

**Poverty among Sudanese Communities along the Eastern
Borders:
a case study from Kassala and Gedarif states**

By

Dr. Faiez Ahmed Hamed ElNeel

Dr. Hassan Ahmed Abdel Ati

Dr. Eltayeb Mohamedain Abdalla

Abstract

This paper attempts to assess poverty situation among Sudanese communities living along the eastern borders in Kassala and Gedarif states. Several methodological approaches were employed, combining quantitative and qualitative methods (descriptive, analytical and econometric techniques). Data used relies heavily on the results of a sample survey of 146 households in 16 border villages collected during 2014. The results showed that poverty rates are very high among border communities (60.9% in Gedarif and 64.9% in Kassala) and that is very much linked to the deterioration of the agricultural rain-fed sector during the last two decades. The situation was aggravated by insecurity and the armed conflict which continued for over a decade, the limited opportunities outside the agricultural sector and the traditional production methods and techniques used in

agriculture. Other than their income poverty, most of the border population lacks access to water, electricity, education and health services. The statistical results also revealed that poverty inequality is lower in border areas compared to state and national levels, indicating that in the border areas poverty are less sensitive to increases in income inequality, but an increase in per capita consumption expenditure is more likely to reduce incidence, depth and severity of poverty. That can be attributed to the fact that most of households surveyed have limited access to land or are landless and those who own land have limited access to credit and/or technology. The paper concludes that, with the abundance of productive lands, especially in Gedarif state, the high poverty levels may support the suggestion that the users and economic beneficiaries of the border area (traders or mechanized scheme owners) are outsiders and not indigenous or settlers of the border area. And that poverty reduction policy would be more effective to enhance growth if it aimed at raising per capita consumption expenditure and/or household's income. A clear pro-poor growth policy that targets broadening the productive capacities of the economy and creating employment opportunities is expected to reduce poverty, enhance stability and minimize the likelihood of conflicts in the area.

1. Introduction:

Numerous studies on borders in Europe, Africa and America, have revealed their variations, heterogeneity and the difficulty of comparing them. Inter-state relationships are diverse and so are the links between border societies and their nation states. In Africa several authors and experts also stressed the fact that sometimes state and nation do not match, and border areas represent spaces where transnational identities take place, as well as conflicts and in some cases stigmatization between national groups occurs (Association of European Border Regions (AEBR), 2012). The arbitrary drawing of border lines by colonial powers have in many cases ripped tribal and ethnic groups in two or more countries, the thing that resulted in lack of recognition of these borders by local communities and made them more of border zones than lines and made them characterized with problems and peculiarities that are different from the interiors of the countries. In Africa also, as described by Gogoi (2009) such areas are, generally, less accessible, suffering from illegal cross border movements and insecurity (Gogoi et. al., 2009).

The eastern Sudan border is a result of a series of agreements between the British and Italian colonial powers, respectively, in Sudan and Ethiopia. Several tribal groups were split along the Ethiopian-Sudanese border. In general, the eastern border of

Sudan has largely been unstable for over 50 years as a result of the continued conflicts and recurrent drought epochs in the African Horn region. Mobility of population was one mechanism of escaping hazards and disasters during crisis and a natural behavior for nomadic groups who cross borders in pursuit of grass and water, mostly within the terrain of their tribal-split brothers who acquired another nationality. However, movement to border areas within national boundaries and across borders have also been not only an economic survival and anti-poverty coping strategy but also, for some people a means for capital accumulation, mostly through “illegal” means, for both local communities as well as migrants to the border area. Based on that, it was assumed that border population were expected to be better off compared to the majority of the interior population of east Sudan, whose economic and social indicators indicate a very poor situation in Kassala and Gedarif states of eastern Sudan.

According to National Baseline Household Survey (2010), the incidence of poverty are estimated at 36.3% in Kassala State and 50.1% in Gedarif State, the poverty gap ratio (depth) at 14.7% in Kassala and 15.9% in Gedarif State, and the poverty gap (severity) was 8% in Kassala State and 6.7% in Gedarif State (NBS, 2010). This despite the richness of the region in terms of

natural resources and its important contribution to national food security, particularly Gedarif State.

In reality, because of the adverse natural conditions and complex geopolitical factors, communities living along the eastern border of Sudan remained relatively isolated, largely neglected and backward in almost all political, social, economic and development aspects. This has resulted in large scale migration of human population from border areas as well as a temporary move to it for some groups that made use of that situation, in the form of illegal activities. Lack of employment opportunities, the relative isolation and lack of government control have also given rise to the youth being lured to various illegal activities, including smuggling, arms trade and human trafficking.

During the last two decades, the border areas experienced major developments, which caused major changes in livelihood conditions of border communities and their relationship with their counterparts on the other side of the border and in the type, form and volume of cross border activities. The main developments include (a) the separation of Eritria from Ethiopia and the emergence of a new largely poor and economically globally-isolated state; (b) the armed conflict between the Sudanese opposition forces, particularly the Eastern Front and the Central Government along the border (1994-2006); (c) the

developments in Sudan-Eritrean and Sudan Ethiopian diplomatic relationships; and the changes in the role played by Eritrea as a mediator and guarantor to the East Sudan Peace Agreement (2006).

2. Objectives and methods:

The data for this paper was collected within a larger survey which aimed at reviewing the socioeconomic conditions of the communities living along the Sudanese border with Eritrea and Ethiopia, conducted during July-August 2013. Its main objective include

- Estimating poverty indices among eastern Sudan borders communities and shedding light on poverty levels and depth in the area and the decomposition of socioeconomic characteristics;
- As one of the few field-based studies, establishing a baseline for further research and analysis of poverty and livelihood in the area; and
- assisting decision makers and other stakeholders at State and national levels by providing recommendations on appropriate policies and programming aimed at poverty reduction.

Several methods were used for data collection, including literature review, interviews (with government officials, local leaders and community informants), and household

questionnaires. In the absence of other sources of statistical data, information on poverty relied heavily on the sample household questionnaire administered to 146 households in 16 settlements, 7 in Kassala and 9 in Gedarif state¹. The sample covered both local communities (indigenous and settlers) as well as temporary users of the border area. The key issue originally sought to be investigated was the state of livelihood and poverty among borders communities in the two states.

To measure poverty, several methodological approaches were adopted, including poverty line, poverty indices and poverty profile. First, using the expenditure approach, the study sought to estimate the poverty line based on the poverty line was estimated as the food poverty line, the non-food poverty line and the total poverty line. Secondly, based on the poverty line, several poverty indicators have been estimated including incidence, depth and severity of poverty, all of them closely match the general standard methodology for poverty analysis recommended by the World Bank in cases of using data from only a single cross-section survey.

The paper goes beyond a study focused solely on monetary poverty and considers non-income-based dimensions. In so

¹ In Gedarif State settlements covered were Gallabat, Khor Saad, Atrab, Kunneina, Tabaldiya, Umkharayet, Mahala, Sundus and Kuseiba and in Kassala state Allaffa, AlMaria, Gulsa, Bagdeer, Tahdai, Katakawa and Shalalob.

doing, this multidimensional analysis of poverty attempts to highlight those dimensions for which we may wish policy to have the greatest impact on the most needed segments of the population in eastern Sudan borders.

Based on the calculated poverty line, other poverty indicators such as incidence, depth and severity of poverty have been estimated in addition to Gini coefficient for measuring income distribution and inequality at the household level.

Under the Money Metric Approach (MMA), the first step taken towards measurement of poverty is to agree on a relevant measure for the standard of living to determine the threshold of deprivation below which a person can be identified as poor, which is commonly known as the poverty line.

To calculate the poverty line the study follows the approach refer to Ravallion (1992); using a regression method for calculating the cost of poverty line in eastern Sudan borders: it estimates an equation for the food expenditure to be a function of household total expenditure as follows:

$$\ln X = \alpha + \beta \ln y$$

Where:

X: the ratio between food poverty line per month to the food expenditure of the reference quintile 20 % (the poverty line is

estimated as average of food expenditure by reference quintile 20%.

Y: total per capita expenditure per household per month.

α and β are coefficients.

With the assumption, $X=100$ for those whose per capita food expenditure equal the food poverty line, $\ln X= 4.61$. From the regression results α and β has been estimated which allows a solution for total expenditure for those considered to be poor. Thus, the exponential of $\ln y$ is equal to poverty line in the border areas = 229 SDG per person per month.

3. The Context:

Although reference is made in the paper for eastern Sudan border, the study focuses only on the two states of Kassala and Gedarif that are respectively neighboring Eritrea and Ethiopia. The two States fall between longitudes 33° 30' and 37° East and latitudes 12° and 17° 15' North. **Kassala** state with its 42,300 Km² area, borders Eritrea from the east and meets Ethiopia in its South eastern corner at the town of Hamdaieet. The State is poor in underground water, have low and highly variable rainfall levels (150- 300 mm from north to south) and its effectiveness is reduced by its short duration, seasonal variability and the high evaporation rates. The state is heavily dependent on running water sources, River Atbara and Gash annually irrigating an area

of about 200,000 and 24,000 (Gash Delta) respectively. The area irrigated by both sources has enormously decreased as a result of siltation. The area of natural pastures in the state is estimated to be over 7 million feddans supporting about 7 million heads of livestock in addition to several millions that visit the state seasonally from neighboring states.

The state economy is largely agricultural, along River Atbara (artificial irrigation), in Gash delta (flood irrigation) and in urban areas (pump irrigated horticulture) and agro-pastoral in the rural areas. The total cultivable area in the State is about 4 million feddans but the actually cultivated area on average is about 1.5 million feddans (39%). Other than the agricultural, pastoral and seasonal agro-pastoral activities, income sources revolve around woodcutting, charcoal production, petty trade and border trade. Border trade with Eritrea also has a significant effect on the State economy and on the economic status of some of the border communities.

Most of the assessments and studies conducted classified the State as a food deficit state with chronic food insecurity, large scale human displacement, and low economic and social development indicators, mainly caused by adverse environmental conditions, inefficient traditional production systems, disruption of livelihood by the long conflict along the Sudan-Eritrean border,

the continuous influx of refugees and IDPs into the state (Abdel Ati, et.al. 2014).

Gedarif State has a total area of around 71,000 km² and is bordered by Ethiopia from the east. Although poor in underground water, it enjoys relatively high rainfall levels (500-900 mm) but because of the seasonality and variability of rainfall the State suffers acute water deficit. The total population is about 1.4 million and with one of the highest annual growth rates in the Sudan, standing at 3.9%.

Gedarif state is endowed with 10.5 million feddans of cultivable land, 5.8 million of which is under rain-fed mechanized farming. Mechanized farming constitutes the backbone of the state economy, a major source of employment both for the state population, seasonal workers from within and outside the country, and a major contributor to food security in Sudan. The state is also rich in animal resources, with 5.2 million heads of livestock (sheep, goats and camels), and also has significant mineral resources though it largely remained untapped.

Despite its rich resources, Gedarif state population continues to suffer high levels of poverty and food insecurity. The majority of the State population lives at subsistence level, sometimes achieved through diversification of livelihoods strategies by

engaging in wage labor, small-scale farming and animal husbandry.

The two major threats to livelihood and stability in the state are (a) the continued expansion of mechanized farming which disturbs livelihood of small scale farmers and obstructs traditional livestock routes and hence increases the possibility of tension between farmers and nomads and may encourage the pursuit of other “probably illegal” sources of livelihood; and (b) the repeated incursion of the Ethiopian army and armed gangs (*Shifita*) into AlFashaga area and their threat to Sudanese farmers’ lives, the thing that forced several settlements to abandon border areas and move to the interior.

Both states have low development indicators, but while Gedarif has higher child population, higher fertility and birth rates, annual growth and average family size, Kassala, has a larger nomadic population, higher infant and child mortality rates, higher literacy and labor participation rates². but much lower net migration, an indicator of the poor job opportunities. The two states also share the longest history of receiving and accommodating refugees from Eritrea and Ethiopia and from West Africa as well as the scores of displaced population from other parts of Sudan. Both states also face the challenges of:

² See Hassan Abdel Ati, et.al., 2014

- a. High vulnerability to natural disasters;
- b. Large scale degradation of natural resources and the environment;
- c. High illiteracy rates, inadequate social capital, limited skills and limited access to the labor market leading to high unemployment rates
- d. High levels of poverty especially in both urban and rural areas; and
- e. Poor social service institutions, which fail to meet the demands of the growing population rural migrants, IDPs and refugees

4. Border communities: a general profile

About 37.5% of the settlements included in the sample are small with less than two thousand persons, 37.5% have population between 5 and 10 thousands and 25% are large settlements with over 15 thousand. The main tribal groups along the Kassala Eritrea border are Beni Amir, Hadandawa, Maria and Sabadarat and in Gedarif Masaleet, Hawsa, Bargo, Fallata, Tama, Daju and other Darfurian tribes with few Nuba people.

With the exception of two (12.5%), all settlements are relatively new and over 50% of them were established after 1950. This can be attributed to the nomadic mode of living that dominated the area up to the 1970s (before the droughts) and the armed conflict

along the border (Eritrea liberation war). In Gedarif most of the population is non-indigenous and settlements as a result of migration linked to mechanized farming activities in the state.

Only 3 of the 16 settlements enjoy daily transport to and from the village, 75% of villages are over kms away from the nearest serviced road. In addition health services are poor or lacking in most settlements and lack of safe water is the main problems stressed by inhabitants. Water and education were mentioned as the major social problems in 69% of settlements, health (62%), electricity (50%), poor roads (25%) and lack of security in 12.5% of settlements.

Agriculture is the dominant economic activity in all villages surveyed, followed by manual labor (mostly in agriculture), trade (mostly petty trade in the informal sector), and animal herding. The main production problems stated by community leaders included low productivity and poor cultivation methods (44%), lack of finance/credit (56%), insecurity 7 (44%) and low rains (12.5%). While security problems were only mentioned in Gedarif state, low rains was the main problem in some villages in Kassala state.

Insecurity and conflict over land, marginalization and poor living conditions were reported as the most important problems in 38%

of settlements, while high cost of living, immigration and severe water shortage were the top problems in 18% of settlements.

5. Poverty among Border Communities:

The increased incidence of poverty in eastern Sudan has generally been attributed to the region's constant vulnerability to environmental hazards and disasters, conflicts and instability and particularly the deterioration of the agricultural sector in recent years. The Poverty Assessment Study undertaken by the National Bureau of Statistics in 2010 indicated that 62% of the population was living in poverty. According to the report, 42% of the population belonged to households that are below the "food poverty line" and the incomes of 62% of households are inadequate to meet basic needs (Cumpa, 2010).

5.1 Welfare Measurements:

Since all poverty indicators are based on consumption expenditure, it is important to discuss the per capita consumption expenditure before dealing with poverty profile. Table1 shows the average per capita consumption by mode of living and Gini coefficient in eastern Sudan borders which indicate that the average monthly per capita consumption expenditure of households in Gadarif-Ethiopia border is 149.7 SDGs and in Kassala-Eriteria border is about 148.1 SDGs. Also Table1 reveals

that inequality as measured by Gini index is lower in the border areas of the two states than the two states as a whole.

The above results indicate a higher consumption share among the border population in Gedarif state compared to those in Kassala. This calls on policy makers to adopt more pro-poor policies that generate growth and increase the consumption of the poor population and at the same time reduce inequalities and hence poverty in both borders.

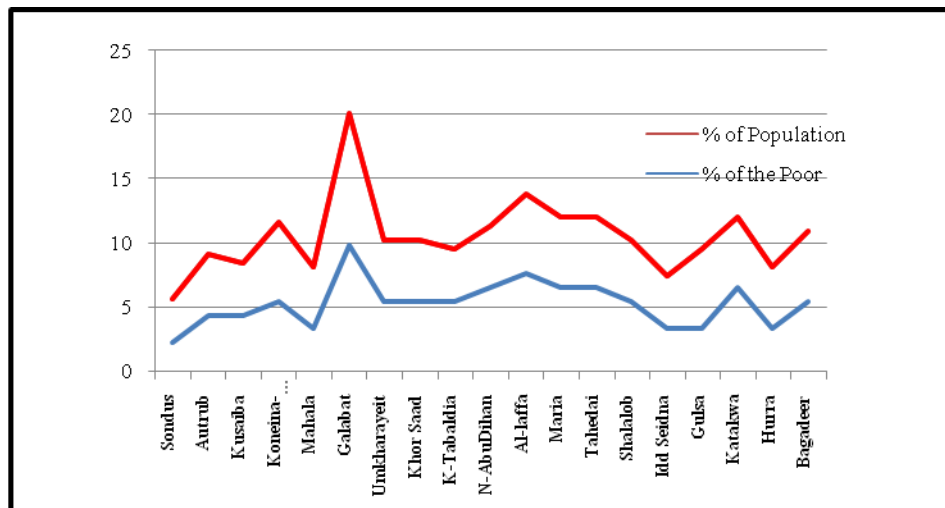
Table1: Mean and Median Per Capita Consumption Expenditure and the Gini Coefficient among Border communities

Border	Mean	Median	Gini Coefficient
Gedarif	151.1	179.0	15.6
Kassala	148.1	179.0	15.9
Total	149.7	179.0	15.8

Using the headcount index (Table2), poverty in Kassala border area shows a greater incidence than in Gedarif, 68.6% and 63.8% respectively, which also suggest a higher vulnerability of the small farmer along the Kassala-Eritrea border. This perhaps reflects the high percentage of the poor who move into the border areas as a result of the deterioration of the agricultural sector.

Another important finding is that in both states, with the exception of four villages (Sondus and Mahala in Gedarif and Gulsa and Houra in Kassala, poverty rates are extremely high in all villages surveyed. Inequality in poverty rates is much lower, (17% and 14% in Kassala and Gedarif border areas respectively), compared to its level in Gedarif (34%) (Faiez, 2013) or Kassala state (28%) (Faki, et.al., 2012) or at the national level where it exceeds 40%. Equality in poverty among the border communities is also indicated by the similar percentages of the poor to the total population in almost all villages surveyed (Fig. 1).

Fig. 1: Percentage of Total and Poor Population



Poverty gap estimates the average shortfall in consumption relative to the poverty line and thus it overcomes the first limitation of the headcount ratio. It implies that the average deficit in the consumption of each household in eastern Sudan

border is about 19.2% below the poverty line, if the non-poor are considered to have a zero shortfall. As shown in Table 2, the severity of poverty is 8.3%. Unlike the headcount ratio or poverty gap, this measure is sensitive to the distribution of consumption among the poor. That is, if a transfer occurs from one poor household to a richer household, the level of poverty should increase.

Table 2: Poverty Measures (%)

State	Poverty Headcount Ratio	Distribution of the Poor	Distribution of Population	Poverty gap	Contribution to Overall Poverty	Contribution of Population	Squared Poverty Gap	Contribution to Overall Poverty	Distribution of Population
Gedarif	63.8	49.7	51.5	18.5	49.7	51.5	8.1	49.8	51.5
Kassala	68.6	50.3	48.5	19.9	50.3	48.5	8.6	50.2	48.5
Both	66.1	100.0	100.0	19.2	100.0	100.0	8.3	100.0	100.0

Table 3 shows the elasticity of the poverty measures with respect to per capita consumption expenditure (inclusive of the elasticity of the poverty line with respect to consumption expenditure). The average absolute elasticity for the eastern Sudan borders with Ethiopia and Eritrea, as shown in Table 3 implies that an increase in per capita consumption expenditure by one percentage would have resulted in a reduction in the poverty headcount ratio by approximately 2.73%, while the reduction in the poverty gap ratio would reach 1.57%. However, the reduction in the squared poverty gap ratio is approximately 2.35% after allowing for the change in the poverty line in response to the increase in consumption expenditure. Therefore, the increasing in per capita consumption expenditures will relatively reduce incidence and depth of poverty in general and particularly severity of poverty in Sudan eastern borders with Ethiopia and Eritrea.

Table 3: Elasticity of FGT Indices to Per capita Consumption Expenditure

State	Poverty Headcount Rate	Poverty Gap	Squared Poverty Gap
Gedarif	-2.57	-1.62	-2.33
Kassala	-2.88	-1.52	-2.37
Total	-2.73	-1.57	-2.35

One way to assess how much the incidence of poverty will change when poverty line shifts upwards or downwards. If one thinks of the chosen consumption level, as the poverty line, the curve will show the associated poverty headcount; and hence, it can be seen as a poverty incidence curve. Thus, around 66.1% of the border community households are poor.

One of the research aims was to find out how sensitive poverty measures are to the level of the poverty line. It was found out that, if households' consumption expenditure among border population was decreased, poverty headcount ratio would drop by a higher percentage. For example, decreasing of poverty line by 5% will reduce poverty headcount ratio by 27.3% (Table 4).

Table 4: Sensitivity of Poverty Measures to the Choice of Poverty Line

	Poverty Headcount Rate	Change from actual (%)	Poverty Gap	Change from actual (%)	Squared Poverty Gap	Change from actual (%)
Actual	66.1	0.0	19.2	0.0	8.3	0.0
+5%	73.4	11.0	21.6	12.6	9.5	13.4
+10%	99.1	49.9	24.4	27.5	10.7	27.7
+20%	99.8	51.3	30.7	60.2	13.4	60.4
-5%	48.1	-27.3	17.5	-8.5	7.3	-12.9
-10%	48.1	-27.3	15.8	-17.3	6.2	-25.9
-20%	40.9	-38.1	12.3	-36.0	4.1	-51.0

5.2 Decomposition of poverty

5.2.1 Decomposition by type of Employment:

Table 5 shows that 45.2% of the population works in the agricultural sector and constitutes about 44.6% of the poor. Poverty headcount ratio is the highest among those engaged in the trade sector (76.9%) and with a smaller share in total number of the poor (10.9%), followed by skilled workers (73.3%) and informal sector workers (66.7%).

Table 5: Poverty Headcount Ratio by Type of Occupation

Occupation	Poverty Headcount Ratio	Distribution of the Poor	Distribution of Population
Manual work	53.8	7.6	8.9
Skilled Work	73.3	12.0	10.3
Agriculture	62.1	44.6	45.2
Herding	60.0	6.5	6.8
Trade	76.9	10.9	8.9
Informal sector	66.7	2.2	2.1
Others	57.7	16.3	17.8
Total	66.1	100.0	100.0

As Table 6 shows, poverty headcount ratio of heads of households employed in the public sector is high, amounting to 75%, followed by those in the informal sector (64.7%) and agriculture (60%), the sector that which accommodates the largest percentage of population (37.7%) and the highest percentage of the poor (44.6%). In contrast, households headed by someone working in the cooperative sector are least likely to be poor (Table 6).

That pattern of economic growth resulting in higher returns of non-farm activities relative to farm jobs, explains the occupational migration of labor out of agriculture. However, since urban unemployment did not deter labor migration, and the effect of government agricultural policies (sharecropping) on labor migration from agriculture proved insignificant, the trend of migration out of agriculture can be attributed to adverse environmental conditions which negatively affected production and/or the low prices by the Agricultural Bank of Sudan (ABS) and/or private buyers, particularly in view of the seasonality of agricultural jobs and the increase in consumption of non-farm products.

In such a situation, programmes to reduce poverty should be targeted to improve the labor market, in the form of interventions which improves human and physical assets and the returns from those assets, e.g. infrastructure and market reform that improve to boost growth and help poor people escape poverty.

Table 6: Poverty Headcount Ratio by Labor Sector

Sector	Poverty Headcount Rate	Distribution of the Poor	Distribution of Population
Public	75.0	13.0	11.0
Private	60.0	35.9	37.7
Cooperative	25.0	1.1	2.7
Informal	64.7	23.9	23.3
Others	47.6	10.9	14.4
No response	n\a	15.2	11.0
Total	66.1	100.0	100.0

In addition to that, survey results suggest that:

- a. households headed by unemployed or salaried persons are more likely to be poor;
- b. households with economically productive wives are less likely to be poor; and
- c. households with permanently working children are likely to be in deep poverty.

5.2.2 Decomposition by HHH Education Attainment

The sample survey results revealed that most of the heads of households in the border areas are either illiterate (22%) or had an informal *Khalwa* education (50%). It also showed that most of the poor households are headed by illiterate persons or persons

with no formal education. The highest poverty headcount ratio has been recorded among households headed by persons with basic education (86.2%) followed by those with Khalwa education (56.9%), and the illiterates who constitute 56.3% of the sample population (Table 7).

Table7: Headcount Ratio by HHH Education Attainment

Education level	Poverty Headcount Rate	Distribution of the Poor	Distribution of Population
Illiterate	56.3	19.6	21.9
Khalwa	56.9	44.6	49.3
Basic	86.2	27.2	19.9
Secondary	58.3	7.6	8.2
Above Secondary	48.0	1.1	0.7
Total	66.1	100.0	100.0

5.2.3 Decomposition by Age of HHH

Table 8 shows that the incidence of poverty does not have a uniformed pattern in relation to age category of HHHs. In fact, it is highest among the most productive age group of 21-45 years. This may be attributed to unemployment or under-employment of youth, limited access to agricultural land and /or other

resources, or perhaps reflect their life-style effect on earning capabilities and consumption patterns.

Table8: Headcount Ratio by Age of Head of Household

Age Group	Poverty Headcount Rate	Distribution of the Poor	Distribution of Population
16-20	71.4	5.4	4.8
21-45	70.8	50.0	44.5
46-60	55.1	29.3	33.6
Over 60	56.0	15.2	17.1
Total	66.1	100.0	100.0

On the other hand, the relatively low poverty rate of people living in households whose head is above 45 years of age may reflect the wealth accumulated by those elderly heads, or it could be the presence of younger members of the household who contribute to the household income.

5.2.4 Decomposition by Geographical Area

One of the interesting statistical results was that poverty rate is higher among the household members born in their same village (indigenous groups) who constitute about 83% of the surveyed population, while poverty rate is lower among those born outside the two states (Table 9). This, on the one hand, confirms the assumption that outsiders are benefiting more from the

opportunities in the border area than its indigenous population, mainly as investors in agriculture or border traders, and, on the other hand, suggests that the high poverty among local population make them vulnerable to exploitation in illegal and clandestine activities along the borders, including smuggling, human trafficking and possibly arms trade.

Table 9: Headcount Ratio by Place of Birth

Place of Birth	Poverty Headcount Rate	Distribution of the Poor	Distribution of Population
Same Village	64.3	89.4	88.3
Khartoum	50.0	1.1	1.4
Kordofan	24.0	0.8	0.7
Darfur	29.0	1.1	0.7
Other states	53.8	7.6	8.9
Total	66.1	100.0	100.0

5.2.5 Decomposition by Access to Land

According to the survey results, over 55.5% of the border population in eastern Sudan has no access to agricultural land and expectedly with a corresponding 48.9% of poor population. Ironically, however, the percentage of the poor is higher among the share croppers, those who rent land and those operating on

family land compared to the landless population (Table 10). This strange phenomenon for land owners can be attributed to a number of factors including the large family size, small size of holding, the poor technology used and traditional production systems under conditions of uncertainty. Change in consumption habits can also be a factor, as the HCR is calculated on “cash” income basis, which is easier to depict with non-agricultural earners than with direct food consumers (farmers).

Table 10: Headcount Ratio by Type of Possession of Land

Type of land possession	Poverty Headcount Rate	Distribution of the Poor	Distribution of Population
None/not stated	55.6	48.9	55.5
Family ownership	70.2	43.5	39.0
Sharecropper	92.1	1.1	0.7
Rent land	85.7	6.5	4.8
Total	66.1	100.0	100.0

Table 11 below shows the limited variations in poverty levels when correlated with the size of land holdings as, with the exception of the landless, the percentages of the poor corresponds highly with the size of population in each land-size category.

Paradoxically, the figures also show higher percentages among the larger-size land owners, though in small percentages. This could be a result of a universal small plot size in the border areas or, most probably, the variations between the owned and actually cultivated land, which is by and large a function of the technology used and access to credit which is less accessible to rural communities.

Table11: Headcount Ratio by Quartiles of Land Holdings

Quartiles of land holdings	Poverty Headcount Rate	Distribution of the Poor	Distribution of Population
No land	74.4	34.8	29.5
Lowest quartile	56.0	15.2	17.1
Second quartile	42.3	12.0	17.8
Third quartile	69.2	19.6	17.8
Highest quartile	65.4	18.5	17.8
Total	66.1	100.0	100.0

5.2.6 Decomposition by Household Compositions

As shown in Table 12 below, except for households with more than five members, poverty incidence shows a trend of increase with the increase in household size. Poverty headcount ratio

increase smoothly with household size to a maximum rate for households with three members; and the highest headcount poverty rate was recorded for households with six members. This may be explained in terms of self-employment opportunities that heads of households have created for themselves in the tertiary sector as a coping mechanism in the face of economic hardship and/or by the built-in social solidarity system which provides help for the needy.

Table12: Headcount Ratio by Household Demographic composition

	Poverty Headcount Rate	Distributio n of the Poor	Distributio n of Population
Number of children 0- 6 years old			
no children	71.4	1.0	0.9
1	98.0	0.6	0.4
2	96.6	5.4	3.7
3 or more children	64.7	93.0	95.0
Household size			
2	96.4	2.3	1.5
3	95.9	15.7	10.4
4	75.0	16.2	14.3
5	58.6	15.9	17.9
6	51.8	11.4	14.6
7 or more	61.6	38.5	41.3
Total	66.1	100.0	100.0

6. Concluding Remarks:

a. Though it is true that the increase in per capita expenditure on consumption, in general, tend to reduce the incidence and depth of poverty, the statistical results of the study indicate that, because of their limited access to assets, the identification of poor households, just on the basis of consumption, would not, significantly, contribute to poverty alleviation among border communities. Thus, as a policy implication, poverty reduction in studied border areas requires adopting a comprehensive development plan that helps in raising incomes and improving consumption patterns.

b. The prevalence of poverty among border communities (60.9% in Gedarif and 64.9% in Kassala), is very much linked to the deterioration of agricultural rain-fed sector during the last ten years, armed conflicts and insecurity, the limited opportunities outside the agricultural sector and the traditional production methods and techniques used in addition to population poor access to social services that are either non-existent or extremely inadequate.

c. The level of poverty inequality, as measured by Gini index, is lower in the border areas than both Kassala and Gedarif states or at the national level. This indicates that in the border area poverty is less sensitive to increases in income inequality, but an increase

in per capita consumption expenditure is more likely to reduce incidence, depth and severity of poverty.

d. Overall with the exception of households of more than five members, poverty incidence has exhibited an increase due to increase in household size.

e. Most households in eastern Sudan border area have limited access to land or are landless and those who own land have limited access to credit and/or technology. Although access to land represents the means of life, source of income, food security, self confidence and status in society, in the border area land ownership did not contribute much to the distribution of wealth or inequality in poverty. Inequality in fact seem to be primarily a function of non-agricultural activities, such as border trade.

f. With the abundance of productive lands, especially in Gedarif state, the high poverty levels may support the suggestion that the users and economic beneficiaries of the border area (traders or mechanized scheme owners) are outsiders and not indigenous or settlers of the border area.

g. Given the fact that, inequality is low in the border areas of both states, a poverty reduction policy would be more effective to enhance growth if it aimed at raising per capita consumption expenditure and/or household's income and such pro-poor growth policy should target broadening the productive capacities

of the economy and creating employment. Such a policy would contribute to poverty reduction and also to reducing instability and preventing conflicts in the area.

h. The impact of enhancing access to land and basic social services and that of informal cross border trade on poverty reduction in the border areas is a critical area for further research which needs to be addressed to educate and formulate effective policies for combating poverty in these border areas.

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