GENDER INEQUALITY IMPLICATIONS ON AGRICULTURAL GROWTH, JOB CREATION AND RURAL POVERTY IN CAMEROON

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ABSTRACT

This paper aims to generate a structured debate and dialogue on the subject of gender inequality and women's economic empowerment, with the aim of defining the scope of policy and operational programming in the context of promoting agricultural growth and reducing poverty in Cameroon. In this study, we use cross-sectional data from the third Cameroonian Households Consumption Surveys (CHCS III), issued by the National Institute of Statistics. As far as gender inequality is concerned, in this paper we consider two groups of households living both in rural area. They are male-headed households (Group 1) and female-headed household (Group 2). We focus on inequalities in term of consumption expenditure with the hypothesis that all of those households earn their revenue or income thanks to agriculture. For this purpose we built an inequality index through the generalized entropy law. As far as poverty is concerned, we focus on non monetary poverty in rural area. Considering the inertia approach, we build a Non Monetary Poverty Composite Index (NMPCI) helping us to identify non monetary poverty characteristics.

Our results show that male-headed households explain within inequalities twice as much (2,7155) than female-headed households and that female-headed households tends to decrease inequalities between men and women (-0,053379).Then, gender inequalities is rural areas in Cameroon seems to be a matter of within group inequalities is more acute in male-headed households. In addition, variable describing non monetary poverty in rural areas are especially housing characteristics, distance to the nearest basic infrastructure like roads, schools, hospitals, markets, etc. The policy recommendations are to improve accessibility to basic infrastructures, to potable water, to electricity and quality of housing in rural areas. Ensure a gendered perspective along with increased advocacy support to help influence government policies that can reduce the burden on women related to the collection, provision and use of energy, and promote alternatives that are clean, affordable and will help improve inclusive agricultural growth and community empowerment and local job creation.

Keys Words: Gender, inequality, poverty, agriculture, Cameroon.
JEL Classification: C, H, I, Q, R.

Section A GENERAL INTRODUCTION AND BACKGROUND

In 1961, the world was feeding 3,5 billion people by cultivating 1,37 billion hectares of land. A half century later, the world population had doubled to 7 billion while land under cultivation increased by only 12% to 1,53 billion hectares (Keith F. and Alejandro N., 2013).Due to this importance of agriculture in terms of job creation and rural development, agricultural extension continues to play a significant role in stimulating growth, reducing poverty and improving food and nutrition security in Africa. After years of stagnation, the 2012 Global Food Policy Report (IFPRI, 2013) states that new evidence in 2012 showed that in many developing countries like Cameroon, the transformation of agriculture into a modern, competitive and productive sector accelerated in recent years. For example, in this report we see that, between 2001 and 2010, world agricultural production grew at an average annual rate of 2,4% close to its historical average growth rate of 2,3% a year since 1970s. Closer inspection reveals that agricultural production entered a period of accelerated growth around 1995, following more than 20 years of gradually decreasing growth rates. At the same time there has been a global shift in what kind of food is grown and where and the source of agricultural growth have changed over the past decades. Growth in Total Productivity Factor (TPF) measuring the output growth that does not come from input growth, accelerated substantially in the period 2001-2009 compared with the 1971-2009 (Keith F. and Alejandro N., 2013). Until the late 1980s and even after, farmers achieved most of the growth by using more inputs such as land, fertilizer and labor. This input intensification accounted for 90% of agricultural growth in the 1960s, 80% in the 1970s and 75% in the 1980s. Starting in the 1990s, however, greater use of inputs accounted for less than 20% of agricultural growth, while more than 80% came from higher Total Factor Productivity that is producing more with the same amount of inputs. Shenggen Fan (2013) adds that the year 2012 was marked by significant new attention to the role of gender equality in agricultural growth and food security. Wealth recent evidence has shown that agricultural and non agricultural reforms to increase women's capacities, engagement and access to productive resources can improve agricultural performance and food security (Ruth M. and Agnes Q., 2013). The 2012 World Bank's World development report and FAO's state of food and agriculture 2010-2011 for example, emphasized women's important contributions to agriculture in developing countries like Cameroon, highlighting the agricultural productivity gains and nutritional benefits that can be reaped from greater gender equality. Increasing food security requires policies that most efficiently close the gender gap in women's access to resources and services within and outside of agriculture, including education, health, extension, technologies, political institutions and financial services. In addition, unemployment and underemployment have

significant social and economic implications. Agricultural development in emerging countries has the potential both to improve food security and to create jobs. However, young people in many developing countries often do not see farming as a viable and lucrative career, and they reject agriculture in favor of jobs in cities. The renewed commitment to gender inequality in agriculture, job creation and rural poverty in Cameroon is characterized by the Growth and Employment Strategy Paper (GESP) put in place by the Government in 2009 (Republic Cameroon, 2009) with an emphasis on eradicating extreme poverty and hunger by 2015 as stated in the Millennium Declaration (Republic of Cameroon, 2012a) and the Rural Sector Development Strategy Paper (RSDSP) highlighting the implementation of a second generation agricultural system (Republic of Cameroon, 2010 and 2012b). In the current study, using data from recent Cameroonian Households Consumption Surveys (CHCS), we measure gender inequality in agricultural (rural area) thank to the Dagum sub-group decomposition approach [(Dagum, 1997a and 1997b), (Dagum and al., 2012)]. We capture the determinants of rural poverty through an assets index built up by applying the Multiple Component Analysis [Ritchie-Scott (1918), Pearson (1922), Olsson (1979), and Asselin (2002)]. The implications on agricultural growth and job creation are appreciated with a multiple regressed linear econometric model.

This study is important for stakeholders since, among other things, if even attention to gender and employment is not new, it has not always been acted upon. So that agriculture in Cameroon in particular and in Africa in general could be seen not only as an instrument for economic growth and improved food security but also as a major employer of the region's young people.

Section B RECENT EVOLUTION OF GENDER INEQUALITY, AGRICULTURAL GROWTH, JOB CREATION AND RURAL POVERTY

Women's empowerment and gender equality are essential for sustainable development; as they are critical to all three of its dimensions: economic development, environmental protection and social equity. The centrality of gender equality and women's participation for truly sustainable solutions has been recognized in agreements adopted at the United Nations conference on sustainable development (Rio+20), at the United Nations Convention on Climate Change (UNFCCC), and at the United Nations Convention on Biodiversity (UN, CBD), among others (Gulce A. and Al., 2012). In addition, women's economic empowerment is the single most important factor contributing to equality between women and men. A specific focus on women is necessary given the reality that women comprise the majority of economically disadvantaged groups. It is also important to mention that gendered power structures and socials norms lock both women and men in positions that limit both their

productivity and their ability to choose the lives they want to live. However, for the purpose of this paper we will discuss the specifics of economic empowerment of women, while also acknowledging the need to empower certain groups of disadvantaged men.

Empowerment refers to the process of change that gives individuals greater freedom of choice and action. A process of economic empowerment for women is contingent upon variable resources and whether women have the skills to use them, access to economic opportunities and control over economic benefits that can be used to achieve positive change. In reality, women face obstacles throughout the process of transforming resources into strategic choices. Paramount among the obstacles to women's economic empowerment is society's dependence on women's unpaid work, either at home or the market, especially in the agricultural sector. This leads to women's increased time poverty, restricting their ability to engage in paid and formal work. Removing and overcoming many of the barriers to women's economic empowerment, care work disparities included, will require structural change within social institutions to actively promote gender equality and women's rights. Women's economic empowerment and gender equality also have strong bearings on poverty reduction, growth and human development. Therefore, integrating gender goals and targets and addressing gender equality and women's economic empowerment issues a cross sectors will contribute to the poor people's perspective and are essential to the successful implementation of the aid effectiveness agenda at the core of Cameroonian development strategy.

Section C LINKING GENDER INEQUALITY, AGRICULTURAL GROWTH, JOB CREATION AND RURAL POVERTY IN CAMEROON

Many studies focused separately on gender inequality, agricultural growth, job creation and rural poverty in Cameroon. We discuss the agricultural sector because this is where the poor are mainly involved. Studies on Cameroon's poverty [World Bank (1995), Njinkeu and al. (1996), UNDP (1998), Amin and Dubois (1999), Fambon and al. (2000)] show that poverty is a rural phenomenon. Cameroon's agriculture falls under the primary sector of the economy. Agriculture includes livestock fishery, forestry and crops. The crop sub-sector is further divided into two others sub-sector: -Crops produced mainly for exports (exports crops) and crops produced mainly for domestic consumption (food crops). The crop sub-sector is the largest of the agricultural sub-sector accounting for yearly average of 76% of agricultural value (Ajab A., 2001), with all agricultural production being undertaken in the rural areas mainly by small scale or small holder producers. The poor are mostly concentrated in the rural areas, where agricultural activities are carried out. The different components of the agricultural sector are gradually changing over time, with crop sub-sector continuing to provide the major agricultural contribution to Gross Development Product and being the

livelihood of the majority of the population. Ajab A. (2001) shows that poverty in Cameroon is mainly a rural phenomenon and that rural sector is agricultural based activities. He analyzes the characteristics of rural poverty and brings out the female poverty and shows the urban and rural linkages based on the data of the first Cameroonian Households Consumption Surveys (CHCS I) conducted in 1996. In order to eradicate poverty, the paper articulates on greater investment, increase in agriculture and agriculture research particularly in order to increase sharply agricultural productivity and value added in agricultural production and in changing the rural marginal rate of transformation. More others recent studies focusing on monetary poverty [Feubi Pamen and al. (2010),] show that monetary poverty in rather increasing in urban areas in Cameroon

Moreover, income disparities between males and females have been identified as one major issue in the process of economic development. The importance of this has been strongly world widely emphasized sated under the United Nations Millennium Declaration, which then formalized into one main agenda under the Millennium Declaration Goals (MDGs) set by the United Nations [(UN, 2000) , A. Pradesha and L. Leroy (2014)]. The Human Development Index developed in 1990s by the United Nations Development Program (UNDP, 1990) stands like one of the index that has been widely used to indicate to which level is a country with regards to the development process. Moreover, the major component of the HDI is gender inequality. The HDI not only shows how well a country is performing over the years in terms of human development, but also shows how its performances comparing to others countries of the same level or not.

According to the latest human development world report (UNDP, 2014), Cameroon is ranked 152 out of 187 countries with a HDI of about 0,504.There are three dimensions used to measure the inequality: female participation in the parliament, population with at least secondary education, and labor force participation rate across gender. The three weighted scores suggest that the Gender Inequality Index (GII) for the country is 0,622 and with regards to the GII, Cameroon is ranked 138 out of 187. This value of the GII is worse than its neighboring country like Gabon with score 0.508.Even though the country index of Cameroon is improving (from). It is relative position to other countries performance suggests that Cameroon still needs to put more attention on these particular issues as part of its economic development process.

Finally, we see that none or very few works tried to study at once gender inequality, agricultural growth, job creation and rural poverty in Cameroon. This is the aim of the present paper. In the following section we highlight the methodology and the data source of the current research.

Section D ANALYTICAL FRAMEWORK AND DATA REQUIREMENT

In this study, we use cross-sectional data from the third Cameroonian Households Consumption Surveys (CHCS III) for the years 2007, issued by the National Institute of Statistics (Republic of Cameroon, 2008). The data collection of this survey is from the population census data. The total sample is calculated based on 20% of total population of enumeration areas in Cameroon. The selection is based on probability proportional to size, which suggests that the selection of the total sample in enumeration area follows the number of households living in that area. The final selection of households in each area, however, is randomly assigned which suggests that the sampling methodology employed in this survey is a stratified random sampling leading to a final sample size of 12.000 households.

As far as gender inequality is concerned, in this paper we consider two groups of households living both in rural area. They are male-headed households (Group 1) and female-headed household (Group 2). We focus on inequalities in term of consumption expenditure with the hypothesis that all of those households earn their revenue or income thanks to agriculture. For this purpose we built an inequality index through the generalized entropy law (Theil H., 1967). The generalized entropy index of a parameter δ is

$$GEI_{\delta} = \frac{1}{\delta(\delta+1)} \int_{0}^{\infty} \frac{r_i}{\bar{r}} \left[\left(\frac{r_i}{\bar{r}} \right)^{\delta} - 1 \right] dF(r)$$

Given our n units rural population, partitioned in k sub-groups ($k = 2$) with r the income and $\bar{r}$income mean, we have the Generalize Entropy Index (GEI):

$$GEI_{\delta} = \frac{1}{\delta(\delta+1)} \sum_{j=1}^{j=k} \sum_{i=1}^{i=n_j} \frac{r_{ij}}{\bar{r}} \left[\left(\frac{r_{ij}}{\bar{r}} \right)^{\delta} - 1 \right]$$

For this paper, we used a particular form of the GEI. That is the Bourguignon index (BI). Bourguignon F. (1979) introduced an inequality index with a rigorous analysis of the income inequality decompositions. Hence, it is proved that Bourguignon index is the limit of GEI_{δ} when δ tends toward -1. The Bourguignon index (BI) measure on our n units population is then

$BI = \lim GEI_{\delta\delta \to -1} \log \bar{r} - \log M_g,$

$M_g$is the geometric mean of r_i with $i = 1, 2, \ldots . n$

The decomposition ofBI leads to two components:

The contribution of inequalities within sub-groups $BI_w = \sum_{j=1}^{j=k} \frac{n_j}{n} \left(\log r_j - \log M_{gj} \right)$, with M_{gj} is the geometric mean of $\left(r_{j1}, r_{j2}, \ldots \ldots, r_{jnj} \right)$

And the contributions of inequalities between subgroups

$$BI_b = \sum_{j=1}^{j=k} \frac{n_j}{n} \log \frac{\bar{r}}{\bar{r}_j} = \log \bar{r} - \log M_{g\bar{r}_j}$$

With $M_{g\bar{r}_j}$ the geometric mean of incomes means $\bar{r}_j (j = 1, 2, \ldots\ldots, k)$ of the k subgroups.

Finally, $BI = BI_w + BI_b$

As far as poverty is concerned, we focus on non monetary poverty in rural area. Considering the inertia approach, we build a Non Monetary Poverty Composite Index (NMPCI). This choice is dictated by our desire to eliminate arbitrariness in the calculation of such an index while avoiding redundancy in the selection of relevant dimensions of poverty (Asselin, 2002). We used a technique based on multivariate factor statistical analysis [the Multiple Component Analysis (MCA)], in order to aggregate various non monetary dimensions of well being to build up our index (NMPCI). The MCA chosen as method will allow us to transform qualitative variables into quantitative variable by putting them into classes or by a binary encoding. In order to formulate our NMPCI, we first present a number of basic notations, and then we highlight elements of the NMPCI such as the Khi-Deux distance, the factorial axis, inertia of different clouds. They lead to the functional form of the NMPCI and its exploitation for calculation of its values.

According to Lebart and al., (1995, 1997)[1], let's take

I = Set of inviduals i who have responded to a questionnaire. $CardI = n$

Q= Set of questionnaires

J_q = Set of all possible answers (modalities) to question q.

$J = \cup \{J_q \,/\, q \in Q\}$ is the set of answers (response modalities) to all questions.

$CardJ = p$;

X= Table of responses with n rows and p columns; $x_{ij} = 1$ or $x_{ij} = 0$ according to the modality chosen by individual i for the question q. Such a table is called a complete disjunctive table. It is the juxtaposition of Q sub-tables :$X = [X_1, X_2, \ldots . X_q \ldots . X_Q]$.

The Multiple Component Analysis is the analysis of the table X or the one of the table$B = X'X$ called a Burt contingency table, with the general term: $b_{jj'} = \sum_{i=1}^{n} x_{ij} x_{ij'}$. There is an equivalence between the two analyzes.

The margins in rows of the table X are constant and equal to the number of questions (Q):

[1] See Bibi (2002).

$$x_i = \sum_{j=1}^{p} x_{ij} = Q$$

The margins in columns correspond to the number on individual who have choosen the modality j of the question q : $x_j = \sum_{j=1}^{p} x_{ij}$.

For each sub-table X_q , the total number is :$x_q = \sum_{j \in q} x_{.j} = n$

The sum of margins gives the total number x (total effective) of the table X, that is:

$$x = \sum_{i=1}^{n} \sum_{j=1}^{p} x_{ij} = nQ$$

We fit each individual i with an identical mass equals to $m_i = \frac{1}{n}$ and each modality j is weighted by its frequency $m_j = \frac{x_{.j}}{nQ}$

As far as the Khi-Deux($\boldsymbol{\chi^2}$)distance is concerned, in the set $\mathbb{R}^n$ of real number, the distance between two modalities is expressed as

$$d^2(j, j') = \sum_{i \in I} n \left(\frac{x_{ij}}{x_{.j}} - \frac{x_{ij'}}{x_{.j'}} \right)^2$$

In the set $\mathbb{R}^p$, the distance between two individuals $iandi'$ is given by:

$$d^2(i, i') = \frac{1}{Q} \sum_{j \in J} \frac{n}{x_{.j}} \left(x_{ij} - x_{i'j} \right)^2$$

The distance between the modality j and the centre of gravity of the cloud g is:

$$d^2(j, g) = nd^2(j, g) = n \sum_{i=1}^{n} \left(\frac{x_{ij}}{x_{.j}} - \frac{1}{n} \right) = \frac{n}{x_{.j}} - 1$$

In terms of factorial axis, factors and formulation of inertia, if we denote by D the matrix of order (j, j') with the same diagonal elements (number corresponding to each modality) like B, to find the factorial axis, we diagonalize the matrix: $V = \frac{1}{Q} X'XD^{-1}$

In the set $\mathbb{R}^p$, the equation of the α^{th} factorial axis u_α is : $\frac{1}{Q} X'XD^{-1}u_\alpha = \lambda_\alpha u_\alpha$

The equation of the α^{th} factor φ_α can be written as: $\frac{1}{Q} D^{-1}X'X\varphi_\alpha = \lambda_\alpha \varphi_\alpha$

Similarly, the equation of the α^{th} factor ψ_α in the set $\mathbb{R}^n$ is:

$$\frac{1}{Q}XD^{-1}X'\psi_\alpha = \frac{1}{Q}XD^{-1}X' = \lambda_\alpha\psi_\alpha$$

Between the two factors we have the following transition relations:

$$\varphi_\alpha = \lambda_\alpha^{-1/2}D^{-1}X'\psi_\alpha$$

$$\psi_\alpha = \frac{1}{Q}\lambda_\alpha^{-1/2}X\varphi_\alpha$$

The factorial coordonate of individual i on the axis α is:

$$\psi_{\alpha i} = \lambda_\alpha^{-1/2}\sum_{j=1}^{p}\frac{x_{ij}}{x_{i.}}\varphi_{\alpha j} = \frac{1}{Q}\lambda_\alpha^{-1/2}\sum_{j\in p(i)}\varphi_{\alpha j}$$

Where $p(i)$ is the set of modalities choosen by individual i. The coordonate of the modality j on the axis α is

$$\varphi_{\alpha j} = \lambda_\alpha^{-1/2}\sum_{i=1}^{n}\frac{x_{ij}}{x_{.j}}\psi_{\alpha i} = \frac{1}{x_{.j}}\lambda_\alpha^{-1/2}\sum_{i\in I(j)}^{n}\psi_{\alpha i}$$

Where $I(j)$ is the set of individuals who choose the modality j.

Then, the formulation of inertia is a follow:

The inertia $I_n(j)$ of the modality j is:

$$I_n(j) = m_j d^2(j,g) = \frac{1}{Q}\left(1 - \frac{x_{.j}}{n}\right)$$

While the inertia of the question is:

$$I_n(q) = \sum_{j\in J_q} I_n(j) = \frac{1}{Q}(J_q - 1)$$

We deduce that the total inertia is :

$$I_T = \sum_q I_n(q) = \sum_{j=1}^{p}\frac{x_{.j}}{nQ}d^2(j,g) = \frac{P}{Q} - 1$$

The total inertia depends only on the number of variables and modalities, and not on the relations between variables.

For the functional form of the NMPCI, let's consider Q primary indicators that reflect the living conditions of a given household such as source of water supply, the lighting mode or the owning of any asset (TV set, radio set). The problem we want to solve is the following:

how to aggregate these qualitative indicators into a single composite index that has the property of being a good summary of the information provided by the initial indicators, as far as well being is concerned? The basic ideas is then to summarize the information provided by these qualitative indicators into a single poverty index denoted $NMPCI_i$. Considering notations mentioned above,

J_q is the number of modalities of the indicator q;

W_j^q is the weight given to the modality $j, j \in J_q$ and determined in a non arbitrary way through the Multiple Component Analysis (MCA) ;

x_j^q is a variable that takes the value 1 when the household i choose the modality j and it takes the value 0 $(zero)$ in the contrary. Finally, the Non Monetary Poverty Composite Index (NMPCI) for the household i can be presented in the following functional form

$$NMPCI_i = \frac{\sum_{q=1}^{Q} \sum_{j \in J_q} W_j^q x_j^q}{Q}$$

For the household i, this index is simply an average of the weight of the binary variable x_j^q . The weight, W_j^q , given to each component of the index $NMPCI_i$ is the normalized score (score[2]$/ \lambda_1^{1/2}$) of the modality x_j obtained after implementation of a MCA. The appropriate method that enables us to determine the weight W_j^q is the MCA as proposed by Asselin (2002). In the literature it is shown that MCA is a special case of the Generalized Component Analysis (GCA). Since our data [Third Cameroonian Households Consumption Surveys (CHCS III) of 2007] include binary variables representing different modalities that can be taken by our primary indicators reflecting households living conditions, MCA is a better suited approach[3].

The construction of our NMPCI is based on an approach whose steps are as follow:

-We realize a fist MCA on a set of available and relevant variables characterizing households living conditions. The first factorial axis of this MCA allows highlighting the phenomenon of poverty and some analysis variable of the NMPCI.

-Considering given criteria such as the Ordinal Consistency on the First Factorial Axis (OCFA), measures of discrimination, spreading on the first factorial axis, the high frequency of non-response and very low frequency of certain modalities, we reduce the number of

[2] A score is the factorial coordinates on the first axis.
[3] It is important to notice that, in the literature several other methods are available and generally based on multivariate statistical analysis (See Feubi Pamen and al., 2010).

variables from the first MCA. The main criteria we use is the OCFA. This property consists, for a partial indicator, to see its ordinal structure of well being followed by the ordinal structure of coordonates of its modalities on the first factorial axis. This criterion clearly describes a situation of well being. Variables having the OCFA property obey the rule that the welfare decrease from a situation of wealth to a situation of poverty along the first factorial axis. If some variables are then rejected because of the OCFA criterion, they can be reconsidered by new combinations of modalities. A second MCA is then performed in order to improve on the explanatory power of the first factorial axis.

-From the results of this second MCA, we construct the PCI. We also even define a poverty line. There is a non-arbitrary method of determining this threshold consisting in household's classification into two groups according to the inertia criterion. Let us denote by Q a partition of the set I of households into q classes (it is important to notice that in the case of our study on multidimensional poverty in rural areas in Cameroon, we take $q = 2$), Q is finite set of non empty parts q of I with an empty intersection and whose union is I. It is written as

$$\forall\, q \in Q: q \subset q, q' \subset Q: q \cap q' = \emptyset \iff q \neq q'; I = \cup \{q \,/\, q \in Q\}$$

$g_q$is the centre of gravity of the class q. The inertia of the class q with respect to its own center of gravity g_q is: $I_n(q) = \sum_{x_i \in q} m_q d^2(x_{i,} g_q)$ and this quantity is called « within – class inertia».

Assuming that g_q are provided with weight m_q, we can define the inertia of g_q with respect to the centre of gravity g of the cloud $N(I) : I_n(g_q) = \sum_q m_q d^2(g_q, g)$ is called « between class inertia ». We then show that:

$$I_n(g) = I_n(q) + I_n(g_q)$$

The overall quality of a partition is related to the homogeneity within classes.$I_n(g)$being a constant quantity, it is therefore to minimize the quantity relating to the within class inertia or to even to maximize the quantity related to the between classes inertia. The multidimensional poverty threshold is then determined as follow

$$NMPCI\ \ threshold\ = max C_i^P m_i^P + min C_i^R m_i^R$$

In this relation, maxC_i^P is the maximum value of the NMPCI in the poor class, minC_i^R is the minimum value of the NMPCI in the non poor class, m_i^P is the weight of the poor class, m_i^R is the weight of the non poor class.

Section E EMPIRICAL FINDINGS AND DISCUSSION

The decomposition on the Bourguignon Index deduced in Section D the Dagum decomposition of this entropy index have been applied to the Cameroonian rural households income of 2007 (the most recent Cameroonian Households Consumption Survey) partitioned in two subgroups: 1- Male-headed households , 2-Femaale-headed households. Table 1 here below presents the decomposition of Bourguignon index for the two groups of households.

The Bourguignon index computed of our entire sample takes a global value of $BI = 0{,}1811320$ (Line L18). This value, as showed in table 1 is made up of two components. A within subgroup measure of inequalities ($BI_w = 0{,}172545,\ Line\ L19$) and a between measure of inequalities ($BI_b = 0{,}008588,\ Line\ L20$).We can easily see that, $BI = BI_w + BI_b$.Within groups inequalities ($BI_w = 0{,}172545,\ Line\ L19$) represents around 95,25% of the total income inequality of rural households and between groups inequality inequalities ($BI_b = 0{,}008588,\ Line\ L20$) is about 4,70% of the total inequality. Moreover, the Bourguignon index shows that male-headed households explain within inequalities twice as much (2,7155) than female-headed households and that female-headed households tends to decrease inequalities between men and women (-0,053379).

Finally, gender inequalities is rural areas in Cameroon seems to be a matter of within group inequalities is more acute in male-headed households.

Table 1: Bourguignon decomposition results

Segmentation variable	Sex HH
Name of the analysis	RE1
Number of groups	2

Name of the group		GTT	G2	G1
Full name of the group		All	Modalité 2	Modalité 1
Modality Code			2	1
Size of the group	nj	3849	1041	2808
Total Income of the group	Rj	3833247752	824453619,4	3008794133
Mean income of the group	Mj	995907,4441	791982,3433	1071507,882
Share of the group/total	Pj=nj/n	1	0,27045986	0,72954014
Inc of group/total Inc	Sj=Rj/R	1	0,215079659	0,784920341
Coef variation		5,5841E+11	5,06591E+11	5,5629E+11
Filter zone		SCM	SCM	SCM
			2	1

L17 : Geometric Mean (Mugj)	830910,3187	667029,9686	901414,8835

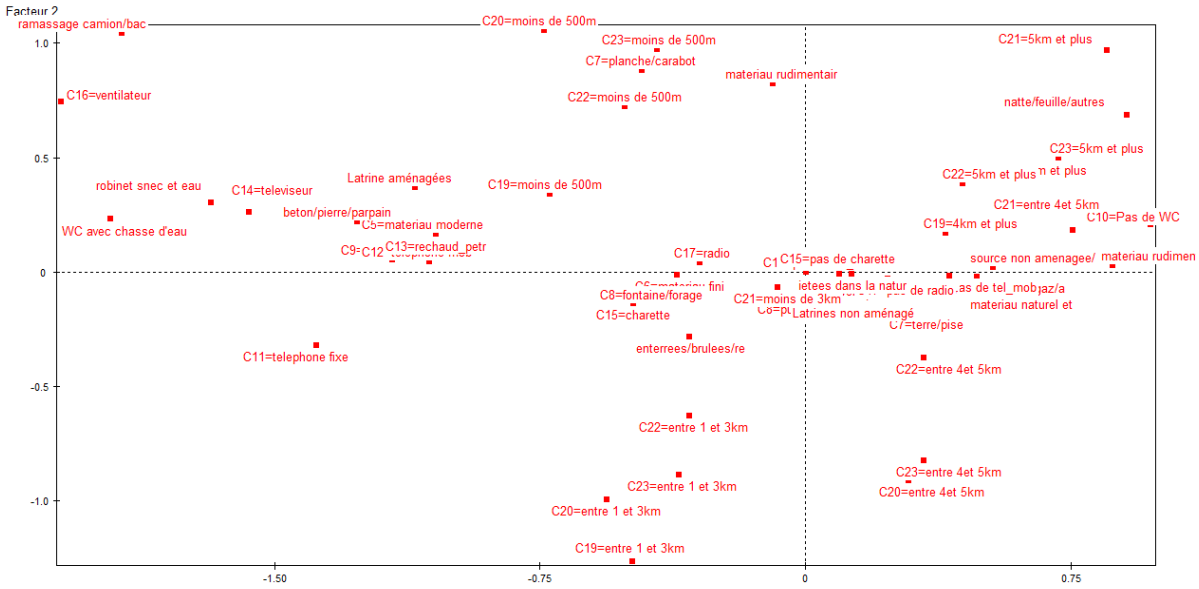
L18 : Bourguignon index Within (Vector (Bwj)	**0,181132**	0,171704	0,172857

L19 : Weighted Bourguignon index Within (Vector (PjBwj)	**0,172545**	0,046439	0,126106
L20 : Bourguignon index between (Vector (Bbj)	**0,008588**	0,061966	-0,053379

Source: Authors computation with CHCS III data

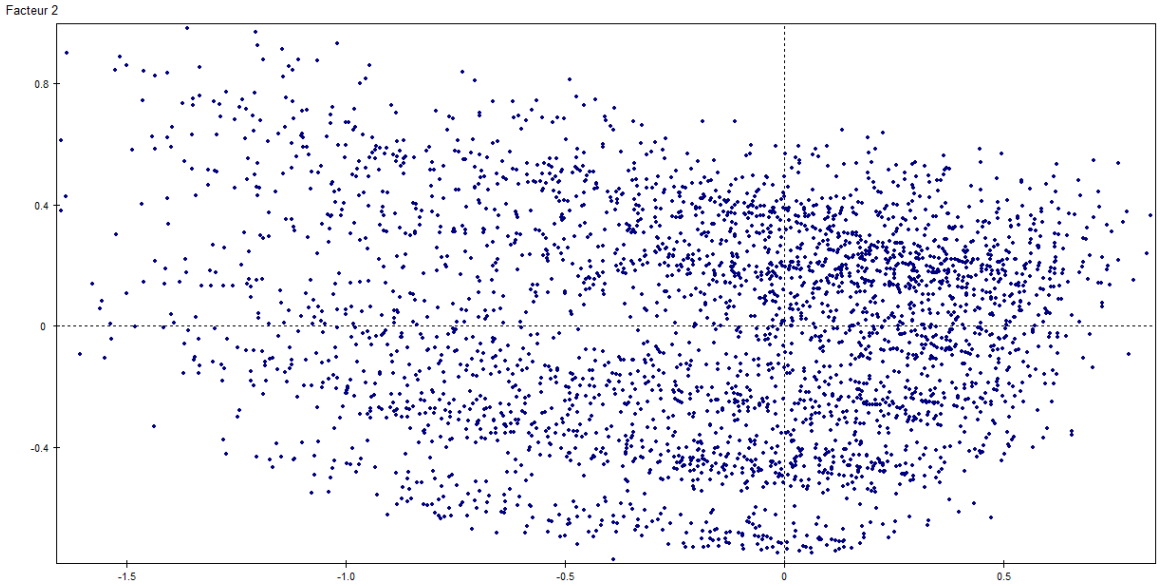
As far as non monetary poverty in rural Cameroon is concerned, the MCA with 19 variables characterizing a sample size 6247 rural households shows that, with respect to the OCFA criterion the explanatory power of the first and the second factorial axis is increasing from 12,80% to 15,95% and from 5,31% to 6,93%. Figures 1 and 2 show that variable describing non monetary poverty (housing characteristics, distance to the nearest basic infrastructure, etc….) are in the right position and that households in a situation of non monetary poverty are in the quadrant (+,+) and (+, -).

Figure 1 :Cloud of variables of the second MCAof rural households (CHCS III in 2007)



Source :Constructed by authors from CHCS III rural data.

Figure 2 : Cloud of rural households of the second MCA (CHCS III in 2007)



Source : Constructed by authors from CHCS III rural data.

The policy recommendations are to improve accessibility to basic infrastructures, to potable water, to electricity and quality of housing in rural areas. Ensure a gendered perspective along with increased advocacy support to help influence government policies that can reduce the burden on women related to the collection, provision and use of energy, and promote alternatives that are clean, affordable and will help improve inclusive agricultural growth and community empowerment and local job creation.

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ANNEX

Table A1: Variables of the study of non monetary poverty

Variables for rural households from CHCS II and CHCS III
1-Education/Instruction of the household
2-Health of the household
3- Activities of the household
4-Housing
5- Household equipment
6- Environnent and household sanitation
7- Access to social basic infrastructures
8-Land, access to credit for production and social capital of the household/ Material and financial heritage, savings and social capital of the household
9- Agriculture and rural activities

Source: Authors from CHCS III data.