Original Article

Assessments of Poverty Profile and Income Inequality in North Kordofan State, Sudan

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Abstract

This study was carried out in North Kordofan state The aim of the study are: To establish poverty lines indicators, poverty profiles and income inequality in the rural household focusing on the traditional farms and to identify the main causes of poverty of the poor rural tenants in traditional farms. Structured questionnaire using stratified sampling technique was used to gather households' poverty data from four localities in North Kordofan State, a total of 205 households were interviewed. Different analytical methods were used, namely: The Foster-Greer-Thorbecke (FGT) is a generalized measure of poverty within an economy. It combines information on the extent of poverty (as measured by the Headcount ratio, the intensity of poverty (as measured by the total poverty Gap) and inequality among the poor (as measured by the Gini and the coefficient of variation for the poor).

The results show that about 68.8% of households' in north Kordofan state were poor living below the poverty line, 9.2% are moderate and 22% are non-poor if US$ 1 index is applied. The poverty incidence was high in Elkhowi (75%) followed by Elnohoud (71.4%), Umrwaba (70%) and Sheikan locality (65%).

Keywords: Poverty profile, Income Inequality, North Kordofan State.

Introduction

A concise and universally accepted definition of poverty is elusive largely because it affects many aspects of the human conditions, including physical, moral and psychological. Different criteria have, therefore, been used to conceptualize poverty. Most analyses follow the conventional view of poverty as a result of insufficient income for securing basic goods and services. Others view poverty, in part, as a function of education, health, life expectancy,

child mortality etc. (Blackwood and Lynch (1994) identify the poor, using the criteria of the levels of consumption and expenditure.

Further, Sen (1983), relates poverty to entitlements which are taken to be the various bundles of goods and services over which one has command, taking into cognizance the means by which such goods are acquired (for example, money and coupons etc) and the availability of the needed goods. Yet, other experts see poverty in very broad terms, such as being unable to meet "basic needs" – ((physical; (food, health care, education, shelter etc.) and non – physical; participation, identity, etc)) requirements for a meaningful life (World Bank, 1996).

Broadly, poverty can be conceptualized in four ways; these are lack of access to basic needs/goods; a result of lack of or impaired access to productive resources; outcome of inefficient use of common resources; and result of "exclusive mechanisms". Poverty as lack of access to basic needs/goods is essentially economic or consumption oriented. It explains poverty in material terms and specifically employs consumption-based categories to explain the extent and depth of poverty, and establish who is and who is not poor. Thus, the poor are conceived as those individuals or households in a particular society, incapable of purchasing a specified basket of basic goods and services. Basic goods are nutrition, shelter/housing, water, health care, access to productive resources including education, working skills and tools and political and civil rights to participate in decisions concerning socio-economic conditions (Streeten and Burki, 1978). The first three are the basic needs/goods necessary for survival. Impaired access to productive resources (agricultural land, physical capital and financial assets) leads to absolute low income, unemployment, undernourishment etc. Inadequate endowment of human capital is also a major cause of poverty. Generally, impaired access to resources shifts the focus on poverty and it curtails the capability of individual to convert available productive resources to a higher quality of life (Sen, 1977; Adeyeye, 1987).

Poverty can also be the outcome of inefficient use of common resources. This may result from weak policy environment, inadequate infrastructure, weak access to technology, credit etc. Also, it can be due to certain groups using certain mechanisms in the system to exclude "problem groups" from participating in economic development, including the democratic process. In Sub-Sahara Africa (SSA), the agricultural sector was exploited through direct and indirect taxation throughout the colonial and post-colonial decades leading to poor growth performance of the sector, heightened rural-urban migration and employment crisis. In urban SSA, Silver (1994) suggests three paradigms of exclusion: the individual's specialization that cannot be accommodated in the factor market (specialization paradigms); the various interest groups that establish control over the input of available resources, for example, on goods and labor markets and simultaneously foster solidarity within the respective interest groups (monopoly paradigms); and the individual which has a troubled relationship with the community (solidarity paradigm). Poverty can be structural (chronic) or transient. The former is defined as persistent or permanent socio-economic deprivations and is linked to a host of factors such as limited productive resources, lack of skills for gainful employment, endemic socio-political and cultural factors and gender. The latter, on the other hand, is defined as transitory/temporary and is linked to natural and man- made disasters. Transient poverty is more reversible but can become structural if it persists. It is generally agreed that in conceptualizing poverty, low income or low consumption is its symptom. This has been used for the construction of poverty lines.

Problem statement

Poverty in the Sudan is deeply entrenched and is largely rural. Poverty particularly affects farmers who practice rain-fed agriculture. It is more widespread and deeper in rural areas and in areas affected by conflict, drought and famine. The incidence of poverty varies

considerably according to region, in part because economic growth has been unevenly distributed, but also because of the economic and social devastation caused by the conflict in certain parts of the country. There are severe inequalities in terms of access to education, sanitation and clean water, infrastructure and natural resources and income opportunities (IFAD, 2010).

The Sudan remains a low-income, food-deficit country. It ranks 147th on the United Nations Development Programme's Human Development Index (2007/2008), among 177 countries (IFAD, 2010).

In the country's poorest areas, the rapidly growing population, including displaced people and returnees, puts significant pressure on already fragile ecosystems. Erosion, loss of soil fertility and damage to watersheds are affecting resources. Agricultural productivity is low. Farmers face the impact of the effects of climate change, such as water scarcity, on their livelihoods. Volatile food prices affect household food security.

North Kordofan is one of the four largest states in Sudan. The state borders South Kordofan as well as North and South Darfur, and has therefore inevitably been affected by the security situation in these areas. An influx of IDPs from other states has led to increased pressure on already limited basic services related to health and education. Furthermore, North Kordofan is semi-arid and prone to both drought and desertification and lack of water is one of the key issues in the state and has been for decades. Consequently, North Kordofan is exposed to both chronic and sporadic food shortages (WFP, 2010).

According to the Sudan Social Development Organization (SUDO), poverty is a key challenge in the state, particularly in rural areas. Additionally, North Kordofan struggles with very poor health indicators and rates for maternal and infant mortality are high. North Kordofan is traditionally an agro-pastoral community, and the main source of livelihoods is a combination of rain-fed cultivation and livestock keeping. The key economic activity is farming, followed by animal husbandry and trade. During the last decades, drought as well as pest infestation has led to an increasingly difficult situation in North Kordofan (WFP, 2010).

Objectives

The main objective of this study is to measure and analyze poverty profile and income inequality in North Kordofan State.

The specific objectives are to:
- ✓   Estimate poverty incidence, gap and severity,
- ✓   Assess income inequality,
- ✓   Estimate poverty profile ,
- ✓   Identify the main causes of poverty of the poor rural households in traditional farms

Research Methodologies
Data collection
Methods of data analysis
Poverty Measurement Theoretical Framework

The Foster-Greer-Thorbecke (FGT) is a generalized measure of poverty within an economy. It combines information on the extent of poverty (as measured by the Headcount ratio, the intensity of poverty (as measured by the Total Poverty Gap) and inequality among the poor (as measured by the Gini and the coefficient of variation for the poor).

The formula for the FGT is given by:

$$P_\alpha = \frac{1}{N} \sum_{i-1}^{H} \left(\frac{z - y_i}{z} \right)^\alpha \qquad\qquad (1)$$

Where

N = the total number of population under consideration,

H = the number of poor (those with incomes at or below z),

yi = the individual income of the i-th poor,

Z = the poverty line, and α is a parameter characterizing the degree of poverty aversion i.e. the parameter α determines the precise measure of poverty to be used.

When the parameter α equal zero the headcount ratio (H) is generated, when parameter α equal one the poverty gap ratio (PG) is generated, which is often considered as representing the depth of poverty. And when the parameter α equal two the poverty severity (PS) is obtained.

The higher the FGT statistic, the more poverty there is in an economy

Headcount Ratio

The FGT measure corresponds to other measures of poverty for particular values of α. For α = 0, the formula reduces to

$$P_0 = \frac{H}{N} \qquad (2)$$

This is the headcount ratio, or incidence of poverty. This is the proportion of population for whom consumption expenditure is less than the poverty line (CBN, 1998). The poverty aversion parameter equal zero

Poverty Gap

$$P_1 = \frac{1}{N} \sum_{i-1}^{H} \left(\frac{z - y_i}{z} \right) \qquad (3)$$

This is the average poverty gap, or the amount of income necessary to bring everyone in poverty right up to the poverty line, divided by total population. This can be thought of as the amount that an average person in the economy would have to contribute in order for poverty to be just barely eliminated.

While the two above versions are widely reported, a good deal of technical literature on poverty uses α = 2.

Squared Poverty Gap (Poverty Severity) Index

$$P_2 = \frac{1}{N} \sum_{j=1}^{H} \left(\frac{z - yi}{z} \right)^2 \qquad (4)$$

As in this form, the index combines information on both poverty and income inequality among the poor.

Poverty Profile

Additive poverty measures allow to divide the population in mutually exclusive groups and to decompose the overall measure (for the entire population) into a series of measures for each sub-group

$$P = \sum_{k}^{K} \frac{P_k N_k}{N} \qquad (5)$$

Where

P_k is the value of the poverty measure for group k

k=1... K are the sub groups, N_k is the population of group k

Gini Coefficient of Inequality

This is the most commonly used measure of inequality. The coefficient varies between 0, which reflects complete equality and 1, which indicates complete inequality (one person has all the income or consumption, all others have none). Graphically, the Gini coefficient can be easily represented by the area between the Lorenz curve and the line of equality.

$$G = 1 - \sum_{i=1}^{n} (P_i - P_{i-1})(L_i + L_{i-1}) \qquad\qquad (6)$$

Where:

G is the Gini coefficient,

P, is the cumulated proportion of the population variable, for $i = 0,...,n$, with $P_0 = 0$, $P_n = 1$.

L, the cumulated proportion of the income variable, for $i = 0,...,n$,

with $L_0 = 0$, $L_n = 1$.

L_k should be indexed in non-decreasing order $(L_i > L_{i-1})$

Results and discussion

Estimation of the Poverty Line and Poverty Status

The first step in the analysis of poverty is the determination of the poverty line.

To estimate the poverty status in North Kordofan state and the number of people below the poverty line, the poverty line was used for this study and was calculated from the international measures of the mean per capita income. The application of dollar per day in the computation of poverty measure was achieved by adopting the World Bank (2002) of Purchasing Power Parity (PPP), in addition to that, the poverty line US$1.25 and US$2 a day have been applied, which placed was on US$1 to be equivalent to SDG 2.8 (exchange rate) during the data collection.

As shown in Table (1), the results show that about 68.8% of households' in north Kordofan state were poor living below the poverty line, 9.2% are moderate and 22% are non-poor if US$ 1 index is applied. This percentage increases to 82.9% for poor respondents, and decreases to 2.4% and 14.6% for moderate and non-poor respectively, if US$ 1.25 index poverty line is applied.

In addition to that, the percentage of respondents who live below poverty line (poor) increases to 90.2% and non-poor decreases to 9.8% if US$ 2 index of poverty line is applied.

FGT Measures Results

Many attempts have been made to measure poverty but there exists different views about the concept of poverty which has made it difficult to find a definitive and universally-accepted method of measurement (Khan, 2009). However, due to this relativity and multidimensional nature of poverty, this study adopted the basic Foster-Greer-Thorbecke (FGT) indices which is one of the most commonly used poverty indices in the literature adopted as a measure of poverty (Foster, et. al, 1984). This measure has three components: (a) the incidence of poverty which shows the share of the population that are below the poverty line (absolute poverty), (b) the depth of poverty which shows how far the households are from the poverty line (depth of poverty), and (c) the severity of poverty which relates to the distance separating the poorest households from the poverty line and combines information on both poverty and inequality among the poor.

Table (1): Poverty Status in North Kordofan State ($1, $1.25 and $2)

Items	Poor			Moderate			Non-poor		
	$ 1	$ 1.25	$ 2	$ 1	$ 1.25	$ 2	$ 1	$ 1.25	$ 2
North Kordofan state	68.8	82.9	90.2	9.2	2.4	0.0	22	14.6	9.8
Localities									
Sheikan locality	65	70	86	0.0	5	0.0	35	25	14
El-Nuhoud locality	71.4	100	100	28.6	0.0	0.0	0.0	0.0	0.0
Elkhoway locality	75	87.5	87.5	12.5	0.0	0.0	12.5	12.5	12.5
Umrwaba locality	70	100	100	13.3	0.0		16.7	0.0	0.0
Educational level of the household head									
Illiterate	73.3	86.7	100	6.7	6.7	0.0	20	6.7	0.0
Primary	58.3	58.3	66.7	0.0	0.0	0.0	41.7	41.7	33.3
Secondary	78.5	100	100	22.5	0.0	0.0	0.0	0.0	0.0
University	0.0	100	100	0.0	0.0	0.0	100	0.0	0.0
Marital status of the household head									
Married	69.1	82.9	91.4	10.9	2.9	0.0	20	14.3	8.6
Single	60	80	80	0.0	0.0	0.0	40	20	20
Widow	100	100	100	0.0	0.0	0.0	0.0	0.0	0.0
Household head Gender									
Male	71	80.6	90.3	6.5	3.2	0.0	22.5	16.1	9.7
Female	62	90	90	18	00	0.0	20	10	10
Age distribution of the household head									
20-30	50	75	100	25	0.0	0.0	25	25	0.0
30-40	73.7	84.2	84.2	5.3	0.0	0.0	21.1	15.8	15.8
40-50	60	60	100	0.0	0.0	0.0	40	40	0.0
50-60	66.7	100	100	16.6	0.0	0.0	16.7	0.0	0.0
60-70	50	50	100	0.0	50	0.0	50	0.0	0.0
70-80	100	100	100	0.0	0.0	0.0	0.0	0.0	0.0

Source: Field survey

The results of poverty indicators in study area are summarized in Table (2). In total sample households, the incidence of poverty, average poverty gap and square poverty gap are 68.8%, 37.3% and 20.3%, respectively, if US$ 1 a day index is applied. Poverty indicators within poverty line US$ 1.25/person/day index applied indicated that poverty incidence, gap and severity were shown 83.4%, 46.2% and 25.6%, respectively. This percentage of poverty incidence, gap and severity increases to 90.2%, 61.2 and 41.6%, respectively if poverty line US$ 2 day index applied. This finding of poverty incidence, gap and severity is greater than the findings of the Sudan Institutional Capacity Program (2009): Food Security Information for Action, Rural poverty in North Kordofan based on standard level of food poverty line US$ 1 person a day index applied. The causes of high poverty incidence in the study area may be explained by traditional farming system and practices, economic limitations like poor infrastructural services, shortage of productive assets are also factors responsible for the

households' food insecurity, insufficient rainfall during the season 2011, prices of factors of production (land, labor and capital), the increasing cost of living, inadequate development strategies, slow adaptation to climatic volatility, erosion of natural resources are the root causes of poverty. The Sudan remains a low-income, food-deficit country.

Table (2): FGT Measurement of poverty (headcount ratio, poverty gap and severity) in North Kordofan state

Poverty type	Standard living of poverty line		
	1 Dollar day	1.25 Dollar day	2 Dollar day
Head count ratio (P_0	68.8	83.4	90.2
Poverty gap (P_1)	37.3	46.2	61.2
Poverty severity (P_2)	20.3	25.6	41.6

Source: Field survey

Estimation of Poverty Profile in North Kordofan

To estimate poverty incidence (headcount ratio), poverty gap (depth) and severity in North Kordofan, the food poverty line is calculated from the main common food basket used in rural areas and the daily consumption is calculated based on the adult equivalent **(**US$1**,** US$1.25 and US$2 a day have been applied).

This is shown in figure (1).The study results revealed that the poverty indicators within North Kordofan localities indicated that poverty incidence was high in Elkhowi (75%) followed by Elnohoud (71.4%), Umrwaba (70%) and Sheikan locality (65%). The poverty gap indicators are large in Elkhowy, followed by Elnohoud, Sheikan and Umrwaba. The severity of poverty showed a high disparity among Elnuhoud locality followed by Elkhowy, Sheikan and Umrwaba if US$ 1/person/ay index is applied. The incidence of poverty varies in different localities in North Kordofan state, because economic growth has been unevenly distributed, inequalities in terms of access to education, sanitation and clean water, poor infrastructure, natural resources, and income opportunities.

The incidence of food poverty according to heads of family educational level showed a high poverty incidence among in which the heads of families who had secondary of education (78.5%); likewise, the depth and severity of food insecurity (39.5% and 20.3%, respectively), with the poverty incidence being less among households heads with university education. This result agree with the finding of Amaza et al (2006) and Geda *et al.,* (2005), which suggests that the higher the educational level of a head of household, the more the food security status of family. From another side of the incidence of food security of families headed by a head with high educational level (university) will decrease poverty incidence, depth and severity followed by household poverty incidence in which the heads of family had primary educational level (58.3%), illiterate (73.3%) and secondary (78.5%). On the other hand, these results disagree with the finding of Amaza et al (2006) and Geda *et al.,* (2005), because the incidence of poverty among household headed with head primary education and illiterate is lower than households headed by heads with education, if US$1/person/ay index is applied.

The results also show that the incidence, depth and severity of poverty according to marital status were higher among households headed by widow followed by married and single if US$ 1/person/day index is applied. This result agreed with the finding of Nsikakabasi and Obasi (2010).

The gender results of respondents showed that the poverty incidence, depth and severity were higher among families headed by male (71%, 38% and 20.4%, respectively) than families headed by female if US$ 1/person/day index is applied.

The results revealed that the incidence, depth and severity of poverty was high within the age of 70-80 years (100%, 70.3% and 49.4%), respectively, while the incidence, gap and severity of poverty was low within the age ranged between 20-30 years (50%, 2.4% and 0.1% respectively). This result agrees with the finding of Dercon and Krishnan, (1998); FOS (1999) and Etim (2007). However, the incidence of poverty among farm households increased with the age of households head, and finding of FAO (2004) that the old age is less active, less productive and unable to look for jobs; as such, the severity is higher among this category if US$ 1/person/ay index is applied.

Based on the poverty line US$ 1.25/person/ay in comparison with poverty line I dollar/person day, as shown in figure (2), the poverty incidence was high in Umrwaba and Elnuhoud (100%) followed by Elkhowai (87.5%) and Sheikan localities (71%). The poverty gap indicators are large in Elnuhoud, followed by Elkhowy, Umrwaba and Sheikan.

The severity of poverty was high in Elkhowy, followed by Elnohoud, Sheikan and Umrwaba. In comparison with poverty line I Dollar/person day, the poverty gap is similar in the ranking by localities in the same poverty line, but the poverty gap and severity under poverty line 1.25 Dollar/day is higher than other ones. While the incidence of poverty among north Kordofan localities was not similar. The incidence of food poverty among households educational level showed a high incidence in which the heads of family had university and secondary school of education (100%) followed by illiterate (86.7%) and primary (58.3%). This result is not similar to that result based on poverty line 1 Dollar/person /day from a comparison side , and disagree with the finding Amaza et al (2006) and Geda et al (2005) where educational attainment of household-heads (high school and university education) were influential in poverty alleviation.

The results also showed that the incidence, depth and severity of poverty according to marital status were higher among widow headed family (100%, 91.4% and 83.6%, respectively) if US$ 1.25/person/ay index is applied. While the poverty gap and severity were lower among single headed households. This result showed a high percentage of poverty in comparison with a poverty line 1 Dollar a day and was similar in ranking.

The gender results of respondents show that the incidence was higher among families headed by female (90%) than families headed by male (80.6%). This result not similar to result based on poverty line 1 Dollar/person /day. The poverty depth and severity were lower among female headed households than male if US$ 1.25/person/ay index is applied. This result is in line with Annemette and Waston (1989) and Lord (1993) which indicated that women were more likely to live in poverty than men, less spending was noted for female headed households. Females mostly sell low prices.

Fig (3) show the poverty incidence, gap and severity profile in north Kordofan state based on poverty line 2 Dollar/person/day. The study results showed that the poverty incidence, gap and severity among household headed educational level, marital status, and poverty within north Kordofan localities is high in percentage than poverty measure based on 1.25 Dollar/person/day, and similar in ranking.

The results also show that the incidence of poverty is high among male headed households rather than household headed by a female. This finding of results is similar to result finding based on 1 Dollar/person/day, and not similar to result based on 1.25 Dollar/person/day); likewise, the depth and severity of food insecurity of household headed by male is higher than other ones.
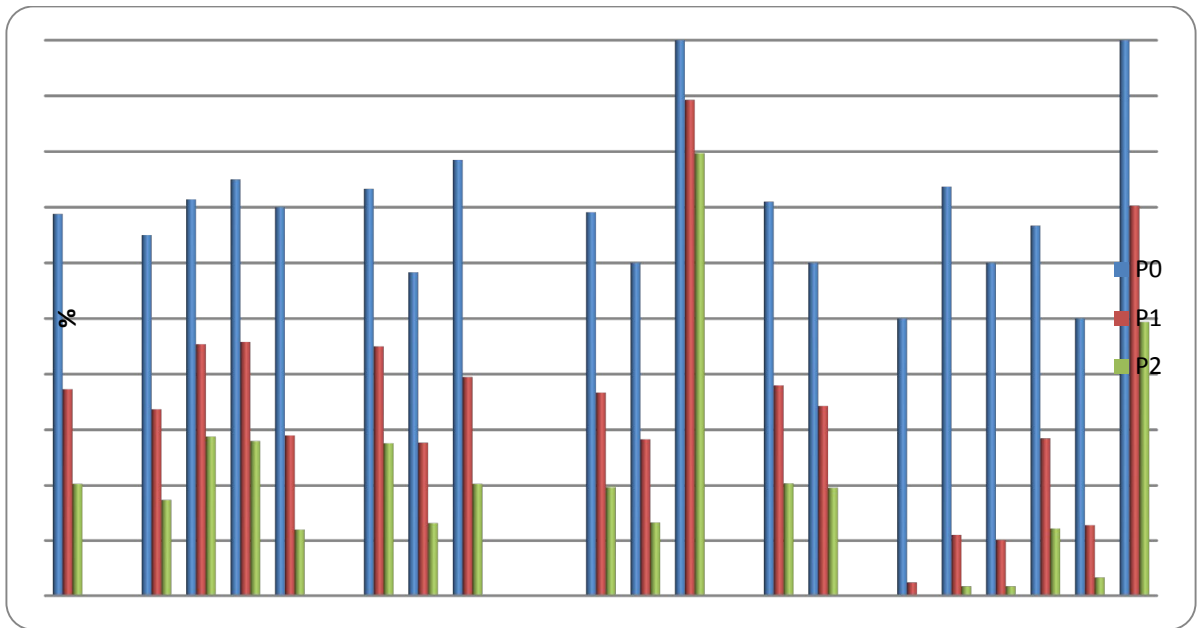
Fig 1: Poverty incidence, gap and severity profile in North Kordofan (I Dollar/person/day)
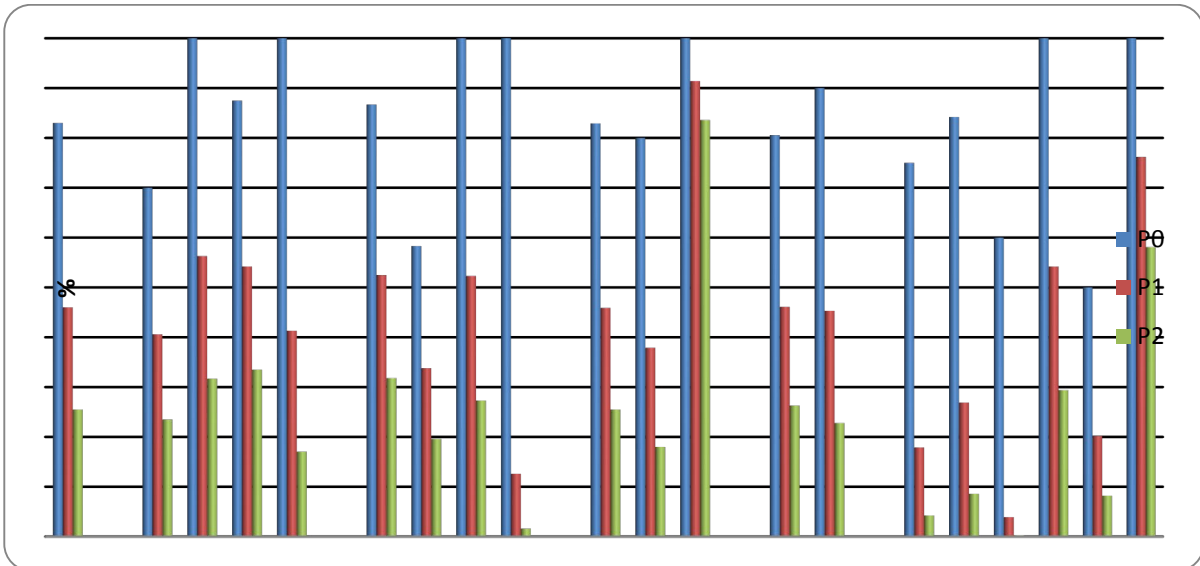

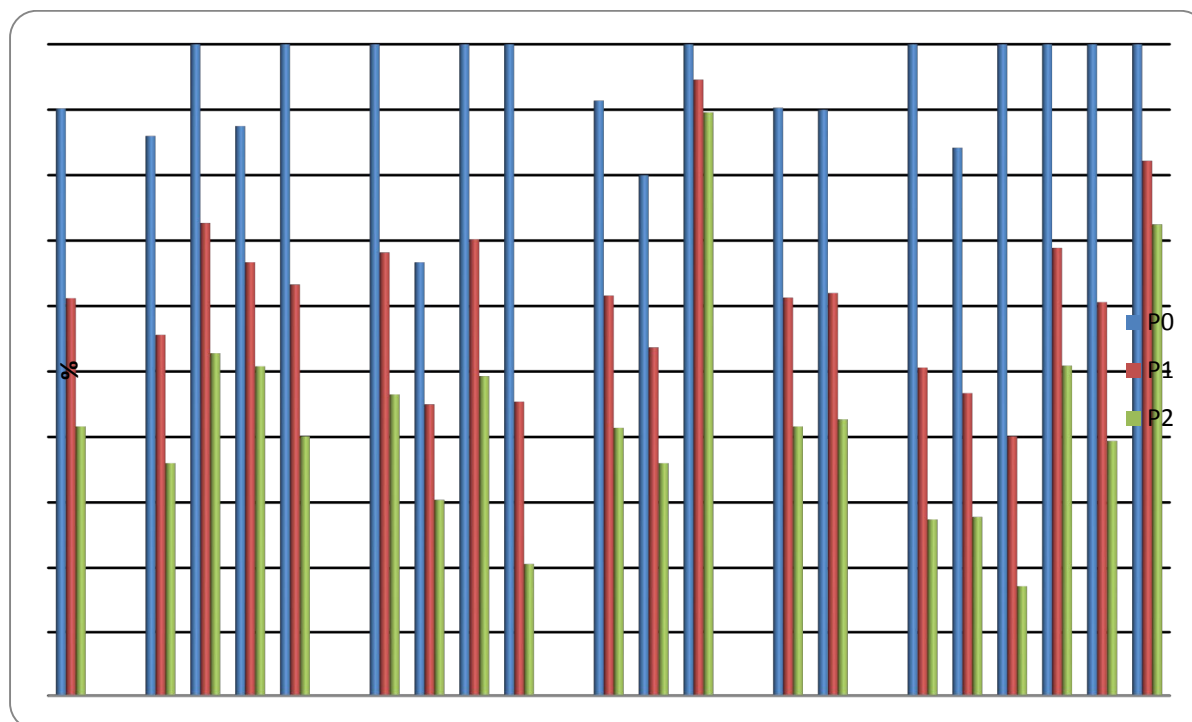Fig 2: Poverty incidence, gap and severity profile in North Kordofan (I.25 Dollar/person/day

Fig 3: Poverty incidence, gap and severity profile in North Kordofan (2 Dollar/person/day)

Gini Coefficient of Income Inequality.

This is the most commonly used measure of the degree of inequality. The coefficient varies between 0, which reflects complete equality, and 1, which indicates complete inequality. Graphically, the Gini coefficient can be easily represented by the area between the Lorenz curve and the line of equality.

To measure income inequality in a study area and compare this phenomenon among households more accurately, Lorenz curves and Gini indexes, which indicate inequality of income distribution, were used.

As shown in table (4) and (Fig 4, Fig 5, Fig 6, Fig 7 and Fig 8), the Gini coefficient in North Kordofan state as general is 48.7%, this is extremely high, indicating a very skewed distribution of income. The inequality analysis among localities in table (4) which showed high inequality index of 46% in *Shikan* locality followed by *Elkhwei* locality (44.4%), *Elnuhoud* (33.2%) and lastly *Umrwaba* locality which showed low inequality. Lorenz curve plots the cumulative percentages of total income received against the cumulative percentages of population, starting with the poorest individual or household (figure 4). How is it constructed?

First, all the individuals or households in a study area are ranked by their income level, from the poorest to the richest. Then all of these individuals or households are divided into 5 groups (20 percent in each).

As shown in (Fig 4). The Lorenz curve of inequality in North Kordofan state shows the percentage of total income earned by cumulative percentage of the population. The "poorest" 20% of the population would earn 5.3% of the total income, the richest 20% of the population earned 49.8% of the total income.

The second 20% poorest of the population earned 8.7% of the total income, the second richest 20% of the population would earned 22 % of the total income.

The 50% poorest of the population earned 20.5% of the total income, while the 50% richest of the population had earned 79.5% of the total income.

Results of equality measures show higher inequality between the poorest and richest segments of households as the richest quintile among households. This result means that the distribution of income among households in north Kordofan is perfectly unequal.

Table (4): Inequality measurement in North Kordofan state

	Gini index
North Kordofan state	0.44
Shikan Locality	0.46
Elnuhoud locality	0.332
Elkhwei Locality	0.444
Umrwaba Locality	0.204

Source: derived by author, 2013

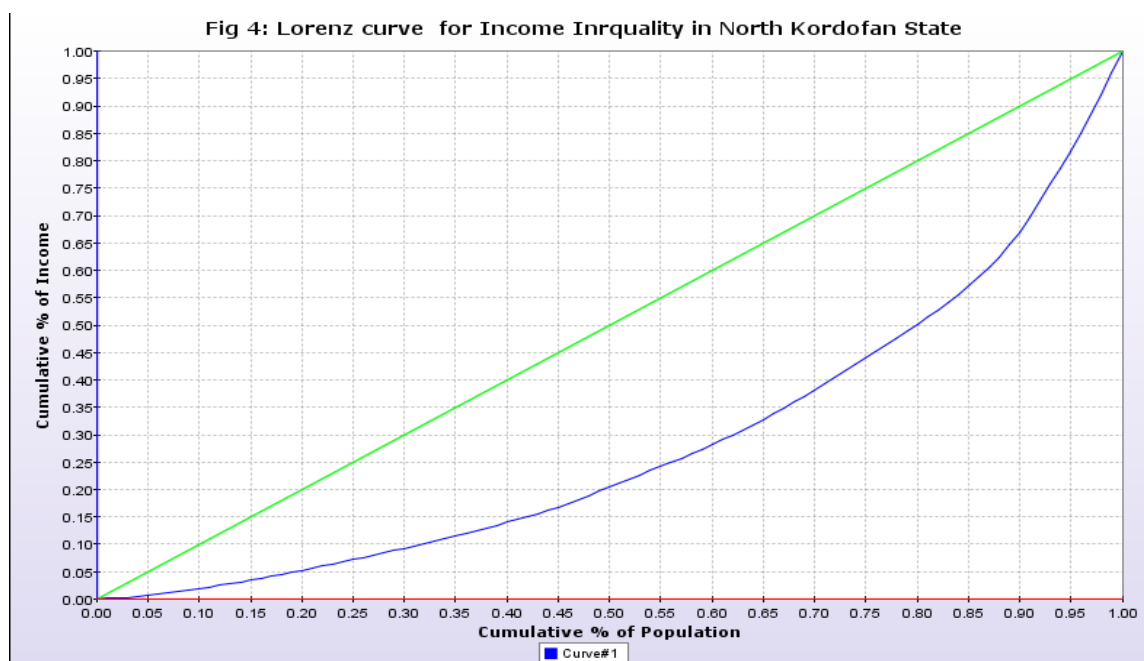Fig 4: Lorenz curve for Income Inrquality in North Kordofan State

Fig 5: Lorenz curve of Income Inequality in Shikan Locality

Fig 6: Lorenz curve of Income inequality in Umrwaba Locality

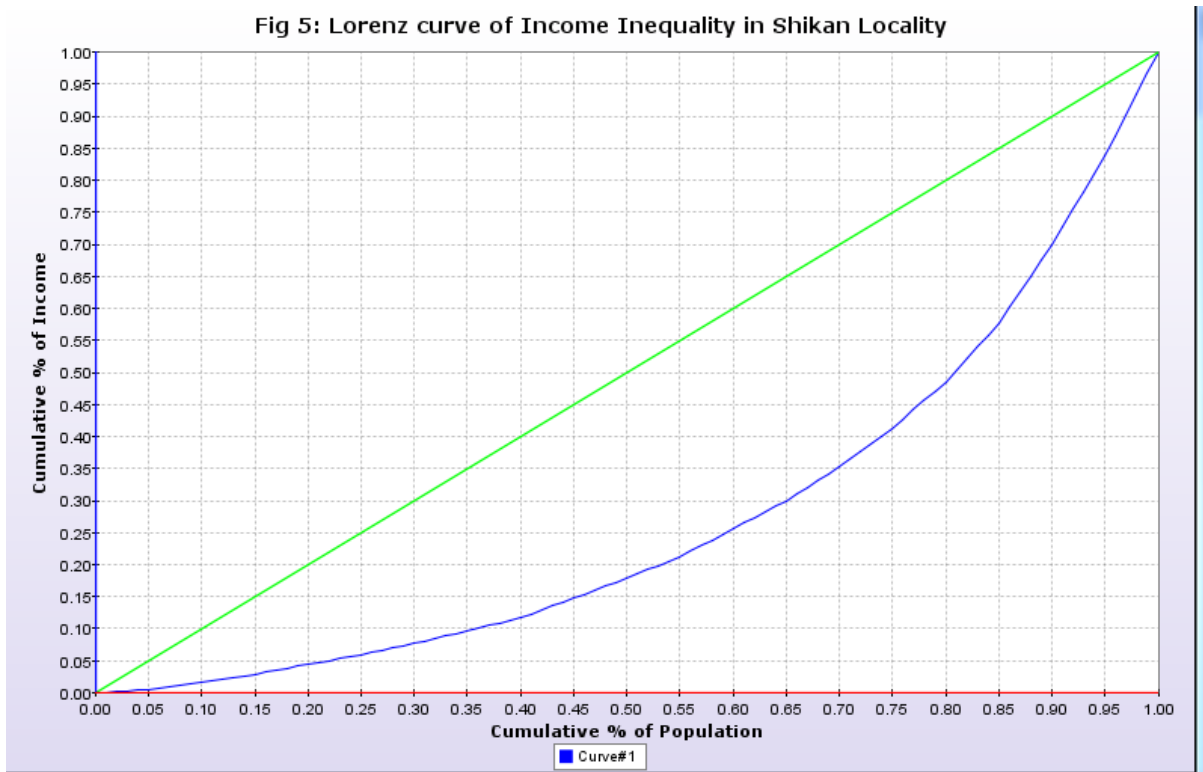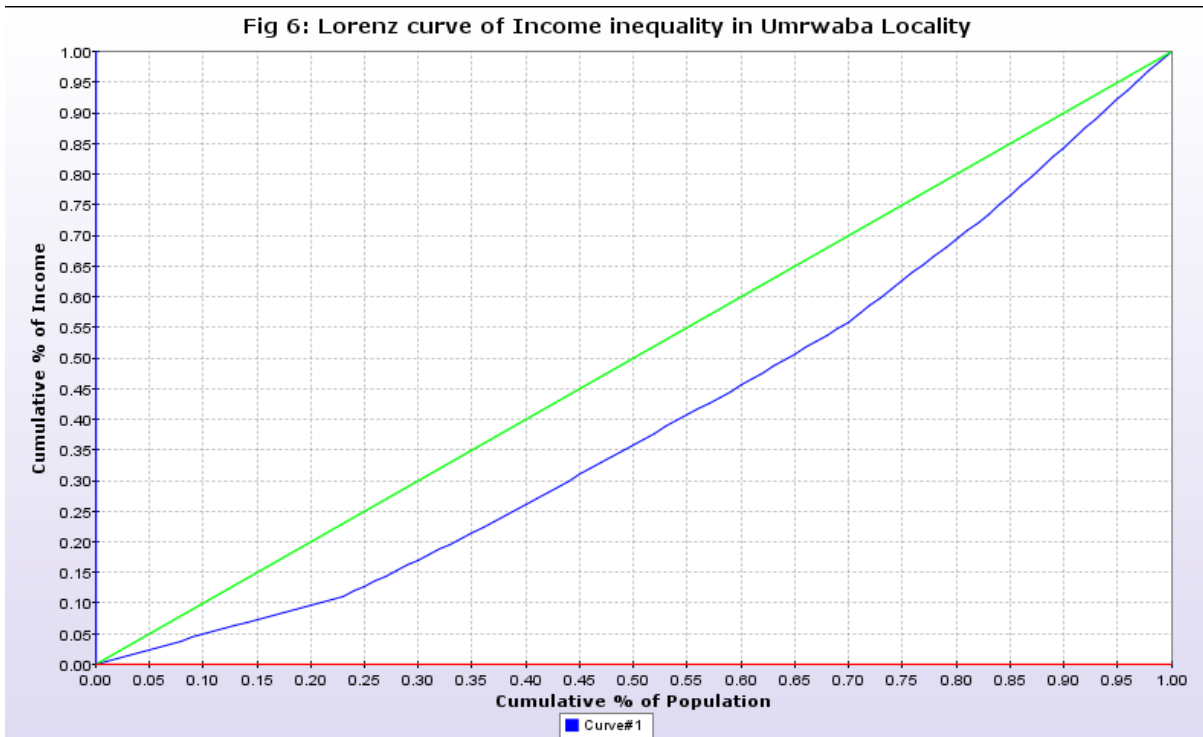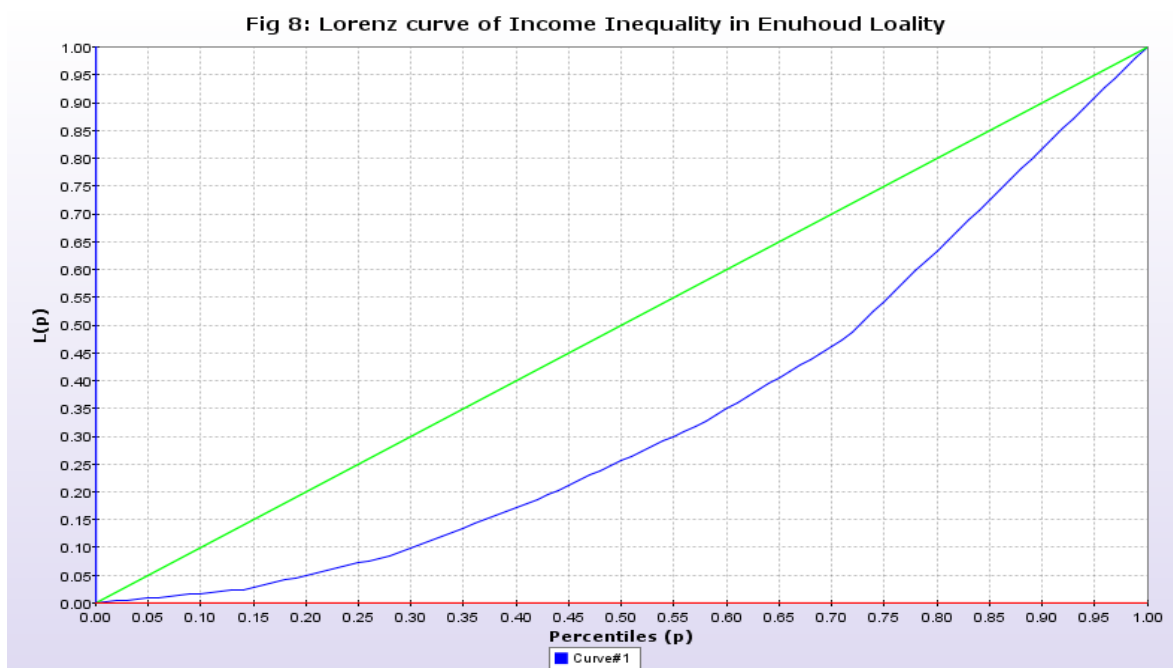Fig 7: Lorenz curve of Income Inequalty in Elkhwei Locality

Fig 8: Lorenz curve of Income Inequality in Enuhoud Loality
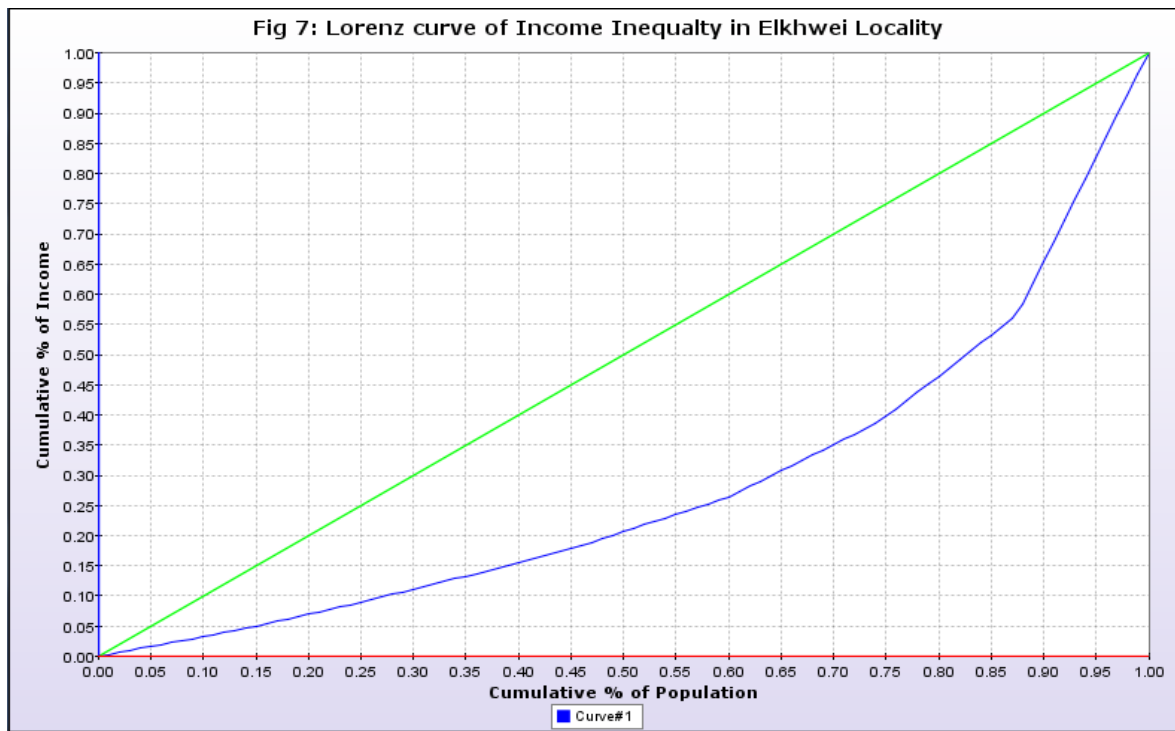
Conclusion and recommendations

This study has presented measures of poverty and income inequality, establishes a poverty profile, and identifies the poverty determinants and status for sample of 205 farming household in North Kordofan state. The Foster-Greer-Thorbecke, Gini index and Lorenz curve was used to measure poverty and inequality. In conclusion, the results showed high poverty and inequality among farmers in north Kordofan state. To improve household food security and poverty in North Kordofan state, the study recommends the improving

productivity of main crops and enhancing institutional environment, promotion of agricultural research sectors, and investment in agriculture to raise agricultural productivity, enhance production (increased food availability) through improved production practices and provision of credit and extension service.

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1. Appendixes

Appendix 1: FGT Measurement of Poverty incidence profile (headcount ratio, poverty gap and severity) in North Kordofan state (1 Dollar day)

Items	P0	P1	P2
	%	**%**	**%**
North Kordofan state	68.8	37.3	20.3
Localities			
Shikan locality	65	33.7	17.4
Elnuhoud locality	71.4	45.4	28.8
Elkhwei locality	75	45.8	28
Umrwaba locality	70	29	12
Educational level			
Illiterate	73.3	45	27.6
Primary	58.3	27.7	13.2
Secondary	78.5	39.5	20.3
University	0	0	0
Marital status			
Married	69.1	36.7	19.7
Single	60	28.3	13.3
Widow	100	89.3	79.7
Gender			
Male	71	38	20.4
Female	60	34.3	19.6
Age distribution			
20-30	50	2.4	0.1
30-40	73.7	11.04	1.7
40-50	60	10.11	1.7
50-60	66.7	28.5	12.2
60-70	50	12.8	3.3
70-80	100	70.3	49.4

Source: Field survey

Appendix 2: FGT Measurement of Poverty incidence profile (headcount ratio, poverty gap and severity) in North Kordofan state (1.25 Dollar day)

Items	P0	P1	P2
North Kordofan state	83	46	25.5
Localities			
Sheikan locality	70	40.6	23.5
Elnuhoud locality	100	56.3	31.7
Elkhoy locality	87.5	54.2	33.5
Umrwaba locality	100	41.3	17.05
Educational level			
Illiterate	86.7	52.5	31.8
Primary	58.3	33.8	19.6
Secondary	100	52.3	27.3
University	100	12.6	1.6
Marital status			
Married	82.9	45.9	25.5
Single	80	37.9	18
Widow	100	91.4	83.6
Gender			
Male	80.6	46.1	26.3
Female	90	45.3	22.8
Age distribution			
20-30	75	17.9	4.25
30-40	84.2	26.9	8.6
40-50	60	3.9	0.26
50-60	100	54.2	29.4
60-70	50	20.2	8.2
70-80	100	76.2	58.1

Source: Field survey

Appendix 3: FGT Measurement of Poverty incidence profile (headcount ratio, poverty gap and severity) in North Kordofan state (2 Dollar/person/day)

Items	P0	P1	P2
	%	**%**	**%**
North Kordofan state	90.2	61.2	41.6
Localities			
Sheikan locality	86	55.6	36
Elnuhoud locality	100	72.7	52.8
Elkhoy locality	87.5	66.7	50.8
Umrwaba locality	100	63.3	40.1
Educational Level			
Illiterate	100	68.2	46.5
Primary	66.7	45	30.4
Secondary	100	70.2	49.3
University	100	45.4	20.6
Marital Status			
Married	91.4	61.6	41.4
Single	80	53.7	36
Widow	100	94.6	89.6
Gender			
Male	90.3	61.3	41.6
Female	90	62	42.7
Age distribution			
20-30	100	50.6	27.4
30-40	84.2	46.7	27.8
40-50	100	40.1	17.2
50-60	100	68.9	50.9
60-70	100	60.6	39.4
70-80	100	82.2	72.5

Source: Field survey