Micro Finance And Poverty Reduction: Case Study Of The Economic And Monetary Community Of Central Africa Countries

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ABSTRACT

Microfinance is regarded by many international development agencies including the World Bank as an effective mechanism for poverty reduction. However, as pointed out by Zeller and Meyer (2002), the use of microfinance for poverty alleviation is not backed up with sound facts derived from rigorous research. Using survey data of around 2000 observations collected in the six countries of the Economic and Monetary Community of Central Africa, this study provides evidence of positive impact of microfinance on production activities of micro business and on living conditions of low income families.

Keywords: Microfinance; Poverty Reduction; Impact Study

INTRODUCTION

T he questions about the importance of micro-finance as a tool for reducing poverty gained a renewal of interest particularly in African countries following the politics of financial liberalisation of the nineties. This interest was revived on the one hand, by the adoption by the Economic and Monetary Community of Central Africa (EMCCA) countries of a set of rules governing the activities of micro finance and on the other hand, by the 2006 Nobel prize of Peace awarded to Professor Muhammad Yunus, the founder of Grameen Bank, one of the most known micro finance institution.

Micro-finance means a combination of operations or financial services of a small size, aimed at satisfying the needs of production of an entrepreneur or of consumption of a household that do not have access to the traditional banking system.

Indeed there exist, more than anywhere else, in the sub-Saharan African countries, innumerable institutional weaknesses with regards to credit market. There are permanent problems of informational asymmetry which handicap the financing of the economy (Kobou, Fouda and Njinkeu 2002; Boungou et al. 2005). On the other hand, the reticence of the banking system vis-à-vis the population could be explained by the non profitability lending of small amounts with regards to the high costs of transactions and the risk of failing to reimburse due to the informational asymmetry (moral hazard and adverse selection) (Bhatt, 1993; Labie, 1996). The emergence of microfinance in the 80s[1], appeared however as a response to the failures of the previous modes of financing put in place by the commercial banks and development banks (Lelart, 2003).

The questions relating to the incidence of microfinance on poverty reduction have become the object of debates both theoretically and empirically.

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[1] Microfinance exists in different forms over the centuries and has only been really structured some thirty years ago. In the 60s and 70s, programmes of loan at lower rates appeared, whose principle has been adopted by Banks of the poor in their present form. These first attempts were nothing but relative failures.

On the theoretical plane, the debates are focused around the question of methodology, relating to access by small lenders and small savers to micro credit, so as to mobilise for this purpose the resources available in the formal financial sector (Barlet, 2005). And it is precisely to that effect immediately after Pourssat (2005) that a good number of studies are conducted on the diversification of supply in micro finance. The central idea is to identify their contribution in poverty reduction (Lelart, 2006). It is established that under required conditions, micro finance, while contributing to reducing the vulnerability of the poor to external crises, ensures a constant income, increase the yield from their savings, increases their income and provides for them with a better quality of life.

The theoretical debate focuses on the means of transmission of the effects of policy and the financial services on the micro-economic agents (Abdelkhalek et al. 2000). In fact, it is more and more established that when household behaviours are mixed (rural households generally poorer), and which simultaneously integrates aspects of production, work, consumption, auto consumption and risk management, the usage of household model could prove pertinent in evaluating the effects of financial services on poverty reduction. These effects could however be direct or indirect. The direct effects could be appreciated in terms of direct access by the poor to credit, saving, insurance and transfers. Regarding indirect effects, it is a question of improving the conditions of poor through job creation (Fischer, 1999).

Lastly, on the empirical plane, the empirical evidences of the relationship between micro-finance and poverty reduction is particularly far from being settled in Africa. Indeed, a good number of studies show that micro-finance through the credits or loans granted play a positive role on productive investment since they improve income which, on the other hand, enables the beneficiaries to satisfy their needs for education, health or household consumption (Fischer, 1999; Dervis, 2006; Severino, 2006). But several available and recent empirical studies, unfortunately, show that the debate is far from being settled on the real effect of micro-finance on poverty reduction, even if the experiences of Grameen Bank portray micro-finance as an instrument of poverty reduction.

In this context, and with regards to the high incidence of poverty in Central Africa, it is an opportunity for us to deepen our knowledge on the scope and the intensity of the effects of micro-finance services on poverty reduction.

Indeed the expansion of micro-finance in the countries of the EMCCA area is remarkable, since almost all the economic agents have access to their services. Today, there exist about 9.000 banks of the poor, of which about 2,500 are internationally recognised and supported by Non Governmental Organizations (NGOS). Even though they cannot alone totally change the situation in these countries, it should be noted that, micro-finance generally participates in production growth and in the consumption of local products. It also answers the weaknesses of revenue, the insufficiencies due to absence of saving and guarantees, arising from very limited access by the poor to property (BIT, 2004). This leads us to believe that institutional problems play a central role in the widespread poverty in Africa.

Considering support on a survey carried out in the countries of EMCCA, we would like to show that Micro-finance is one of the factors in poverty reducing in these countries. It will also be necessary in the first place to present the analytical framework and methodology adopted, before proceeding in the second place with the analysis of the main results obtained.

ANALYTICAL FRAMEWORK AND METHODOLOGY

The Data Structure

The analysis of the database structure implies the presentation of the plan of the range of samples as well as, the principal variables selected.

Sampling Plan

The survey is carried out on a sample targeted from 2000 questionnaires. To answer the needs of the survey, the sample was conceived in a way so as to represent results at the level of all the countries jointly. The objective is to gather the opinion of economic actors, on the participation or non participation of the micro-finance institutions (MFI) in the financing of their economic activities. On the other hand, having shown the scarcity of financial institutions in the rural areas, urban areas (capitals of each country), have been principally taken into account. Cameroon is the only country where the survey was carried out in two different towns (Yaounde and Douala), notably due to the intensity of the micro-finance activities in these two towns. It is however what explains what we are going to see later, as the importance of the weight of this country in the distribution of the final sample.

Finally this led us for reasons of the sake, to distinguish the samples relating to qualitative survey, those relating to the survey on commercial banks, on productive credit, on saving and on micro-finance institutions.

Samples Of The Qualitative Survey

The overall study of the impact of micro-finance on the activities of small and medium size enterprises (SME) and those of micro vendors through the qualitative approach consists in appreciating community changes, due to the presence of financial institutions. So, the areas of the survey consist of all the Member States of the EMCCA. In the six countries represented, samples of 2000 questionnaires were adopted and distributed proportionally to the cubic root of the number of statistical units (survey) in order to avoid underestimating certain countries in relationship to their weights in the total population.

Within each country, the questionnaires of the samples are distributed proportionally the population target, regarded as the population eligible for this study. To produce reliable results at the sub-regional level of the constituted strata (countries), the distribution of the sample target of the investigation is approximately proportional to the population concerned by a type of questionnaire in each country. At the end of the survey, 1,963 questionnaires (irrespective of the type) were administered and registered as provided for in the following table.

Table 1: Database and sample of the qualitative survey

Types of Survey	Cameroon	Gabon	Republic Central Africa (RCA)	Congo	Equatorial Guinea	Chad	Total
Managers of commercial banks	5	4	2	2	4	4	21
Relationship of confidence in commercial banks	152	107	100	100	66	100	625
Financing of SME	106	51	40	112	12	25	346
Micro vendors	100	100	100	100	45	110	555
Managers of MFI	53	5	17	40	4	22	141
Members of the female saving funds or credit	70	51	30	56	12	56	275
Total	486	318	289	410	143	317	**1963**

Samples Of The Survey On Commercial Banks

The population targeted for survey on commercial banks is consists both of managers and customers of these banks.

On the basis of the geographical distribution (different countries in the sub-region), the twenty-one commercial banks in the six counties concerned, were chosen by a reasoned choice and six hundred and twenty-five customers were interviewed respective, following the quota method. Table 2 below represents the lists of the banks per country that participated in the survey.

Table 2: List of the banks that participated in the survey

	Countries					
	Cameroon	**Republic of Central Africa (RCA)**	**Congo**	**Gabon**	**Equatorial Guinea**	**Chad**
Banks	BICIC CRÉDIT LYONNAIS EBC ECO BANK SGBC	BICA CBCA	LCB	BICIG UGB BGFI-Gabon BGD	BGFI-Equatorial Guinea CCEI-BANK SGB	BCCC BIAT CBT SGTB

The sample is made up of six strata. It was estimated that a minimum of 100 people were to be questioned per stratum (country), that is, at least about, 600 clients from the commercial banks. Considering the possible cases of loss or waste, the surveyors were requested at the time of drawing up of the protocol of research, to question more than 100 persons per stratum (country).

The initial objective of 600 clients of the commercial banks was maintained. However, they were not evenly distributed between the different strata. The table 3 below presents the final distribution of the sample which is made up of 625 clients of the commercial banks questioned.

Table 3: Distribution of clients of banks that participated in the survey by country

Sex	Countries						Total
	Cameroon	RCA	Congo	Gabon	Equatorial Guinea	Chad	
Men	89	66	65	59	42	59	380
Women	63	34	35	48	24	41	245
Total	152	100	100	107	66	100	625

Sample Of The Survey On Productive Credit

The survey on productive credit identifies the small and medium size enterprises (SME), which benefit or not from credits from the commercial banks selected. Taking into account of the intensity of economic activities at the level of each country (stratum), 346 SMEs were selected by a reasoned choice. Table 4 below shows the distribution of the sample by stratum.

The quota method is the base is of the technics of the range of samples used. It is a three-level survey, which enables us to ensure a representation depending on the country in question, the sex of the entrepreneur and depending on the amount of credit obtained (1,500,000 FCFA, between 15,000,000 FCFA and 4,999,000 FCFA, 5,000,000 FCFA and above).

Table 4: Distribution of the sample of SME surveyed per country

	Countries (stratum)						**Total**
	Cameroon	**RCA**	**Congo**	**Gabon**	**Equatorial Guinea**	**Chad**	
SME	106	40	112	51	12	25	**346**

The objective was to question a minimum of 50 managers of SMEs carrying out business in each country making up the six strata of the survey. So the total sample at the initial stage had to be composed of about 300 questionnaires.

Meanwhile, certain countries, especially, Equatorial Guinea, Chad and Central African Republic had very few SMEs. Also, loans of less than 1,500,000 FCFA are almost exclusively granted to SMEs headed or managed by men and carrying out business in Cameroon, Congo and Gabon. In the same way, it is clear in all the countries having participated in this study that the SMEs managed by women do not always have access to credits of 5,000,000 FCFA and above.

The objective of a minimum of 300 SMEs was attained. On the other hand, these were not evenly distributed between all the countries. The results were re-established proportionally to the representation of the SMEs in each of the countries.

Table 5 which follows, shows the final distribution of samples which made up 346 managers of SMEs interviewed according to the three criteria retained: country, sex, amount of credits obtained.

Table 5: Distribution of the sample of the SME surveyed per country.

	Amounts of loans obtained						Total	
	< 1,500,000 F		1500000 to 4,999,000 F		More than 5,000,000 F			
	Sex		Sex		Sex		Sex	
Countries	Male	Female	Male	Female	Male	Female	Male	Female
Cameroon	64	18	5		15	4	84	22
RCA	25		2		13		40	
Congo	48	16	10	2	32	4	90	22
Gabon	40	2	1		7	1	48	3
Equatorial Guinea	7	2			2	1	9	3
Chad	13	2			10		23	2
Total	197	40	18	2	79	10	294	52

Sample Of The Survey On The Micro-Finance Institutions.

The universal statistics targeted here concerns the whole of the micro-finance institutions (MFI) operating at the level of capitals (urban area) of each country. The questionnaires were administered to their respective officials and each micro-finance institution had to be visited.

The one hundred and forty-one institutions of micro-finance surveyed in all the countries were selected on a reasoned choice on the basis of geographical distribution (different countries in the sub-region). Table 6 below shows the distribution of samples by stratum which finally made up 141 MFI surveyed.

Table 6: Distribution of sample of the micro-finance institutions that participated in the survey.

	Countries (Strata)						Total
	Cameroon	RCA	Congo	Gabon	Equatorial Guinea	Chad	
IMF	53	17	40	5	4	22	141

Samples Of Survey On Saving

The survey on saving has to deal in the first place with micro-vendor members mobilising a part of their funds for saving in another micro-finance institution. To this first category could be added, members of female saving funds or credits.

The technics of sample by quota was adopted for the selection of micro-vendors, notably on grounds of local empirical observation. During the elaboration of the protocol of research, a minimum of 100 questionnaires were to be administered, taking into account the possible cases of refusal, and reticence or bad collaboration. On this basis we had total sample of 600 respondents. With regard to the weak weight of Equatorial Guinea, the targeted sample was not met. For this reason, only 555 persons were questioned. The distribution of this sample is established in table 7 below.

Table 7: Distribution of the sample of the micro-vendors who participated in the study according to countries.

	Countries (Strata)						Total
	Cameroon	**RCA**	**Congo**	**Gabon**	**Equatorial Guinea**	**Chad**	
Micro-vendors	100	100	100	100	45	110	**555**

Concerning the female saving funds or credits, lists were drawn up for each country participating in the studies. At the level of each fund, the criteria for inclusion were to be a member of the fund. Lists of the members were drawn up, with the assistance of the animator officials of each female fund, in order to constitute a basis of survey, from which a certain number of women were selected by the quota method.

However, information concerning their addresses being not certain, we interviewed in any case, the active members who were going to the funds and at the same time complying with the quota provided for that. The final sample is made up of 275 active members distributed per country as show by table 8 below.

Table 8: Distribution of the sample of members of the female saving funds or credit per country.

	Countries (strata)						Total
	Cameroon	**RCA**	**Congo**	**Gabon**	**Equatorial Guinea**	**Chad**	
Members of female savings funds	70	30	56	51	12	56	**275**

THE VARIABLES SELECTED

In order to better assess the impact targeted by the quantitative approach, three types of variables were taken into consideration:

- Explained or dependent variables ;
- Explanatory or independent variables;
- Co-explanatory or mixed-up variables.

Explained or dependant variables are made up of different elements constituting the impacts sought for in the Member States of EMCCA, on the enterprises, on the activities of the micro-vendors and on the living conditions of the EMCCA countries.

The research on the other hand tries to evaluate the influence of the explanatory (or dependant) (variables or expository) on the explained variables. The hypothesis of the research is that the explanatory variables are in relationship (liaison or correlation) with the impacts. The study then analyses the effects of the presence of commercial banks, the presence of an institution of micro-finance (MFI), the granting of productive credits and the mobilisation of saving.

The category of co-explanatory variables or mixed-up variables, is essentially constituted by the socio-economic characteristics of the persons interviewed (respondents), by the profile of the entrepreneur, by the profile of the members of the micro-finance, by the profile of the members of the female saving fund or credit, by the utilization of the credit obtained, and the utilization of the revenue/profits derived from credits obtained.

On the other hand, the following characteristics were taken into consideration at the time of analyses:

- ***The quantitative variables (expressed in number):***
  - The number of wife(ves)
  - The number of dependent children;
  - The number of dependent persons;
  - Experience in the principal activity (number of years);
  - Age of the respondents;
  - The number of credits obtained from commercial banks;
  - Number of credits obtained from the institution of micro-finance;
  - Number of credits obtained from female funds.
- ***The qualitative variables (expressed in a nominal manner):***
  - the geographical location (countries);
  - the type of service offered to SMEs;
  - the conditions for SME to benefit from the assistance of commercial banks;
  - the breakdown by nature/dateline of payment of credits to SMEs;
  - the profession of the clients of commercial banks;
  - the status of the enterprise;
  - the sector of the activity;
  - the marital status and the education standard (of the entrepreneur, members of the MFI and the female funds);
  - sex (of the clients of commercial banks, entrepreneur and member of MFI or micro-vendor);
  - the frequency of deposit (members of MFI);
  - the possession and furnishing of an account with a formal financial institution (bank)
  - Utilization of credit.

Methodological Organisation Of The Survey

It consists in the analytical plan and the global organization of the fieldwork.

Plan Of The Analyses

The plan of analyses on the different types of variables (explained, explanatory and co-explanatory or mixed-up) retained, was realised essentially by the processing and interpretation of the database of the survey carried out on the field. The only tool used in the collection of information was the questionnaires.

The database on the borrowers (managers of SMEs, members of MFI or female saving funds or credits) concerned their socio-demographic, socio-economic, characteristics, their profile, the utilization of the credits, the utilisation of the revenue/profits derived from credits. The database is presented per country (strata).

The tests of correlation of the two (the doorstep or revealing $P \leq 0,05$) were carried out between variables in order to measure in the first place the difference between the countries of the EMCCA area and also to check if certain variables have a significant effect on the main results obtained. This enabled us to make a comparison between the countries.

Beyond the quantitative analysis, the measure of the impact of credits obtained from financial institutions uses the qualitative database to make the analyses more complete. Their databases are on the socio-economic and profile factors.

The method of utilization of the credit obtained tends to show how the loan has been used to improve the condition of living of the population. The level of the loan and its utilization was compared between the countries.

The study also questions the respondents on their capacity to refund the credits obtained and also the difficulties encountered in reimbursing the loan. The survey also studies, the improvements and the new products of savings which the borrower wishes to obtain from financial institutions. The expectations vis-à-vis the formal financial institutions are taken into consideration in the study.

Effective Organisation Of The Survey.

It deals do precisely with the preparatory phase of the research as well as the collection of the database.

a.   Preparation of the study

A protocol of research was drawn up. It includes, among others,, the conception of the plan of survey, the verification of the exhaustiveness of the questionnaires answered, the perusal and codification of the open questions, the computer programming of the typing (conception of the typing mask etc.), the processing of the database of the survey as well as their distribution (tabulation and the editing of the table of results).

Six types of questionnaires were drawn up in this connection:

- Questionnaire destined to the managers of commercial banks; this enables the collection of information on the managers of commercial banks in each country, the type of services offered to SMEs, the conditions to be fulfilled by SMEs in order to benefit from their assistance, the minimum number of applications for credits received from SMEs, the number of credits granted to SMEs, the evolution of provisions on doubtful debts as well as the procedure for the recovery of funds granted to SMEs. This information is obtained in order to appreciate the level of participation of commercial banks in the financing of the economic activities of SMEs.
- Questionnaires relating to the relationship of confidence in commercial banks: it consists of four sections; identification; element of proximity; belief and memory;
- Questionnaire of survey on the financing of SMEs: it is divided into four sections: identification of the enterprise, profile of the entrepreneur, origin of the capital, financing of the enterprise.
- Questionnaire directed to the micro-vendors; it consists of six sections: identification of the micro-vendor; activity of the micro-vendor; mobilisation of saving at the MFI and transfer of resources; assistance of MFI; relationship with formal institutions.
- Questionnaire the attention of MFIs: it is a questionnaire relating to the relationship between the clients and the MFIs, that is, the monetary and non monetary aids that they give them, the products of savings that they offer them, their strategy to attract customers, their conditions to obtain credits, their strategies to recover the credits and their ability to give out long term credits.
- Questionnaires directed to the members of the female saving funds or credit. They cover issues relating to the impact of the activities of the female funds. This, among others, consists of credits granted to the members of the female funds, other services available, the usage of the credits obtained, the results of the credits obtained on sales, employment, revenue, the use of the revenue/resources arising from the credit etc.

b.   Collection of database

The collection of information on the field was carried out in each country participating in the studies. A total of 2000 questionnaires were administered for the six types of survey made in the study in all the countries concerned. The weak rate (143, that is, 7,28%) of the questionnaires filled in Equatorial Guinea is explained by the language problem on the one hand, by the low involvement of the population in economic activities on the other hand.

Overall the persons surveyed, showed a keen interest in the central theme of the study as well as in the questions which they were asked. The exploitation of the database of the research was carried out in two stages, manual perusal and computer processing.

The manual perusal made it possible to check the exhaustiveness of the questionnaires following the distribution of the samples. It also makes it possible to correct of certain errors manually (errors of the 1st order) and to sequentially number the whole questionnaires according to the countries. Open questions were also closed during this stage.

As for computer processing, it comprised: the codification of answers decided during the elaboration of the questionnaires, the capture of database, the verification of information, the correction of the tabulation of the results of the survey. The databases were processed using the software "SPSS Windows 12.5". The usual methods of descriptive statistical parametric and non parametric were used to present the results of the research. The analyses of comparison (test of khi two) and multi-variety (analysis in principal components: A.P.C) were also used in order to check the eventual liaisons (correlations or links) between certain variables.

The codification which proved to be the most delicate of the computer processing was made following the classical method, which generally concerns closed questions, which in fact corresponds to our case, and which follows the codes chosen in the questionnaires. In the six types of questionnaires, the names of all the variables having already been known as well as their descriptions, it required only to define codes for each type of answer.

After analysing the samples obtained, it is necessary with proceed to the interpretation of the main results obtained.

RESULTS OF THE SURVEY AND THE INTERPRETATIONS

It deals essentially with the work on the field, which largely depends on an exhaustive survey. It rests on two levels:1) a survey based on a target sample of 2000 questionnaires leading finally to 1963, effectively captured 2) the determination of the three types of variables (explained, explanatory, mixed-up).

The databases were processed using the software "SPSS Windows 12.5". The usual method of statistical descriptive parametric and non parametric were used to present the results of the study. The analysis of comparison (test of khi two and multi variety (APC) were used. And more, the relations of causes and effects enable us to cardinally measure the desired indices on poverty. In this regard, we are going to present first of all the direct indices of credit on the activities. Then, we shall to present the effects of credits on poverty.

Direct Impacts Of Credits On Activities

The direct impact of credit on activities proceeds by the analyses of the effects of micro-finance on the investment sectors by the beneficiaries of credit, on the one hand, and by the use and impact of the credits obtained on the other hand.

Investment Sectors By The Beneficiaries Of Credits

This concerns principally the distribution of micro-vendors in the EMCCA area as well as the transfer of the savings of micro-finance and micro-vendors.

a.   Distribution of micro-vendors in the EMCCA.

The borrowers of micro-finance institutions and the female saving fund or credits (MFI), are mostly made up of micro-entrepreneurs/micro-vendors and mainly female sellers in all the markets. Their only source of credit lies in the recourse to the informal market. To this effect, the modalities of credits put in place in the micro-finance institutions are well adapted to the characteristics of rural plural activity, practised by several families of the micro-entrepreneurs/micro-vendors whose prospects of extension of the markets seem to be rapidly saturated. As they belong to a micro-finance institution, 54,4% of the micro-vendors have recourse to the service of MFI, as evidenced by the table below.

Among the 302 micro-vendors who have recourse to the service of MFIs, many married persons (44,9%) and bachelors with dependants (28,1%) can be found.

The results of our survey at the community of MFI and the female saving fund or credits, are sufficiently instructive. They give information relating to the transfer of the savings and the use of credit as well as the growth of micro-enterprises.

Table 9: Distribution of the micro-vendors per country according to the recourse to the service of MFI.

Countries	Recourse to the service of IMF				Total	
	Yes		No			
	Number	%	Number	%	Number	%
Cameroon	58	58,0%	42	42,0%	100	100,0%
CAR	60	60,0%	40	40,0%	100	100,0%
Congo	72	72,0%	28	28,0%	100	100,0%
Gabon	5	5,0%	95	95,0%	100	100,0%
Guinea	9	20,0%	36	80,0%	45	100,0%
Chad	98	89,1%	12	10,9%	110	100,0%
Total	302	54,4%	253	45,6%	555	100,0%

b.   Transfer of the savings of the micro entrepreneurs and vendors.

With respect to savings, whatever the modalities, they still are more and more associated with credits. That is what characterises micro-finance in relation to micro-credit. In fact, when savings are collected from the members or from their clients, the MFI increases its resources and its capacity to lend. With regard to the transfer of savings, the table below shows that the majority of the members of MFI visited, had sacrificed a reasonable portion of their savings for the purchase of stocks of merchandise (60,3%).

Table 10: Main transfers of customer's savings according to countries.

Transfer of savings	Countries						Total
	Cameroon	RCA	Congo	Gabon	Equatorial Guinea	Chad	
Purchase of stock of marchandise	23 (43,4%)	15 (88,2%)	23 (57,5%)	2 (40%)	1 (25%)	21 (95,5%)	85 (60,3%)
Food	4 (7%)	11 (64,7%)	16 (40%)	1 (20%)	0 (0%)	20 (90,9%)	52 (36,9%)
Clothing	8 (15,1%)	9 (52,9%)	13 (32,5%)	1 (20%)	0 (0%)	16 (72,7%)	47 (33,3%)
Hoarding	7 (13,2%)	2 (11,8%)	4 (10%)	1 (20%)	0 (0%)	5 (22,7%)	19 (13,5%)
Education	15 (28,3%)	12 (70,6%)	16 (40%)	0 (0)	1 (25%)	21 (95,5%)	65 (46,1%)
Purchase of land	3 (5,7%)	14 (82,4%)	11 (27,5%)	2 (40%)	0 (0%)	13 (59,1%)	43 (30,5%)
Health	12 (22,6%)	14 (82,4%)	20 (50%)	1 (20%)	0 (0%)	18 (59,1%)	65 (46,1%)
Death	12 (22,6%)	9 (52,9%)	18 (45%)	0 (0%)	0 (0%)	7 (31,8%)	46 (32,6%)
Construction of houses	1 (1,9%)	11 (64,7%)	12 (30%)	1 (20%)	0 (0%)	17 (77,3%)	42 (29,8%)
Increase in equipments	1 (1,9%)	13 (76,5%)	8 (20%)	2 (40%)	0 (0%)	5 (22,7%)	29 (20,6%)
Other transfers	0 (0%)	8 (47,1%)	5 (12,5%)	0 (0%)	1 (25%)	1 (4,5%)	15 (10,6%)

Use and impact of credits obtained

How was the credit obtained used? What was the incidence on the future of the beneficiary on the one hand, and the production unit which he has created on the other hand? Precise answers were given at the level of the female saving fund or credits.

a.   Usage of credit by members of the female saving fund.

Table 11 below gives a global vision of the main use of credit in female savings funds.

Table 11: Use of credit by members of the female saving funds.

Use of credits obtained	Countries						Total
	Cameroon	**RCA**	**Congo**	**Gabon**	**Equatorial Guinea**	**Chad**	
Growth in equipments	20 (44,4%)	20 (76,9%)	37 (67,3%)	1 (2%)	12 (100%)	24 (60%)	114 (52,5%)
Stock renewal	11 (24,4%)	20 (76,9%)	54 (98,2%)	31 (60,8%)	12 (100%)	29 (72,5%)	157 (72,3%)
Creation of new activity	6 (13,3%)	10 (38,5%)	31 (56,4%)	0 (0%)	12 (100%)	1 (2,5%)	60 (27,6%)
Current operational expenses	28 (62,2%)	21 (80,8%)	34 (61,8%)	0 (0%)	0 (0%)	3 (7,5%)	86 (39,6%)

We found that credits were used to increase the equipments of the enterprise, to renew stocks, to create new productive units, and above all, to ensure current expenditures which are unavoidable and of great use.

Indeed, the importance of stock renewal (first place in the hierarchy of transfer of credits), corroborates the weight of the seller of markets in MFI societies. The amelioration of profits which follows is a factor in the diversification of activities and constitutes a real commercial capital.

The growth in equipments, plays an important part in the transfer of credit in all the MFIs (20,6% and ranks second (second in the hierarchy of transfer of credits), at the level of female saving fund or credit (52,5%).

It is mainly the operators (promoters) of the primary sector who are concerned with the growth in equipments, to cultivate their cassava, banana, yams, coco yams, etc, farms. Indeed, sellers of agricultural products (members of the female saving funds or credits), are generally owners of agricultural outfits (cassava, maize or vegetable farms). At the level of female saving fund or credit (FSFC), we find cooperatives of foodstuffs producers. In this case, the credit obtained in the name of the cooperative is used collectively for production.

Thanks to group credit, a significant part of credit issued for the financing of consumption. In this way, as in the FSFC (39,6%) of the clients declare having transferred credits to recurrent expenses.

In this breakdown, it should be noted that credit has caused numerous women or members of FSFC (27,6%) to move towards more profitable activities or to start new activities in order to augment a salary or insufficient revenue.

Thanks to the monitoring or principally to confidence, (50,8%) of the micro- entrepreneurs, declare having used credits of the FSFC for entrepreneurial purposes. These credits have had a direct impact on their micro-economic activities.

The growth effect of credit on micro-finance enterprises is illustrated by table 12 below.

Table 12: The impacts of credits obtained

Impact of credits obtained	Countries						Total
	Cameroon	RCA	Congo	Gabon	Equatorial Guinea	Chad	
Increase in sales	39 (88,6%)	19 (73,1%)	54 (98,2%)	51 (100%)	0 (0%)	35 (94,6%)	198 (93%)
Increase in use	32 (74,4%)	5 (19,2%)	49 (90,7%)	51 (100%)	0 (0%)	11 (31,4%)	127 (67,6%)
Increase in revenue	40 (97,6%)	17 (65,4%)	47 (85,5%)	0 (0%)	0 (0%)	56 (100%)	160 (89,9%)

b.   Impact of credits obtained

The question is to know concretely what have been the consequences of the credits obtained by the beneficiaries on economic activities.

Three areas have been chosen: the output, input, and finally profit, which in principle is the main pre-occupation of a rational producer, that is, the maximization of gains.

Indeed, by deriving support from table 12, it is shown that 93% of the micro enterprises out of the 198 members, who declare having obtained credit, there is a positive variation in their sales (for what regards output). On the other hand, 89,9% out of 160 declare having realised an increase in revenue (for what regards profit), and lastly, 67,6% out of 127 members declare having obtained increase in usage (for what concerns usage).

Finally, looking at these results, we are inclined to believe that there have been positive effects of the institutions of micro-finance on the living conditions, of the participants and leading to poverty reduction, which we are presently going to deal with.

The Effects Of Credits On Poverty

The impact of micro-finance on poverty here follows an analysis of the socio-economic incidence of the products of credit and the application of the IMD model or indigenisation behaviour-reducer of poverty.

The Socio-Economic Incidence Of The Induced Products Of Credits.

By products of credits, we mean the effects derived from the credits granted by "female saving funds or credits", to the deprived persons.

In this regard, we shall first of all consider the induced effects of the credits of the "female saving fund or credits", before considering the incidence of credits on the factors of production of the micro enterprises.

a.   The induced effect of the credits of the female saving funds or credits.

The revenue derived from credits has been diversely used. Indeed, table 13 here below, gives a breakdown of these induced effects.

Table 13: Induced effects of credit, to the female saving fund or credits.

Use of revenue arising from credits	Countries						Total
	Cameroon	RCA	Congo	Gabon	Equatorial Guinea	Chad	
Supply of drinking water	0 (0%)	0 (0%)	6 (10,9%)	6 (11,8%)	0 (0%)	1 (2,5%)	13 (6%)
Supply of electricity	8 (17,6%)	0 (0%)	12 (21,8%)	8 (15,7%)	0 (0%)	9 (22,5%)	37 (17,1%)
Construction of houses	4 (8,9%)	6 (23,1%)	7 (12,7%)	9 (17,6%)	0 (0%)	1 (2,5%)	27 (12,4%)
Renovation of houses	1 (2,2%)	6 (23,1%)	4 (7,3%)	10 (19,6%)	0 (0%)	13 (32,5%)	34 (15,7%)
Food	2 (4,4%)	15 (57,7%)	7 (12,7%)	21 (41,2%)	0 (0%)	19 (47,5%)	64 (29,5%)
Purchase of medicines	12 (26,7%)	16 (61,5%)	43 (78,2%)	34 (66,7%)	0 (0%)	3 (7,5%)	108 (49,8%)
Aid to families	16 (35,6%)	7 (26,9%)	38 (69,1%)	21 (41,2%)	0 (0%)	19 (47,5%)	101 (46,5%)
Savings	14 (31,1%)	9 (34,6%)	10 (18,2%)	13 (25,5%)	0 (0%)	16 (40%)	62 (28,6%)
Training	12 (26,7%)	0 (0%)	38 (69,1%)	17 (33,3%)	0 (0%)	1 (2,5%)	68 (31,3%)
Reinvestment	18 (40%)	16 (61,5%)	24 (43,6%)	32 (62,7%)	0 (0%)	5 (12,5%)	95 (43,8%)

The results brought together in this table show that the increase in revenue has enabled a good number of participants in the female saving fund or credit to significant by ameliorate their current consumption, which represents 41,9% of transfers arising from increase in revenue (food, aid to families, purchase of medicine). And if it is added to the current expenditures, supply of portable water and electricity, construction/ renovation of houses, which represents 12,8%, we are inclined to estimate that more than 54,7% of the growth in revenue, which is devoted that way, leads to the amelioration of the living conditions.

b.   The incidence of credits on the factors of production of micro-enterprises

It is sufficient to mention here that the main part of the revenue induced by credits (more than 50%), is allocated to survival expenses, notably, food, medicines, aid to families. It is the cost of training that is at the basis of production.

Indeed, survival expenses are much debated as to know, but under what column, will it be convenient to place expenses on training?

In spite of the fact that, the actors, at the base, are not always aware that the minor expenses devoted to the education of their children, contributes to the amelioration of their social insertion in future in a world that is changing, we prefer to consider them as investments.

Also, in the extension of the work of Assidon (1997), the long term cumulative effects relating to the externalities of investment within the framework of the theories of endogenous growth, could be derived from, the behaviour of the borrowers and the priority which they give to the reproduction of the work force (expenses on consumption and health), but also, education. An amelioration of human capital and the reinforcement of capacity could also be associated with the development of the micro-finance.[2]

The reinvestment of the induced profits/revenues (the growth in investments, increase in stocks, creation of new activities and training), occupies an appreciable place with 45,9% of the transfer. In this way, if directly

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[2] Sen A. (2000) Š[1992], Repenser l'inégalité, Paris, Le Seuil, 281 p.

productive investments (reinvestments) is at (43,8%), then it is important to note that, the clients of FSFC seem to be worried about the future of their children. Training represents 31,3% of the answers. The weight of re-investment outside training gets therefore, the smallest share of the induced profits.

Then, given that the impact of micro-credit is beneficial to the living conditions of the micro entrepreneurs, at the FSFC, that is, about 54,7%, their incidence on the promotion of micro enterprise is relatively less, since it represents only (43,8%), which gives the belief that, it is not possible for it to durably ameliorate the situation of micro enterprises from an ad hoc credit or a "credit of survival", which enables persons excluded from the credit of classical banks, to create their own employment or to buy a working instrument (Vigier J-P. 2000).

However, it seems necessary to have recourse to vague successions of credits, so that the fungible credits then profit the growth of the production capacities, a means to change the status of the enterprise.

The impact (1) of the micro-finance (M) on development (D) (IMD) Model or endogenization behaviour reducer of poverty.

By IMD Model, we mean the simplification of a complex reality under the form of a functional relation, permitting the measure of a specific behaviour within a given environment. The reality of the measure is the impact (1) of the micro-finance (M) on development (D).

In return, by "endogenisation of behaviour reducer of poverty", we mean the necessity to make one's own attitude or to consider that a given behaviour is not strange to our capacity to reduce or to eliminate something. Here, that thing is poverty.

The interest and the importance of this subject lies in the necessity to adopt a credible, realistic and operational vision which enables a category of the EMCCA population to emerge from a chronic state of shortage.

We shall consider first of all the effectiveness of a scheme of interiorised behaviour and then, we shall appreciate the impact of the model on poverty reduction.

a. Effectiveness of a scheme of interiorised behaviour

The formalisation of behaviour of the members of FSFC and their customers goes through a system of simultaneous equation which articulates around three modules.

$$\hat{Y}_{Ug} = f(\hat{Y}_{coc}, X_{ra(9)}) \qquad \textit{module 1;}$$

$$\hat{Y}_{coc} = f(X_{aob}, I_{arc}, \hat{Y}_{ch}) \qquad \textit{module 2;}$$

$$\hat{Y}_{ch} = f(X_{mco}, X_{ra(9)}) \qquad \textit{module 3.}$$

With:

- $\hat{Y}_{Ug}$, $\hat{Y}_{coc}$ et $\hat{Y}_{ch}$, endogenous variables represent respectively the global use of credit obtained by the micro entrepreneurs from "the female fund", credits obtained by the micro entrepreneurs from the, "female fund,' and lastly, the covering of charges by the, "feminine fund".

- $X_{ra(9)}$, X_{aob}, X_{mco} et I_{arc}, the endogens variables which respectively represents the distribution of the member of the female funds by countries and by the fact of carrying out a secondary activity; the distribution of the members of the feminine fund by countries and by the number of times they have obtained credits from the bank; the distribution of the members of the female fund by countries and the amount of the credits obtained and the

distribution of the members of the female fund by countries, by investment of the credit obtained from the female fund in a bid to increase equipments, to renew stocks, to create new activities.

-Module 1 is that of, "realisation creator and producer of goods of production and goods of consumption". It measures the incidence of the revenue of micro entrepreneur (credits Y_{coc} which have been allocated to them, supplemented by the resources arising from secondary activities $X_{ra(9)}$ on the development of these ones. It takes into account social objectives and economic objectives.

The economic development dimension that the endogenous Y_{ug}, represents of the module, is total when the revenue arising from the credits granted by the female fund are used not only to the building of a house in concrete and the purchase of a plot, the renovation of lodging (purchase of buildings, etc) but also the purchase of medicines and training.

-Module 2 is that of "revenue". It represents the determinants[3]. Three variables explain revenues or credits obtained by the micro entrepreneurs at the "female fund". They are: aids or credits granted by the banks (X_{aob}); the revenue arising from credits obtained and which are invested in the growth in equipments, renewal of stocks and the creation of new activities (/arc); and finally the covering of charges (Y_{ch}).

-Module 3 is that of covering charges. It shows the capacity of the micro enterprises financed by the micro-finance to provide for the needs of other persons, to create employment, and above all to perpetuate this creation. This capacity to engage, depends on the amount of the micro-credits obtained X_{mco}; but also, other sources of revenue $X_{ra(9)}$.

Theoretically, the model IMD should determine two types of impacts:

-   Direct effects by the amelioration of their level of revenue, the diversification of their activities, the accessibility to public services and infrastructures;
-   The positive externalities which micro-finance entails, notably the capital for an appropriate amount.

b.   The appreciation of the IMD model in the process of poverty reduction

Using the answers given to the different questionnaires by the economic actors concerned, the structure of each module of the IMD model was determined separately in multiple regressions, using Excel Software. The results obtained imply a double interpretation for the sake of clarity: a statistical interpretation and economic interpretation.

Concerning first of all the statistical interpretation, the structure of the IMD model, which has been the subject of three tests (student, fisher Snedecor and Durbin Watson, respectively symbolised by $TDSCa_i$, F and DW), has led to the following results according to the adopted modules.

$$\hat{Y}_{ug} = \textbf{0,3773}\ Y_{coc} + \textbf{0,5013}\ X_{ra(9)} \qquad\qquad \textbf{1}$$

σ_{a1} (0,1633)   (0,4767)
$TDSC_a$ 2,3104   1,0516
Critical value 0,0820   0,3523
R = 0,94
R^2 = 0,89
$F (2,4)_{5\%}$ = 16,642
Critical value = 0,02377
DW = 4571,60718 (negative auto-correlation)

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[3] Certainly, in relationship with the ideal gathered by Souleymane Soulama (2005), applied to a system of solidarity credits of the type PPPCR composed of n individuals (1,2,…,i…,n) and exercising k productive activities (1,2,…,j,…k) which has functioned with success in Burkina Faso between the years 1990-1995, the revenue of the individual i depends on six exogenous variables which are: the institutional structure of MFI, the amount of credits awarded, the rate of interest debited, the rate of turnover of the activity generating revenue, the rate of rotation of the activity j, the rate of accumulation.

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$\hat{Y}_{coc} = $ **1,0226** $X_{aob} + $ **2,2462** $I_{arc} - $ **0,0719** Y_{ch} **2**

σ_{a1} (3,1125)   (0,4551)   (0,3776)
TDSC$_{a1}$ 0,3286   4,9357   -0,1903
Critical value 0,7641   0,0159   0,8612
R = 0,99
R^2 = 0,98
F (3,3)$_{5\%}$ = 39,96496
Critical value = 0,023451014
DW = 1981,38671 (negative auto-correlation)

$\hat{Y}_{ch} = $ **1,0458** $X_{mco} + $ **0,8192** $X_{ra(9)}$ **3**

σ_{a1} (0,8715)   (0,7185)
TDSC$_{a1}$ 1,2000   1,1402
Critical value 0,2564   0,3178
R = 0,99
R^2 = 0,97
F (2,4)$_{5\%}$ = 75,7990
Critical value = 0,00270319
DW = 589,484204 (negative auto-correlation)

The constant of each of the three equations is zero. This means that the explanatory variable of the endogenous are exhausted, they were all determined and the right representative of the explained variables goes through the origin of the axes.

The coefficients of R Correlation have a very high numerical value. They vary between 0,94 and 0,99. In other words, the fluctuation of the explanatory variables of each module explains the variance of the endogen variable to the tune of 89% for the first equation, 98% for the second and 97% for the third. The correlative liaison at the level of each module exists and drives us to ask if it is significant looking on the other hand to the students tests which are bad in the whole of the module except that of investment in module 2, and on the other hand, to all the tests of Durbin – Watson, that have led to the auto-negative correlation, that is to say, to an under estimation of all the calculated parameters.

However, the Fisher Snedecor, which is good in all the partial models (an F calculated of 16,642 with a critical value of 0,02377 for module 1; an F, calculated 39,9649L, to the threshold signification of 5%, with a critical value of 0,02345 for module 2; an F calculated at 75,7990 to the threshold signification of 5% with a critical value of 0,0027 for module 3), enable us to consider that: 1/ the correlative liaison is significant in each relation; 2/ the regression coefficients are significantly different from zero to the threshold of 5%, in each equation; 3/ the endogenos variable is significantly explained by all the explanatory variables in each of the partial model.

The determinants of all the three endogenous variables of the module (Y_{ug}, Y_{coc}, Y_{ch}), have the favourable effects expected. Also, in module 1, a unitary growth respective of credits granted by the female fund Y_{coc}, and the secondary revenue $X_{ra(9)}$, lead respectively to a less proportional increase of 0,33% and of 0,50% of the endogen variable Y_{ug}, everything being equal elsewhere. In other words, the exercise of a secondary activity, which however, has a greater effect than that of the micro-credit granted, is an investment stimulant. In module 2, if respectively, the unitary variable on the increase of the aid obtained from the banks (X_{aob}) and the investment, that is to say, "the revenue arising from the credits obtained and which have been invested in the growth of equipments, the renewal of stocks, creation of new activities" (I_{arc}), each provokes, an increase even more proportional of the credit awarded by the female fund (Y_{coc}), by 1,0226% and 2,2462%, unitary growth of the variable "covering charges" Y_{ch}, which instead leads to a less proportional rate of 0,719% of the same endogen variable Y_{coc}. Lastly in module 3, the increasing unitary variations of the amount of credit obtained by the micro entrepreneurs (X_{mco}) and the secondary revenue ($X_{ra(9)}$, provoke respectively an increment even more proportional by 1,0458% and less proportional by 0,8192% of the variable of "covering charges" (Y_{ch}), everything being equal elsewhere. It follows that the determinant of the modules of "realisation creator and producer of goods of production and goods of consumption", the "revenue" and, the "covering charges" are pertinent. They enable the micro-finance to attain the three objectives

(social, economic and perennial), which it is assigned.

Concerning the economic exploitation, a more refined understanding of the impact of micro-finance on development, comes through the analysis of the auxiliary variables or residue of each partial model. This auxiliary variable represents the specific behaviour of the population target through each endogen variable under the incidence of the explanatory variable.

Now, the three multiple regressive of the models come from the cross-cutting study. They are carry out in a given time and in a space, that is that of the six Member States of the EMCCA. Consequently, the explanations concern, the particular behaviours raised by this or that given country. Translated into a form of a graphic, the incidence of the secondary revenue ($X_{ra(9)}$) and the credits awarded by "female fund" to the micro entrepreneurs (Y_{coc}) on the variables "realisation creator and producer of goods of production and goods of consumption" are presented as follows:

**Figure 1: Geographic disparity in the effects of the determinants
of the use of credits granted by, the "female saving funds or credits"**
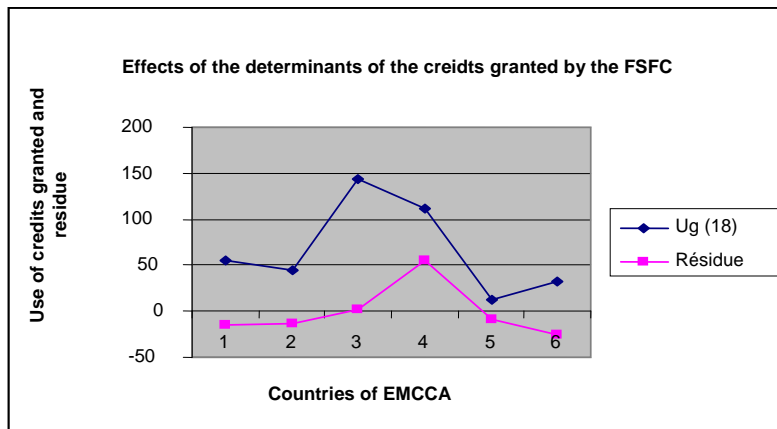
- the cuttings is the U_g (18 is the variable Y_{ug} (see column (3));
- the cuttings residue is the auxiliary variable U_i (see column (4).)

A keen observation of the state of the two cuttings of graphic 1, reveals the existence of three extreme values of residues. An extreme positive value of 55,8724332, corresponding to the behaviours of the Gabonese micro entrepreneurs with regard to the mobilisation of energy creator and producer of goods. Two extreme negative values – 24,8792172 and – 15,15567408 respectively relating to the attitudes of the agents of Chad and Cameroon.

With respect to the variable (revenue), the extreme values of the auxiliary variable is found in Congo, with 19,3160302 and Chad with – 49,8336176. Meanwhile, the determinants of the sources of financing of micro enterprises, lie in the financial aids obtained from banks (X_{aob}), as well as, investments, in inputs, necessary for the expansion of the enterprise and to the creation of new activities in beneficial sectors (ou/$_{arc}$). On the other hand, it is equally important to note the capacity of the micro enterprise to be able to meet effectively charges of any type – (ou/Y_{ch}). Like the incidence of the unitary variation at the increase of the credits granted by the banks and the reinvestment of the profits realised from the credits obtained from MFI provokes increments that are even more proportional to the "revenue, which are needed by the micro-finance to finance its customers, it is in Congo that is found an optimal solution to the objective of perennial by MFI, of the same institutional nature as the female funds. In particular, certain aspects of the relationship between the Congolese classical banking system and the micro-finance institutions should be used as a model to be followed. It is the same with the propensity to reinvest.

The causal variable 1_{arc} of module 2, is that which its quantitative effect is very big on the endogen variable "revenue" Y_{coc}. A preoccupation could lead us to finding out in the various uses to which the Congolese micro-entrepreneurs make of the revenue/induced products from credits obtained from (female funds), that which increases most in the effect of the exogenous variable 1_{arc}. This will enable us to orientate more in this direction. However, the strong correlative liaison between the sources of financing by "female funds" and their determinants, is demonstrated as shown in graphic 2 below, by a linear relation, notwithstanding, the wrong note furnished by the behaviours gathered at the level of Chad.

Figure 2: Geographic disparity of the determinants in the revenue
of the "female saving funds or credits" in the EMCCA in 2005 and 2006 and their residues or auxiliary variables.
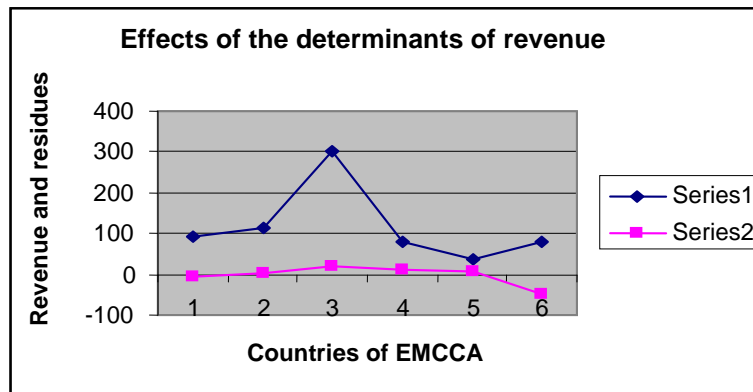

- The series 1, being the variable Ycoc (see column3);
- The series 2, being the auxiliary variable $\hat{U}_i$ (see column 4 of the table above).

Lastly, in relationship with the variable "covering charges" Y_{ch}, the extreme values of the auxiliary variable, are those of Cameroon with 16,5925965 Chad with 27,7091776. In other words, it is in Cameroon that we find micro enterprises that the amount of credits obtained from "female funds" as well as, the revenue arising from secondary activity, provides women, not only with a bigger capacity to take care of more children, but also to create many more jobs.

On the other hand, as shown by the cuttings of series 2 of graphics 3, it is in Chad that are found behaviours, that need to be ameliorated as to the amount of credits granted by the MFI to their clients and the way of acquiring complementary revenue necessarily profitable to micro enterprises likely to create.

Figure 3: Geographic disparity in the determinants of the "covering charges" $\hat{Y}_{ch}$ of micro enterprises

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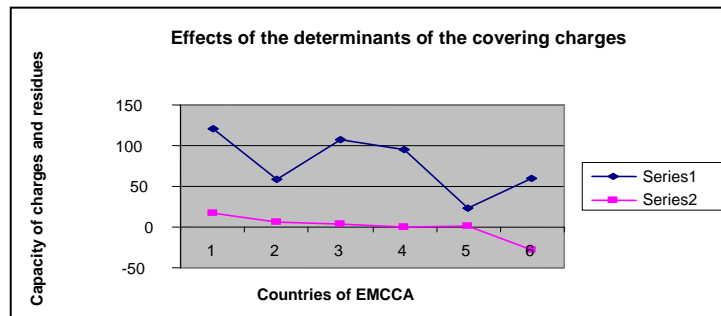
CONCLUSION

Throughout this study, we found that the revenues derived from the credits obtained by the "rejected" from the institutions of micro-finance enable them to face diverse situations: the efficient management of their enterprises, the covering of charges. In other words, the credits obtained have helped to increase equipments of their enterprises, renew stocks, create new units of production, and above all to ensure unavoidable current expenditures. Finally, it is this that leads us to believe that the practice of MFI has plausible effects on the living conditions of the participants and lead to poverty reduction.

However, it will be undoubtedly interesting to deepen research on an analysis based principally on the analysis of the principal components, since this type of analysis could even reveal other aspects of the micro-finance on poverty reduction.

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<u>NOTES</u>