. Therefore, in order to carry out an analysis of the evolution of the

activities of these entities, we rely on indicators indicating the objectives mentioned.

Thus, in terms of number of beneficiaries, an examination of the evolution of the number of active clients of microcredit associations shows that the latter has more than quadrupled from 2003 to 2007, from 307,523 active clients to 1,353,074. The number then declined from 2007 to 2011 to stagnate to approximately 809,000 active clients in 2012 and 2013. Figure 1 below shows the evolution of the number of microcredit beneficiaries from 2003 to 2007:

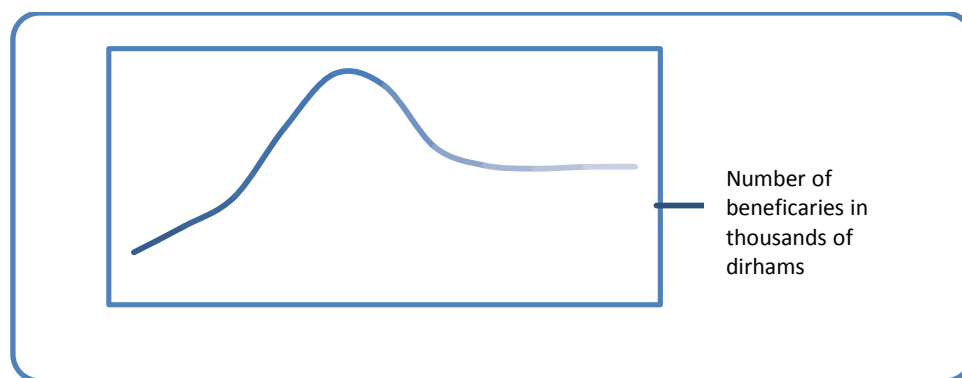


Fig-1: Evolution of the number of microcredit beneficiaries in Morocco from 2003 to 2013
Data from statistics published by the FNAM)

Regarding the amount of outstanding loans (sum of loans mobilized by a microcredit association not yet repaid), the analysis of its evolution shows that the latter has increased tenfold from 2003 to 2008 by well exceeding the 5 billion DH funds mobilized.

Subsequently, the amount of outstanding loans decreased from 2008 to 2011 from 5.67 to 4.57 billion DH and stagnated thereafter to around 4.6 billion in 2012 and 2013.

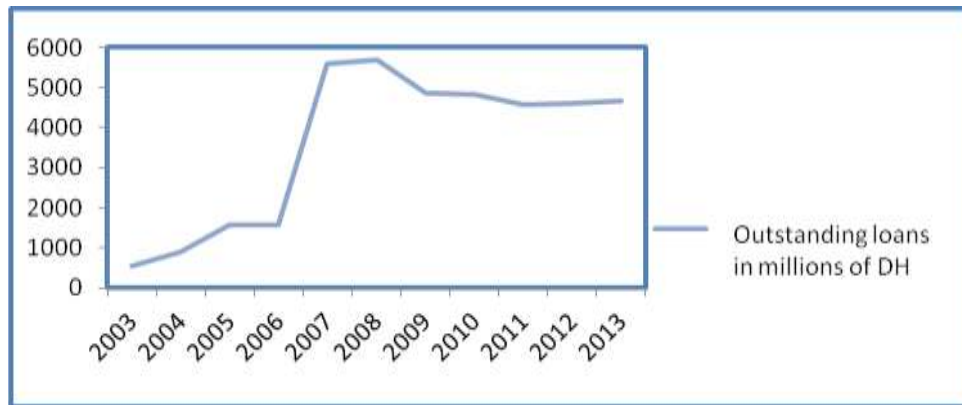


Fig-2: Outstanding loans evolution of Micro-credit Associations in Morocco from 2003 to 2013
Data from statistics published by the FNAM

In terms of medium-term loans, it has been widely advanced from 2003 to 2013 from an average of 1,747 DH to an average of 5769 DH per loan. Also, an

examination of the evolution of this ratio over the past four years shows that the latter has stabilized at around 5700 DH per loan.

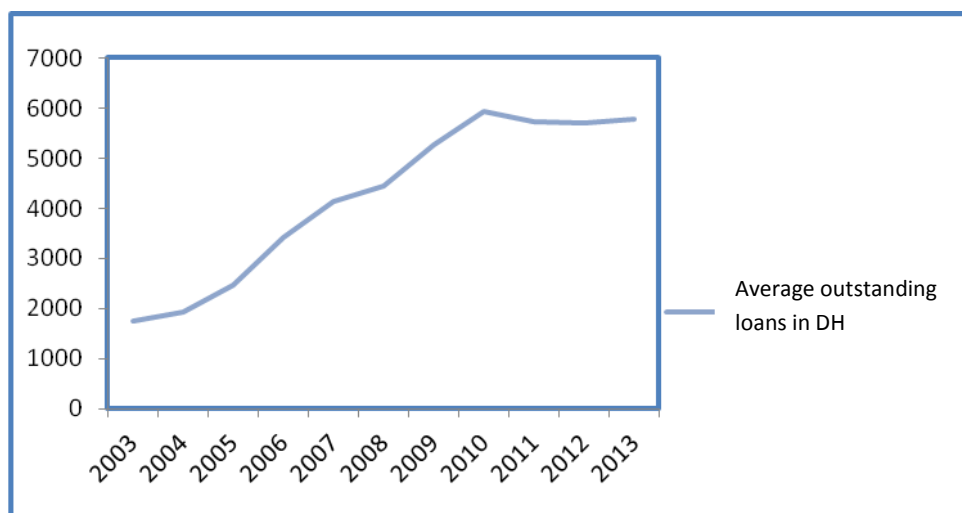


Fig-3: Evolution of average outstanding loans for Microcredit Associations in Morocco from 2003 to 2013
Data from statistics published by the FNAM)

In general, it can be said that the microcredit sector has grown considerably over the past 20 years. It has now become a fairly diversified industry, with national actors (Al Amana, FONDEP, Attouafiq Foundation and ARDI), regional (AMSSF, INMAA and Al Karama), local (Fondation du Nord, ATIL, Ismailia, Tawadaand AMOS) and even rural (BabRizkJameel). According to the National Microfinance Observatory [24], this development has created more than 6,000 permanent direct jobs and thousands of indirect jobs. It has also provided access for a large segment of the population to adequate financing and a range of non-financial services such as coaching, and the training of entrepreneurs [5]. However, although the current microcredit associations are currently serving more than 809,084 clients, this number represents only 25% of the population that could benefit from microcredit which has been estimated at 3.2 million.

Impact assessment of microcredit on micro-enterprises

In this section we will relate the main theoretical and empirical contributions of the microcredit impact study on micro-enterprises, and then present the theoretical model chosen as well as the research hypotheses.

Review of the empirical literature

The spectacular growth of microfinance around the world has prompted strong concerns from institutions and donors to assess the socio-economic impact of this funding mechanism. Of course, various evaluation methodologies have been undertaken in various contexts, with different purposes and theoretical and methodological frameworks [6].

In this regard, most authors [7-10], agree on the importance of the longitudinal experimental study in instantaneous cross-section through comparisons

between a samples composed of population who benefited from micro-finance with that who did not benefit from it.

As regards the empirical studies dealing with the impact of microfinance on micro-enterprises in Morocco, we have identified two main studies: the IKM study [11] dealing with the evaluation of the impact of microfinance in Morocco, and the study carried out by the Mohamed V center for supporting micro-finance in solidarity [12].

The study carried out by IKM focused on the impact of microcredit on households and micro-enterprises. With regard to the impact study of micro-credit on micro-enterprises, this impact was measured by five variables: increase in profit and investment, job creation and new activities, and access to markets. The results of this study show a significant impact of microcredit on the increase of profits and investments of micro-enterprises receiving credit (more than 60%), whereas this impact is very marginal on job creation and the creation of new activities (5%) as well as access to markets. Therefore, microcredits come more to strengthen activities already existing rather than encouraging the creation of new micro-activities.

Regarding the Mohamed V Center for Micro-Finance in Solidarity (2007), it adopted the following variables as the criterion for the impact study of micro-credit on micro-enterprises: Formalization of the activity, in income growth, improvement of the living standard and job creation. The results of this study show that the impact on income growth (79%) and the improvement of the standard of living (58%) is very positive, whereas this impact is marginal on the formalization of the activity (14%) and job creation (17%).

Development of the empirical model and estimation of variables

The objective of this study is twofold. On the one hand, to appreciate the importance and the role of MFIs in the financing of micro-enterprises. On the other hand, to identify the determining factors of the demand and the granting of credits to the micro-enterprises by the MFIs.

To identify the determinants of credit provided by the microfinance institution (MFI), we examined the explanatory factors of financing microenterprises by the MFIs. The study seeks to highlight the factors that

encourage or hinder financing microenterprises by the MFIs. In order to do so, we have selected from the literature and empirical studies a certain number of characteristics specific to micro-entrepreneurs and their activities which are able to explain the decision of the microfinance institution for the granting of Loans requested by micro-enterprises [13-15]. Thus, given the dichotomous nature of the dependent variable, a Probit model was chosen. This model assumes that the MFI faces two alternatives: either the agreement or the rejection of the requested credit.

The general model is as follows:

$$y_i^* = \alpha_i X_i + \varepsilon_{it}$$

Where,

y_i^* is the variable representing the decision of the agreement or the rejection of the credit. This variable is not observed and defined in function of observed characteristics $X(t)$. Concerning ε_{it} , it represents the term of unexplained error (we suppose it is normally distributed with a constant variance). We observe the sign y_i^* which determines the value of the observed binary variable y_i^* conforming to the following relation.

$$\begin{cases} Y_i = 1 \text{ si } Y_i^* > 0 \\ Y_i = 0 \text{ si } Y_i^* \leq 0 \end{cases}$$

If Y is equal to 1, this means that the MFI grants credits, otherwise, that is, rejection, Y is equal to zero.

This model makes it possible to calculate the probability that an MFI grants credit to a micro-enterprise given a certain number of characteristics. The final model for this study is as follows:

$$y_i^* = \alpha_0 + \alpha_1 X_{i1} + \alpha_2 X_{i2} + \alpha_3 X_{i3} + \dots + \alpha_9 X_{i9} + \varepsilon_{it};$$

With

$$\begin{cases} Y_i = 1 \text{ si } Y_i^* > 0 \\ Y_i = 0 \text{ si } Y_i^* \leq 0 \end{cases}$$

The measurement of the explanatory variables is recorded in the following table 2:

Table-2: Lists of study variables and their codlings

Variables	Definitions	Measures
Y(i) : Credgrant	Credit Granting	Y(i) =1 if the NMCF grants credit to the person I and 0 if not
X1 : AGE	The entrepreneur's age	The entrepreneur's age in number of years
X2 : GENDER	Gender of entrepreneur	Binary Variable = 1 if female and 0 if male
X3 : MATSTATUS	Matrimonial status	Qualitative binary variable = 1 if single and 0 if not
X4 : EDUCLEV	Educational level	Binary variable = 1 if higher or secondary level and 0 if not
X5 : NATPRO	Nature of Project	Binary variable = 1 if there is creation and 0 if there is extension
X6 : BRACT	Branch of activity	8 sectors have been identified = 1 if it is commercial or textile and 0 if it is not (handicraft, agriculture, mechanics ... etc)

To these variables, we have added a seventh binary variable, we speak here of the amount of credit requested (X7: MontsolliVb = 1 if the amount is greater than 5000 DH).

From this model of research we have adopted the following three main assumptions to be tested in the Moroccan context, in particular:

- H1: MFIs are the main source of microfinance financing.
- H2: Socio-demographic factors are more decisive in granting loans by MFIs.
- H3: Economic factors have a decisive impact on the decision to grant loans to MFIs.

RESULTS ANALYSIS

The data used in this study are based on a survey carried out within the Northern Microcredit Foundation (FMCN) of 40 micro-enterprises located in the city of Tangier. Our first field visits went very well and we were able to appreciate the extent of the work these associations do on the ground. Although these credits were small amounts, they could be renewed easily as soon as beneficiaries demonstrated that they were good payers. Similarly, operators stressed that "the rate applied should be in line with the nature of the object and the financial capacities of the applicants".

Descriptive analysis of the results

This analysis approach relies on frequency analysis to assess not only the importance of microfinance institutions for micro-enterprises according to their socio-economic and demographic characteristics, but also the impact of micro-credits on the activities of the micro-enterprise.

General characteristics of micro-entrepreneurs and use of microcredit

For the analysis of the importance of the use of credit from the MFIs, it should be emphasized that the study reveals microenterprises do not have enough information about the MFIs. Thus, apart from banks, micro-entrepreneurs are ill-informed about the existence and role of MFIs. The distribution of micro-entrepreneurs according to turnover shows the following trend: in general, the higher the figure is, the less the entrepreneur uses credit. The majority of entrepreneurs using the MFI credit are those whose

figure is between 3,000 and 10,000 DH, which constitutes 91% of the population surveyed. This can be explained by the fact that, at the beginning of the activity, micro-entrepreneurs use credit more.

According to the gender variable, the results show that female entrepreneurs use MFI credit more than men, ie 89% against 11%. This is a trend for most MFIs around the world. Indeed, microfinance focuses more on micro activities. In Morocco, these small income-generating activities are often carried out by women, while men are more active in commercial activities.

The age of the majority of entrepreneurs using credit is between 32 and 46 years. The analysis regarding activity branches shows that micro-enterprises in the handicraft sector use credit more than other sectors.

Regarding the educational level, the study shows that, generally speaking, in the Northern region of Morocco, the majority of micro-entrepreneurs are self-taught or have a primary or secondary level, ie 69% of micro-entrepreneurs.

Impact of micro-credits on micro-enterprise activities

It should be noted that the impact of microcredit on micro-enterprises activities was measured in the empirical work by several variables including [16-18]: volume of production, diversification of production, volume of sales, competitiveness and profitability of activities, the use of labor force and cash flow.

In this study, we found that the proportion of entrepreneurs who have benefited from the credit, 78% say that the credit allowed them to increase their production volume. In addition, the credit used enabled 68% of micro-enterprises to increase their turnover. The results show that access to credit contributes to improving profitability and competitiveness for 70% of micro-enterprises.

As for the impact of credit on the labor force, only 5% of entrepreneurs said that the credit allowed them to use less labor. However, the use of credit did

not have any impact on additional recruitment of labor. Regarding cash flow difficulties, 62% of entrepreneurs said that the credit enabled them to solve these difficulties and 36% of the micro-entrepreneurs did not realize a real change.

From this exploratory study of the perception of the impact of microcredit by micro-enterprises, the following main lessons emerge: microcredit contributes to the increase of production volume, the improvement of sales volume and the profitability of Micro-enterprises. It also helps micro-entrepreneurs to settle cash-flow difficulties in their activities, even if this is not a general situation for all micro-entrepreneurs.

Presentation and analysis of estimation results

The analysis of the results of the econometric estimation of the credit supply equation of MFIs to micro-enterprises shows that several socio-demographic and economic factors are involved in the granting of credit by MFIs. However, their impacts are not identical.

For the study of the influence of demographic and economic characteristics on the decisions of microcredit institutions, we noted the following main results:

The sign of the coefficient for the gender variable (+) indicates that the probability of the credit being granted is lower for men than for women. This reflects the MFIs' preference to respond favorably to credit demand from women, as they are highly representative in income-generating activities. As for the variable age, it acts positively on the probability of granting credit. In other words, the higher the age of the applicant, the greater the likelihood that the credit will be granted. As for the education variable, although the expected sign is obtained, the coefficient is not significant.

The economic variables selected did not produce any significant effects on the probability of obtaining credit. This could be explained by the fact that MFIs do not consider the nature of the project or the branch of activity in their decisions. As regards the variable of the amount requested, we have noticed that 61% of the extension files are with an amount of credit between 10 000 and 30000 Dh and 39% of the creation files are credits between the range of 2000 and 5000 Dh. The statistical tests show that the amount of credit requested is a decisive variable in the decision to grant credit by the microcredit foundations.

Table-3: Synthesis of the results of the econometric estimation

Variable	Coefficient	z-statistics	Probability
C	-3.325	-1.39	0.164
Age	0.08	2.00	0.045
Gender	1.45	2.00	0.045
Marstatus	-0.7	-1.03	0.302
Educlev	0.988	0.81	0.418
Natproj	1.24	1.25	0.212
Solam	0.03	0.04	0.967
Brchact	-1.074	-1.18	0.239
Probability(LR stat) : 0.0161		McFadden R-squared : 0.4311	
Log likelihood : -11.3507		LR statistic : 17.20	

Source: Data from the FNAM and authors estimate

- For the estimation, the maximum likelihood technique was used;
- The coefficient values of the constant marital status (marital status) are negative and imply that these two factors decrease the probability of granting credits by the MCI (FMCN) of the region of Tangier. While other factors are positive implying that their increase increases the likelihood of project funding;
- The statistic F in the linear regression model = test the overall significance of the model;
- LL = the likelihood. (Log likelihood) (By multiplying the log likelihood per week two, we obtain that of +22,70 (-2LL);
- LR (= 7) = A has a degree of freedom of 7 Statistics LR = 17.20;
- Pseudo R² = (from McFadden is an analogue of R²) in this model explains the decision to finance projects only at 43.11%, in other words, the variables of the model explaining the financing decision of the projects To 43.11%;
- Correlation (coefficient) R = 0.60, confirming the correlation between socio-economic factors and the funding of projects by the foundation;
- LR statistic is compiled as -2 (LL) which is analogue to statistic-F. It is as if one could say that the foundation FMCN, makes discrimination between the first creators;
- Coefficient Marital status: this variable is not significant at the 5% threshold; this justifies that the foundation does not discriminate between entrepreneurs according to their marital status;

- The determination of the variable (solamount) (solicited amount) is a positive sign, ie it positively influences the decision to grant credits.

CONCLUSION

At the end of this study, we have noted that all the studies carried out in Morocco on microcredit show that microcredit in Morocco benefits women more than men, the oldest compared to the youngest, to manual activities rather than to other commercial and agricultural activities, to the urban environment rather than to the rural environment. It also benefits to the existing activities rather than to the new creations. Furthermore, more than 90% of beneficiaries interviewed (households and micro-enterprises) confirm the existence of a positive impact after having benefited from microcredit.

Regarding the assumptions of this study, we can state that, despite its undisputed growth, microcredit remains a marginal source for micro-enterprises compared to households and is therefore not the main source of funding for micro-activities in Morocco. In terms of the determinants of credit granted by microfinance institutions, the study carried out shows the significant impact of socio-demographic factors compared to economic factors in decisions to grant credits by Microcredit societies.

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