

## Income and expenditure strictures in rural area of Katanga: case study of Mimbulu and Kamarenge in territory of Kipushi

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**ABSTRACT:** The poverty which shakes the DR Congo and the province of Katanga in particular is the basis of social problems. It is known that poverty is accentuated in rural areas where the labour market in industry and services remain almost non-existent. To provide for household needs, household heads cope by seizing opportunities available in their areas. The present paper focused on rural income and household expenditures in order to apprehend rural poverty in two villages of Kipushi territory. This paper followed three objectives, especially the determination of the sources of incomes, the comparison between female and male headed household's income and the identification of the main household expenditures. To arrive there, an investigation aimed 80 household heads taken in a random way in 2 villages namely Mimbulu and Kamarenge. The results reveal that the majority of household heads are males. The main sources of income identified are agriculture, petty trade of agricultural products, charcoal production and artisanal mining. Artisanal mining provides the highest monthly income (US\$ 150-158.3). No significant difference was observed between the two villages compared but a deep gap has been noted between the male and female headed households ( $P=0.016$ ). The main posts of expenditures are food (72%), children's education (21%) and health (7%). The relevance of these results is that looking at income level and its different sources provides rich insights to help improve the understanding of poverty in rural areas.

**KEYWORDS:** Poverty, household, income, head household, diversification.

### 1 INTRODUCTION

Poverty is conventionally defined in terms of income poverty. It is measured in different ways, predominantly in terms of inadequacy of income to procure a minimum food consumption basket, which is judged to offer the required minimum level of calories [1],[2]. The Democratic Republic of Congo (DRC) belongs to the category of low-income countries [3], and 71.3% of the population continue to live below the poverty line [4]. The rate of poverty is very high in Katanga (69.1%)[5] while the province abounds in enormous natural resources (copper and cobalt), but this wealth has never been used for the benefit of the Congolese population[6]. Katanga is not exceptional, for almost 70% of the population of the DRC lives in rural areas, and agriculture is often the main source of income for these families.[7],[8]. However that agriculture of a family type is currently characterized by low productivity due to the lack of capital (equipment, supplies, knowledge) of farmers, soil infertility, and redirection of family labour towards the industrial sector and rural migration which becomes more and more expressed among the young people). In the face of these changes, both rural and urban people manage by developing survival strategies. In Kinshasa city, for example, in light of the deteriorating economic situation, [9] notes that people today have

better coping strategies and manage their food security more adequately than before. In Katanga, [10] highlights the development of an informal economy. This informal economy allows urban and rural households to increase their income and fight against poverty. The way rural people form and diversify their incomes should receive increasing attention so that we apprehend their dynamics and the improvement well-being. It is asserted today that the rural sector largely exceeds the strictly agricultural sector but that the nonagricultural component remains still badly known, whereas this pluriactivity is at the base of the economic organization of rural households [11]. This pluriactivity leads to income diversification to confront poverty and food insecurity, two correlated calamities in rural areas. According to [12], rural income diversification can be defined as an expansion of rural dwellers' income sources away from their own farm labour. For the author, such movement has various dimensions: (1) a change in labour form from household labour to wage labour, (2) individual self-employment, rent or other income transfers, and 3) increasing replacement of agricultural work with non-agricultural activities. At Kipushi, the main activities led by households to form their income are agriculture, commercialization of agricultural products, and artisanal activities. The agriculture sector which gathers more people is reduced to the subsistence level. The artisanal activities relate mainly to artisanal mining, but since the new Mining Code has been applied, the real losers until today are artisanal miners deprived of any alternative sources of employment [6] while their activities are well known to play a crucial role in the socio-economic landscape of Katanga Province by providing income to a significant share of the population and alleviating poverty [13].

In consideration of what is previously said, three questions attract our attention: 1) which is the share of each source in the formation of income? 2) Is income equal for both male and female household heads? 3) Which are the main household expenditures? In the context of poverty and low monetization of the rural economy [14], the present paper aims to study rural income and household expenditures in order to understand rural poverty. This paper followed three objectives, in particular the determination of the sources of incomes, the comparison between female and male headed households' income and the identification of the main household expenditures.

## 2 MATERIALS AND METHODS

### 2.1 STUDY AREA

Located in the province of Katanga, Kipushi territory is localized near 11° 46' South and 27 23' East in the DRC and covers a surface of some 12059 km<sup>2</sup> with a Congolese and foreign population (table 1). Kipushi Territory was created by Order n° 211213 of 17 July 1956 [15]. It was among the 22 territories which counted the old province of Katanga before the recent reorganization in four smaller provinces. According to [16], it occupies a strategic position since the town of Lubumbashi (capital of the former Katanga province) is entirely located within it. Beyond the city of Kipushi, which is essentially a mining town of Gécamines, the former government-owned mining monopoly, the territory includes two *chefferies* and one *sector* (larger centralized chieftaincies and artificially-regrouped small units respectively) : Kaponda and Kinama chiefdoms and the sector of Bukanda. The territory is limited on the north by the territory of Kasenga, on the South by the Territory of Sakanya and the Republic of Zambia, on the East by the Republic of Zambia, and on the West by the Territory of Kambove.[15]. Mimbulu and Kamarengé and are two among the villages which count the territory. The first village is situated at ± 18 km from Lubumbashi between 11°31'48.81''South and 27°36'36.84''East[16] while Kamarengé is entirely located in the city of Kipushi (30 km from Lubumbashi city). There is no official demographic data for Kipushi except the territory official report, but they must be taken with much vigilance because the last major agricultural census in rural areas dates from 1970[17].

**Table 1. Demographic state of the territory of Kipushi in 2010.**

Entities	Surface(km <sup>2</sup> )	Congolese population	Foreign population	Agricultural households
City of Kipushi		107280	4013	7007
Kaponda	12059	73916	11613	15364
Cheffery Kinama		23564	-	4233
Bukanda		52343	159	9431
<b>Total</b>		<b>257103</b>	<b>15785</b>	<b>36035</b>

*Source: Report of agricultural inspection of Kipushi Territory 2010-2011.*

## 2.2 SOCIOECONOMIC CHARACTERISTIC OF KIPUSHI

The territory of Kipushi is well known for its past glory in mining activity. The territory is usually called “*Kipushi ya maboke*” by local people to allude to marrow production in this area. The leaves are consumed as valued leafy vegetable, as well as the fruit (**fig1**). The main activity today in the villages surveyed is agriculture, but this has become weakened by the fact that farmers do not get the necessary inputs (fertilizer, seed, ...) further to their high cost. Also, family becomes more and more scarce because of rural migration.[18]. The fact that Kipushi shares the border with the Republic of Zambia constitutes an important opportunity for regional trading.



*Fig1. Marrow cultivation in Kipushi*

## 2.3 MATERIALS AND METHODS

A survey was conducted between February and May 2014 in two villages of Kipushi (Mimbulu and Kamarenge) by a graduate student. A random sampling of 80 rural households was interviewed to learn their sources of income, the contribution of each source in forming household income (income earned), the main expenditures of the households. The materials used in this research were a questionnaire and a camera to take pictures. The choice of study sites was on the basis that beyond agricultural activities, there are other sources of income like artisanal mining; also previous research [19] presents the area as very poor and food insecure. As for income, this study adopts it first as a welfare measure for poverty analysis. Secondly, income and its sources have been a main focus for evaluating economic welfare and poverty analysis for many studies; it is also argued that looking at income and its different sources provides rich insights to help improve our understanding of poverty dynamics and the livelihoods of poor people. [20] Income is calculated as the sum of net earnings from agriculture and nonfarm activities or employment.[21]. Data collected were subjected to descriptive statistics (means  $\pm$  standard deviation and simple percentage. The comparison of averages by the Student *t*-test made it possible to apprehend the income gap between gender (man and woman) within the area of study. It is very important to mention here the fact that some economic activities do not always generate incomes per month ((for example agriculture because it takes long), we have decided to divide annual income by twelve to find results on table 3. The obstacles met during this survey relate to the resistance and reserved position of people investigated to declare exactly their whole income, more especially as we are in a situation where currently people have less confidence in one another.

## 3 RESULTATS AND DISCUSSION

### 3.1 CHARACTERISTIC OF HEAD HOUSEHOLDS

These results on household characteristics are similar to other findings in the DRC and elsewhere in Africa. In Cameroon, [22] shows that greater proportions of male than female household heads are educated and Male household heads are by far a higher proportion than female heads of households, especially in rural areas. The characteristics of household heads surveyed hide disparities which can firstly explain the wide difference between incomes in the two areas of the study. Indeed, it is just in Kamarenge where educated people are many. The majority (60%) of heads of household attended secondary school, whereas at Mimbulu they are only 15%. The illiterate household heads represent just 50% in Mimbulu and

15% at Kamarengé. This situation should be among factors of large families in this territory [23]. For [24], the rural households appear to be of bigger size than those of the cities. In 75% of households their size varies between 5-7 persons, and those directed mainly by males is near 75% at Mimbulu and 85% at Kamarengé. In Kinshasa city, [9] found that household size is on average of 6-7 persons. Recently, in the same territory [18] found on average a household of 7 persons directed by men. Moreover, the same author mentions that 70.2% heads of family farms are also household heads. The similar situation has been observed in Cameroon where 82% households are headed by males and only 18 % by females [25]). In the villages studied, most women heads (82.7%) are widowers, 12.3% never married and 5.3% are divorced.

**SOURCE OF INCOME IN STUDY AREA**

Many analysts see income diversification as a vital coping strategy for the rural poor [12]. The income diversification is associated with higher incomes and food consumption in rural areas [26]. Since poverty and instability have increased in Katanga province in recent years, food insecurity increased too. For lack of employment, people continue to cope to gain what to eat for themselves and their families at the risk of their lives. For example, Global Witness noted that artisanal mining has been and is still carried out in dangerous and uncontrolled conditions, with thousands of miners risking their lives to earn around US\$ 1 a day [6]. The table below presents the main sources of income for heads of households surveyed.

*Table 2. Sources of income of households*

Villages	Distribution of Sources of income %				
	Agriculture	Making charcoal & bricks	Petty trade	Artisanal mining	Other
Kamarengé	35	20	30	10.8	4,2
Mimbulu	52	20	19	7.0	2.0
<b>Average</b>	<b>43.5</b>	<b>20</b>	<b>24.5</b>	<b>8.9</b>	<b>3.1</b>

Table 1 presents the main sources of income in rural areas. The income from agriculture counts for 43.5 % while making charcoal and bricks are 20% of income. It is noteworthy that petty trade of agricultural products, artisanal mining (handcrafts) and other employment count respectively for 24.5%, 8.9% and 3.1%. However, the people in artisanal mining have seriously decreased since the new Mining Code has been set up. At the sight of these results, one can understand and support the role of agriculture in rural areas: not only it is the first source of income for the majority of rural households [8],[10] but also [27] report that the significance of subsistence agriculture as a means of supplementing household food supplies seems to heavily outweigh other reasons for engaging in agriculture. Charcoal production provides weekly income to households who depend on it, but this activity constitutes a pressure on the environment. In spite of all, in Senegal for exemple, the charcoal trade allows more than 70 inhabitants of the Sambandé zone to find employment and to generate income which support many families’ lives [28]. Around Lubumbashi and Kinshasa, [29] show that charcoal production allows producers and sellers to earn money quickly. Moreover, a few charcoal makers manufacture bricks too. The demographic growth of Lubumbashi and the city of Kipushi produce high demand for building materials, mainly bricks. Petty trade, as said above, gathers mainly women who take vegetables, sweet potatoes, maize, tomatoes , and charcoal from their farms or from the mixed market Zambia/Kipushi to supply first the city of Kipushi and then Lubumbashi. Given that current agriculture in rural areas is to supply growers own food (auto consumption) [10],[11], 63% of products commercialized (potatoes, tomatoes, rice, maize flour, onions, head cabbage, goats) come from Zambia. This situation leads to food dependence on neighboring countries for the East of D R Congo [30] and contributes in a way to the weakening of Congolese agriculture.

**HOW MUCH DOES EACH SOURCE BRING PER MONTH?**

It is admittedly known that agricultural income per capita in rural areas always remains on a very low level [31], and this constitutes the fundamental cause of food insecurity [32]. Statistically, no significant difference has been noted between the two villages according to the monthly income earned by the heads of households (p=0.081) as shown by Student’s t-test, but a higher income has been observed at Kamarengé with US\$ 132.8±74.6 superior to US\$ 95.8±60 recorded at Mimbulu village. This is explained mainly by the factor of geographical location. First, Kamarengé is first located near the city of Kipushi and not far from the border with Zambia. This factor implies various economic activities generally relating to food commercialization and services like goods transport. However, Mimbulu seems to be in the middle between Lubumbashi and Kipushi. This village is located at ± 18Km from Lubumbashi [16] and nearly 12km from Kipushi. The main activity of this area relates to agriculture production. Nevertheless, it is not easy to determine agricultural household’s income in rural areas. It is

due firstly to the fluctuating character of agricultural product prices which depend on the nature of crops, the cycle and the period of cultivation. For example, vegetables produced in rain season are less expensive than dry season products. Secondly, production is not sold at one same moment and household heads seldom record information relating to cultivation output and selling price. Thirdly, the part taken from the field and consumed by the household is neither recorded nor known. Finally, the man and woman in same family can manage each one his income. In spite of all those difficulties, this paper tries to present in the following table the income declared from each source of income.

**Table 3. Share of each source on income formation per month**

Villages	Monthly average income earned from each source in US\$				
	Agriculture	Charcoal production	Petty trade	artisanal mining	Other
<b>Kamarenge</b>	115	100	133.3	158.3	110
<b>Mimbulu</b>	94.3	82.5	96.0	150	83.3
<b>Average total</b>	<b>104.6</b>	<b>91.2</b>	<b>114.6</b>	<b>154.1</b>	<b>96.6</b>

**Table 2** reveals first that manual labor (artisanal mining) provides generally high income (US\$154.1) in both villages of this study. People involved in artisanal mining always say « *our job requires much energy, during one day it can provide more money than agriculture does.* » yet agriculture is the main source of income in rural areas [8], but agricultural incomes are low and these incomes are at small percentage of total income [33]. Agriculture (crop sales) and petty trade provide respectively US\$ 104.6 and US\$ 114.6 but these incomes are at high level at Kamarenge.. This can be explained by the fact that the high demand of food in the city of Kipushi implies profitable prices for agricultural products. Secondly, there are fewer intermediaries in the commercialization chain. Those incomes in table 2 approach the range of incomes (US\$ 115-205) found recently by [19] in the same zone. They are nearly the same as the US\$ 113-145 recorded by [29] around Lubumbashi among charcoal makers. The investigations carried out by [5] showed that the categories of households which are very poor are those whose heads work in informal agricultural (74.6%).

#### ARE INCOMES EQUAL FOR MALE AND FEMALE HOUSEHOLD HEADS?

In Africa, women are much involved in rural activities, mainly agricultural production [18],[34],[35], but they often earn less than men. Further to this situation, it seems that having a male head of household positively influences income growth for poor households [36]). In rural areas, the gap between men and women is apprehended under various forms. Women have less access than men to agricultural assets, inputs and services and to rural employment opportunities. This gender gap imposes real costs on society in terms of lost agricultural output, food security and economic growth.[37]. The findings of this research reveal that statistically the incomes were not equal. A significant difference ( $P=0,016$ ) has been observed between male and female household heads' incomes after the Student *t*-test. Indeed, men earn income widely superior (US\$ 114 ±72 to women's US\$ 67±36). These results share Diana Pearce's issues showing that poverty is rapidly becoming a female problem [38]. For the case of the studied villages, this can be apprehended by the fact that men have more possibilities to combine activities and even be hired in rural services because they are better educated than women. In addition, they can independently manage their off farm business and service. For example, making charcoal and artisanal mining are jobs mainly reserved to men. As for women, they often spend much time in fields growing crops and taking care of children and family. For example, in the cotton zone of Central African Republic, 60% of women's time is consecrated to food-production [39]. The FAO estimates that in spite of a greater overall workload, women receive lower wages and have less education and less access to extension services. As said above, 82.2% of women household heads are widowers with advanced age. This vulnerable state reduces their ability to face jobs demanding more energy such as cultivating large surface areas or artisanal mining.

#### WHAT ARE THE MAIN EXPENDITURES OF THE HOUSEHOLDS?

Good health depends on income. If the latter is higher, it gives access to the best living conditions such as more secure housing and improves purchasing power and the capacity to acquire sufficient foodstuffs [40]. Poor households access their food from the market, subsistence production and transfers from public program or from other households [41] however, in Kamarenge and Mimbulu there is no exact program to facilitate people access to food. Nevertheless, in former time,

*Gécamines* used to help farmers in Katanga through many community projects (health, water, agriculture and school), but today the only words one can hear from the old farmers in Kipushi are « *since Gécamines has been bankrupt, our farms have also died. From that time, poverty and hunger increased much in our society!* »

At Kipushi as elsewhere in sub-Saharan Africa in the past rural households produced most of their own food, but recent studies have shown an increase in dependence on market purchases by both urban and rural households, in some cases reaching 90% of food supplies [41] whereas their purchasing power is still low. The following table presents the main expenditures of household per month.

**Table 4. Monthly expenditures of households**

<b>Items</b>	<b>Cost per month (US\$)</b>	<b>% equivalent</b>
<b>Food</b>	51.8	72
<b>Schooling</b>	15	21
<b>Health</b>	5.1	7

Poor households consecrate an important part of their incomes to food. In the case of the village surveyed, on average, the total monthly income for a household is evaluated to US\$ 109.3±72 for both man and woman household heads on the whole. However, separately, male-headed household income is largely higher than those with women head, as said above. It is shown from table 4 that food supply is the most privileged expenditure with US\$ 51.8 which corresponds to 72% of total habitual expenditures. Then follow children’s school fees and health respectively to 21% and 7%. According to [41], food expenditures can account for as much as 60-80% of total household income for low-income households in some parts of sub-Saharan Africa. In Kinshasa, these expenditures well exceeded 50% of income in poor families, followed by 8 % on education and 6 % on health [9]. As for children’s education, poverty is among the main causes of illiteracy in DR Congo and especially in rural areas. The recent findings of [23]) in Kipushi reveal that 54% of household heads spend 34% and 12% of their income for food and education. In India, household expenditure on education forms 2.6 % of total household expenditure on all items of consumption, but elasticity has been observed within households. The increase of one percentage in total household income would result in 1.5% increase in household expenditures on education [1]. As for health, households allocate less of their income there not because they are secure but because 82.3% people surveyed affirmed to be unable to support increasing health costs. In Mimbulu and Kamarenge 55.7% of heads recorded a case of malaria. The lack of health fees has led more than 25.1% to resort to traditional medicine on the basis of roots and leaves of plants with therapeutic values, well known and identified by rural people. The research of [42] in Kinshasa revealed that low income (less than US\$ 100) in DRC explains the weak utilization of and access to health services throughout the country. In addition to poverty, the state’s disengagement from education and health in rural areas must affect farmers’ production capacities [7] and reduce their life expectancy.

**4 CONCLUSION**

Income and its sources have been a main focus for evaluating economic welfare and poverty analysis for many studies. It measures the welfare of the household because it determines the purchasing power and the consumption of the household. Agriculture is the main source of income (43.5%), but currently it is characterized by low productivity due to the poverty of farmers, soil infertility and rural out migration. Based on income and household size as found in Kamarenge and Mimbulu, these incomes are too low to take care of people living in the household. To eliminate the flagrant gap between men and women recorded, it is necessary to integrate a gender approach in all development planning. Given that agriculture gathers the majority of head households surveyed, these results constitute a message to the government and its partners to promote agricultural development in rural areas.

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