

Multidimensional Analysis of Poverty in Mali

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Abstract

This paper studies the trends and patterns of poverty monetary and non-monetary to Mali from household surveys. Monetary poverty will be apprehended from consumer spending by head of household. The threshold poverty in 2011 was 175 513 XOF (320 USD) was estimated from the methods of the costs of basic needs. Non-monetary poverty on the other hand, will be measured from a composite indicator of poverty (CIP). The multiple correspondence analysis will be used to develop the composite indicator of poverty and the non-monetary threshold from the hierarchical classification. Poverty has declined at the national level regarding monetary and non-monetary from 2001 to 2011. This decline has been more important between 2006 and 2011 despite the increase in monetary inequalities and lower inequalities in living conditions. The rural areas remain more exposed to the two forms of poverty than urban. Indeed, monetary poverty rate increased from 58.8% in 2001 to 56.1% in 2006 to 35% in 2011. As for non-monetary poverty, the rate was 90.1% in 2001, compared to 81.8% in 2006 to 65.6 percent in 2011. Moreover, an increase in monetary and non-monetary poverty was observed between 2011 and 2013 depending on the environment of (urban and rural) homes in the regions of Kayes, Koulikoro, Sikasso, Segou, Mopti and the national level. Poverty is positively correlated with the age of the head of household and the size of the household, and negatively correlated with the level of study. It touches more households headed by a man than those headed by women. Profile of non-monetary poverty as it evolves according to the years according to the following characteristics: sex, age, level of study, marital status of the chef of household and household size.

Keywords: Poverty, Mali.

1. Introduction/ Background

As far as Mali is concerned, this phenomenon is a major reality with nearly half of the population (46.8%) living under this threshold in 2016 and higher again in rural areas (55.3 %) (SHDO Mali 2018).

The African countries, in particular Mali, have joined the fight against poverty in the economic and social development policies for decades. The Malian government indeed developed the National Strategy to Fight against Poverty (NSFP) in July 1998. The National Strategy to Fight against Poverty mainly aimed at improving the living conditions of Malians, particularly the poorest. Two years after the adoption of National Strategy to Fight against Poverty, the government developed the Strategic Framework of the Fight against Poverty (SFFP) upon the recommendation from international financial institutions, which was adopted on 29 May 2002. This first generation of (SFFP I) aimed at completing a strong economic growth (6.7 % in average) in order to reduce the incidence of poverty from 63.8 % in 2001 to 47.5 % in 2006. At the end of the SFFP I execution, the second generation of SFFP (SFFP II) was developed at the end of 2006 under the name of Strategic Framework for the Growth and Poverty Reduction (SFGP) which covered the period 2007-2011. This document constitutes the only reference framework of development policies and strategies for the State in the short term. It generally aims at stimulating a 7% growth in average to improve the welfare of the Malian populations.

Mali crossed a security and political crisis from 2012 which had negatively impacted the economy with a particular growth at half-mast in 2012 (-0.8%) and in 2013 (2.3 %). This economic slowdown caused the increase of poverty (41.5% in 2011, 46.9% in 2014). Poverty is a more rural phenomenon in Mali. The poverty rate was indeed from 52.8 % in rural area in 2014 against 28.5 % in urban area.

The signature of the Peace and Reconciliation Agreement in Mali between the Government and the armed groups on May 15 and 20 June 2015 is the starting point of a new commitment process in favour of unity and a balanced development between the regions of Mali. To consolidate this trend, the Government of Mali and its partners developed this Strategic Framework for the Economic Recovery and Sustainable Development (SFERSD) over the period 2016-2018.

The objective of this work is to make a multidimensional analysis of poverty by taking into account not

only the monetary aspect of poverty but also the non-monetary aspect (education, health, electricity, water, infrastructure...).

Statement of the problem:

In Mali, various studies were conducted on poverty. We can cite among others the Sustainable Human Development Observatory and UNDP study on the poverty profile in 2001, that of PROSPERE Backiny-Yetna, and all which show a reduction in poverty in Mali over the period 2001 -2006. However, few studies exist on the trends of the monetary and non-monetary poverty integrating the recent investigations on households in relation with the politico-institutional, security and food crisis the country was facing in 2012. Moreover, most of the studies conducted are focussed on the monetary approach. This approach is limited by its unidimensional nature, whereas poverty can be apprehended throughout the social, economic, sanitary dimensions etc. Indeed, according to UNDP, « poverty is not a unidimensional phenomenon a lack of incomes that can be solved in a sectoral way. It is a multidimensional issue which requires integrated solutions on a sectoral basis ». That is why this document will make an analysis of the trends, profiles and determinants of monetary and non-monetary poverty in Mali.

This work will allow the Malian and international decision makers to have clear ideas on the evolution of poverty, to know the poorest regions and the determinants of this poverty in order to take decisions in reducing poverty and inequality of the wealth distribution all over the Malian territory.

It will also allow to know if there is a correlation between monetary and non-monetary poverty.

The general objective of this research is to analyse poverty on all its dimensions (monetary and non-monetary) and the specific objectives are:

- To determine the poverty trends and profiles in Mali
- To identify the causes of poverty
- To measure monetary and non-monetary poverty
- To determine the correlation between monetary and non-monetary poverty

This document is divided into three parts:

In the first part we will do an overview on methods, the literature review and the measurement of poverty. Data and methodological approach will be addressed in the second part. Finally we present the evolution of the indicators of poverty and inequality, as well as the identification of monetary and non-monetary poverty profiles in the third part.

2. Methods and literature review

2.1 Methods

2.1.1 Measure of poverty

Three elements are required for measuring poverty: the indicator of well-being, the poverty line (line) and a (aggregated index) measure of poverty. This section thus intends to expose these different elements.

a. Indicator of well-being

Two indicators of well-being will be used in this document: a monetary well-being indicator and a non-monetary well-being respectively for monetary and non-monetary poverty indicator.

a.1 Indicator of monetary well-being

Monetary well-being indicators commonly used by analysts of poverty are the income and consumption. If the income used is strongly recommended in developed countries, such is not the case in developing countries and in particular the AFRISTAT Member States. In these countries, consumer spending is considered as a better indicator of well-being professional income. Indeed, in a collective book, Chapter 1 "Measurement and analysis of poverty", Aline Coudouel, Jesko S. Hentschel and Quentin T. Wodon, explain why the spending of consumption is overall a better indicator of monetary well-being than income in developing States? Consumption will be used in this document as an indicator of monetary well-being. The unit of analysis is the household. To take into account the structure and composition of households, statisticians have scale of equivalence. In fact, a household consisting of three people, two adults and a child, cannot have the same consumption a household made up of three adults. Using an equivalence scale allows to get a consumption per adult equivalent which takes into account the differences in composition and structure between households. It is therefore a weighting system attributing a coefficient to each Member of the household standard "1". We speak of the number of equivalent adult consumption units. The use of standard scales may not reflect the structure of households

a.2 Indicator of non-monetary well-being

Several approaches exist to measure non-monetary well-being; among other approaches based on the theory of fuzzy sets, on the entropy criterion, on the inertia criterion, poverty human index (PHI) proposed by UNDP. In this document, the inertia approach will be used to develop an indicator of non-monetary poverty called composite poverty index (CPI). This approach uses the techniques of factor analysis, as the analysis in principal component (APC), the analysis of multiple matches (AMM) etc. The advantage of this inertia approach is to

allow the reduction of arbitrariness in the structure of weights or the poverty thresholds for each item (Filmer and Pritchett 2001, Asselin 2002, Sahn and Stiefel 2001), which becomes endogenous to the analysis. According to Asselin (2002), this approach avoids the redundancy in the choice of the relevant dimensions of poverty. The formula of the Asselin CPI will be privileged to determine the indicator on the first factorial axis. We must then change all terms of the variables entering the analysis into binary indicators coded 0 or 1, giving total P terms. Considering that households are indices by i and CPI_i the value of CPI for the household i. The functional form of the CPI_i is given by the following formula:

$$CPI_i = \sum_{k=1}^k \sum_{jk=1}^{jk} W_{jk}^k I_{jk,i}^k \quad (1)$$

With k the number of variables, jk the number of terms for the variable k, W_{jk}^k the weight (factorial coordinates on the first axis) standard (score/ $\sqrt{\alpha_1}$ α_1 with the eigenvalue of axis 1. $I_{jk,i}^k$ Binary indicator 0/1, taking the value 1 when the household i was jk mode and 0 otherwise.

b. The poverty line

The method of calculating the poverty line varies according to the form of poverty. The methods that will be used to determine our thresholds of poverty will be presented here: monetary and non-monetary.

b.1 Monetary poverty line

- Threshold relative versus absolute threshold

The poverty line is defined as the line or the limit below which a household or an individual is considered poor. There are mainly two types of poverty, the absolute threshold and threshold. The absolute threshold can be defined as the minimum to reach. In absolute terms, an individual or a household is poor when they don't have the means to buy a basket of goods related to survival. In the determination of the absolute threshold, the difficulty lies in defining the minimum needs (food and non-food). Several approaches exist to determine the absolute poverty line; among others the method of food energy intake, the method of a \$ US dollar per head per day, the cost of basic needs method. This absolute poverty line is widely used in developing countries, particularly those in Africa. Regarding the country of AFRISTAT, in 2009, 17 out of 19 countries used the absolute threshold and 14 of them the costs of basic needs (AFRISTAT 2009) method. Unlike the absolute threshold, the threshold is determined from the distribution of income or consumption of the entire population in a given country. Quantiles (quintile, quartile, median, deciles etc.) can be used.

The threshold is more used in developed countries. European countries particularly Eurostat members generally use a threshold of 60% of the median for the indicator of monetary well-being (income or consumption). Other techniques include use as threshold the amount corresponding to a fraction of the indicator of household well-being. This document will use the absolute approach and precisely to the cost of basic needs method.

- Cost of basic needs Method:

The cost of basic needs method considers two types of thresholds: the threshold of food and non-food threshold. The global threshold is the resultant of the two thresholds. Estimated the food threshold the food component is estimated so that everyone can afford to buy a certain basket of food to survive. This minimum food basket that separates the non-poor to poor is estimated from the kilocalories. According to standards, this minimum vital kilocalories unemployment varies generally between 1800 and 3000 kilocalories per adult and per day. The recommended countries of AFRISTAT kilocalories level is 2450. This value that will be used in the present study. The daily food threshold (Z_{A_day}) is obtained from the equation below, on the basis of the normative calorie threshold (SNA, here = 2450) held:

$$Z_{A_day} = 0.1 \times SCNX \frac{\sum_{i=1}^n q_i \times Pav_i^B}{\sum_{i=1}^n q_i \times c_i} \quad (2)$$

With

q_i : the daily average amount consumed produces I;

c_i : Calories (for 100g or 100 ml) corresponding to the product i consumed.

Pav_i^B : Average price of product i in the reference area. The food threshold (ZA) annual is obtained by multiplying the daily food threshold by 365 days: $ZA = Z_{A_day} \times 365$.

Estimate of the non-food threshold

The non-food threshold depends on food and non-food spending. It is specifically determined from the non-food expenditure of households who have a food expenditure close to the food poverty line (interval of more or less 5% of the food threshold).

b.2 No monetary poverty threshold

Like the monetary poverty line, there are several ways to determine the non-monetary poverty line. In this paper, the method of hierarchical classification will be used. This part aims at determining a line separating the poor from the non-poor, it comes to partitioning the households in two homogeneous groups (poor and not poor). The non-monetary poverty line will be determined by the following formula:

$$Non\ monetary\ threshold = P^1 \times C^1 + P^2 \times C^2 \quad (3)$$

With

P^1 : Weight of the class of the poor

P^2 : Weight of the class of non-poor

C^1 : Maximum value of the poor class CPI

C^2 : Minimum value of the CPI to the class of non-poor

c. Measure of poverty

Once the threshold and the indicator of well-being defined, the next step is to determine a measure of poverty. A measure of poverty is an aggregated index which gives an idea of the situation of poverty at the level of a given area. It is also a function of the indicator of well-being and its value varies between 0 and 1. When the index is 0, the entire population is not poor and if it is equal to 1, the entire population is poor. To measure poverty several indices have been developed by researchers. In this study, care will be paid to the class of FGT α indices. These signs are the most used by the international community in poverty analysis today.

The FGT indices class was developed in 1984 by Foster, Greer and Thorbecke. The general formula is:

$$FGT_{\alpha} = \frac{1}{n} \times \sum_{i=1}^q \left(\frac{z-y_i}{z} \right)^{\alpha} \quad (4)$$

With

q: the number of poor in the population

n: size of population

z: Poverty line

α : the degree of aversion to poverty (is a whole number greater than or equal to 0)

y_i : the indicator of well-being

- Si $\alpha=0$, we have : $FGT_0 = H = \frac{q}{n}$ (5)

FGT_0 is the H-index still called the incidence of poverty which corresponds to the proportion of the poor in the total population. This index has a few limitations although it should be obtained by researchers because of its simplicity to be implemented. Among other limits, it does not consider individual variances. Also, the H-index does not respect "the axiom of monotony" essential for poverty indicators.

- If $\alpha = 1$, we have:

$$FGT_1 = \frac{1}{n} \times \sum_{i=1}^q \left(\frac{z-y_i}{z} \right) = \frac{q}{n} \times \frac{1}{q} \times \sum_{i=1}^q \left(\frac{z-y_i}{z} \right) = H \times I \quad (6)$$

$$\text{With } I = \frac{1}{q} \times \sum_{i=1}^q \left(\frac{z-y_i}{z} \right) \quad (7)$$

Index I measures the average spread of the poor to the poverty line. The FGT_1 index called depth of poverty or the poverty gap is the product of the H-index and the index I. It measures the gap between the indicator of well-being and poverty. This index checks the axiom of monotony, but not the axiom of transfer. In terms of policy, the depth of poverty gives resources to extract all the poor of their situation through cash transfers.

- If $\alpha = 2$, we have:

$$FGT_2 = \frac{1}{n} \times \sum_{i=1}^q \left(\frac{z-y_i}{z} \right)^2 \quad (8)$$

FGT_2 called severity of poverty measure, the gap to the square of the indicator of well-being and poverty. In addition, the squared poverty gap takes into account inequality among the poor.

1.1.2 Measure of inequalities

The analysis of poverty is generally accompanied by a measure of inequality among the population. There are several signs of inequality. Here, the Gini index will be used to understand the inequalities within households. Indeed, the Gini index is one of the most used inequality indices. It is twice the area between the Lorenz curve and the diagonal of the square. The general formula of Morrison for the calculation of the Gini coefficient is:

$$G = \frac{1}{2\mu n^2} \sum_i \sum_j |y_i - y_j| \quad (9)$$

Where μ is the indicator of average well-being of the general population, y_i and y_j values of the indicator of the well-being of the individuals i and j. If $G = 0$ then the Lorenz curve coincides with the square (equal) the diagonal. If $G = 1$ the Lorenz curve runs first along the axis of the p then p = 1 (maximum inequality) right. The Gini index varies with inequality, its value increases when inequality believes and vice versa.

2.2 Literature Review

A broad review of the literature exists on all aspects of measuring poverty especially on monetary and non-monetary poverty in several countries. This section intends to present some recent studies including in Mali.

In 2005, the Observatory of sustainable human development and the fight against poverty in Mali (ODHD/LCPM) conducted a study on the dynamics of the analysis of poverty from 1993 to 2003. The authors looked at the monetary aspect of poverty by introducing the notion of specific thresholds by region unlike the use of a national value applied to all regions. They calculated the relative contributions and FGT indices to

analyse the dynamics of poverty. It is clear from their study that the introduction of the thresholds regional train change at the level of the incidence of poverty in some regions. Moreover, they showed as the poverty has not declined significantly between 1994 and 2001 (68.84% in 1994 to 68.26% in 2001). In February 2006, the ODHD led another study in Mali entitled "Profile of poverty in Mali in 2001". Just like the previous one, this study is based on monetary poverty analysis. They used data from the Survey Budget Consumption (SBC, 1988) and the Malian Evaluation Survey of poverty (EMEP 2001). The results of this study showed two Malians out of three are poor and that poverty is a predominantly rural phenomenon. Moreover, it is more accentuated in regions with strong agricultural potential as Mopti and Sikasso and Koulikoro. The lack of food is the main manifestation of poverty according to the majority of Malians. Moreover, in 2008, in a paper to the Montesquieu University - Bordeaux IV, Yaya Koloma made a contribution to the analysis of poverty non micro multidimensional in Mali. By specifying the limits of the monetary approach to poverty by the fact that it remains hard to apprehend all the needs of each individual, he showed the need to use multidimensional approaches that take into account these limits. The author has used the Chakravarty and Al approach that breaks down the multidimensional indicators in subgroups and attributes to assess the phenomenon. He came to the same conclusions as the official statistics of monetary analysis of the country poverty but relates those concerning the issue of gender.

In 2009, prosper Backiny-Yetna et al. completed a study on the trends, patterns and determinants of poverty in Mali from 2001 to 2006. The authors used EMEP 2001 (Malian poverty assessment survey) and ELIM 2006 (slight integrated household survey). They identified the determinants of poverty by making a linear regression, and by taking the logarithm of spending per head deflated by the poverty line as explained variable. Their study found a decline in poverty between 2001 and 2006. This decrease is mainly due to the performances in the field of agriculture and the gold extraction in that period. However, the number of poor and the number of poor farmers tend to increase.

In 2009, Ibrahima BOCOM completed a study on the links between poverty and the cover of the food needs of households using data of the Malian assessment survey of poverty (EMEP 2001). The author used several methods to understand the links between the two phenomena. These include the Engels and logistic multinomial regression curves. According to the author, the increases in the average cost of consumed calories (in rural and urban) on the part of school expenses (in the city), the sharing of health expenses (in rural areas), the number of guests at mealtimes (in the city) increase the probability of being not monetarily poor consuming insufficient calories, compared to the probability of being poor not monetarily with enough calories.

In 2010, an interim report of PMMA research referred to as gender and poverty dynamics in living conditions in Mali (2001-2006), was presented to the PEP network by Kassim DABITAO and al. In this report, the authors are based on the established non-monetary approach with basic needs. A composite indicator of well-being was developed from an analysis of multiple matches (ACM). Three poverty thresholds have been used namely: an absolute threshold with the hierarchical classification and two thresholds developed from the proportions of the median of the initial distribution. As for the measures, they were made with the class of indices FTG. The stochastic casts tests were used to analyse the dynamics of poverty based on gender. Generalized GINI index was used to measure inequality. As a result, poverty has declined but inequality has increased at the national level.

Research in Theoretical and Applied Economics (RTAE) group has also led to Mali various studies on poverty issues. These studies are a point of theoretical literature on the analysis of poverty in General. In November 2012, Boubacar BOUGOUDO and Massa COULIBALY published a study on the profile of poverty in Mali in 2010 from the data of the survey integrated light household (ELIM, 2010). They believe the incidence of poverty to 46% in 2010 and the funding gap for the eradication of poverty to CFAF 446 billion in the case of targeting perfect.

In March 2011, Kassim DABITAO and al. conducted a study on the dynamics of poverty and living conditions of households from 2001 to 2006. The authors used the non-monetary approach to poverty for the implementation of index Composite of Well-Being (ICB) from the multiple correspondence analysis. They found that poverty in terms of living conditions of households decreased between 2001 and 2006 in Mali. However, it remains a predominantly rural phenomenon accompanied by regional inequalities and inter classes.

In addition, they found a positive relationship between monetary and non-monetary poverty. Regarding the African continent, it is difficult to mention all of the studies that have been conducted on the approaches to poverty. The following two studies were selected for the continent because they have the same methodology as ours on multidimensional poverty.

In the Congo, in 2006, Samuel AMBAPOUR worked on multidimensional poverty using a non-monetary approach from the ECOM (Congolese investigation on households) survey conducted in 2005. The author used the multiple correspondence analysis to build a composite index of multidimensional poverty. He arrived at the result in the Congo there are three types of non-monetary namely poverty: poverty from the infrastructure point of view, poverty reflecting the vulnerability of human existence and poverty from the comfort point of view of

the surveys.

In Morocco Ezzrari Abdeljaouad has also worked on non-monetary poverty. Specifically, he has developed a composite index of living standards in Morocco. He first identified the key variables that make up the composite index in the standard of living. Then, he is interested in the link between this indexes with the indicators of human development. Finally, it analyses new trends in the conditions of life and their distribution.

Statistics and economics of South Africa the Sahara AFRISTAT Observatory also developed several methodological documents analysis of poverty to its Member States including Mali. The various documents of AFRISTAT offer methodologies harmonized for its 21 Member States in order to facilitate comparisons between them.

3. Data, Methodology and Results

3.1 Data: The data used for this study are

- Malian assessment of poverty (EMEP 2001),
- the integrated light investigation from households (ELIM, 2006),
- the modular investigations and permanent investigation from households (2011, 2013).

The 2001 EMEP was conducted by the National Directorate of statistics and Information Technology (current INSTAT) with technical assistance from the World Bank. It is part of the development of indicators for the year 2001, year of the PRSP. EMEP used a stratified two-stage survey: the Section of Enumeration first-degree and second-degree household. A sample of 7500 household size was selected. The 2006 ELIM was also carried out by the National Directorate of statistics and information technology in 2006. This is an investigation of QUIBB type (the core welfare indicators Questionnaire) with three other modules specific to the Credit-savings of the household members, democracy and governance (people aged 18 years and more) and income/expenses households. The ELIM 2006 used a survey two-tier plan whose primary unit was the section of enumeration (SE) as defined in the 1998 census and the secondary unit, the household. It focused on a sample of 750 primary units and 4,500 households at a rate of 6 households by from primary unit.

The EMOP is a permanent collection device implemented by INSTAT with the technical and financial support of the Sweden to meet the needs of monitoring and evaluation of the strategic framework for growth and Poverty Reduction has INSI as some sectoral programmes implemented by the country. The survey addresses several themes among other socio-demographic characteristics of the population, education, health, employment, housing, food security and household consumption expenditures.

Just as the 2006 ELIM, the same survey method was applied to the EMOP namely method stratified two degrees including the primary unit is the SE and the secondary unit, the household. The EMOP 2011 uses a sample of 7176 household size and the 2013 5215 size.

These different surveys are compatible and are reference for the country in poverty analysis. Their results are representative at the national, regional, district of Bamako, and according to the area of residence (urban and rural). However, following the security crisis in the country, the three regions of the north (Timbuktu, GAO and Kidal) were unable to be integrated in the EMOP 2013. So, at the national level, the results of 2013 are not strictly comparable to those of 2001, 2006, and 2011.

In addition, analyses based on 2001 data, from 2006 to 2011, we show that the trend of poverty indicators does not significantly change following integration or no areas of the North. This last observation allows to assume that for the year 2013, the results on poverty will reflect the national trend.

3.2 Methodology

This section intends to present the methodologies adopted for the various analyses

3.2.1 Monetary threshold

For temporal comparison problems, the year 2011 was maintained as the reference year for the calculation of the poverty line. The thresholds of other years were deducted by applying the rate of inflation. The products contained in the table below were used. It is the most used products in Mali giving heat consumption of 2450 kilocalories per day. These products represent up to 80% of the food consumption for household spending in Mali.

Table 1: Products entering the calculation of the monetary threshold

Food Products	Quantity (100 g)	Kilo calory (Ci)
Groundnut	0.051	19
Bean	0.092	35
Groundnut oil	0.084	31
Powdered milk	0.022	8
Local fresh milk	0.093	35
Raw corn grain	0.476	178
Corn	1.743	635
Fresh onion	0.459	172
Bread	0.162	60
Fish	0.101	37
Smoked, Salted and stock fish	0.113	41
Rice	1.655	601
Sorghum	0.678	250
Sugar	0.520	190
Tea	0.039	14
Tubercle	0.198	75
Beef Meat	0.127	47
Sheep Meat	0.057	21
Total		2450

Source: calculations by the authors from the EMOP 2011

The calculation with the cost of basic needs method resulted in 2011 a food threshold of 280 FCFA per head and day for an annual amount of 102 200 FCFA. For the estimation of the threshold no food, we used the average food expenditure of households with a food consumption within the interval more or less 5% of the food threshold. These estimates result in a non-food threshold of 73 313 FCFA. The global threshold, the result of the threshold of food and non-food, is equal to 175 513 CFA FRANCS. This threshold is almost ' equal to the threshold used by INSTAT in the EMOP 2011 which comes from a study of the World Bank in 2001 and updated based on the inflation rate. Table 2 below gives the thresholds of different years calculated in this study and the thresholds used by INSTAT in the EMOP.

Table 2: Refreshed poverty lines

Name of the survey and year	Refreshed threshold (FCFA)	Used threshold
EMEP 2001	147 000 FCFA	144 000 FCFA
ELIM 2006	152 000 FCFA	149 000 FCFA
EMOP 2011	176 000 FCFA	172 000 FCFA
EMOP 2013	177 967 FCFA	173 922 FCFA

Source: calculation of the authors

3.2.2 Composite index of poverty (CIP)

In the interest of time comparison of data, all databases from 2001 to 2013 have been harmonized. This approach, which is essential for dynamic analyses in time may, however introduce certain limits; including failure to take into account some important variables where they do not exist for a given year.

The table below contains the preliminary list of variables for CIP.

Table 3: Preliminary list of CIP variables.

Variables	variables
1. Energy	5. Elements of comfort, equipment and other assets
Lighting mode	Cart
2. Education	Air-conditioner
Literacy	Parable
3. Water and Sanitation	Computer
Mode of water supply	Fan
Type of comfort	Car
	Bike
3. Habitat	Motorbike
Nature of the walls	Fridge
Roof materials	6. Communication
4. Type of Soil	Phone
Occupancy status of the dwelling	Television
Kitchen Source	Radio

4. Result

4.1 Evolution of well-being from 2001 to 2016

4.1.1 Household consumption expenditure

a. Expenditure per head and per quintile

By head of households and quintile consumer spending information data are given in the table below.

The average spending per head of household was estimated at 179 309 CFAF in 2001 against 208 720 CFAF in 2006, 312 428 CFAF in 2011 and 266 364 CFAF in 2013. There was an increase in the average per capita expenditure and quintile from 2001 to 2011. For the first quintiles this increase was 31% between 2001 and 2006 and 51% between 2006 and 2011. For the richest 20%, the growth was 16% during the period 2001-2006 and 51% for the period 2006-2011. In contrast, all the five quintile suffered from a decline in their average consumption per head expenditure in 2013 compared to 2011. Moreover, there is a very large difference between the average expenditures per head of the poorest households and those of the wealthiest households.

Table 4: Annual expenditure per head in the CFA Franc and per quintile from 2001 to 2013.

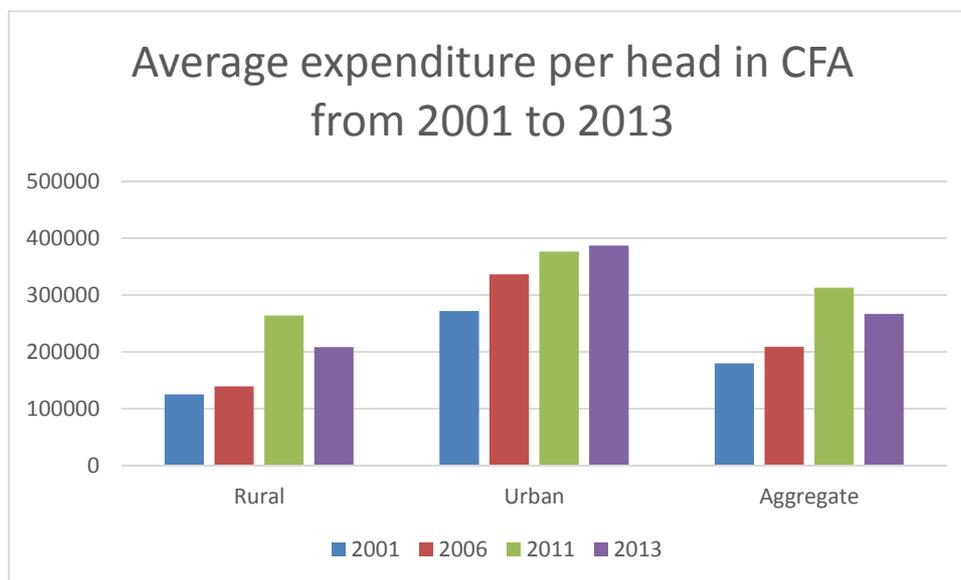
Quintile in spending per head	Minimum	Average	Median	Maximum	Standard deviation	
2001	Quintile1	10 028	47 981	50 336	68 171	13 600
	Quintile2	68 183	86 281	85 769	105 299	10 455
	Quintile3	105 315	129 714	128 642	158 186	15 259
	Quintile4	158 212	197 218	195 207	249 359	26 042
	Quintile5	249 468	435 365	347 042	2 459 124	261 723
	Aggregate	10 028	179 309	128 642	2 459 124	181 030
2006	Quintile1	12 709	62 738	65 253	86 462	16 291
	Quintile2	86 483	105 485	105 283	124 916	11 194
	Quintile3	124 949	148 992	147 788	176 731	15 170
	Quintile4	177 022	222 242	217 600	287 609	30 803
	Quintile5	287 853	503 982	412 658	4 186 692	280 592
	Aggregate	12 709	208 720	147 841	4 186 692	201 582
2011	Quintile1	35 666	94 492	97 311	124 851	20 058
	Quintile2	124 957	153 070	153 249	182 313	16 059
	Quintile3	182 323	219 718	218 591	260 914	22 488
	Quintile4	260 925	323 831	319 267	409 988	42 668
	Quintile5	410 506	771 135	586 767	9 084 331	619 725
	Aggregate	35 666	312 428	218 591	9 084 331	368 433
2013	Quintile1	20 835	88 566	90 678	113 324	16 889
	Quintile2	113 353	133 675	132 869	155 999	12 334
	Quintile3	156 001	186 986	187 025	221 526	18 911
	Quintile4	221 542	269 886	267 554	335 973	31 850
	Quintile5	336 522	652 493	486 250	11 785 494	614 553
	Aggregate	20 835	266 364	187 009	11 785 494	341 887

Source: EMEP 2001, ELIM 2006, EMOP 2011, 2013 and 2016, Calculation of authors.

b. Average expenditure by region and living environment:

The graph shows that the average spending per head of household is greater in urban areas than in rural areas over the period of analysis. An increase in spending per head is also observed in all areas during the periods 2001/2006 and 2006/2011 (Table 3). On the other hand, between 2011 and 2013, they have declined in all regions and areas of residence except in urban areas where a slight increase was found.

Graph 1: Average expenditure per head in CFA from 2001 to 2013



Source: EMEP 2001, ELIM 2006, EMOP 2011, 2013 and 2016, Calculation of authors.

Table 5: Average expenditure per head (in thousands of CFA FRANCS) from 2001 to 2013 according to the area of residence and the region

Areas	2001			2006			2011			2013		
	Rural	Urban	Average									
Kayes	0.1498	0.263	0.1834	0.1726	0.3118	0.212	0.3322	0.285	0.3163	0.2654	0.2992	0.2704
Koulikoro	0.1037	0.2263	0.132	0.143	0.3098	0.1793	0.2331	0.315	0.2576	0.2281	0.3748	0.24
Sikasso	0.0954	0.2616	0.1429	0.105	0.2963	0.162	0.2262	0.2005	0.2148	0.1867	0.3259	0.216
Segou	0.1421	0.2254	0.1679	0.1205	0.2478	0.1581	0.2278	0.2411	0.2318	0.2095	0.2799	0.2215
Mopti	0.1128	0.232	0.1518	0.1301	0.3341	0.1981	0.2351	0.2863	0.2518	0.1424	0.284	0.1888
Timbuctu	0.1752	0.2464	0.1945	0.1691	0.2874	0.2012	0.2332	0.4201	0.3041	0	0	0
Gao	0.1171	0.3068	0.2231	0.1487	0.2945	0.2312	0.2987	0.2659	0.2835	0	0	0
kidal	0	0.2394	0.2394	0.2459	0.3844	0.3036	0.496	0.7315	0.6159	0	0	0
Bamoko	0	0.3444	0.3444	0	0.4537	0.4537	0	0.5243	0.5243	0	0.4536	0.4536
Average	0.1249	0.2716	0.1793	0.1393	0.3362	0.2087	0.2366	0.3761	0.3124	0.2079	0.3869	0.2664

Source: EMEP 2001, ELIM 2006, EMOP 2011, 2013 and 2016, Calculation of authors.

4.1.2 Household living condition

a. Basic indicators of non-monetary well-being:

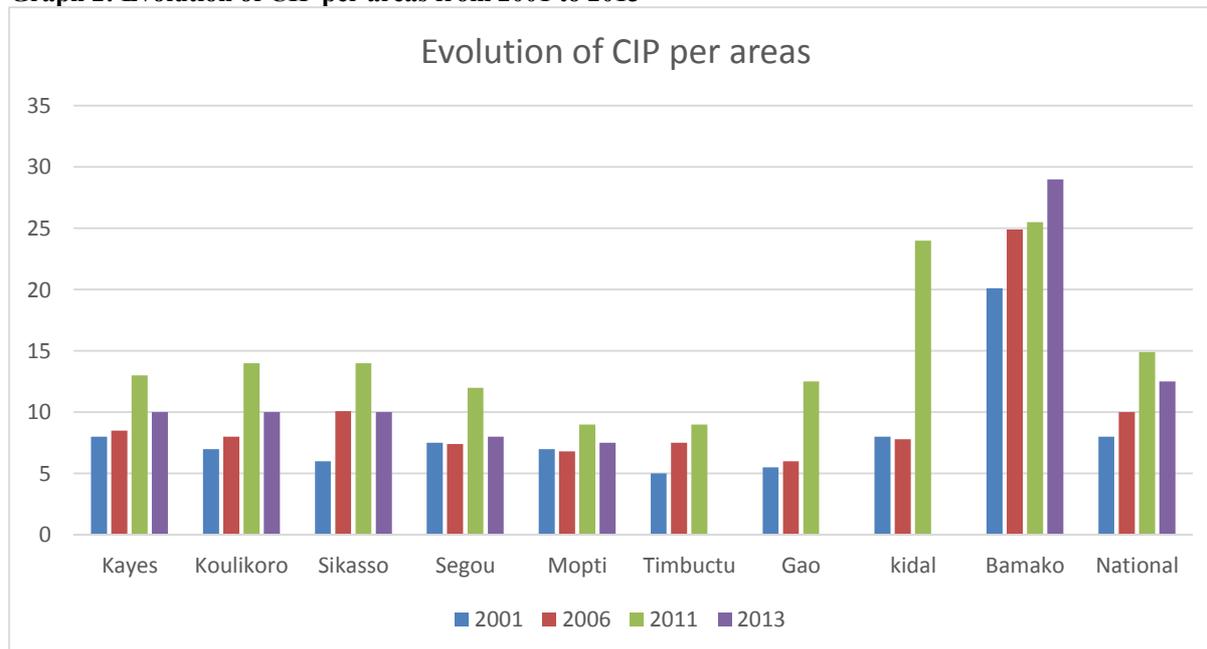
The indicators show that the living conditions of households improved between 2001 and 2011 (table). This increase is more important between 2006 and 2011 than between 2001 and 2006. The percentage of households whose floor is in local material went from 78% in 2001 to 50% in 2011 and the quality of the materials used in the construction of the walls has been also improved over the years. The percentage of households using electricity from the company Energie du Mali as lighting mode is increased from 9% in 2001 to 20% in 2006 to reach 33% in 2011 and a clear improvement were also found at the level of indicators of access to potable water. Furthermore, from 2001 to 2011, the proportion of households with characteristic property of poor households (cart, bicycle...) declined. It increased for the characteristic property of rich households. However, between 2011 and 2013, according to several indicators of non-monetary well-being, living conditions of households were degraded.

b. Evolution of CPI:

The living conditions of households improved from 2001 to 2011 at the national level, in all the regions and

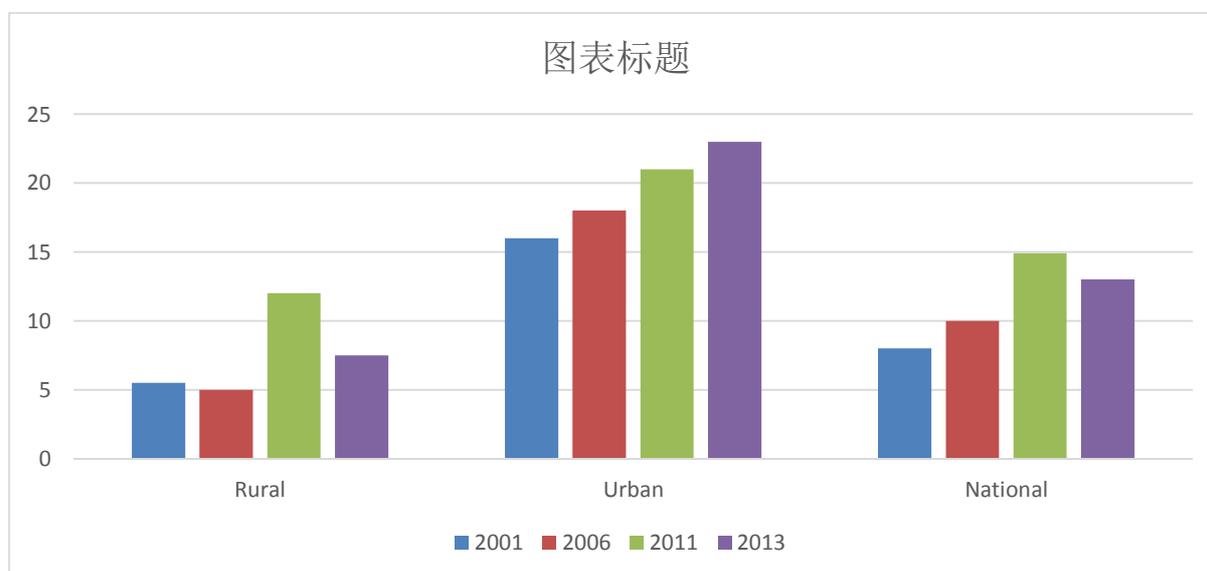
communities of residence (figures 6 and 7). On the other hand, they deteriorated for the period 2011-2013, with the exception of the urban and the District of Bamako due to the security crisis.

Graph 2: Evolution of CIP per areas from 2001 to 2013



Source: EMEP 2001, ELIM 2006, EMOP 2011, 2013 and 2016, Calculation of authors.

Graph 3: Evolution of CIP per zone



Source: EMEP 2001, ELIM 2006, EMOP 2011, 2013 and 2016, Calculation of authors.

4.2 Evolution of poverty from 2001 to 2013

4.2.1 Monetary poverty

Poverty declined between 2001 and 2011 at the national level, and this decline is more important between 2006 and 2011. But it has increased between 2011 and 2013 because of the security and political crisis (the incidence of poverty is increased from 35% in 2011 to 47% in 2013). Indeed, (P0) is increased from 58.8% in 2001 to 56.1% in 2006 to reach 35% in 2011; with a 2.7 point drop during the period 2001-2006 and 21.1 points during the period 2006-2011. The depth or the poverty gap (P1) and poverty severity (P2) have also decreased between 2001 and 2011.

In all the regions of Mali except Sikasso, Segou and Timbuktu monetary poverty has declined during the periods 2001/2006 and 2006/2011 during the first period and Bamako during the period 2006/2011. Indeed,

during the period 2001-2006, the poverty rate went from 72% to 74% in Sikasso, from 54.3% to 70.6% in Segou. In these last two regions, the depth and severity of poverty also rose. For the Bamako district, between 2006 and 2011, the increase in the incidence of poverty was only 1.3 point but the severity and the depth of poverty have declined.

The poverty index in Bamako (capital of Mali) are lower compared to the other regions from 2001 to 2011. In 2001.

Moreover, the analysis by community of residence (Rural and urban) reveals us that poverty is higher in the rural area than the urban area. Indeed, the incidence of poverty went from 72.4% to 73.8% at the rural level and 25.7% to 26.5% at the urban level during the period 2001/2006. Between 2006 and 2011, rural had a very large drop in poverty (33.7 points) compared to urban areas (7 points). The poverty index was 40% in rural area against 20% in urban area in 2011.

Table 6: Monetary FGT index by region and from mid-2001 to 2013

	2001			2006			2011			2013		
	P0	P1	P2	P0	P1	P2	P0	P1	P2	P0	P1	P2
Kayes	56.6	21.2	10.4	49	14.9	6.3	26.8	7.5	3	43.2	13.9	5.9
Koulikoro	74.9	37.7	22.6	60.6	25	13.4	38.2	10.6	4.1	49.3	14.9	6.9
Sikasso	72.8	34.4	19.5	74	32.7	17.8	43	15.1	6.9	60.1	21.1	9.5
Segou	54.3	18.8	8.5	70.6	27.2	13.4	42	12.4	4.9	60.9	18.4	7.4
Mopti	71.7	31.5	17.1	64.5	24.2	11.5	50.5	20.6	10.5	66.9	23.6	10
Timbuctu	45.6	16	7.3	58.4	20.4	9.5	37.9	8.4	2.5			
Gao	46.5	16.8	7.5	49.6	12.4	4.3	32.5	8.4	3.1			
kidal	40.2	12.3	6.6	10.4	1.4	0.3	4.1	0.9	0.3			
Bamako	21.2	4.8	1.6	7.4	2,1	0.9	8.8	1.8	0.6	7.1	1.4	0.4
	2001			2006			2011			2013		
	P0	P1	P2	P0	P1	P2	P0	P1	P2	P0	P1	P2
Rural	72.4	32	17.4	73.8	29.4	14.9	40.1	12.9	5.6	61.1	20.4	8.9
Urban	25.7	6.8	2.8	26.5	7.8	3.2	19.6	5.2	2.1	20.2	5.3	2
Aggregate	58.8	24.7	13.1	56.1	21.3	10.6	35	11	4.7	47.7	15.5	6.6

Source: EMEP 2001, ELIM 2006, EMOP 2011, 2013 and 2016, Calculation of authors.

4.2.2 Non-monetary poverty

Non-monetary poverty affects more than income poverty. There are households who have the financial means to buy a minimum basket of goods but live in very difficult living conditions. These are households that have limited access to education, to information, to electricity, telephone, water, with houses in banco and generally owners. At the national level, non-monetary poverty has declined over the decade 2001-2011. This decrease was more significant between 2006 and 2011 than between 2001 and 2006. Indeed, the impact has fallen 7.7 points between 2001 and 2006 (past from 90% to 82%) and 20 points between 2006 and 2011 (past from 78% to 58%). As the incidence, depth and severity also fell during both periods. On the other hand, the period 2011-2013 was marked by an increase of poverty in living condition. At the regional level, the non-monetary poverty rate is diminished in all regions during the periods 2001/2006 and 2006/2011 except for GAO and Kidal where the rate increased by 4.1 and 0.5 points respectively between 2001 and 2006. For the period 2011/2013, poverty in living conditions of households was increased in all the surveyed regions with the exception of Bamako. Although a reduction was observed in Bamako, it should be noted that this reduction is less than those of previous years.

In terms of living environment, non-monetary poverty affects more rural than urban. From 2001 to 2011, the poverty rate declined as well in rural area than in the urban area even if the decline is very significant between 2006 -2011. In 2001, more than 9 rural households out of 10 (98.6%) lived in difficult living conditions against about 6 urban households out of 10 (69.5%). These statistics are revealed to 98.3% in rural area and 54.3% in the urban area in 2006. For 2011, the incidence of non-monetary poverty was 73.8% in rural areas from 40.4% in urban areas. With regard to the period 2011-2013, the urban area followed the same downward trend. The incidence of poverty went from 40% in 2011 to 37 percent in 2013. On the other hand, household living conditions deteriorated in rural areas On the other hand, the living conditions of households deteriorated in rural areas since the incidence of poverty fell grew from 74% to 94%; representing an increase of 20 percentage points.

Table 7: Non-Monetary FGT index by region and from mid-2001 to 2013.

	2001			2006			2011			2013		
	P0	P1	P2									
Kayes	92.2	53.3	34.1	87.6	57.6	40.9	66.1	35.5	23.2	86.4	49.1	31.8
Koulikoro	94.5	61.3	43.2	86.5	58.6	43.5	67	35.4	23.3	85.3	53.2	37
Sikasso	94.7	66.1	51	82.2	52	35.7	65.8	32.5	20	85.2	51.7	35.2
Segou	94.2	60.4	41.6	90.3	64.2	49.1	77.2	46.1	31.6	90.4	59.2	42.6
Mopti	94.9	65.7	49.4	93.1	65.7	49.4	86.5	54.3	39.1	94.9	62.4	45.1
Timbuctu	98.4	73	56.5	92.4	62.8	46.5	85.5	55.6	39.8			
Gao	90.4	67.2	53.1	94.5	62.8	45.1	70.8	41.9	28.9			
kidal	91.8	62.2	45.3	92.3	65	49.9	23.9	11.4	7.5			
Bamoko	56.8	16.9	7	31.2	8	3	22.9	5.5	1.9	6.3	3	0.8
	2001			2006			2011			2013		
	P0	P1	P2									
Rural	98.6	69.9	52.5	98.3	72	54.8	73.8	42.3	28.8	94.2	61	43
Urban	69.5	28.8	15.7	54.3	23.9	13.6	40.4	17.8	10.7	36.9	14.7	8.3
Aggregate	90.1	58	41.8	81.8	54	39.4	65.6	36.3	24.3	75.5	45.9	31.7

Source: EMEP 2001, ELIM 2006, EMOP 2011, 2013 and 2016, Calculation of authors.

4.3 Profile of poverty from 2001 to 2013

4.3.1 Monetary poverty profile

a. Gender and monetary poverty

At the national level, households headed by men were more affected by monetary poverty than those headed by women from 2001 to 2013. The incidence of poverty increased from 60.5% for households in which the head is man in 2001 to 57.7% in 2006 to reach 36.1% in 2011. With regard to women-headed households, the poverty rate went from 42.9% in 2001 to 38.3% in 2006 to reach 24.1% in 2011. The same is done for other FGT indexes; to know the depth and the severity. This result shows that the concept of "feminization of poverty" is not checked in Mali over the period considered. Explanatory elements can come from the status of women heads of household. Indeed, in Mali, women heads of household are generally widows, without education, half of them are more than 50 years and runs households with less than 7 people. They thus benefit from either pensions or are supported by their children. However households headed by women remains minorities in Mali and represent 9.1% of the total households in 2011.

b. Age and monetary poverty

Poverty has a growing link with the age of the head of household. Households whose head is young (maximum 24 years old) succeed the most to get out of poverty: the impact at their level goes from 55.0% in 2001 to 15.7% in 2011. But those represent less than 2 percent of households in Mali. For households headed by older Heads (50 and over) that represent more than half of the Malian households, the situation does not improve compared to the younger.

c. Households size and monetary poverty

According to a global vision, poverty affects more households in larger than medium or small size. Households composed of one to three members almost all got out of poverty in 2011: the impact at their level went from 34.7% in 2001 to 4% in 2011. However these households remain few in Mali: 10.5% of total households. In addition, when the household is composed of more than 3 people, the impact of poverty becomes problematic. Indeed, the most numerous households category and the most affected by poverty is the one with more than eleven members: the poverty at their level went from 79.4% in 2001 to 49.7% in 2011.

d. Level of education and monetary poverty

The poverty has a negative relationship with the level of education of the Head of Household. According to the percentages shown in the table below, the level of education of the head of household is high, less his household throughout the reporting period. In addition, the difference in poverty rates is very important between households in which the head of household has a higher level compared to those whose head of household has a low level of education throughout the period. As illustration in 2001, the poverty rate was 66.5 % for households headed by the head of household without a level of education against 4.4% for households in which the level of education of the head of household is higher. Any time the latter's represent only 5.3% households in 2011 and contribute to only 0.7% of the national poverty rate.

e. Marital status and monetary poverty

In Mali, monetary poverty strikes more households reported "married" than the other marital status. However, it should be noted that in Mali 89.3% of households are married in 2011 which makes little discriminating marital status in terms of poverty analysis. So the married household poverty rate follows the national trend from 61.2 percent in 2001 to 36.5% in 2011.

Table 8: Characteristics of households and household heads and poverty indices

	2001			2006			2011			2013		
	P0	P1	P2	P0	P1	P2	P0	P1	P2	P0	P1	P2
1- Gender												
Male	60.5	25.5	13.6	57.7	22.1	11	36.1	11.4	4.9	49.8	16.3	7
Female	42.9	16.6	8.8	38.3	12.7	5.7	24.1	7	2.7	22.1	5.3	1.8
2- Age												
15 - 24	55	17.9	7.2	49.9	15.2	5.6	15.7	4.4	1.7	27.1	8.9	4
25 - 39	48.1	18.7	9.5	45.2	15.9	7.4	23.9	6.9	2.7	33.7	9.7	3.7
40 - 49	57.2	22.3	11.4	55.8	20.6	10.1	35.8	11.1	4.8	48.3	15.5	6.5
50 - 59	58.4	26.9	15	62.9	24.8	12.5	37.9	11.5	4.8	52.8	17.3	7.4
60 and more	71	31.2	17	63.3	25.7	13.4	42.6	14.3	6.4	56.8	19.6	8.7
3- Household size												
1-3 persons	34.7	11.1	4.7	24.2	6.8	2.6	4	0.9	0.3	6.3	1.1	0.3
4-7 persons	48.9	19	9.5	48.9	16.1	7.1	23.8	6.1	2.3	33.6	8.1	2.8
8-10 persons	61	23	11.5	63.8	24.3	12.1	37.3	10.7	4.2	53.4	16.1	6.2
11 persons	79.4	38.8	22.5	76.9	34.9	19.1	49.7	17.3	7.9	69.2	25.9	12
4-Level of study												
None	66.5	28.3	15.2	63.9	24.7	12.4	41.7	13.4	5.8	55.6	18.4	7.9
Primary	36.3	13	6.4	41.6	14.4	6.6	17.1	3.8	1.3	38.1	11.3	4.5
High school	9.2	2.6	1.1	11.8	2.8	0.9	4.8	1	0.3	6.9	1.5	0.4
University	4.4	1.4	0.6	7.9	3.2	1.4	4.4	0.6	0.1	4.7	0.7	0.1
5-Marital status												
Married	61.2	25.8	13.8	58	22.2	11	36.5	11.5	5	50.2	16.5	7.1
Single	42.4	14.6	7.1	26.7	8.8	3.6	9.3	2.3	0.7	18.2	5	1.8
Widower	36.1	13.3	6.2	43.1	11.9	5.3	15.4	4.9	2	27.1	8.7	3.6
Divorced	45.8	19.2	10.6	43.9	16.1	7.6	29	9	3.6	31.6	7.8	2.7

Source: EMEP 2001, ELIM 2006, EMOP 2011, 2013 and 2016, Calculation of authors.

4.3.2 Non-monetary poverty profile

a. Gender and non-monetary poverty

In 2001, in contrast to the results on income poverty, the non-monetary household poverty rate is almost the same for households headed by men (90.1%) than those headed by women (90.4%). From 2006, the features are identical to those of monetary poverty that poverty affects more the households headed by men than those headed by women.

b. Age and non-monetary poverty

Unlike income poverty, the non-monetary poverty rate does not grow according to the age group during the study period. In 2001, the poorest household groups were 'Youth' (more than 24 years) with a rate of 97.3%. From 2006, the category of household which has the highest poverty rate is among people aged 60 and more (87.7% in 2006).

c. Non-monetary poverty and household size

Statistics allow to establish a significant correlation between the size of households and non-monetary poverty, except in 2011 where the highest size of the household the more non-monetary poverty increases. This last result recalls on income poverty.

d. Level of education and non-monetary poverty

As poverty monetary poverty, non-monetary poverty is negatively correlated with the level of education of the household head. Moreover, the disparity between households in which the head of household is without literacy and those whose head of household has a higher level is very great throughout the period considered.

e. Marital status and non-monetary poverty

If monetary poverty affects more households headed by a married household head when dealing with non-monetary poverty, significant trends cannot be established throughout the period. For example, in 2001, the households headed by a widower were poorest (92.7%) whilst in 2006 non-monetary poverty hit more households whose head is divorced (100%).

Table 9: Characteristics of households and household heads and poverty indices

	2001			2006			2011			2013		
	P0	P1	P2									
1- Gender												
Male	90.1	57.9	41.7	82.8	55.1	40.3	66.3	37.1	25.1	76.3	46.8	32.6
Female	90.4	58.7	42.4	71.7	42.2	29.3	57.9	27.7	16.9	65.9	33.8	20.9
2- Age												
15 - 24	97.3	75.9	63.5	84	56	39.4	57.9	28.1	18.5	84.4	46.6	29.2
25 - 39	86.8	54	39.4	78.2	49.7	35.6	58.6	29.7	19.4	67	38.5	25.9
40 - 49	87	53.6	37.4	79.5	51.5	37.2	60.6	33.5	22.6	72.5	42.9	29.2
50 - 59	91.3	60.3	44	83.4	56.9	42	69	38.6	25.8	78.2	48.2	33.3
60 and more	94.1	61.7	43.7	87.7	59.6	44.1	73.5	42.9	29.2	82.9	52.9	37.7
3- Household size												
1-3 persons	93.3	65.4	52.4	75.5	46.3	32.6	53.4	26.6	17.1	69	35.7	23.2
4-7 persons	90.6	58.5	42.8	81.7	53.2	38.5	62.7	32.5	21.2	74.2	44.9	31
8-10 persons	88.5	55.3	38.4	80.7	53.4	39.1	66.7	37.4	25.5	76.3	47.7	33.4
11 persons	89.5	56.7	39.2	86.4	60	44.6	66.9	40.9	27.8	78.2	48.7	33.9
4-Level of study												
None	96.8	65.8	48.3	90.4	62.3	46.5	75.8	43.6	29.7	85.1	54.1	38.3
Primary	76.5	34.9	20.2	67.2	35.4	21.9	42.6	15.3	7.6	64.8	32.8	19.9
High school	43.6	11.7	4.4	35.4	13.7	6.7	19.2	5.7	2.3	31.3	10.8	5
University	16.2	4.1	1.7	18.5	7.4	3.6	10.4	2.9	1.2	7.7	1.4	0.3
5-Marital status												
Married	89.9	57.7	41.5	82.4	55.1	40.3	66.4	37.1	25.1	76.5	47.1	32.7
Single	92.7	52.4	35.1	70.3	41.3	27.6	39.7	18.3	11.3	59	25.5	14.8
Widower	79.2	47	33.3	100	55.2	39.3	64.2	33.1	21.8	63.7	38.5	26.5
divorced	92.7	64	48.3	77.6	45.1	31.4	65.1	32.5	20.2	72.2	40.8	27.2

Source: EMEP 2001, ELIM 2006, EMOP 2011, 2013 and 2016, Calculation of authors.

5. Conclusion

The main purpose of this paper was to study the trends and profiles of monetary and non-monetary poverty in Mali from the data of the household surveys conducted by the National Institute of Statistics of Mali. To do this, monetary poverty was determined from consumption spending per head of households and non-monetary poverty from the CIP. Regarding trends, poverty decreased at the national level on the monetary and non-monetary plan from 2001 to 2011. This decline was more significant between 2006 and 2011 despite the increase in monetary inequalities and lower inequalities in living conditions. The rural area remains most affected by the two forms of poverty than urban area. Indeed, monetary poverty rate went from 58.8% in 2001 to 56.1% in 2006 to reach 35% in 2011. With respect to non-monetary poverty, the rate was 90.1% in 2001 compared with 81.8% in 2006 to reach 65.6 % in 2011. Moreover, an increase in monetary and non-monetary poverty was observed between 2011 and 2013 depending on the area of residence (urban and rural) of the Kayes, Koulikoro, Sikasso, Segou and Mopti regions, and at the national level. This situation would be due to the political, security, institutional and food crisis that the country has been facing since 2012. Regarding monetary poverty profile, it remains the same throughout the reporting period considered. Poverty is positively correlated with the age of the head of household and the size of the household, and negatively correlated with the level of education. It affects more households headed by a man than those headed by women. As for the profile of non-monetary poverty, it evolves according to the years depending to the following characteristics: the sex of the head of household, the age of head of household, the level of education of the head of household, the marital status of the head of household and the size of the household. The improvement of the status of monetary and non-monetary poverty in the country between 2001 and 2011 could certify the effectiveness of policies lead in the fight against poverty in Mali, the improvement of macroeconomic conditions in Mali and in the WAEMU countries and the low impact of the international crisis for the 2000 decade on the Malian economy. An analysis for the determinants of the forms of poverty as well as an impact assessment of policies to fight against poverty turns out to be necessary to respond to these questions.

Acronym and abbreviation

AFRISTAT: Observatory economic and statistic in sub-Saharan Africa
AMC: Analysis method from Multiple Correspondences
CIP: Composite Indicator of Poverty
ELIM: Integrated light investigation from households
EMEP: Malian assessment of poverty
EMOP: Modular investigations and permanent investigation from households
FGT: Foster, Greer and Thorbecke
INSTAT: National Institute of statistics of Mali
MOD: Millennium Objectives for Development
NSFP: National Strategy to Fight against Poverty

SFERSD: Strategic Framework for the Economic Recovery and Sustainable Development
SFFP: Strategic Framework of the Fight against Poverty
SFGP: Strategic Framework for the Growth and Poverty Reduction
SHDO: Sustainable Human Development Observatory
UNDP: United Nations Development Programme
WAEMU: West African Economic and Monetary Union

Reference and bibliography

- Abdeljaour E. (2011), « poverty in Morocco: Approaches determinants, dynamics and reduction strategies», doctoral thesis, University Hassan II AIN Chock, Casablanca.
- AFRISTAT (2009), « Methodology for development of the line of poverty on a harmonized basis: balance in member states in AFRISTAT», N°7.
- Ambapour S. (2006), «Multidimensional poverty in Congo: approach non-monetary».
- Asselin, L.M. (2002), « Multidimensional poverty », Mathematical Institute Gauss, Quebec, Canada. Page 89-96.
- Asselin, L.M. (2002), « Composite indicator of multidimensional poverty », Centre Shot and International Cooperation, June 2002, Canada.
- Atkinson, A.B. (2003) « Multidimensional deprivation Contracting Social Welfare and Counting Approaches», Journal of Economic Studies, XLIX, 183-201.
- Backiny- Yetna P. and Q. Wodon (2009) « Monetary poverty and subjective poverty in Gabon 2005», Africa Perspectives.
- Barrett, G.F. and Donald, S.G (2003) « A comparison of consistent non parametric test for stochastic dominance», Econometric, 71,104.
- Batana, Y-M (2007), «Stochastic dominance and multidimensional poverty in countries in WAEMU», Mai 2007, CIPREE, University Laval, Canada.
- Boccanfuso D. KI, J. B and Menard C (2009), « Pro-poor growth Measurements in a Multidimensional Model: A comparative Approach », Working Paper, 9, 22.
- Boccanfuso D. KI, J. B and Menard C (2009), « Pro-poor growth: A comprehensive overview of the box tools », GREDI, Working Paper, 09 06.
- Carmen De Navas – Walt and al. (2011), « Income, Poverty, and Health Insurance Coverage in the United States: 2010 », Current Population Reports, Consumer Income, September 2011, U.S Department of commerce economics and statistic administration, U.S. census bureau.
- Coudouel A., Jesko S. Hentschel, Quentin T. Wodon (2002), « Measure and analysis of poverty », World Bank.
- Coulibaly M and Diarra A (2006), « Profile of poverty in Mali 2001 », GREAT, Bamako, Mali.
- Datt, G. and M. Ravallion (1992), « Growth and redistribution components of changes in poverty measures: A decomposition with application for Brazil and India int the 1980 s», Journal of development economics 38. 275-295.
- Foster, J.J. Greer, and E. Thorbecke (1984), « A class pf decomposable poverty measures », Econometric, 52(3), 761.
- INSTAT (2013), «Impact of the crisis in 2012 on the living conditions of households of GAO», research report, Republic of Mali, Bamako.
- INSTAT (2014), « modular investigations and permanent investigation from households (EMOP) 2001 - main results», Department of the Council of the territory and population, Bamako, Mali
- INSTAT (2013), « modular investigations and permanent investigation from households (EMOP) 2001 - main results», Department of the Council of the territory and population, Bamako, Mali.
- Ravaillion Martin (1998), « Poverty lines in theory and Practice, Leaving standard measurements survey (LSMS) », working paper 133. The world Bank Washington D.C.
- Sen, A (1993), « Internal consistency of choice », econometric, vol.8, N°3, pp. 495-521.
- Sen, A (1992), « Inequality Re-examined» Harvard university press P.66.
- Sen, A (1983), «Poor relatively speaking», Oxford economic paper, vol.35. N°2, P.153-169.