

# A MACRO PERSPECTIVE ON MICROFINANCE AND WELLBEING

Lyes GACHOUT FSECSG University of Biskra-Algeria

Mayada BENSLAMA University of Al Manar Tunis-Tunisia

**Abstract:** In this paper we aim to test macro impact of microfinance on wellbeing, for this purpose we use a large dataset covering a sample of 91 developing countries. Using an at mean OLS model and a panel data model for the period 2000-2015, we test the effect of microfinance on three dimensions which are the headcount poverty ratio, consumption and education. our finding from the first model confirms the hypothesis that microfinance has a positive impact on the monetary wellbeing of the poor and on enrollment at school .However the fixed effect model results prove that there is a negative impact of microfinance on poverty but the same results as the OLS model for the consumption and education proxies has been found.

**Keywords:** microfinance, poverty, well being, macro-level impact

## 1. Introduction:

The well- being of the poor has benne always constituting a human concern. This burden is multidimensional in the measure where it affects several aspects of the dignity of the human being. Poverty is evaluated as a lack of capability (Sen, 1985, 1992). Microfinance is regarded as a way of capability and combating poverty throughout the world and no one can overlook the "success stories" of participants to the microfinance programs across the globe (Armendáriz and Morduch, 2007). However, these stories of individual success are qualified of "anecdotal". According to (Boyé and al, 2006: p 91): "These testimonies have their importance because they demonstrate by example that the success is possible and that, sometimes, a simple stroke of a thumb, a microcredit, is sufficient to trigger a virtuous dynamic. However, these examples do not teach us anything on the frequency of this success nor on the magnitude. The authors cite in their books several success stories of several clients of microfinance.

From a scientific perspective, the effect is supported in ancient and recent studies with more and more rigorous techniques to estimate the

impact of microfinance. The objective of the impact studies is not only to test MFI impact's on clients well being but also to improve the credibility and the effectiveness of microfinance programs. Nevertheless, it is difficult and expensive to measure with precision, the impact of a program on a socio-economic basis, such as the quality of life, the creation of sustainable jobs, social power, education, the emancipation of women, etc... because such studies is tremendously cost in term of funding and delicate in term of methodological issues.

Many practitioners have a strong belief that microfinance can contribute positively to the improvement of the lives of low-income households at the micro level (Armendáriz and Morduch, 2007). These studies have shown that the customers of the MFIs attended a positively impacted at different levels; at the households level by increasing their incomes and their consumptions (Duong and Nghiem, 2013), (Khandker, 1997), (Khandker, 2005); (Swain & al, 2008); (Mosley, 2009); at the level of the enterprise, by contributing to the accumulation of capital and the creation of employment opportunities; (Hiatt and Woodworth, 2006); (Mosley, 2009) and especially, at Community level, by integrating new workers within the poor groups (Mosley, 2009).

At academic level, there are two veins of research that could be grouped in to randomized and non randomized studies. The non-randomized studies (1998-2005) were mainly carried out by organizations such as USAID or the World Bank not by the MFIs themselves. The emphasis was on the ability of institutions to operate in such a way as to cover their operational financial and costs, while allowing their clients to economically benefit of the services offered. These studies are more interested in the operation of the MFIs and the impacts on clients were apprehended under the purely economic level. The income effect was then the only effect considered, the study of Coleman cited by (Armendáriz and Morduch, 2007) is a good example. At this time, the economic returns were indeed not on the social aspects. On the other hand the randomized approaches constitute the recent vein of the evaluations of the impact of microfinance which are based in large part on the randomized trials. They have led to examine the impact on poverty reduction and women's empowerment. The impact of "magic" of microfinance is therefore placed under a meticulous examination. The results of the studies begin to change the classic vision. This period extends from the beginning of the years 2005 to our days. It is marked in particular by methodological improvement where models of increasingly stringent are developed with new statistical techniques and econometric evidence.

The objective of our paper is not to highlight the micro impact but to shed light on macro impact and to test it empirically using a big dataset. For this reason our paper is structured as follows; section 2 will be devoted to literature review, in section 3 we will present the empirical framework while the object of section 4 is discussing results and finally section 5 will be reserved to conclusions and observations.

## **2. Literature Review:**

According to MIX, several social performance indicators are used to assess the impact of MFIs on their targets. The efforts to expand microfinance services to people who are underserved by conventional financial institutions are classified as horizontal outreach variables. The number of clients, total outstanding credit portfolio, total deposit and total savings are all indicators used to measure the breadth of outreach. It arrives that several MFIs reach a deeper outreach by targeting client groups that are more vulnerable such as women and / or people with very low incomes and these indicators are used as proxies of the depth of outreach.

Macro-empirical studies of the impact of microfinance programs on well being are few. As discussed above, most studies are at micro level. While reviewing the most rigorous studies about the relationship between microfinance and poverty we get mixed conclusions. On the one hand, microfinance is a way of combating poverty in developing countries through the finance of productive and income-generating activities for poor households. As a result, it appears that there are positive impacts of microfinance on the well-being of its clients.

A recent corpus of empirical evidence argues that an increasing outreach by MFIs of clients reduces poverty. That is to say that credit and savings services could have a positive impact on poverty alleviation, income, and return on investment.

(Imai & al.,2012) studied the role of microfinance measured by the volume or the scale of activities on poverty using cross-sectional data covering 48 countries in the developing regions for 2007. The cross-sectional data are supplemented by a two-period (2003 and 2007) panel covering 61 countries. The authors used loans per capita from Microfinance Institutions (MFIs), the econometric results consistently confirm that microfinance loans per capita are significantly and negatively associated with poverty, that is, a country with a higher MFIs' gross loan portfolio per capita tends to have lower poverty rates after controlling for the effects of other factors influencing it. The results suggest that microfinance not only reduces the incidence of poverty but also its depth and severity and both the panel results also corroborate these findings.

(Raihan, Osmani and Khalily, 2017) estimated the macro impact of microfinance in Bangladesh. The authors examined the effect of microfinance on gross domestic product (GDP) of Bangladesh through a number of channels especially; capital accumulation, productivity improvement, and reallocation of capital and labor among different sectors. A static Computable General Equilibrium (CGE) model has been used in order to capture these transmission mechanisms. The study estimates that microfinance has added somewhere between 8.9% and 11.9% to the GDP of the country depending on the assumptions made about the working of the labor market. The contribution to rural GDP is even higher – between 12.6% and 16.6%.

(Zhang, 2017) used a cross-country panel data set from 106 countries for the period 1998–2013, the author proved that microfinance has a positive effect on poverty. The findings suggest that in developing and emerging countries, the establishment of more MFIs should be encouraged, and more funds should be directed from development agencies and governments into MFIs, to reduce poverty.

Using the cross-sectional data and of panel data covering 1132 MFIS in 57 developing countries. (Bel Hadj Miled and Ben Rejeb (2015), have found a positive relationship between the microfinance and poverty. The loans of microfinance per capita is significantly and negatively related to the ratio of the poverty and positive way is significantly with the expenditures in the final consumption of households.

On the other hand a review of old studies reveals a less or negative level of impact of microfinance on poverty reduction compared to the studies after 2010, such as the works of (Zohir et al. ,2001; Rahman et al. ,2005 and Khandker ,1998). (Raihan, Osmani and Khalily, 2017) attributed the reasons for the bigger impact found in more recent studies to some of the transformations that have occurred in the microfinance sector in recent years and these transformations could be related to rising of loans sizes, loan use pattern's change, and expansion of microfinance provision to include non financial services such as saving, mobile banking and remittances.

## **2: Methodology**

### **2.1. Presentation of the sample and Data sources:**

The sample of our study is composed of developing 91 countries from six regions (Middle East and North Africa, Asia South, Europe and Central Asia, Latin America and the Caribbean, Africa, East Asia and the Pacific). Data are collected from the database of World Development Indicators (WDI) and the Microfinance Information Exchange (MIX) data base over the period 200-2015.

## 2.2. Specification of the model:

Literature on the material used generally different poverty index and proxies of the World Bank poverty estimates. While reviewing literature we find that different measures of poverty and well being are used. Some authors have used the poverty estimates released in 2008 by (Chen & Ravallion, 2008; Ravallion, Chen, & Sangraula, 2008) which are based on poverty estimates on the poverty line of US\$1.25 (based on PP Purchasing Power Parity) per day in 2005, and cover a wider range of countries than the previous estimates which are based on a poverty line of \$1.08 on 1993 PPP). (Imai & al., 2012) used three classes of poverty indices (poverty head count poverty ratio, poverty gap and squared poverty gap. (Bel Hadj Miled and Ben Rejeb ,2015 have used the poverty headcount ratio. Other authors used the household consumption as dependant variable used the final consumption expenditure of households as a proxy of poverty, like Datt Mr. & Ravallion G. (2002), (Khandker, 2005)

With a view to measure the activities of microfinance in a country, we use particularly the portfolio of loans gross (GLF), which reflects the funds actually paid to households. Other variables are used in the equation of poverty such as the gross domestic product per capita, domestic credit as a percentage of GDP as an indicator of financial development. Similarly, we have tested the effect of microfinance on the inclusion in the school and the expenditure in the final consumption of households and the rate of inflation.

The objective of our research work is to test the relationship between the microfinance and the reduction of poverty, the improvement of school enrolment and the increase in spending Final of the households in a macroeconomic approach. The sample chosen in our study is composed of 91 countries divided into six regions (Middle East and North Africa, South Asia, Europe and Central Asia, Latin America and the Caribbean, Africa, East Asia and the Pacific).

Note that all variables are expressed in logarithms because the raw data of the average are likely to be affected by the extreme values, (Bel Hadj Miled and Ben Rejeb ,2015).We have used a model presented as follows:

$$\text{LNCONS}_{it} = \beta_0 + \beta_1 \text{LNGLF}_{it} + \beta_2 \text{LNGDP}_{it} + \beta_3 \text{LNDC}_{it} + \beta_4 \text{LNINF}_{it} + \varepsilon_i \quad (1)$$

$$\text{LNPOV}_{it} = \beta_0 + \beta_1 \text{LNGLF}_{it} + \beta_2 \text{GDP} + \beta_3 \text{LNDC}_{it} + \beta_4 \text{LNINF}_{it} + \varepsilon_i \quad (2)$$

$$\text{LNENSC}_{it} = \beta_0 + \beta_1 \text{LNGLF}_{it} + \beta_2 \text{LNGDP}_{it} + \beta_3 \text{LNDC}_{it} + \beta_4 \text{LNINF}_{it} + \varepsilon_i \quad (3)$$

Where: (i): indicates an individual dimension and (t): Indicates a temporal dimension.

With:

- LNCONS: Represents the expenditure in the final consumption of households;
- LNPOV: Indicates the ratio of poor population with less than \$ 1.25 per day (2011 PPP) (% populations);
- LNENSC : Is the(%) enrolment to the school;
- LNFLF: means the portfolio of gross loans portfolio;
- LNGDP: is the per capita gross domestic product (the prices of 2000 USD constant);
- LNDC: represents the domestic credit of banks as a proportion of GDP;
- LNINF: refers to inflation;
- $\varepsilon$ : Is the error term.

#### ***2.4 Definition of variables:***

- The gross loan portfolio: it is divided by the total population since it measures the funds actually paid to households. It is the outstanding balance of all outstanding loans granted by a microfinance institution, whether doubtful, sound or restructured. This amount does not include loans that have been forgiven, or accrued interest. Although the local regulation of some microfinance institutions requires them to include the amount of accrued interest. These institutions must provide a note separately showing the amount of outstanding balance of outstanding loans and the amount of all accrued interest. Some microfinance institutions prefer to break down the different elements of the gross loan outstanding which is referred to as loan portfolio or loans outstanding.

- Domestic credit of banks as a proportion of GDP: it represents the domestic credits of banks as a proportion of GDP, it is an indicator of financial development.

- Gross domestic product per capita (at constant 2000 USD prices): It is an indicator of living standards and wealth, it indicates the standard of living of the inhabitants then the level of development of the country. This indicator is the ratio between the value of GDP and the number of inhabitants of a country.

- Inflation: this indicator is measured by the annual growth rate of the implicit deflator of GDP (in logarithmic form). It calculates the rate of change of the prices of the country. It is the ratio of GDP in current local currency to the constant local currency.

*Table 2: Summary table of variables considered and Assumption*

The variables	Abbreviations and Acronyms	Assumptions
Ratio of Poverty	LNPOV <sub>it</sub>	Dependant variable
The portfolio of gross loans receivable	LNGLF <sub>it</sub>	When the GLF increases the poverty decline (inverse relationship)
the expenditure in the final consumption of households	LNCONS: it	When the GLF increases the consumption increases
Is the inclusion in the school, secondary school (% Gross);	LNINSC <sub>it</sub> :	When the GLF increases the inclusion in the school is increasing
The per capita gross domestic product to the prices of 2000 USD constant)	LNPIB <sub>it</sub>	When the GDP increases, poverty decreases (inverse relationship) and vice-versa, the inclusion in the school is increasing and consumption also increases
The appropriations of the Interior of the proportion of the GDP in the banks	LNDC <sub>it</sub>	When the financial development increases poverty decline, the inclusion in the school is increasing and consumption also increases
The error term	$\varepsilon_i$	

To test the model proposed above, we have used techniques of panel who have the advantage of integrating both the temporal dimension and the individual dimension and they encompass a larger number of observations in relation to the time series or to the transversal planes. The use of these techniques enables us to have a better quality of estimates.

### 3. Results and Interpretations:

#### 3. Descriptive Statistics of the variables:

The purpose of the descriptive analysis is to we present an overview of the distribution of the variables of our research in relation to the critical variable. The descriptive statistics for the variables studied are presented in the table below:

*Table 3: Descriptive Statistics*

The variables	Obs	Average	Standard deviation	Min	Max
CONSUMPTION	1,325	73.8517	17.32255	17.93902	228.3636
POVERTY	474	5.63346	8.362452	.01	63.59
INSCRIPTIONS	993	63.76453	27.47854	6.0352	123.0857
GLF	908	3.67E+07	9.12E+07	4.21	9.25E+08
Gdp	1,421	3038.686	2934.862	193.8669	14907.12
DC	1,393	28.80256	22.65775	.0008157	152.5412
INFLATION	1.383	27.98037	657.3338	-35.83668	24411.03

*Source: authors calculation*

This table presents descriptive statistics for the variables used in our research for the analysis multi varied.. It summary averages, the gap-type, the maximum values and the minimum values.

We note for our sample in question than the averages of the variables studied, are (73.8517) for the final consumption of households, (5.63346) for the ratio of poverty, (63.76) for the enrolment in the school, secondary, (3.67) for the portfolio of gross loans receivable, (3038.686) to the gross domestic product, (28.80) for the indicator of financial development, (27.98) for the inflation, accompanied by an uneven dispersion indicated by the gap-type.

For the final consumption of households and their means is (73.8517) with a maximum value of (228.3636) and a minimum value of (17.93%). For the gross domestic product their means is (3038.686) with a maximum value of (14907.12) and a minimum value of (193.86).

### **3.1. Correlation Matrix :**

The correlation matrix admits to indicate the nature of relationship between the various variables and detect the problems of multi collinearity



between the variables. The coefficient of correlation admits to examine the degree of intensity of connection between the variables. According to Kennedy (1985) which offers the rule of following decision:

If the coefficient of correlation between two variables is lower than the set limit to 0.8 then we will not have a problem of multi collinearity between the explanatory variables. If the coefficient of correlation between the two variables is higher than 0.8 so we can infer that the two variables are experiencing a high degree of intensity of liaison and therefore the existence of a problem of multi collinearity.

*Correlation matrices of the Model 1:*

	LNCONS	LNGLF	LNPIB	LNDC	LNINF
LNCONS	1.0000				
LNGLF	-0.0032	1.0000			
LNPIB	-0.4216	0.1832	1.0000		
LNDC	-0.3028	0.1849	0.5493	1.0000	
LNINF	0.0577	-0.0778	-0.0904	-0.1774	1.0000

*Source: Source: author calculation*

*Correlation matrices of the Model 2:*

	LNPOV	LNGLF	LNPIB	LNDC	LNINF
LNPOV	1.0000				
LNGLF	-0.2128	1.0000			
LNPIB	-0.5943	0.0117	1.0000		
LNDC	-0.3212	0.0136	0.4911	1.0000	
LNINF	-0.1264	-0.0201	0.0051	-0.1213	1.0000

*Source: Source: authors calculation*

*Correlation matrices of Model 3:*

	LNINSC	LNGLF	LNPIB	LNDC	LNINF
LNINSC	1.0000				
LNGLF	0.1839	1.0000			
LNPIB	0.473	0.0918	1.0000		
LNDC	0.5046	0.0724	0.5771	1.0000	
LNINF	0.0330	0.0065	-0.0787	-0.1691	1.0000

*Source: authors calculation*

According to the three tables of the three models, it is important to note that all of the coefficients of correlations are lower than 0.8 which correspond to the limit set by Kennedy (1985) and from which it usually begins to have serious problems of multicollinearity. Then, according to this table we note that no multicollinearity problem has been detected during the examination of the correlation matrix between the explanatory variables given that all coefficients are lower than the threshold proposed by Kennedy (1985), which is fixed at 0.8.

The analysis of results allows to observe:

- **For the Model 1:** A negative correlation between LNCONS (the expenditure in the final consumption of households) and LNFLF (portfolio of gross loans) and LNDC (indicator of financial development) and the control variable LNPIB (gross domestic product). Also a negative correlation is observed between LNCONS and LNINF (inflation).
- **For the Model 2:** A negative correlation between LNPOV (ratio of Poverty) with the other variables LNFLF, LNPIB, LNDC, LNINF.
- **For the Model 3:** A positive correlation between LNINSC (the inclusion in the school, secondary) with the other variables LNFLF, LNPIB, LNDC, LNINF.

### 3.2. *The tests required in Panel Data:*

The data in the panel have two dimensions are indicated respectively by the index  $i$  and  $t$ . These data allow to control the heterogeneity of the firms in their individual dimensions. It is often interesting to identify the effect associated with each company, for example, an effect that does not vary in time but which varies from one organization to another. This effect can be specific assumed certain (fixed effects) or random non-observable (random effects).

#### • **The fixed effects:**

The estimation by fixed effects uses the differences to the individual averages and eliminates the persistent differences between companies. This technique favors the variability within businesses. In addition, it also has the advantage of allowing to identify and measure of the effects of which are not directly observable in the transversal plane.

Fixed effects ( $\alpha_i, \mu_t$ )

$$Y_{it} = \alpha_i + \mu_t + \beta x_{it} + e_{it}$$

The first step of our test is to check if there is indeed the presence of individual effects in our data. We can represent these effects by a intercepts own to each company,  $\alpha_i$ . So we are trying to test the null hypothesis  $H_0$ :

$\alpha_i = 0$  in the regression  $y_{it} = \alpha_i + \mu_t + \beta x_{it} + e_{it}$ . The statistical results on Stata are given in the form of "P-value," a number between 0 and 1 which indicates the probability under  $H_0$  to obtain the value found. Thus, if "p-value" is less than 5%, it rejects the null hypothesis. The fixed-effects model is equivalent to introduce binary variables and use an estimator "within".

#### • The random effects:

The estimation of individual effects can be done in a random manner the assumption as to it the independence between the terms of errors.

Random effects ( $\alpha_i, \mu_t$ )

$$Y_{it} = \beta x_{it} + e_{it}$$

$$E_{it} = \alpha_i + \mu_t + \varepsilon_{it}$$

The test of Hausman is a test of a specification that allows you to determine if the coefficients of the estimators (fixed and random) are statistically different. The idea of this test is that, under the null hypothesis of independence between the errors and the explanatory variables, the two estimators are unbiased, therefore the coefficients should little differ. The test of Hausman compares the variance-covariance matrix of the two estimators:

$$W = (\beta_f - \beta_{has})' VAR(\beta_f - \beta_{has})^{-1} (\beta_f - \beta_{has})$$

The result follows a law of  $\chi^2$  with  $K-1$  degree of freedom. In the case of the rejection of the null hypothesis, the random effects are more effective than those fixed.

### 3.4.multivariate analysis

In what follows, we present the results obtained and the tests of the different regression models.

### 3.4.1. Results of the regression MCO:

*Table 4: Outcome of the OLS Regression*

	(1)	(2)	(3)
	Model1	Model2	Model3
The variables	LNCONS	LNPOV	LNINSC
LNGLF	0.009*** (0.003)	-0.180*** (0.035)	0.030*** (0.007)
LNPIB	-0.077*** (0.008)	-1.076*** (0.089)	0.302*** (0.017)
LNDC	-0.030*** (0.011)	-0.152 (0.122)	0.096*** (0.024)
LNINF	0.003 (0.008)	-0.331*** (0.100)	0.076*** (0.019)
Constant	4.798*** (0.071)	13.243*** (0.856)	0.435*** (0.150)
Comments	777	363	621
R-squared	0.192	0.414	0.591

*Source: authors calculation*

The standard errors in parentheses are based on robust errors Standard after you have corrected the problems of hétéroscédasticités and auto sérials correlation. \*\*\*, \*\*, \* Refers respectively the levels of statistical significance 1%, 5% and 10%.

**For the Model 1:** the portfolio of loans gross (LNGLF) exerts a positive and significant impact on the final consumption expenditure of households (LNCONS). This result reflects the fact that microfinance boosts the consumption of households. As well, they are helping to create income-generating activities, the IMFs participate in the improvement of household consumption at the macro level. In effect, this result indicates, that the more the gross stock of credit increases, more than the final consumption

expenditure of households increases. This can be explained by the fact that, when the poor benefit from the services of microfinance institutions, they are found in the ability to undertake income-generating activities which in their turn will have positive effects on their consumption in goods and services. The inflation (LNINF) exerts a positive impact but not significant on the final consumption expenditure of households (LNCONS). Our results are consistent with those found by Koffi Sodokin (2007); Miled & Ben Rejeb (2015) and Churchill and Al (2015). The authors have also shown already that a country with a significant portfolio of loans gross per capita tends to have a higher level of expenditure per capita consumption. However, the variables LNPIB LNDC and exert a negative impact and significant impact on the final consumption expenditure of households (LNCONS). This result indicates that for our sample, economic growth and financial development do not favor the consumption of households. In other words, when the per capita income increases the share reserved to the consumption drop in favor of the savings. Similarly, in average, when consumption increases, inflation also increases.

**For the Model 2:** After the table that contains the results of the regression of lesser ordinary Square (OLS), the estimated coefficient of the portfolio of loans gross (LNGLF) is negative and statistically significant at the 1% level. This is in cohesion with the hypothesis previously proposed which stipulates that microfinance reduced poverty. Therefore, the countries with portfolios of loans important gross tend to have of the impact of poverty more than low. Our results suggest that microfinance significantly reduced poverty at the macro level and therefore reinforce the arguments that defend the microfinance as a good tool in the fight against poverty. This result is also identical to the one found by (Bel hadj Miled and Ben Rejeb, 2016); Imai and Azam (2011). As well, an expansion of horizontal penetration of microfinance leads to a poverty rate lower than that of the workforce.

Similarly, the GDP per capita (log) is statistically significant with a negative sign, which provides information on the fact that economic growth measured by GDP promotes the poor and reduced poverty. In other words, when GDP increases, poverty decline. In other words, the economic growth for the countries of our sample is pro-poor. In addition, the development financial (LNDC) has a negative impact on the reduction of poverty. This result demonstrates well the fact of the importance of thinking to other financial policies inclusive which could facilitate the expansion of IMFs and facilitate their operations of financing and refinancing on the markets. financial inclusion as a tool to develop in general and the fight against poverty in particular via the IMFs and put in priority

The variable (LNINF) has a negative sign and significant, which means that inflation exerts a positive impact on the fight against poverty. However, the development has an impact not significant on LNPOV.

**For the Model 3:** All variables exert a positive impact on the inclusion in the school. Therefore, it is concluded that when the portfolio of gross loans receivable increases, the level of schooling decreases. Consequently, the inclusion in the school is rising. This result is the same for the variables of Controls

Finally, our econometric results confirm that on average, loans for microfinance per capita have a significantly positive impact on the reduction of poverty, the increase in consumption and the increase of the Enrolment poverty. Therefore, a country with the portfolio of loans gross per capita is the highest tend to have lower levels of poverty after taking into account the effects of other factors that influence it.

In conclusion, referring to the results of the Model OLS and for our sample, we Our study confirms the role of microfinance in poverty reduction at the macro level. As well, an increase in the size of portfolio of loans gross per capita considerably reduces poverty, and consequently improves the well-being, this result is logical because, according to the economic literature on the subject which stipulates that the informal financial sector, in particular small credits not guarantees, influences the level of life of low-income households. These results imply the potential of microfinance in the reduction of poverty at the macro-economic level. Therefore, our empirical results is consistent with a recent strand of literature that considers that microfinance improves the general well-being of the poor in developing countries (Imai et al. , 2010, 2012), Inoue et al (2013) and Kamel Bel Hadj miled and Ben Rejeb Jaleleddine (2014)

### 3.3.2. Results for the Panel Data:

*Table 5: Test of Hausman of the modell*

Test:	Ho:	Difference in the coefficients not systematic
		$\text{Chi2}(4) = (B-B)'[(V_b-V_b)^{-1}](B-B)$
		= 16.37
		Prob>Chi2 = 0.0026
		(V <sub>b</sub> -V <sub>b</sub> is not definite positive)

**Table 6: Test of Hausman of the model2**

Test:	Ho:	Difference in the coefficients not systematic
		$\text{Chi2}(4) = (\mathbf{B}-\mathbf{B})'[(\mathbf{V}_b-\mathbf{V}_b)^{-1}](\mathbf{B}-\mathbf{B})$
		= 35.41
		Prob>Chi2 = 0.0000
		( $\mathbf{V}_b-\mathbf{V}_b$ is not definite positive)

**Table 7: Test of Hausman of the model3**

Test:	Ho:	Difference in The coefficients not systematic
		$\text{Chi2}(4) = (\mathbf{B}-\mathbf{B})'[(\mathbf{V}_b-\mathbf{V}_b)^{-1}](\mathbf{B}-\mathbf{B})$
		= 32.61
		Prob>Chi2 = 0.0000

The probability of all of the above tests is less than 5%, which implies that the model to fixed effects is preferable to the random effects model.

**Table 8: Results of the regression with the fixed effect model**

	(1) Model1 LNCONS	(2) Model2 LNPOV	(3) Model3 LNINSC
The variables			
LNGLF	0.015*** (0.004)	0.001 (0.036)	0.014*** (0.005)
LNPIB	-0.247*** (0.029)	-3.292*** (0.377)	0.516*** (0.055)
LNDC	0.035*** (0.010)	-0.064 (0.314)	0.040* (0.022)
LNINF	-0.005 (0.004)	-0.032 (0.058)	0.014 (0.009)
Constant	5.819*** (0.27)	27.367*** (2.487)	-0.281 (0.355)
Comments	777	363	621
R-squared	0.103	0.429	0.351
Number of id	77	68	72

*Source: Source: author calculation*

The standard errors in parentheses are based on robust errors Standard after you have corrected the problems of hétéros céasticités and auto serials correlation. \*\*\*, \*\*, \* Refers respectively the levels of statistical significance to 1%, 5% and 10%.

Finally, this table presents the main results of the regression, with the fixed effect models for our sample of 91 developing countries composed randomly to IMFS belonging to six regions such as the Middle East, the North Africa, Asia South, Europe and Central Asia, Latin America and the Caribbean, Africa, the East Asia and the Pacific) on a period of 15 years, which allows a better understanding of the effects of microfinance on poverty from the point of view of the long-term.

The tests of file for the three The models are overall very significant since critical probability (p-value) are very far below the threshold of 5 per cent conventionally used in practice. By analyzing the overall results, we note that:

**First**, the portfolio of loans gross (LNGLF) and LNDC exert a positive and significant impact on the final consumption expenditure of households (LNCONS). The GDP has a negative impact on the final consumption expenditure of households (LNCONS). In effect, this result indicates, that the more the stock of credit increases, more than the final consumption expenditure of households increases. This can be explained by the fact that the appropriations granted by microfinance institutions have fallen back positive on the final consumption of households at the macro level.

**Secondly**, the portfolio of loans gross (LNGLF) exerts a positive and significant effect on poverty. LNPIB exerts a negative and significant effect on the dependent variable. This result is similar to the one found by Zohir et al. (2001), Rahman et al. (2005) and Khandker (1998)). Similarly, the inflation (LNINF) and LNDC exert a negative impact on poverty (LNPOV). Therefore the development on the banking system does not play a beneficial role for the fight against poverty.

**Thirdly**: All variables exert a positive and significant impact on the inclusion in the school, secondary (LNINSC) except LNINF which exerts an effect not significant. Therefore, it is concluded that if the portfolio of gross loans receivable increases, the level of poverty decreases therefore the inclusion in school, secondary is raising.

#### **4. Conclusion:**

In this paper, we studied empirically the impact of microfinance on poverty. We considered a sample of 91 countries in the development of six



regions such as the Middle East and North Africa, Asia South, Europe and Central Asia, Latin America and the Caribbean, Africa, East Asia and the Pacific). Using a regression OLS on average and a regression model on panel data over the period 2000 to 2015. For the first model, the results also suggest that microfinance can reduce the incidence of poverty, improves the level of consumption; promotes the school enrolment rate. These results confirm the analyzes of previous studies (Kai and Hamori Imai et al., 2009; 2012; Hermes 2014).

The results support the assertion that the microfinance is an effective tool to reduce poverty, booster consumption, stimulate the inclusion in the school in most of the emerging and developing countries. It enables the poor to engage in self-employment and the creation of income-generating activities, which helps them to become financially independent and better able to get out of poverty. Therefore, the more the MFIS should be established in the poor countries, and more funds should be addressed by the development agencies and governments for MFIS, in order to reduce poverty. However, according to the results of the fixed effect model, it was found that the microfinance does not reduce poverty but on the contrary, while the effects on consumption and the registration to the school remain unchanged.

We finally recognize the results of the Model OLS who have been properly adopted and promoted by (Miled and Ben Rjab, 2014) and (Imai et al., 2012) to the detriment of results provided by techniques of double Ordinary Least Squares (OLS) and 2 instrumental variables (VI) for the quality of the results.

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