

# Microcredit and Women's Empowerment: A Case Study in Rural Morocco

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**Abstract:** Women's empowerment is one of the biggest barriers to progress in Morocco, since women continue to constitute the majority of disadvantaged and marginalized groups, particularly in rural areas. Our contribution is to evaluate the impact of participation in a microfinance institution (MFI) on women's empowerment in the rural commune of Aoufous, located in the Errachidia province (Morocco). It is divided into two sections. First, it compares the empowerment of women who participate in a MFI to women who do not participate in any MFI. Second, it examines whether loan amount, length of membership, income-generating activities and household income, influence the overall empowerment index among MFI participants. To do this, an overall empowerment index is constructed employing five dimensions of empowerment: economic decision-making, household decision-making, freedom of movement, political and social awareness and ownership of assets. Then a regression analysis is carried out using primary data collected from a sample of 76 women (33 members and 46 non-members) from the research region. Our findings indicate that participation in the microcredit program has a significant and positive role in determining the overall empowerment index. Furthermore, the loan amounts as well as engagement in income-generating activities are significant determinants of women empowerment. According to the findings of our study, MFIs play an essential role in women's empowerment.

**Keywords:** Women's Empowerment, Microcredit, Micro Finance Institution, Morocco

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## 1. Introduction

According to the findings of the 2014 general population and housing census conducted by the Office of the High Commissioner for Planning, 40 percent of Morocco's population resides in rural areas. Females make up about 49% of the population.

In Morocco, rural women play a predominant role in domestic work, agriculture, animal husbandry, collecting, harvesting, etc. They serve an important workforce that is responsible for their families' food security. However, they face a variety of cultural and institutional constraints that impede their full growth.

They have to deal with illiteracy (60.1%), poverty (9.5%), insecurity (23.6%), lack of social facilities and infrastructure, gender disparities, etc.

In addition to these difficulties, they generally have few alternatives or opportunities to improve their living conditions. However, they face different cultural and institutional constraints that hinder their full growth.

The empowerment of women is of utmost importance to improving the role of women in society. Empowerment allows women to understand their potential, helping them not only to enhance their standard of living and quality of life, but also to improve the well-being of their communities. It is therefore not shocking to note that women's empowerment is listed as the third United Nations Millennium Development Goals (MDGs), which has recently been replaced by the Sustainable Development Goals (SDGs).

It is commonly accepted in the development literature that one of the ways of guaranteeing women's empowerment is to provide them with convenient access to credit [1, 11, 12, 20]. This enables them to participate in income-generating activities, such as the development of micro-enterprises, bringing additional income to the household. Women's ability to produce their own income allows them to make choices about consumption, education and household health, and to engage in the political process [15].

In this regard, microfinance plays an important role in empowering women. Indeed, microfinance institutions provide financial services to low-income clients who typically do not have access to banking and related services. As a development tool to reduce poverty in countries in Asia, Africa and South America, microfinance has the potential to produce rapid and meaningful results for poor people, especially women.

The microfinance sector was introduced in Morocco some 20 years ago. Today, it reaches almost one million beneficiaries, with a net increase despite the maturity crisis that it faced in 2008 due to uncontrolled growth.

This crisis was resolved a few years later by the dynamism of the sector and also by the introduction of consolidation projects and capacity building, making Morocco the leading microfinance market in the Middle East and North Africa region [3].

In this paper, we will try to evaluate the influence of joining a micro-credit institution on women's empowerment in the rural commune of Aoufous, in the Errachidia region. We will concentrate our research on two primary components. First, we will examine the disparity in empowerment between women who join the microfinance institution (MFI) and women who do not join the MFI. Second, we will investigate whether the amount of the loan, duration of membership, participation in income-generating activities and household income affect the overall empowerment index of women participating in the MFI. To do so, a regression analysis will be carried out using primary data obtained from a survey of 76 women (33 members and 46 non-members) from various small rural villages in the rural commune of Aoufous.

## 2. Background Literature

### 2.1. The Concept of Empowerment

The word empowerment does not have a clear definition; it is interpreted by writers and scholars in a number of ways. The Oxford English Dictionary defined the verb to empower as «to give (someone) the authority or power to do something».

It is also defined as a mechanism by which individuals, organizations and societies gain control of their affairs [19] or as a control over material assets, economic resources and ideology [2].

It can refer as well to situations in which an individual or group regains or gains power [13].

### 2.2. Women's Empowerment

Women's empowerment is described as the ability of women to be financially independent, to control decisions that affect their lives, and be free from violence [6, 18].

Furthermore, women's empowerment is defined as the process by which those who have been prevented from making strategic life choices acquire this capacity [7]. It is also presented as a process by which women take ownership and take the necessary steps to shape their lives by expanding their choices [8, 10].

Empowerment is an active and multidimensional process that should enable women to fully realize their identity and power in all spheres of life [21].

Rahman sees an empowered or self-reliant woman as a woman who is confident in her ability, able to lead her life peacefully and autonomously, socially and economically, free of some sort of domination, and eventually able to protect her own interests [17].

Empowerment can give women the power to control the circumstances of their lives. This includes both control over resources and ideology, greater self-confidence, and an internal transformation of consciousness that enables them to overcome external problems. Women's empowerment is essential not only for their own well-being, but also for the development of the country.

### 2.3. Women's Empowerment Through Microcredit

A variety of rigorous researches on the effect of microfinance on women's empowerment have been undertaken since the 1990s. Several of them have demonstrated that microfinance has a positive effect on customers. In the following paragraphs, some findings of empirical work on the effect of microfinance on women's empowerment will be discussed.

The study of 1,300 poor rural women who were members and non-members of two microfinance institutions in Bangladesh (Grammen Bank and BRAC) showed that members were significantly more advanced in terms of empowerment on the eight empowerment indicators used. These indicators include mobility, economic security, ability to make small purchases, ability to make larger purchases, involvement in major decisions, and relative freedom from domination by the family, political and legal awareness, and involvement in political campaigning and protests [5].

In the same way, another study found that when women were direct beneficiaries of credit, it had a positive effect on virtually all the latent empowerment factors examined by women. They indicated that microcredit programs have led women to play a greater role in household decision-making, to have better access to financial resources, to acquire a wider social circle, as well as more bargaining power with their husbands and greater freedom of movement [16].

In another study, the author found that microfinance programs produce changes at a personal level in the form

of increased self-esteem. At the household level, she found that women's increased contribution of resources led, in a great majority of cases, to decreasing levels of tension and violence. Finally, women often reported feeling of an increase in affection and consideration within the household as a result of longer program membership [7].

In Egypt, Hala El Hadidi has studied the impact of microfinance services on the empowerment of rural Egyptian women. To do so, 205 people were interviewed using a structured questionnaire. Five indicators were used to measure empowerment, namely: socio-economic status upgradation, autonomy for life choices, women's position in the family and society, financial freedom and positive approach towards child development. The findings of the study suggest that microfinance programs have a substantial effect on four of these five variables in rural women's empowerment [4].

A study research in Tanzania on 454 women (305 MFI members and 149 non-members), found that women who are members of microfinance institutions are more empowered than non-members. Women MFI members have more control over the savings and income generated by the business, a greater role in decision-making, greater self-efficacy and self-esteem, greater freedom of movement and expanded activities outside the home [9].

### 3. Data and Methods

#### 3.1. Investigation Framework

A special data collection survey was performed as part of this analysis in December 2018. The survey concentrated on one of the two MFIs in the town of Aoufous. This MFI is the local branch of the Temara-based ARDI foundation. The foundation has 10 coordination departments, including the Daraa-Tafilalet. The latter has a total of four groups, including the Erfoud group, which in turn has six branches, including the Aoufous antenna.

The study carried out concerns exclusively the Aoufous antenna, where field investigations have been focused.

#### 3.2. Data to Collect

The investigations carried out aim to determine the impact of MFI membership on the empowerment of women in the commune of Aoufous. To do so, the data to be collected concerns the characteristics of borrowers and non-members of the local branch of the MFI.

#### 3.3. Survey

The rural locality of Aoufous has a total population estimated at 10424 people including 5545 women, i.e. 54% of the total. The corresponding working populations are respectively 2214 men and 365 women. The working women thus defined constitute the frame of sampling.

In 2018, the local MFI in question had 98 participants, of which only 42 were female. The goal was originally to

interview all members, but only 33 of them agreed to collaborate.

To collect data from the respondents, a questionnaire was created. The collection process differed according to whether or not the working women concerned were members of the MFI in question.

##### 3.3.1. For the MFI Borrowers

Data processing was carried out within the MFI itself, usually with the kind assistance of the workers. Any customer who has come for one reason or another has been asked to answer the questions. It also occurred that several members were called by phone from the MFI to ask for their responses to the questionnaires. However, only 33 of them (slightly less than 80%) agreed to respond.

##### 3.3.2. For the MFI Non-borrowers

Contacts for data collection were made via a door-to-door visit to the numerous small villages of the rural commune. Just 43 women decided to cooperate and answer the questionnaire, out of the so many connections made. Indeed, the very conservative culture of this area makes women feel a certain anxiety when an outsider pops up for a questionnaire.

76 women were interviewed in end.

#### 3.4. Measuring Empowerment

Defining empowerment is very complicated, let alone measuring it. Among the multiple works carried out to quantify this term [5, 14-16], this study proposes to measure women's empowerment by constructing an empowerment index through five dimensions: economic decision-making, household decision-making, freedom of movement, political and social awareness and ownership of assets.

In this context, we used a variety of items for each dimension. Table 2 gives a comprehensive overview of these five measurements, their respective items and the minimum and maximum values chosen for each indicator.

Thus, for the Economic Decision-Making Index dimension, we used nine items, which are seen in the table below. The minimum and maximum values for these indices range from 0 to 2, and the same shall apply to the other aspects of the empowerment, taking into account the respective maximum and minimum values.

The score for each factor is determined by summing up the positive responses of the respondents to each of the items. The highest score for each dimension is the cumulative number of items relating to that dimension and the minimum score is zero.

*Table 1. Classification of the human development index.*

Value of the HDI	HDI classification
HDI < 0,550	Low
HDI [0,550; 0,699]	Medium
HDI [0,700; 0,799]	High
HDI ≥ 0,800	Very high

Source: Human Development Indices and Indicators 2018 statistical update.

**Table 2.** Description of the dimensions and items used for the construction of the empowerment index.

Empowerment dimensions	Items	Coding	% Non Borrowers	%Borrowers	scores
Economic decision making	Purchasing daily food	1= The woman alone	41.9%	54.5%	1 = 2
		2= The husband alone	32.6%	21.2%	3 = 1
		3= Jointly	7.0%	12.1%	2, 4 =0
		4= Other	18.6%	12.1%	
	Buying sweets for children	1= The woman alone	36.0%	52.0%	1 = 2
		2= The husband alone	44.0%	12.0%	3 = 1
		3= Jointly	12.0%	32.0%	2, 4 =0
		4= Other	8.0%	4.0%	
	Buying utensils for the kitchen	1= The woman alone	46.5%	57.6%	1 = 2
		2= The husband alone	20.9%	12.1%	3 = 1
		3= Jointly	9.3%	21.2%	2, 4 =0
		4= Other	23.3%	9.1%	
	Acquisition of home furniture	1= The woman alone	32.6%	45.5%	1 = 2
		2= The husband alone	34.9%	9.1%	3 = 1
		3= Jointly	4.7%	30.3%	2, 4 =0
		4= Other	27.9%	15.2%	
	Purchase of clothes for children	1= The woman alone	33.3%	50.0%	1 = 2
		2= The husband alone	40.7%	21.4%	3 = 1
		3= Jointly	18.5%	25.0%	2, 4 =0
		4= Other	7.4%	3.6%	
	Schooling for Children	1= The woman alone	29.6%	42.3%	1 = 2
		2= The husband alone	48.1%	23.1%	3 = 1
		3= Jointly	11.1%	30.8%	2, 4 =0
		4= Other	7.4%	3.8%	
	Buying personal clothes	1= The woman alone	58.1%	75.8%	1 = 2
		2= The husband alone	14.0%	9.1%	3 = 1
		3= Jointly	9.3%	9.1%	2, 4 =0
		4= Other	18.6%	6.1%	
	Buying family presents	1= The woman alone	55.0%	78.8%	1 = 2
		2= The husband alone	20.0%	12.1%	3 = 1
		3= Jointly	5.0%	3.0%	2, 4 =0
		4= Other	20.0%	6.1%	
Household decision making	Income control	1= The woman alone	32.6%	63.6%	1 = 2
		2= The husband alone	30.2%	18.2%	3 = 1
		3= Jointly	9.3%	12.1%	2, 4 =0
		4= Other	27.9%	6.1%	
	Use of household income	1= The woman alone	34.9%	66.7%	1 = 2
		2= The husband alone	25.6%	15.2%	3 = 1
		3= Jointly	14.0%	12.1%	2, 4 =0
		4= Other	25.6%	6.1%	
	Buying/selling a land/house	1= The woman alone	20.9%	30.3%	1 = 2
		2= The husband alone	20.9%	15.2%	3 = 1
		3= Jointly	34.9%	39.4%	2, 4 =0
		4= Other	23.3%	15.2%	
	Construction or renovation	1= The woman alone	18.6%	27.3%	1, 3 =1
		2= The husband alone	18.6%	15.2%	2, 4 =0
		3= Jointly	37.2%	42.4%	
		4= Other	25.6%	15.2%	
Freedom of movement	Employment of women	1= The woman alone	25.6%	48.5%	1 = 2
		2= The husband alone	34.9%	30.3%	3 = 1
		3= Jointly	18.6%	15.2%	2, 4 =0
		4= Other	20.9%	6.1%	
	Women's membership in an MFI	1= The woman alone	25.6%	51.5%	1 = 2
		2= The husband alone	32.6%	27.3%	3 = 1
		3= Jointly	20.9%	18.2%	2, 4 =0
		4= Other	20.9%	3.0%	
	Getting to the health center	0= Don't go	4.7%	0.0%	0 =0
		1= alone without permission	37.2%	57.6%	1 = 2
		2= alone with permission	53.5%	36.4%	2 = 1
		3= Accompanied	4.7%	6.1%	3 =0

Empowerment dimensions	Items	Coding	% Non Borrowers	%Borrowers	scores
Political and Social awareness	Visiting family and friends	0= Don't go	11.6%	3.0%	0 =0
		1= alone without permission	32.6%	48.5%	1 = 2
		2= alone with permission	51.2%	45.5%	2 = 1
		3=Accompanied	4.7%	3.0%	3 =0
	Going to another village	0= Don't go	2.3%	0.0%	0 =0
		1= alone without permission	27.9%	36.4%	1 = 2
		2= alone with permission	58.1%	48.5%	2 = 1
		3=Accompanied	11.6%	15.2%	3 =0
	Prime Minister's name	1= Yes	48.8%	36.4%	0 = 0
		0= No	51.2%	63.6%	1 = 1
	Name of the president of the municipality	1= Yes	30.2%	42.4%	0 = 0
		0= No	69.8%	57.6%	1 = 1
	Access to NICTs	1= Yes	48.8%	33.3%	0 = 0
		0= No	51.2%	66.7%	1 = 1
	Savings	1= Yes	30.2%	63.6%	0 = 0
		0= No	69.8%	36.4%	1 = 1
Ownership of assets	Other properties	1= Yes	2.3%	30.3%	0 = 0
		0= No	97.7%	69.7%	1 = 1
	Cash at the bank	1= Yes	16.3%	33.3%	0 = 0
		0= No	83.7%	66.7%	1 = 1

The index for each dimension is expressed as minimum and maximum values between 0 and 1 and is based on the Human Development Index Construction Framework [22] using the following formula:

$$U_{ij} = \frac{Y_{ij} - \text{Min}Y_j}{\text{Max}Y_j - \text{Min}Y_j}$$

Where

$U_{ij}$ : Empowerment index of the  $i$ th respondent in relation

Overall Empowerment Index = 1/5 (Economic Decision-Making Index + Household Decision-Making Index+ Freedom of Movement Index + Political and Social Awareness Index + Ownership of Assets Index).

### 3.4.1. Empowerment Index Classification

Classifications of the Human Development Index (HDI) are based on fixed cut-off points. According to the Statistical Update of Human Development Indicators and Indices 2018 [23], human development is classified as follows. For the empowerment index, we used the same system of classification.

The next step is to assess the effect of rural women's membership in the MFI in question on their degree of empowerment. This is calculated by the overall index defined in compliance with the methodology explained above. In order to do this, it is important to perform a comparative descriptive analysis and to perform a regression based on the relevant variables explained below.

### 3.4.2. Specification of the Variables

Dependent variable or endogenous variable:

EI: Empowerment Index.

Independent variables or exogenous variables for equation (1):

MFIB: MFI Borrower (Dummy variable. MFIB =1 if member, MFIB =0 otherwise).

AGE: Age of the female.

MS: Marital status (Dummy variable. MS = 1 if married, MS = 0 if not married).

AM: Access to media (Dummy variable. AM = 1 if yes,

to the  $j$ th dimension;

$Y_{ij}$ : Score of the  $i$ th respondent in relation to the  $j$ th dimension;

$\text{Min}Y_j$ : Minimum score of the  $j$ th dimension;

$\text{Max}Y_j$ : Maximum score of the  $j$ th dimension.

The overall empowerment index is then determined according to the formula below by combining the indices of the five dimensions described above:

AM = 0 if not).

HS: Household size.

Independent variables or exogenous variables for equation (2):

LA: Loan Amount.

MD: Membership duration.

PIGA: Participation in income-generating activities (Dummy variable. PIGA = 1 if yes, PIGA = 0 otherwise).

AHI: Annual household income.

HS: Household size.

### 3.5. Regression Models

The first regression model explores the impact of women's membership of the microcredit institution on the overall empowerment index. Our model can then be represented by the following equation:

$$EI_i = \beta_1 MFIB_i + \beta_2 AGE_i + \beta_3 MS_i + \beta_4 AM_i + \beta_5 HS_i + \varepsilon_i \quad (1)$$

Where  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  are the parameters of the variables, such as MFI borrower, age of the female, marital status of the female, access to media, household size and  $\varepsilon_i$  is the error term.

Equation (1) examines whether the overall level of empowerment of women who join the MFI is significantly different from that of women who do not join the MFI.

If we find there is a major gap between them, we would also like to examine whether there are factors that lead to the empowerment of women involved in the MFI. In particular, we would like to investigate whether the loan amount, duration of membership, participation in income-generating activities, and annual household income contribute to women's empowerment.

We therefore estimate a second model that can be represented by the following equation:

$$EM_i = \beta_1 LA_i + \beta_2 MD_i + \beta_3 PIGA_i + \beta_4 AHI_i + \beta_5 HS_i + \varepsilon_i \quad (2)$$

Where:  $EM_i$  is the global empowerment index,  $LA_i$ ,  $MD_i$ ,  $PIGA_i$ ,  $AHI_i$  et  $HS_i$  are control variables summarized

above.  $\varepsilon_i$  is the error term. Again, we use the ordinary least squares (OLS) technique to estimate the equation.

## 4. Results

### 4.1. Comparative Descriptive Analysis

Table 3 indicates the number and percentage of women (MFI borrowers and non-borrowers) with an empowerment rating greater than or equal to 0.55 on the various items that measure economic decision-making, household decision-making, freedom of movement, political and social awareness and ownership of assets.

**Table 3.** Borrowers and non-borrower's empowerment dimensions.

Empowerment dimensions	Indicators	Borrower	Non-borrower
Economic decision making (by the wife or jointly with the husband)	Purchasing daily food	22 (66.7)	21 (48.8)
	Buying sweets for children	21 (84.0)*	12 (48.0)
	Buying utensils for the kitchen	26 (78.8)	24 (55.8)
	Acquisition of home furniture	25 (75.8)	16 (37.2)
	Purchase of clothes for children	21 (75.0)*	14 (51.9)*
	Schooling for Children	19 (73.1)*	12 (44.4)*
	Buying personal clothes	28 (84.8)	29 (67.4)
	Buying family presents	27 (81.8)	24 (60.0)
Household decision making (by the wife or jointly with the husband)	Income control	25 (75.8)	18 (41.9)
	Use of household income	26 (78.8)	21 (48.8)
	Buying/selling a land/house	23 (69.7)	24 (55.8)
	Construction or renovation	23 (69.7)	24 (55.8)
	Employment of women	21 (63.6)	19 (44.2)
Freedom of movement (alone without or with permission)	Women's membership in an MFI	23 (69.7)	20 (46.5)
	Getting to the health center	25 (75.8)	29 (67.4)
	Visiting family and friends	24 (72.7)	27 (62.8)
	Going to another village	25 (75.8)	29 (67.4)
Political and social awareness	Prime Minister's name	12 (36.4)	21 (48.8)
	Name of the president of the municipality	14 (42.4)	13 (30.2)
	Access to NICTs	11 (33.3)	21 (48.8)
Ownership of assets	Savings	21 (63.6)	13 (30.2)
	Other properties	10 (30.3)	1 (2.3)
	Cash at the bank	11 (33.3)	7 (16.3)

\* For women with children only

Source: Survey 2018

Figures in parentheses show the percentage.

The majority of MFI members surveyed have a say in all economic decisions, with the highest rates for the purchasing of children's sweet, personal clothes (84.8%) as well as the purchase of family presents (81.8%). It is also interesting to note that 75.5 per cent of clients control the household income themselves on their own or in partnership with the husband.

The difference between borrowers and non-borrowers can be seen on all the items of this dimension of empowerment. In fact, only 16 non-member women, i.e. 37.2%, decide buy furniture for the home alone or with their husbands, compared to 75.8% of the members of the MFI. It should be remembered, however, that more than half of non-borrower women opt to purchase kitchen utensils, their own clothes, children's clothing and family presents.

All women members of the MFI have a greater economic decision-making empowerment than those who are not members of the MFI in question.

The same conclusion can be drawn about household decision-making with less pronounced variations between the two groups. Indeed, 66.7% of the clients, individually or with their husbands, plan the buy or sell land or house and to build or renovate their household, compared with 55.8% of the non-members.

As far as freedom of movement is concerned, MFI borrowers and non-borrowers frequently go alone with or without permission to the health center, meet relatives and ride outside the village. Again, customers became more independent in terms of mobility.

Table 3 also reveals that women who are not members of the MFI are in a comparatively stronger position than their members in terms of political and social awareness. Overall, however, the level of women's political and social awareness remains low.

Finally, it can be found that women who join the MFI are better off than non-members. In fact, only one woman out of

43 non-members owns other properties, such as sewing machines or means of transport. We can infer that the level of all female members is higher than that of the second category in terms of possession of properties.

**Table 4.** MFI's members and non-members according to the empowerment index of the dimensions used.

Dimension	Borrowers		Non-borrowers	
Economic decision making	20	(60.6)	23	(41.8)
Household decision making	18	(54.54)	23	(27.9)
Freedom of movement	20	(60.6)	22	(55.8)
political and social knowledge awareness	11	(33.3)	19	(44.5)
Ownership of assets	11	(33.3)	4	(9.3)
Global Empowerment Index	18	(54.5)	19	(27.9)

Source: Survey 2018.

A general comment that arises from the results in Table 4 is that in all dimensions of empowerment, the proportion of women borrowers is higher than non-borrowers, with the significant exception of the political and social knowledge awareness dimension.

#### 4.2. Impact of Women's Membership in the MFI on the Global Empowerment Index

**Table 5.** Estimation Results: The effects of participation in MFI on the global empowerment index.

Independent variable	Coefficient	Std. Error	t-statistics	Prob.
Constant	0,054	0,122	0,440	0,661
MFI borrower (MFI)	0,128**	0,038	3,362	0,001
Age (AGE)	0,009**	0,002	4,294	0,000
Marital status (MS)	-0,111**	0,040	-2,780	0,007
Access to media (AM)	0,204**	0,043	4,777	0,000
Household size (HS)	-0,011	0,008	-1,399	0,166
R Square	0,689			
Adjusted R Square	0,652			

Note: Parameter estimate significance \*\*at 1% and \* at 5%.

The results of the equation calculation (1) provided in Table 5 show that the estimated coefficient of involvement in the MFI is positive and has a statistically meaningful relationship at a 1% confidence level with the overall empowerment index.

Our analysis therefore indicates that the participation of rural women in the commune of Aoufous in the MFI under consideration increases their empowerment.

Our findings also indicate that age and media access are other significant variables that are strongly associated with global empowerment index. In reality, the older a woman becomes, the more her overall empowerment rises. Similarly, once women have access to the media, their equality index would become more important. However, marital status

adversely impacts global empowerment, which declines with the marriage of women.

The findings also demonstrate that the size of the household is not important in describing women's general empowerment.

Since we have found that there is a substantial gap in empowerment between women who attend the MFI and those who do not, we can approximate the equation (2). Table 6 describes the estimation results of equation (2), which explores the impact of the size of the loan, duration of membership of the MFI, involvement in income-generating activities and household income on the empowerment of women who join the MFI.

**Table 6.** Estimation Results: The effects of participation in MFI on the global empowerment index.

	Coefficient	Std. Error	t-statistics	Prob.
Constant	0,429	0,110	3,915	0,001**
Loan amount (MPRET)	5,961 <sup>E</sup> -006	0,000	3,087	0,005**
Membership duration (AM)	-0,154	0,082	-1,879	0,071
Participation in income-generating activities (PIGA)	0,205	0,082	2,489	0,019*
Annual household income (AHI)	6,417 <sup>E</sup> -006	0,000	1,952	0,061
Household size (HS)	-0,037	0,013	-2,918	0,007**
R Square	0,699			
Adjusted R Square	0,606			

Note: Parameter estimate significance \*\*at 1% and \* at 5%.

The findings in Table 6 demonstrate that the loan amount and the involvement in income-generating activities have a statistically important association with the dependent variable, the total empowerment measure.

The strong and optimistic link between the size of the loan and the advancement of women who entered the MFI is not shocking at all. Indeed, the scale of the volume lent allows women to engage in lucrative business practices and, as a

result, to become increasingly involved in decision-making and management.

The value and positive association of empowerment with involvement in income-generating activities also seems to be reasonable. Indeed, as women participate in income-generating activities, they are obliged to take the requisite decisions to ensure the sustainability and viability of their investment. This will explain why involvement in income-generating programs contributes to a higher degree of empowerment.

The findings of the estimation of the equation (2) also show the presence of a statistically relevant relationship between the size of the household and the empowerment of female MFI participants. Indeed, as the size of the household rises, the average measure of women's empowerment declines.

## 5. Conclusion

Women's empowerment plays an important role in their growth, empowering them to increase not just their standard of living and quality of life, but also the well-being of their communities. In this regard, this research aims to decide whether women's empowerment could be strengthened by promoting their access to credit, in particular through micro-credit institutions. We therefore investigate the association between women's empowerment and involvement in microcredit programs by performing a regression study using primary data obtained from a sample of women in the rural commune of Aoufous, Morocco.

Interestingly, our research shows that women's involvement in microcredit programs has a favorable relationship and is an important predictor of their level of empowerment. Indeed, our findings indicate that participation in the micro-credit program is essential in explaining the overall empowerment index. Our follow-up study reveals that the volume of the loan as well as involvement in income-generating activities is significant and important determinants of women's empowerment. The findings of our research show that MFIs play an important role in empowering women. It can therefore be concluded that the empowerment of rural women in Morocco can be significantly improved by encouraging them to participate in microcredit programs.

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