

Profiles and Trends in Hard Core Poverty in Cameroon

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Abstract

The aim of this study is to draw up a profile of individuals who suffer from monetary, living conditions, asset and subjective poverty in Cameroon from 2001 to 2014. The identification of the poor according to the monetary dimension was done through the thresholds defined by the National Institute of Statistics of Cameroon. For the other dimensions, we used multiple correspondence analysis to construct Composite Indicators of Well-Being. The poor were identified by calculating multidimensional poverty lines. The data used for this study come from the second, third and fourth Cameroon household surveys. The results show firstly that the incidence of hard core poverty decreases between 2001 and 2007, from 14.7% to 8.1% respectively. But between 2007 and 2014, the incidence rose to 19.6%. Secondly, the incidence of hard core poverty is higher in rural areas than in urban areas. Thirdly, the hard core affects vulnerable groups much more: large households, people who have never been to school, polygamous married people, widows and widowers, people working in the primary sector, the elderly, people working in the informal sector. In view of these results, our main recommendations are to improve the living conditions of rural households.

Keywords

Monetary Poverty, Non-Monetary Poverty, Multiple Correspondence Analysis, Hard Core of Poverty, Cameroon

1. Introduction

The search for solutions to the problems of poverty and inequality has become increasingly acute in developing countries since the end of the 1980s (Bray et al.,

2020). Sub-Saharan Africa appears to be the region most affected by these problems, and Cameroon is one of them. Cameroon enjoyed economic prosperity with high growth rates before the mid-1980s. However, following the fall in the price of cash crops and the deterioration in the terms of trade, macroeconomic indicators and people's living conditions gradually deteriorated. To improve the well-being of the population and clean up the economy, Cameroon embarked on structural adjustment programmes in September 1988. However, the measures applied led to an increase in poverty and greater inequality (Bekolo-Ebe, 1993; Fambon, 2006). In order to correct the deplorable results of these programmes (the drastic fall in purchasing power, a reduction in consumption, the increase in the unemployment rate, the reduction in the school enrolment rate, the increase in the unemployment rate, the deterioration in the living conditions of households), Cameroon drew up a Poverty Reduction Strategy Paper (PRSP) in April 2003, with the ultimate objective of improving the living conditions of the population in a sustainable and effective manner by tackling the main causes of poverty (Government of Cameroon, 2003). The implementation of the PRSP in line with the Millennium Development Goals (MDGs) enabled the country to reach a completion point under the Heavily Indebted Poor Countries (HIPC) initiative in April 2006. Since 2015, the fight against poverty has continued to feature prominently in the Sustainable Development Goals.

An examination of the policies and strategies adopted by Cameroon shows that poverty has not been significantly reduced. Indeed, the results of the first, second, third and fourth Cameroon household surveys show that the incidence of monetary poverty was 53% in 1996, 40.2% in 2001, 39.9% in 2007 and 37.5% in 2014 (NIS, 2015). These statistics show that the incidence of monetary poverty is still high in Cameroon.

With a view to reduce the many shortcomings that are holding back poverty reduction, the government has drawn up the Growth and Employment Strategy Paper (GESP) for a long-term vision (2035). In the GESP, Cameroon set itself the challenge of accelerating growth, creating formal jobs and reducing poverty. With regard to poverty, Cameroon wanted to reduce the monetary poverty rate from 39.9% in 2007 to 28.7% in 2020 (Government of Cameroon, 2009). According to the National Institute of Statistics (NIS) communication of April 30th 2024, the monetary poverty rate was 38.6% in 2021. In this context, determining the hard core of poverty and analysing its evolution will enable us to better define the phenomenon of poverty and to better articulate policies aimed at alleviating the living conditions of the most vulnerable Cameroonians. An individual can be poor in one dimension and non-poor in others. Individuals affected by all forms of poverty are the most deprived and can be considered as those who are truly poor. Gweshengwe and Hassan (2020) have shown that poverty has multiple dimensions: financial, economic, social, political, health, environmental, and seasonal. These dimensions of poverty are linked to each other, reinforcing each other (Bourguignon & Chakravarty, 2003; Gweshengwe & Hassan, 2020). Adepoju

(2020) found that multidimensional poverty among rural households in Nigeria was mainly chronic, with education and assets dimensions contributing most to the incidence and severity of poverty.

Poor and vulnerable people are exposed to many inadequacies that affect their well-being. These include inadequate monetary resources and lack of access to opportunities and choices (UNDP, 1997). The *United Nations Development Programme* (2001) has shown that sub-Saharan Africa lags behind the rest of the world in terms of monetary and human poverty (UNDP, 2001). The majority of countries in sub-Saharan Africa are classified as having a low Human Development Index (HDI). With the aim of eradicating poverty and inequality in all their forms, the United Nations has set 8 Millennium Development Goals for 2015. The first of these goals concerned poverty. It aimed to halve extreme poverty and hunger in the world by 2015. But despite the efforts made, this goal has not been achieved. In pursuit of the MDGs, the Cameroonian government drew up the Growth and Employment Strategy Paper (GESP) in 2009. Despite all the efforts made by Cameroon, monetary poverty has not fallen considerably, with the incidence rising from 40.2% in 2001 to 39.9% in 2007 and 37.5% in 2014 (NIS, 2015).

Statistics from the fourth Cameroon household surveys show that 62.6% of households dispose of wastewater in the yard/roadway/river/nature and 65.1% of households dispose of rubbish in nature. In addition, 33.36% of households obtain their drinking water from wells/springs/lakes/ponds/rivers and 32.3% of households have no access to electricity. The lack of basic infrastructure keeps people in a vicious circle of poverty. It should be noted that poverty is a concept that does not lend itself easily to definition. Poverty therefore remains a crucial problem in Cameroon, despite the efforts made to date.

Diagne et al. (2005) point out that when policy-makers want to take action to combat poverty, they are faced with two practical questions: who is poor and how are they poor? Several approaches have been developed to answer these questions.

- The utilitarian approach, which measures poverty in terms of the level of well-being achieved by an individual or household through consumption or indirectly through income. This approach is criticised for being reductive, as income alone does not account for all the deprivations suffered by individuals (Bray et al., 2020; Machira et al., 2023; Bao & Liao, 2024; Cartone et al., 2024). This limitation has led to the development of the non-monetary approach to poverty, which is subdivided into two approaches: that of basic needs and that of capabilities, of which the economist Amartya Sen appears to be one of the main proponents.
- The basic needs approach analyses well-being in terms of achievements or results. Unlike the utilitarian approach, where the only achievement is utility, the space for achievements is multidimensional in the basic needs approach. This approach insists on the fact that “we must ‘be’ before ‘being well’” (Asselin & Dauphin, 2001).
- The capabilities-based approach argues that poverty is not just a question of

satisfying basic needs (being) and even less of utility (well-being), but first and foremost of human skills and capabilities (Sen, 1983).

Given that poverty is internationally recognized as a multidimensional phenomenon, Lollivier and Verger (1998) and Delhaussé (2002) have used the hard core approach. This is a robust indicator that integrates a range of information to capture the complexity of the poverty phenomenon. It is clear that a single indicator cannot reflect poverty in all its dimensions. Given the robustness of the hard core indicator, several authors have based their work on it. This is the case of Diagne et al. (2005) for Senegal, and Diarra and Kouma (2009) for Ivory Coast. These authors have used three approaches to determine the hard core of poverty (the monetary approach, the relative deprivation approach and the patrimonial approach). In Wallonia, Delhaussé (2002) identified the hard core of poverty on the basis of three measures: monetary, subjective and relative deprivation; in Benin, Alofa et al. (2011) determined the hard core on the basis of three approaches (monetary, condition of existence and patrimonial). As we can see, there is no consensus on quantifying the hard core. The questions we want to answer are: what is the profile of the hard core of poverty in Cameroon in 2001, 2007 and 2014? What is the evolution of the hard core of poverty in Cameroon between 2001 and 2014?

The aim of this article is to draw up a profile of the hard core of poverty in Cameroon in 2001, 2007 and 2014 and to show the evolution of the hard core of poverty in Cameroon between 2001 and 2014.

The contribution of this article is that we determine the hard core of poverty on the basis of four approaches by adding the self-assessment of poverty (subjective dimension) contrary to the existing literature which takes into account three approaches (Alofa et al., 2011). Scientific work of this kind is essential to the implementation of any action aimed at combating deprivation and hence poverty.

2. Literature Review

The literature on the concept of poverty is extremely abundant. In this section, we will first present some recent work on poverty in Cameroon and then go on to present the work on the hard core of poverty.

2.1. Recent Work on Poverty in Cameroon

In Cameroon, poverty analysis has been the subject of several studies. For a long time, these have been based on the monetary approach. These include work by the World Bank (2001), Dubois and Amin (2000), Fambon et al. (2001) and the NIS (2002, 2015), and Olinga & Joel (2018). The main conclusions are: income inequality is higher in rural areas than in urban areas; poverty is essentially rural, but unevenly distributed across regions; there are significant disparities between regions in many areas; the contribution of health and education expenditure to total household expenditure without hospitalisation is low.

However, it is increasingly accepted that poverty is not just a matter of insufficient income (Bray et al., 2020; Machira et al., 2023; Bao & Liao, 2024; Cartone et

al., 2024), but also includes non-economic considerations (access to social infrastructure and services, possession of durable goods, perceptions of the poor regarding the phenomenon, etc.). With this in mind, several authors have memorised their studies on the multidimensional approach to poverty.

Ningaye and Ndjanyou (2006) focused their study on the inertia approach, where after constructing the composite well-being indicator (CWI) for each household, they obtained an incidence of multi-poverty of 64%.

Foko et al. (2007) drew up a profile of non-monetary poverty and compared it with monetary poverty in Cameroon. They showed that poverty of living conditions is reflected in the exclusion of households from the consumption of certain basic commodities due to their unavailability or poor accessibility.

Feubi et al. (2010) examined the dynamics of poverty in Cameroon between 2001 and 2007. Their results showed that at a national level, non-monetary poverty between 2001 and 2007 increased for the most disadvantaged households initially in 2001. Households classified as rich in 2001 experienced a sharp rise in non-monetary poverty in 2007. Middle-income households saw a clear improvement in their situation.

In their study, Ningaye et al. (2011) used structural equation modelling (SEM) to validate five dimensions of poverty (living conditions, education, infrastructure, health and money) and to calculate each individual's score on each dimension. They concluded that it is possible to be poor on some dimensions and less so on others.

Tiomela et al. (2020) analysed the spatial distribution of monetary and non-monetary poverty in Cameroon. They showed that the incidence of monetary poverty fell from 40.2% in 2001 to 39.9% in 2007, reaching 37.5% in 2014. Non-monetary poverty stagnated between 2001 and 2007, with the incidence rising from 60.65% to 61%. In 2014, the incidence fell to 53.84%. Rural areas are the most affected by monetary and non-monetary poverty.

The acknowledged limitation of multi-dimensional approaches is that they do not allow us to identify poor households or individuals according to each dimension retained for analysis. The hard core approach, on the other hand, fills this gap. Before determining the hard core, we must first identify the poor households or individuals according to each dimension.

2.2. Review of the Literature on the Hard Core of Poverty

An individual who is poor in two dimensions is undoubtedly poorer than an individual who is poor in only one dimension. In this vein, several authors have worked on the hard core of poverty.

Delhousse (2002) identified the hard core of poverty in Wallonia on the basis of three measures: monetary, subjective and relative deprivation. He arrived at a hard core of 5.9% of the poor.

Diagne et al. (2005) determined the hard core of poverty in Senegal on the basis of three measures: monetary poverty, relative deprivation and asset deprivation.

The results showed that 18% of households belong to the hard core of poverty.

[Diarra and Kouma \(2009\)](#) conducted their study on the hard core of poverty in rural agricultural areas in Ivory Coast. Their results showed that households in rural areas are less exposed to asset poverty (22%), while poverty linked to relative deprivation is very high (69.3%). Finally, monetary poverty, which is the measure used in Ivory Coast, affects 50.5% of households in rural agricultural areas. The intersection of the three forms of poverty gives a hard core of 7.8%.

[Ouarne et al. \(2009\)](#) in their study determined the hard core using three approaches (monetary, basic needs and subjective). They came to the following conclusion: poverty is widespread in Burkina (monetary poverty 46.4%, basic needs poverty 83.60%, subjective poverty 75.72% and hard core poverty 34.75%).

In Benin, [Alofa et al. \(2011\)](#) also determined the hard core using three approaches (monetary, living conditions and assets). They showed that the hard core of poverty was reduced between 2006 and 2007, with the incidence falling from 11.4% to 7.8%. [Mampouya and M'bama \(2016\)](#) used the same method to determine the hard core of poverty in Congo. Their results showed that 1.6% of individuals combine the following three forms of poverty: monetary, lifestyle and patrimonial.

A number of studies on poverty in Cameroon show that significant efforts have been made to diagnose the phenomenon. However, despite progress in this area, the answer to the question of who is poor remains equivocal. The groups identified as poor may differ from one indicator to another, and an effective strategy for combating poverty depends on correctly targeting the populations concerned. Poor targeting could result in the diversion of resources from the strategy to less disadvantaged populations. The hard core approach makes it possible to reduce errors in targeting the poor, and analysing changes in the hard core of poverty will give us an insight into changes in the living conditions of the most deprived individuals.

In the literature, authors have commonly determined the hard core on the basis of three dimensions. In this study, we will supplement the study conducted by [Alofa et al. \(2011\)](#) with the subjective dimension of poverty, as [Ravallion and Lokshin \(1999\)](#) and [Bray et al. \(2020\)](#) have shown that it is also important for individuals to give their opinion on their level of poverty.

3. Methodology

In this section, we present the analysis method, the variables and the data used.

3.1. Analysis Method

As we have already mentioned, our hard core of poverty is made up of households that are poor in four dimensions: the monetary dimension, the living conditions dimension, the asset dimension and the subjective dimension.

3.1.1. Monetary Dimension

To determine which households were poor in monetary terms, we used the pov-

erty line defined by the NIS, which was 232,547 FCFA per adult equivalent per year in 2001, 269,443 FCFA in 2007 and 339,715 in 2014 (NIS, 2015), to classify households according to their level of expenditure.

3.1.2. Living Conditions Dimension

It stems mainly from the work of Townsend (1979). In fact, the basic idea is that while income is an explanatory factor in poverty, it is not the only exclusive factor. Townsend suggests that poverty should also be measured by an index of deprivation based on the observation of a certain number of consumption and social participation experiences.

The construction of this composite index is based on the inertia approach and consists of defining a composite well-being indicator (CWBI) for each unit of a given population. To construct the CWBI, we used Multiple Correspondence Analysis (MCA). This was chosen because the numbers used to code the modalities of the ordinal variables are only codes and therefore do not have metric properties. The poverty in living conditions variables were subjected to the MCA with the aim of identifying indicators that describe a real situation of poverty and are therefore appropriate for the construction of an CWBI. The rationality of the choice of variables is the property of the First Axis Ordinal Consistency (FAOC), which indicates that the modalities of the indicators describing a situation of poverty must have increasing scores on the first factorial axis, which is the poverty axis (Asselin, 2009).

Having identified the variables to be used, we used the following formula to calculate the composite well-being index for the living conditions dimension.

$$C_i = \frac{\sum_{k=1}^K \sum_{h_k=1}^{H_k} W_{h_k}^k J_{h_k}^k}{K} \quad (1)$$

where

K is the number of category indicators;

H_k is the number of categories in the indicator K ;

$W_{h_k}^k$ is the weighting coefficient (score normalised on the first factorial axis, $\frac{score}{\sqrt{V_1}}$) of the category h_k , V_1 is the eigenvalue of the first factor;

$J_{h_k}^k$ is the binary variable taking the value 1 when individual i has the category h_k and 0 if not (Asselin, 2009).

The weighting coefficients obtained by the MCA correspond to the standardised scores on the first factorial axis.

3.1.3. Heritage Dimension

The idea of wealth refers to the notion of capital. There are four main components of an individual's or households wealth: physical capital, financial capital, human capital and social capital. These fundamental elements explain the in-

trinsic capacity of individuals and households to access a certain level of income and, hence, well-being, and to cope with shocks that may affect their living conditions. As in the case of the living conditions dimension, we have used the MCA to construct the composite indicator of poverty according to the asset dimension.

3.1.4. Subjective Dimension

This dimension is based on a purely subjective assessment by households of their living conditions and standard of living. So, as in the case of the living conditions and wealth dimensions, we used the MCA to construct the composite index of subjective poverty.

After calculating the composite poverty index for each individual, we used ascending hierarchical classification to subdivide the population into two homogeneous classes (poor class and non-poor class) for the non-monetary dimensions. A poverty line was then determined using the following formula proposed by [Ki et al. \(2005\)](#):

$$z = \max CI^p \times m^p + \min CI^{np} \times m^{np} \quad (2)$$

where z is the poverty line, $\max CI^p$ the maximum value of the composite index in the poor class, $\min CI^{np}$ the minimum value of the composite index in the non-poor class, m^p the weight of the poor and m^{np} the weight of the non-poor class.

3.1.5. The Hard Core of Poverty

The hard core of poverty is determined by the intersection of the four poverty measures. Determining the hard core requires summarising the results obtained for the four different dimensions of poverty mentioned above. For each dimension, poor households were coded as 1 and non-poor households as 0. In other words, if a household is poor according to the four dimensions, we obtain a score of 4, which corresponds to a core index equal to unity ($Ind = 1$). If, on the other hand, the score is less than or equal to 3, the hard core index is zero ($Ind = 0$).

3.2. Description of Study Variables

3.2.1. Monetary Indicator

The variable we used in the monetary dimension is total household expenditure.

3.2.2. Indicators of Poverty in Living Conditions

In our study, the variables pre-selected for the living conditions dimension are listed in [Table 1](#).

Once the variables had been pre-selected, they were subjected to MCA to select the variables to be used to construct the composite index. The variables were selected using the FAOC criterion.

3.2.3. Asset Indicators

[Lollivier and Verger \(1998\)](#) define wealth as the accumulated assets that enable

a person or household to have future resources. Given that an individual's wealth is made up of physical capital, financial capital, human capital and social capital. The variables pre-selected for the wealth dimension are listed in **Table 2**.

As in the case of the living conditions dimension, the first step was to subject these pre-selected variables to the MCA. The second step was to discard the variables that did not meet the FAOC criterion.

Table 1. Presentation of the variables pre-selected for the construction of the composite index for the living conditions dimension.

Indicators	Variables
Accessibility to basic infrastructure	Distance between the nearest public primary school and the dwelling, distance between the nearest private primary school and the dwelling, distance between the nearest public secondary school and the dwelling, distance between the nearest private secondary school and the dwelling, distance between the nearest integrated health centre and the dwelling, distance between the nearest food market and the dwelling, distance between the nearest tarmac road and the dwelling, distance between the nearest public drinking water supply point and the dwelling, distance between the nearest rubbish bin and the dwelling.
Location of accommodation	Type of access road to the household dwelling, nature of the terrain on which the household dwelling is built.
Housing	Occupancy status of household dwelling, type of dwelling, nature of soil, nature of roof, nature of walls.
Energy	Lighting, the main source of energy used in the kitchen.
Sanitation	Household waste disposal system, waste water disposal system, type of toilet.
Drinking water	Drinking water supply.
Communication	Possession of a television, possession of a landline telephone, possession of a mobile telephone, possession of a radio.
Ownership of durable goods	Possession of a music system, possession of a fridge/freezer, possession of a cooker, possession of a paraffin stove, possession of a gas bottle, possession of an electric iron, possession of an air conditioner, possession of a fan, possession of a vehicle, possession of a motorbike/moped.

Source: authors using data and questionnaires from ECAM 2, ECAM 3 and ECAM 4.

Table 2. Pre-selected variables for the heritage dimension.

Indicators	Variables
Land assets	Ownership of at least one farmed property, ownership of at least one non-farmed property, ownership of at least one dwelling.
Share capital	Membership of an association.
Human capital	Ability to read or write a simple sentence in french, highest qualification of head of household, school attendance, health status of head of household, area consulted in case of illness, person consulted in case of illness, area consulted.
Economic and financial assets	Possession of assets, property titles or bonds, possession of savings by a member of the household.

Source: authors using data and questionnaires from ECAM 2, ECAM 3 and ECAM 4.

3.2.4. Subjective Poverty Indicators

The subjective approach leaves it up to households to describe their economic situation. The variables pre-selected to measure subjective poverty are as follows: household members' assessment of poverty in Cameroon, the household's situation in relation to that of its neighbour, the household's situation in relation to that of its parents, and the situation of people in the neighbourhood. The situation of the household in relation to poverty.

3.3. Data Presentation

In this study we use secondary source data from the second, third and fourth Cameroon household surveys (ECAM 2, ECAM 3, and ECAM 4) carried out by the National Institute of Statistics of Cameroon between September and December 2001, 2007 and 2014. The ECAM 2 base consists of 10992 households, the ECAM 3 base consists of 11391 households and the ECAM 4 base consists of 10303 households. At present, data from ECAM 2, ECAM 3 and ECAM 4 are the only ones available for the years 2000 at the National Institute of Statistics of Cameroon.

4. Results

In this section, we will first present the dimensional scores of the variables obtained after applying the MCA before presenting the poverty profiles according to the four dimensions, notably monetary poverty, poverty in living conditions, asset poverty and subjective poverty.

4.1. Dimensional Scores of the Variables Obtained after Applying the MCA

Table 3, **Table 4** and **Table 5** summarize the dimensional scores of the variables obtained after application of the MCA for the dimensions of living conditions, assets and subjective.

Table 3. Dimensional scores of composite welfare indicator for living conditions dimension.

Variables	Terms	Dimension on the first axis		
		2001	2007	2014
Housing type	villa/apartment/house with several dwellings	0.536	0.150	0.189
	detached house	-0.349	-0.226	-0.186
Method of drinking water supply	tap/drilling	0.525	0.522	0.388
	river/backwater/well/other	-0.811	-0.820	-0.810
Garbage disposal	truck/garbage collection	1.139	1.065	0.916
	buried/recycled/other	-0.305	-0.292	-0.502
Light source	AES	0.660	0.658	0.530
	fuel	-0.915	-1.019	-1.160
Source of energy for cooking	gas	1.327	1.212	0.883
	purchased wood	0.308	0.392	0.242
	collected wood	-0.924	-0.912	-0.903
Type of toilet	modern latrine	0.606	0.815	0.423
	pit latrine	-0.713	-0.583	-0.979
Main wall material	concrete/concrete block/baked bricks/cut stone	0.801	0.759	0.635
	board/mats/thatch/sheet/other	-0.500	-0.584	-0.627
Main floor material	cement/sheet metal/tile	0.200	0.228	0.220
	mats/thatch/leaf/other	-1.367	-1.433	-1.495
Main ground material	cement/tiles	0.604	0.617	0.550
	wood/earth/other	-0.961	-0.998	-1.093
Distance between the nearest public primary school and the dwelling	less than 1 Km	0.213	0.002	0.043
	1 Km and more	-0.152	-0.001	-0.072
Distance between the nearest private primary school and the dwelling	less than 1 Km	0.571	0.061	0.608
	1 Km and more	-0.212	-0.037	-0.481
Distance between the nearest food market and the dwelling	less than 1 Km	0.381	0.008	0.325
	1 Km and more	-0.242	-0.004	-0.292
Distance between the nearest tarmac road and the dwelling	less than 1 Km	0.719	0.042	0.570
	1 Km and more	-0.640	-0.042	-0.834
Distance between the nearest rubbish bin and the dwelling	less than 1 Km	0.884	0.082	0.827
	1 Km and more	-0.372	-0.042	-0.619

Continued

Mobile phone	yes	1.514	0.673	0.113
	no	-0.167	-0.821	-0.548
radio station	yes	0.366	0.278	0.125
	no	-0.615	-0.316	-0.074
Television	yes	1.091	0.906	0.325
	no	-0.377	-0.578	-0.394
Phone	yes	1.774	0.114	0.686
	no	-0.065	-0.001	-0.013
Vehicle	yes	1.513	0.102	0.549
	no	-0.093	-0.004	-0.032
First eigenvalues		0.321	0.281	0.291

Source: authors.

Table 4. Dimensional scores of composite welfare indicator for patrimonial dimension.

Variables	Terms	Dimension on the first axis		
		2001	2007	2014
Person consulted in case of illness	health personnel	0.115	0.339	0.191
	traditional healer/rescuer	-0.574	-0.194	-0.203
Health status of head of household	good/passable	0.016	0.002	0.021
	bad	-0.177	-0.050	-0.527
Having attended a school	yes	0.531	1.427	0.410
	no	-1.442	-0.426	-1.659
Ability to read or write	yes	0.583	0.639	0.520
	no	-1.341	-0.877	-1.133
Ownership of at least one dwelling by household members	yes	0.435	0.624	0.781
	no	-0.074	-0.086	-0.083
Membership of a household member in an association	yes	0.459	0.592	0.627
	no	-0.583	-0.514	-0.499
Possession of savings by one of the members of the household	yes	0.647	0.852	0.836
	no	-0.398	-0.358	-0.335
Ownership of stocks/securities/bonds	yes	1.471	1.796	1.937
	no	-0.020	-0.017	-0.028
First eigenvalues		0.275	0.241	0.250

Source: authors.

Table 5. Dimensional scores of composite welfare indicator for subjective dimension.

Variables	Terms	Dimension on the first axis		
		2001	2007	2014
Are the people in the neighbourhood/village poor?	no	2.035	1.621	1.106
	yes, some one	0.820	0.769	0.587
	yes, majority	-0.233	-0.150	-0.290
Did Cameroun poor?	no	0.190	0.163	0.109
	yes	-0.278	-0.213	-0.192
Household poverty situation	rich	2.650	2.391	1.124
	neither rich on poor	1.518	1.099	0.868
	poor/very poor	-0.406	-0.539	-0.707
The household's situation in relation to that of its neighbour	better than	1.259	1.354	1.187
	just like them	-0.154	0.083	0.016
	less than	-0.602	-0.922	-0.921
The household's situation in relation to that of its parents	better than	0.755	0.907	0.773
	just like them	-0.331	-0.129	-0.182
	less than	-0.463	-0.665	-0.616
First Eigenvalues		0.340	0.353	0.350

Source: authors.

These results lead to the identification of the profiles and evolution of the hard core of poverty in Cameroon.

4.2. Income Poverty

The results are shown in **Table 6**. Calculations show that the incidence of income poverty stagnated between 2001 and 2007, rising from 40.2% to 39.9%. In 2014, the incidence fell slightly to 37.5%. Although the incidence fell between 2001 and 2014, the number of poor people increased. The number of poor people rose from 6,217,059 in 2001 to 7,130,901 in 2007 and finally to 8,088,876 in 2014. This increase can be explained by strong demographic growth, estimated at 2.6% per year (NIS, 2015).

The distinction according to spatial dimension shows that during the period from 2001 to 2014, the incidence of monetary poverty was higher in rural areas (55.1% of individuals in 2001, 55% of individuals in 2007 and 61.2% of individuals in 2014) than in semi-urban areas (30.8% of individuals in 2001, 32.3% of individuals in 2007 and 29.2% of individuals in 2014). By contrast, the incidence of poverty in urban areas has fallen considerably, from 17.9% in 2001 to 12.2% in 2007 and 8.9% in 2014. This trend shows that income poverty is a rural phenomenon.

These disparities can be explained by the fact that there is unequal access to income in the areas where people live. In urban areas, there are several income-generating activities. In rural areas, the majority of people are farmers, stock-breeders and small traders. Their activities do not generate as much income as those in urban areas. Analysis of the results obtained in the regions shows that from 2001 to 2014, the incidence of monetary poverty was very low in the two major cities (Douala and Yaoundé). The regions with the highest poverty rates are the Far North, North, North-West and Adamawa from 2001 to 2014. Of these four regions, the Far North has the highest poverty rate: 56.3% in 2001, 65.9% in 2007 and 74.3% in 2014. In 2001. This result can be justified by the fact that this region has the lowest literacy rates, school attendance rates, and electricity access rates in the country. These shortcomings have led to weak human capital and infrastructure, which are elements that create potential that can generate income and trigger a reduction in poverty. In addition, this region has been the victim of negative exogenous shocks in recent years, first the recurring floods since 2012, then the Boko-Haram phenomenon, which has led to population displacement. Some populations have abandoned their income-generating activities (NIS, 2015). The state of Cameroon has undertaken several measures to combat poverty in the Far North region, including the construction of certain roads and the creation of schools. The regions with a poverty rate above the national level were Centre, East and West. In 2007, the regions with a poverty rate above the national level were the Centre and the East. In 2014, the Centre, East, Littoral, West, South and South-West had a poverty rate below the national level.

In terms of gender, from 2001 to 2014 male-headed households experienced a higher incidence of poverty than female-headed households. This situation, which runs counter to theory, can be explained by the large size of male-headed households and by the agricultural activities and petty trading that women are used to doing.

With regard to level of education, the results show that between 2001 and 2014 monetary poverty increased among individuals with no level of education. In 2001, 2007 and 2014, the incidence of poverty was 56.6%, 64% and 66.3% respectively. On the other hand, the incidence of poverty is very low for individuals who have left higher education, at 6.2%, 4.2% and 3.3% respectively. We can see that between 2001 and 2014 the incidence of poverty fell as the level of education increased. It therefore appears that the higher the level of education, the more likely people are to seize opportunities to earn a high income.

Relative to age, the incidence of poverty is lower in households where the head is under 30 (31.4% in 2001, 28.1% in 2007 and 27.1% in 2014), and increases steadily with age. For example, for households where the head is aged 50 or over, the incidence was 47.2% in 2001, 46.9% in 2007 and 44.3% in 2014. Households headed by retired people face a number of difficulties. These include the large size of the household and the lack of resources. This result is contrary to that of Delhausse (2002), who showed that the youngest people (under 25) are the most exposed to monetary poverty.

Table 6. Map of income poverty in percentage terms.

Individual characteristics	Incidence rate			Individual characteristics	Incidence rate		
	2001	2007	2014		2001	2007	2014
National	40.2	39.9	37.5				
	Sex				Age		
				Under 30 years	31.4	28.1	27.1
Male	40.9	41.6	38.9	30 - 39 years	33.3	34.8	32.1
Female	36.8	33.3	32.8	40 - 49 years	40.5	42.5	38.0
	Area of residence			50 years and older	47.2	46.9	44.3
Urban	17.9	12.2	8.9		Household size		
Semi-urban	30.8	32.3	29.2	1 and 2 persons	10.3	10.8	9.6
Rural	55.1	55.0	61.2	3 and 4 persons	26.2	25.4	22.7
	Regions			5 and 6 persons	37.8	39.5	35.3
Douala	10.9	5.5	4.2	More than 6 persons	51.0	54.6	51.8
Yaoundé	13.3	5.9	5.4		Activity sector		
Adamawa	48.4	53.0	47.1	Primary sector	56.5	64.0	61.8
Centre	48.2	41.2	30.3	Industry	21.3	24.8	26.0
Est	44.0	50.4	30.0	Trade	25.7	19.9	16.4
Far-Nord	56.3	65.9	74.3	Services	22.8	15.8	13.7
Littoral	35.5	31.1	19.5		Matrimonial status		
Nord	50.1	63.7	67.9	Single	21.3	14.1	17.4
Nord-West	52.5	51.0	55.3	Married monogam	39.4	39.6	38.0
West	40.3	28.9	21.7	Married polygamy	49.7	59.1	59.8
South	31.5	29.3	34.1	Widow	40.9	40.7	35.5
South-West	33.8	27.5	18.2	Divorced	34.7	32.6	33.0
	Level of education			Cohabitation	30.2	23.7	14.4
No education	56.6	64.0	66.3		Informality of the employment sector		
Primary	45.5	42.3	40.9	Formal	15.4	9.8	11.2
Secondary	22.0	19.4	19.3	Informal	50.0	46.9	43.4
Higher	6.2	4.2	3.3				

Source: authors using data from ECAM 2, ECAM 3 and ECAM 4.

Theoretically, the incidence of poverty increases steadily with household size (NIS, 2015). The results show that there is a positive relationship between household size and income poverty. Indeed, an increase in household size leads to a fall in per capita income and consequently an increase in the proportion of poor people.

Similarly, looking at marital status, households headed by polygamous couples have the highest incidence of poverty, at 49.7% in 2001, 59.1% in 2007 and 59.8% in 2014. This can be explained by the large size of households headed by polygamists. In polygamous households, the heads of household find it very difficult to meet the needs of the household, especially when the head of household has a limited income. This finding corroborates that of Ouarme et al. (2009).

In terms of sector of activity, monetary poverty affects individuals working in the primary sector to a much greater extent: the proportion of poor people was 56.5% in 2001, 64% in 2007 and 61.8% in 2014. The results also show that households whose heads work in the informal sector are the most affected by monetary poverty, with the incidence of poverty being 50% in 2001, 46.9% in 2007 and 43.4% in 2014. For households whose heads work in the formal sector, the proportions are 15.4%, 9.8% and 11.2% respectively.

4.3. Poverty in Living Conditions

The process of identifying the poor along this dimension using MCA involved first carrying out a preliminary MCA on the pre-selected variables. This MCA covered several variables. After this phase, the variables that did not satisfy the FAOC criterion were grouped into variables with modalities of less than four. At the end of this phase, the variables that tainted the FAOC property were purely removed and finally, we retained 19 variables for the MCA. After this stage, we used the dynamic clustering algorithm to classify households into two classes (poor and non-poor). To calculate the poverty line, we used the formula of Ki et al. (2005), which gave us a line of

$$Z = 5349/10992 * (-0.51) + 5643/10992 * (0.44) = -0.0223 \text{ in } 2001$$

$$Z = 4992/11391 * (-0.47) + 6399/11391 * (0.37) = 0.0019 \text{ in } 2007$$

$$Z = 3901/10303 * (-0.58) + 6402/10303 * (0.38) = 0.0165 \text{ in } 2014$$

These thresholds were used to classify households in 2001, 2007 and 2014. The results are shown in Table 7. The results show that at national level, poverty in living conditions fell from 61.1% in 2001 to 60.8% in 2007 and 53.9% in 2014. These results show that the incidence of poverty in living conditions was almost stable between 2001 and 2007, but fell between 2007 and 2014. This trend masks the disparities that may exist between different strata of residence and regions. A comparison between strata of residence shows that from 2001 to 2014, the rural stratum is the most affected by this form of poverty (93.2% of individuals in 2001, 93.7% in 2007 and 91.2% in 2014), followed by the semi-urban stratum (45.1% of individuals in 2001, 43.2% in 2007 and 47.8% in 2014) and finally the urban stratum

Table 7. Map of poverty in living conditions as a percentage.

Individual characteristics	Incidence rate			Individual characteristics	Incidence rate		
	2001	2007	2014		2001	2007	2014
National	61.1	60.8	53.9				
					Age		
	Sex			Under 30 years	61.4	58.3	46.1
Male	62.0	61.6	55.5	30 - 39 years	61.0	55.8	55.0
Female	57.1	57.7	48.8	40 - 49 years	64.0	57.2	57.3
	Area of residence			50 years and older	69.5	68.5	50.3
Urban	12.1	12.2	7.7		Household size		
Semi-urban	45.1	43.2	47.8	1 and 2 persons	62.7	56.7	39.9
Rural	93.2	93.7	91.2	3 and 4 persons	60.9	61.2	55.5
	Regions			5 and 6 persons	60.8	61.7	57.3
Douala	6.9	2.2	2.3	More than 6 persons	59.6	61.7	60.3
Yaoundé	1.7	1.6	4.0		Activity sector		
Adamawa	76.1	74.7	65.0	Primary sector	90.9	90.7	88.1
Centre	82.1	69.9	67.5	Industry	28.4	39.4	37.0
Est	82.3	79.3	78.5	Trade	27.6	28.4	29.5
Far-Nord	90.8	89.9	88.2	Services	21.4	23.7	22.6
Littoral	44.7	36.4	45.5		Matrimonial status		
Nord	81.1	84.1	83.9	Single	39.9	36.3	29.5
Nord-West	73.5	77.1	64.2	Married monogam	58.8	58.7	54.0
West	73.2	62.3	58.2	Married polygamy	72.5	80.7	78.1
South	67.9	62.5	61.8	Widow	65.7	66.2	58.0
South-West	44.2	69.3	43.8	Divorced	59.6	64.1	54.8
	Level of education			Cohabitation	49.2	42.7	25.2
No education	87.4	88.9	69.6		Informality of the employment sector		
Primary	66.3	48.7	61.7	Formal	21.4	20.2	20.0
Secondary	36.1	30.2	29.6	Informal	78.4	71.0	63.1
Higher	7.2	8.2	7.6				

Source: authors using data from ECAM 2, ECAM 3 and ECAM 4.

(12.1% of individuals in 2001, 12.2% in 2007 and 7.7% in 2014). This result was confirmed in the work of [Diagne et al. \(2005\)](#) and [Ouarme et al. \(2009\)](#). This result is justified by the fact that access to basic social infrastructure is limited in rural areas. For example, the proportion of households using paraffin as a source of lighting is still very high in rural areas (75.1% in 2001, 71.6% in 2007 and 37.8% in 2014), whereas in urban areas the proportions are low (14.8%, 13.4% and 3.7% respectively). The majority of households in rural areas drink water from wells, rivers and springs (74.4% in 2001, 73.3% in 2007 and 59.4% in 2014). In urban areas, on the other hand, very few households drink this poor-quality water (16.1%, 18.2% and 14.3% respectively).

In terms of gender, male-headed households were more affected by poverty in living conditions than female-headed households from 2001 to 2014. With regard to dispersion across regions and in the cities of Douala and Yaoundé, the result show that the Far North region is the most affected by poverty in living conditions from 2001 to 2014. The cities of Douala and Yaoundé record very low incidences of poverty.

In terms of household size, we note that poverty in living conditions was more prevalent in households of one or two people in 2001, but between 2007 and 2014 it was much more prevalent in households of more than six people. In relation to the sector of activity of the head of household, from 2001 to 2014, this form of poverty affects more individuals working in the primary sector. According to the marital status of the head of household, poverty in living conditions affects more households where the head is polygamous married in 2001, 2007 and 2014. As in the case of income poverty, poverty in living conditions moves in the opposite direction with the level of education of the head of household. With regard to the age of the head of household, the table shows that people aged 50 and over were the most affected by this form of poverty from 2001 to 2007, whereas in 2014 it was households headed by people aged 40 to 49 who were most affected, a result that corroborates that of [Ouarme et al. \(2009\)](#). With regard to the informality of the employment sector of the head of household, the results show that poverty in living conditions affects individuals working in the informal sector to a much greater extent, with an incidence of 78.4% in 2001, 71.0% in 2007 and 63.1% in 2014.

4.4. Assets Dimension

For this dimension, we treated the variables in the same way as for the living conditions dimension. The final MCA covered 8 variables. Applying the formula of [Ki et al. \(2005\)](#), we obtained a threshold of -0.0018 in 2001, 0.3172 in 2007 and 0.0086 in 2014. These thresholds were used to classify households into two categories (poor and non-poor households). The results are shown in [Table 8](#).

The results show that the national incidence of asset poverty stagnated from 2001 to 2007 and increased in 2014 to 38.1%, 37.9% and 50.1% respectively. The distribution by strata of residence shows that the stratum least affected is the urban

Table 8. Asset poverty map in percentage terms.

Individual characteristics	Incidence rate			Individual characteristics	Incidence rate		
	2001	2007	2014		2001	2007	2014
National	38.1	37.9	50.1				
					Age		
	Sex			Under 30 years	27.2	38.1	49.2
Male	36.0	36.8	49.4	30 - 39 years	39.6	39.1	50.2
Female	47.2	42.1	52.3	40 - 49 years	45.8	36.2	52.1
	Area of residence			50 years and older	56.6	38.3	45.4
Urban	18.2	34.8	28.6		Household size		
Semi-urban	25.7	38.4	46.8	1 and 2 persons	43.6	41.1	47.7
Rural	51.9	39.7	67.4	3 and 4 persons	37.6	37.6	50.3
	Regions			5 and 6 persons	37.0	36.9	50.2
Douala	10.0	27.9	18.9	More than 6 persons	38.1	36.3	51.8
Yaoundé	10.8	29.0	25.1		Activity sector		
Adamawa	66.1	32.1	66.2	Primary sector	53.9	38.7	67.2
Centre	20.9	32.7	29.7	Industry	17.8	39.9	40.3
Est	38.9	28.4	57.7	Trade	19.1	34.3	41.4
Far-Nord	78.4	24.0	83.3	Services	10.8	37.0	28.4
Littoral	22.3	28.9	29.5		Matrimonial status		
Nord	70.6	35.5	76.3	Single	18.9	38.3	39.0
Nord-West	31.8	47.7	58.3	Married monogam	31.9	38.2	45.8
West	31.9	61.1	36.2	Married polygam	52.3	35.0	70.3
South	12.4	61.0	31.8	Widow	61.2	44.0	62.9
South-West	21.6	62.7	47.4	Divorced	43.4	30.5	54.4
	Level of education			Cohabitation	9.5	35.9	30.9
No education	99.4	32.9	94.9		Informality of the employment sector		
Primary	16.2	40.1	47.0	Formal	8.4	37.8	19.1
Secondary	3.6	37.7	21.0	Informal	48.5	38.0	55.8
Higher	1.1	35.8	14.9				

Source: authors using data from ECAM 2, ECAM 3 and ECAM 4.

stratum (18.2% in 2001, 34.8% in 2007 and 28.6% in 2014), while the rural stratum is the most affected by this form of poverty, with 52% in 2001, 39.7% in 2007 and 67.4% in 2014. This result runs counter to that of [Diagne et al. \(2005\)](#).

The gender breakdown shows that from 2001 to 2014, women were more affected by asset poverty than men. The regional dispersion of asset poverty shows that in 2001 and 2014 the regions most affected by this form of poverty were: the Far North, the North and Adamawa. In 2007, the regions most affected were South-West, South and West. Education seems to play a determining role in the accumulation of assets, with poverty rates reduced for educated people. For households where the head has a higher level of education, the incidence of poverty was 1.1% in 2001, 35.8% in 2007 and 14.9% in 2014. The results show that in 2001 and 2014, asset poverty affected more individuals working in the primary sector, while in 2007 this form of poverty affected much more individuals working in the secondary sector.

Profiles by marital status the results show that widows/widowers were most affected in 2001 and 2007, while in 2014 it was polygamists who were most affected by this form of poverty. The distinction by age group shows that the most affected in 2001 were households headed by people aged over 49, in 2007 by those headed by people aged between 30 and 39, and in 2014 by those headed by people aged between 40 and 49. In terms of household size, the most affected between 2001 and 2007 were households with 1 and 2 people. In 2014, those most affected by this form of poverty were households with more than 6 people. With regard to the informality of the employment sector of the head of household, from 2001 to 2014, the incidence of this indicator was higher among individuals working in the informal sector, at 48.5%, 38% and 55.8% respectively.

4.5. Subjective Dimension

As in the case of the living conditions and wealth dimensions, the variables were treated in a similar way. The final MCA involved 5 variables. Application of the [Ki et al. \(2005\)](#) formula enabled us to obtain a threshold of 0.0085 in 2001, 0.0086 in 2007 and 0.0006 in 2014. These thresholds were used to classify households into two categories (poor and non-poor households). The results are shown in [Table 9](#).

The results show that the national incidence of subjective poverty fell between 2001 and 2007 and rose in 2014, to 59.6%, 50.7% and 54% respectively. The increase in subjective poverty between 2007 and 2014 can be explained by the increase in the cost of living, low energy production, and the deterioration of infrastructure. On the other hand, its distribution across residence strata differs markedly. In both 2001 and 2014, people in the rural stratum rated themselves as poorer than those in the urban and semi-urban stratum. However, in 2007, people in the semi-urban stratum declared themselves to be poorer than those in the other strata. The gender portrait shows that between 2001 and 2014, men rated themselves as less poor than women. The regional breakdown of subjective poverty shows that

Table 9. Subjective poverty map in percentage terms.

Individual characteristics	Incidence rate			Individual characteristics	Incidence rate		
	2001	2007	2014		2001	2007	2014
National	59.6	50.7	54.1				
	Sex				Age		
				Under 30 years	62.1	50.8	54.6
Male	57.7	50.3	52.6	30 - 39 years	59.2	52.0	54.1
Female	67.9	52.2	59.1	40 - 49 years	59.4	49.7	55.1
	Area of residence			50 years and older	63.1	50.4	52.4
Urban	49.4	49.7	43.9		Household size		
Semi-urban	49.1	52.1	56.8	1 and 2 persons	66.4	52.8	52.8
Rural	67.3	51.1	61.8	3 and 4 persons	59.0	50.5	54.3
	Regions			5 and 6 persons	58.0	49.8	53.8
Douala	50.1	46.4	47.5	More than 6 persons	55.8	48.7	53.3
Yaoundé	48.3	48.1	40.1		Activity sector		
Adamawa	54.6	47.7	61.2	Primary sector	69.5	51.1	65.2
Centre	70.3	43.6	50.7	Industry	47.3	53.1	46.7
Est	58.5	42.1	55.0	Trade	45.9	50.9	47.4
Far-Nord	66.8	44.2	62.5	Services	43.3	49.9	42.2
Littoral	62.1	46.1	55.0		Matrimonial status		
Nord	62.0	46.5	68.9	Single	62.4	50.3	51.4
Nord-West	64.3	59.4	50.5	Married monogam	57.5	51.3	52.4
West	60.5	63.7	56.3	Married polygam	56.8	50.2	57.2
South	58.8	63.6	48.8	Widow	71.4	50.9	62.4
South-West	48.0	62.0	46.6	Divorced	67.4	49.0	64.8
	Level of education			Cohabitation	63.4	47.2	48.5
No education	70.9	48.8	59.1		Informality of the employment sector		
Primary	62.2	51.5	58.3	Formal	40.4	52.4	26.9
Secondary	49.8	50.3	41.3	Informal	66.5	50.7	59.3
Higher	29.4	52.3	23.2				

Source: authors using data from ECAM 2, ECAM 3 and ECAM 4.

the regions most affected in 2001 were the Centre, Far North and North West regions; in 2007, the regions most affected were the West, South and South West regions; in 2014, the regions most affected were the North, Far North and Adamawa regions. With regard to level of education, the incidence of subjective poverty is higher among individuals with no level of education in 2001 and 2014, while in 2007, the incidence is higher among individuals who stopped their studies at higher level. In terms of sector of activity, we note that subjective poverty affects more individuals working in the primary sector in 2001 and 2014, whereas in 2007 the households most affected are those whose head works in the secondary sector.

Profiles by marital status show that widows/widowers were the most exposed in 2001, monogamous couples were the most affected in 2007, and divorced couples were the most affected in 2014. The results vary according to the age of the head of household. In 2001, those most affected were households headed by people aged 50 and over. In 2007, it was households headed by people aged between 30 and 39. In 2014, it was households headed by people aged between 40 and 49. With regard to the informal employment status of the head of household, in 2001 and 2014 the incidence of this indicator was lower among households whose heads worked in the formal sector, whereas in 2007 the households most affected were those whose heads worked in the formal sector.

In terms of household size, the households most affected in 2001 and 2007 were those with 1 and 2 people. In 2014, the households most affected were those with 3 and 4 people.

4.6. Hard-Core of Poverty

Identifying the hard core of poverty involved intersecting poor households according to the four indicators mentioned above. The results are shown in **Table 10**. The results show that the incidence of hard core poverty fell between 2001 and 2007, from 14.7% of individuals in 2001 to 8.1% in 2007, but between 2007 and 2014 the incidence increased from 8.1% to 19.6%. The increase in the incidence of the hard core of poverty from 2007 to 2014 can be justified by the fact that since 2008, Cameroon has suffered the repercussions of the global economic and financial crisis which resulted in the deterioration of the terms of trade, the decline in energy supply, the decline in oil production. These effects have negatively affected economic activity in Cameroon. Populations have faced an increase in the cost of living (NIS, 2015). This result shows that the number of extremely poor individuals increased between 2007 and 2014. The results show a major disparity within housing areas. Between 2001 and 2014, the incidence of extreme poverty was higher in rural areas, lower in semi-urban areas and lower in urban areas. This result can be justified by the fact that there is more social infrastructure in urban areas than in rural areas. In addition, rural areas are generally characterised by farming activities that are often seasonal and not very profitable.

With regard to the gender of the head of household, the hard core indicator shows that in 2001 and 2014, women were the most exposed, whereas in 2007,

Table 10. Map of hard-core poverty as a percentage.

Individual characteristics	Incidence rate			Individual characteristics	Incidence rate		
	2001	2007	2014		2001	2007	2014
National	14.7	8.1	19.6				
	Sex				Age		
				Under 30 years	8.0	4.7	14.7
Male	14.1	8.3	19.6	30 - 39 years	15.7	7.5	20.2
Female	17.6	7.1	19.7	40 - 49 years	18.0	7.9	21.5
	Area of residence			50 years and older	22.3	10.1	17.2
Urban	2.5	1.2	1.0		Household size		
Semi-urban	6.7	3.7	12.0	1 and 2 persons	5.1	2.5	7.9
Rural	23.3	13.0	35.4	3 and 4 persons	15.6	8.7	20.9
	Regions			5 and 6 persons	16.42	9.9	22.6
Douala	0.6	0	0	More than 6 persons	17.1	10.3	23.7
Yaoundé	0.1	0.1	0.4		Activity sector		
Adamawa	23.9	8.4	27.0	Primary sector	24.4	12.4	36.6
Centre	10.1	4.3	7.2	Industry	3.4	5.5	9.3
Est	15.3	8.3	17.6	Trade	4.1	2.0	5.1
Far-Nord	32.7	8.5	46.3	Services	2.0	3.2	3.9
Littoral	5.2	1.9	5.0		Matrimonial Status		
Nord	26.5	13.5	42.9	Single	4.7	3.0	7.5
Nord-West	17.3	16.6	26.8	Married monogam	12.8	7.9	19.0
West	11.7	9.9	5.8	Married polygam	20.8	12.1	33.3
South	5.2	10.4	10.4	Widow	21.8	9.9	23.5
South-West	6.4	12.1	6.7	Divorced	15.9	5.3	19.7
	Level of education			Cohabitation	3.9	3.2	4.3
No education	39.6	12.1	35.0		Informality of the employment sector		
Primary	5.7	6.3	16.7	Formal	1.0	2.3	1.9
Secondary	0.8	2.8	3.5	Informal	20.2	9.6	23.6
Higher	0	0.3	0.2				

Source: authors using data from ECAM 2, ECAM 3 and ECAM 4.

men were the most exposed. Analysis of the regional dispersion of the hard core shows that the Far North, North and Adamawa regions were the most affected in 2001 and 2014, while in 2007 it was the North West, North and South West regions that were the poorest. This result can be explained by the lack of infrastructure and poor weather conditions. In terms of education, we note that the incidence of the hard core decreases as the level of education increases. The results show that the incidence of the hard core was 39.6% in 2001, 12.1% in 2007 and 35% in 2014 for households whose heads had never attended school. For those whose heads have higher levels of education, the incidences are 0%, 0.3% and 0.2% respectively. This shows that schooling is essential for improving household living standards. In fact, the higher the level of education, the more likely it is that individuals will be able to find gainful employment that will enable them to lead a decent life. This result was confirmed in the work of [Diagne et al. \(2005\)](#).

The portrait of the incidence of the hard core according to household size reveals a singular influence of demography on well-being. The results show also that the incidence of the hard core is higher for households of 7 people or more.

A comparison by marital status shows that households headed by widows/widowers are more affected by the hard core of poverty, but in 2007 and 2014 it was households headed by polygamists that were the most vulnerable. Households headed by polygamists are large and have great difficulty meeting the needs of the household when the head of household has a limited income. With regard to the sector of activity of the head of household, the people most exposed to the hard core of poverty from 2001 to 2014 are those in households whose heads work in the primary sector. In terms of the age group of the head of household, the people most exposed to the hard core of poverty in 2001 and 2007 were those in households whose heads were aged 50 and over, whereas in 2014 those most affected were those whose heads were aged between 40 and 49. With regard to the informality of the employment sector of the head of household, the results show that between 2001 and 2014 the individuals most at risk are those whose heads work in the informal sector.

5. Conclusion

Determining which individuals constitute the hard core of poverty shows that poverty reduction strategies should not focus on just one dimension. It is important for Cameroon to target its anti-poverty policies at the most disadvantaged individuals on all dimensions of poverty. The aim of this study was to profile the hard core of poverty in Cameroon in 2001, 2007 and 2014 and to show how the hard core of poverty in Cameroon has changed between 2001 and 2014. The poor were identified according to the monetary dimension in 2001, 2007 and 2014 using the thresholds of 232,547, 269,443 and 339,715 CFA francs per adult equivalent per year defined by the NIS of Cameroon. For the other dimensions, we used multiple correspondence analysis to construct composite indicators of well-being. Once the composite indicators had been constructed, we used the formula of Ki

et al. (2005) to calculate the poverty lines.

The results showed that in 2001, 14.7% of self-assessed poor people lacked assets, monetary resources and the basic needs to live adequately. In 2007, the hard core of poverty was made up of 8.1% of individuals. In 2014, the incidence of hard core poverty was 19.6%. The results also show that individuals in rural areas are more affected by the hard core poverty than those in urban areas. Individuals in the Far North, North West and North regions are most affected by the hard core of poverty. The hard core of poverty affects large households much more, individuals who have never been to school, polygamous married individuals and widows/widowers, people who work in the primary sector, and people who work in the informal sector. The results also showed that among the four forms of poverty, the incidence of poverty in living conditions is higher in Cameroon. A distinction by stratum of residence shows that more than 9 out of 10 people in rural areas are affected by this form of poverty. In view of these results, our main recommendations are to improve the living conditions of rural households, to strengthen anti-poverty policies in favour of people working in the primary sector, and to allocate financial and material resources in the Far North, North West and North regions.

In future research, we will show that promoting and increasing quality youth employment, reviving agricultural production and increasing social infrastructure could reduce the hard core of poverty in Cameroon.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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