INEQUALITY IN KOGI STATE: INCOME SOURCE-BASED DECOMPOSITION

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Abstract

This study examined the source of income inequality in Kogi state using data from Egwemi (2016) research survey. The study covered the 240 households administered with questionnaire in Egwemi (2016), information on their socio-economic characteristics and income. The income components used were wages and salaries, trade and agriculture. The aggregate gini was decomposed based on the income sources. Income from agricultural sources contributed 75.70 percent to inequality, income from wages and salaries, and trade contributed 14.30 and 10.00 percent, respectively. While the overall gini index 0.29 showed minimal inequality further findings revealed that inequality increases with income from agriculture but reduces with incomes from wages and salaries, and trade. The study recommended that efforts should be made to reduce income inequality in Kogi State by promoting on the job-training, providing free education and business friendly environment to encourage small and medium scale businesses and entrepreneurs.

Keywords: Decomposition; income source; inequality; Kogi

1. Introduction

One major economic challenge facing developing nations today is the increasing level of inequality. Inequality increases if any or all of the following occurs: if the income of the asset-rich increases and that of the asset-poor remains constant; if incomes of both the asset-rich and the asset-poor increases with the former increasing at a faster rate; if income of the asset rich remains constant but that of the asset-poor declines; and if both declines but that of the asset-poor declines faster. According to the Australian Psychological Society (2014), as inequality increases society becomes more polarized with the rich and poor being stratified into different

social classes. The resultant effect is greater distrust, loss of self-esteem and social worth with the attendant negative effects on health outcomes and social cohesion (Australian Psychological Society, 2014). Inequality has debilitating consequences and should therefore a source of worry for everyone in society. A recent research by the Australian Institute of Health and Welfare (2014) revealed that it is more stressful trying to meet one's material needs in a more unequal society. Douglas, Friel, Denniss and Morawetz (2014) posits that inequality forms brick walls among individuals, hampers communal life hence encourages social exclusion. Inequality does not only lead to unequal access to resources but also to the basic needs of life such as housing, education, food and healthcare. Also, there is unequal access to secure, quality and flexible employment, with job insecurity, part-time or casual work and opprobrious employment arrangements being mostly associated with those below the mean of the distribution.

However, it is not just widening inequality that matters. Recent research by Choi (2011) shows that as income inequality grows the rich and the poor are increasingly relocated into different neighborhoods and dwell in communities with marked differences from one another. This particular geographic expression of income inequality is of particular concern, which stems from the negative outcomes such as inefficient use of human resources, socio-economic and political upheavals, and increased likelihood of crises situations. Also,

high inequality slows economic growth and reduces social mobility, threaten the stability of society and could hold back the development of consensus on meeting common challenges, hence the need for concerted efforts towards reducing inequality in the world at large.

The first step in any effort towards reducing income inequality should be identifying its causes. This can foster understanding of what variable(s) to be targeted, to what direction and to what extent. It is not surprising then, that this has been widely debated all over the world. On the front burner of this debate is the sources of inequality, which empirical studies relating to Kogi state have largely ignored. Addressing this issue is important, partly due to worries that persistently inequitable income distribution will result in unequal access to knowledge (education), healthcare, finance, and social resentment among others, which are necessary requirements for modern developments. It is also the basis for which appropriate measures can be instituted to reduce the lingering income inequality in the state. This study therefore decomposed income inequality in Kogi state based on the sources of income to understand the income source that could be targeted for inequality reduction efforts.

2. Literature Review

2.1 *Conceptual Clarification*

Inequality refers to a dispersion of a distribution, whether the focus is income, consumption or some other welfare indicators or attributes

(Oyekale, Adeoti and Oyekale, 2006). According to Oyekale *et al* (2006) though conceptually different, often time income inequality is studied as part of the broad analysis covering poverty and welfare. Inequality is a broader concept than poverty since it is defined for the whole distribution (Oyekale *et al*, 2006). In this study, income inequality is considered.

In the study of inequality, a common element often chosen to measure is individuals' or households' income. Keeley (2015) defined income as the flow of money into households from employers, owning business(es), state benefits and rents on properties. Income comprises of salaries and wages, earnings from investments and rents on properties. It also includes direct benefits, or transfers, received from the state, such as unemployment benefits. On the other hand, wealth is people's savings over time. It is often higher and more unevenly spread than income. Though wealth matters but, in some ways, income matters more because, as pointed out by Keeley (2015), it is usually a better indicator of people's day-to-day economic resources. But due to measurement and data issues, the two are most times used to be the same.

In this study, income inequality is defined as the unequal distribution of income in a society amongst households. Households' incomes were disaggregated into three major components of wages and salaries, income from trading activities and income from agricultural activities. Wage incomes are incomes earned by working for others engaged in either agricultural or non-agricultural

activities. Trading income are incomes from the operation of family nonagricultural enterprises or ventures. These include incomes from wholesale and retail trading, recreation, and personal services among others. Agricultural incomes are those earned by operating one's farm, livestock, and poultry, fisheries, forestry, and hunting and or those earned by hiring people to operate the agricultural enterprise.

2.2 Empirical Literature

This section is set aside to review previous empirical works that are related to the area of this study. The studies reviewed include the study by Aristizabal-Ramırez, Canavire-Bacarreza and Jetter (2015), which examined the individual-level determinants of wage inequality for Bolivia, Colombia, and Ecuador over the years from 2001 to 2010. Using an annual data set from surveys in all three countries, the authors analyzed wages both with conventional wage regressions and decompositions of standard Gini indices. Their results revealed Colombia to exhibit the most unequal distribution of income among these countries. Their wage regressions also showed that wage of a college-educated individual does not differ from the wage of a person with only (some) primary education. They however concluded that the sources of income inequality can differ substantially across countries. Respective policy prescriptions should differ accordingly.

Also, Akin-Olagunju and Omonona (2014) studied income inequality and poverty in Ibadan, Oyo

state. One hundred and twenty (120) households from rural Ibadan were sampled using a multistage sampling technique. The study used descriptive statistics in analyzing socio-economic variables and Gini coefficient decomposed based on income source was used to analyze the contribution of each income source to overall income inequality. Akin-Olagunju and Omonona (2014) results showed that agriculture contributed about 42% to overall income inequality; non-farm self-employment (NFSE) contributed about 23% while non-farm wage employment (NFWE) contributed 36%. They also showed that Agriculture and NFSE were inequality-increasing.

Cingano (2014) examines trends in income inequality and its impact on economic growth in OECD countries. Drawing on harmonized data covering the OECD countries over 30 years, the author's econometric analysis suggested that income inequality had a negative and statistically significant impact on subsequent economic growth. The study further revealed that wider income gap results in disparities in skills development as individuals from poor households spent less number of years schooling and are less proficient compared to their counterparts from wealthy homes.

Also, Mitrakos (2014) examined inequality, poverty and the living conditions of households in Greece. The study obtained data for households' income from the Greek Household Budget and the European Union Statistics of Income and Living Conditions surveys. His findings revealed widening income inequality and increased relative poverty in Greece.

Mitrakos and Tsakloglou (2012) analyzed inequality and poverty in Greece using HBSs data spanning the period 1974 to 2008. Their findings indicated that there was an initial decline in relative poverty between 1974 and 1982, which coincided with the period when the country returned to democracy; though with minor fluctuations, relative poverty was relatively stable between 1982 to 2008. Using the absolute poverty measures Mitrakos and Tsakloglou also showed that there was a significant decline in absolute poverty in Greece with the return to democracy.

Similarly, Matsaganis and Leventi (2011, 2012) using tax-benefit microsimulation techniques studied the impact of austerity measures on aggregate inequality and poverty in Greece and concluded that the austerity measures adopted were associated with progressivity but with negligible(significant) redistributive effects in terms of relative (absolute) poverty.

Also, Araar (2006) used the Shapley value to decomposed Gini coefficient and generalized it to other inequality indices in Cameron. The study found that rural areas contributed less than the urban areas to total inequality, while about two-third of the total inequality was explained by the nonfood in the expenditure components decomposition.

The study by Oyekale, Adeoti and Oyekale (2006) decomposes the sources of inequality and poverty in Nigeria, using household survey data

obtained from the National Bureau of Statistics (NBS). The results of their study revealed that in 2004, income inequality was higher in rural areas than urban areas. It was also revealed that employment income increases income inequality while agricultural income reduces income inequality. Inequality between states, rural-urban areas, and geographical zones were said to account for the greater portion of observed inequality.

3. Methodology and Data

3.1 *Data and Sources*

Data for this study were obtained from Egwemi Research Survey Data, 2016 for Kogi state. The state is made up of four (4) agricultural zones (Zones A, B, C and D). Zone A is made up of Yagba East, Yagba West, Mopa-Amuro, Ijumu and Kabba – Bunu. Zone B, comprises Bassa, Dekina, Anka, Omala. Whereas Okehi, Okene, Adavi, Ajaokuta, Lokoja, Kogi Ogori/Mango made up Zone C, Zone D, comprises Idah, Ofu, Ibaji, Olamoboro, Igadamela/Odolu. The survey used a multistage sampling technique. The first stage involved randomly selecting two agricultural zones (B and C) in the state. In stage two, two Local Government Areas (LGAs) were randomly drawn from each of the two agricultural zones, hence four LGAs were selected. Two communities were then randomly selected from each of the four LGAs thus eight communities were sampled. Finally, from each of the eight communities 30 households were randomly selected making it a total of 240 households sampled for the study. A structured questionnaire was used to elicit information from the 240 respondents. The survey covered such information as household demographic characteristics, farm size, income, and health indicators. This study collected data for households' demographic characteristics, and income categorized according to sources. In inequality studies individuals or households' income is often chosen as the basis for measuring inequality. Hence, the data used for the study were information on households' income, categorized based on three major components of income – wages and salaries, trade and agriculture.

3.2 Study Area

Kogi State was carved out from the then Kwara and Benue states on the 27th August 1991. 'Kogi' is the local name for River Niger. The two largest rivers in Nigeria - Niger and Benue flow through the state. The Niger forms a confluence with the Benue at Lokoja the state capital. As a result of this, the state is fondly referred to as "confluence state". The state consists of five major ethnic nationalities – the Igala, Ebira, Okun, Nupe and Bassa. While the state has twenty-one (21) Local Government Areas, its administrative headquarters (state capital) is Lokoja town. The state shares common boundaries with Edo state to the south, Niger, Nasarawa and Abuja to the North, Benue and Enugu states to the East, and Ondo, Ekiti, and Kwara states to the west (Kogi ADP 1993; Anthony and Ojocheremi, 2012). covers a land area of about 75, 000 square kilometers, about 20% of which is inhabited by people (15, 000 Sq Kilometers). Rivers
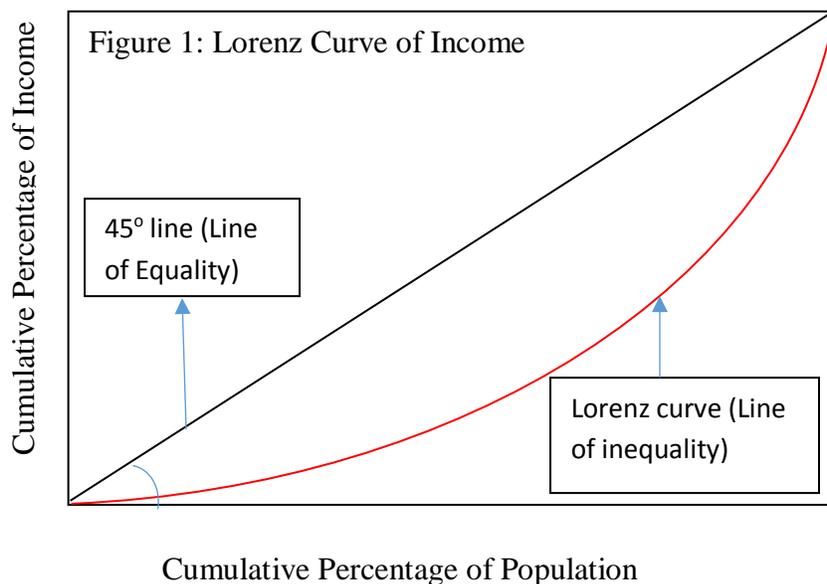
and streams occupied 3, 750 square kilometers (5%), while hills and mountains occupied 7% or 5, 250 square kilometers. The remaining 65% are available for cultivation (Egwemi, 2016; Kogi ADP, 1993). About 70% of the people live in the rural area and engaged mostly in agricultural practices.

Farming is the predominate occupation and mixed cropping is the predominant type of farming in the state. An average farm family in the state cultivates on average between 2 and 3 hectares of land. The farm holdings are usually fragmented and mostly cultivate food crops such as rice, Yam, maize, a cowpea, groundnut and melon. Economic tree crops, such as oil palm, cocoa, coffee and cashew are commonly grown especially to the

southern and eastern parts of the state. Though the major occupation is crop farming, a lot of fishing activities also go on in River Niger and Benue. It is also a common practice to find each farming family keeping one form of livestock or the other such as poultry, piggery, sheep and goat on a small scale.

3.3 Measuring Inequality: The Gini Index and Decomposition

There is a vast array of standard measurement tools of inequality in the public finance literature, which are built on the Lorenz curve, $L(R)$. The Lorenz curve measures the proportion of total income, x, received by the pth fraction of the population, arranged in ascending order of income.

Figure 1: Lorenz Curve of Income

Cumulative Percentage of Income

45° line (Line of Equality)

Lorenz curve (Line of inequality)

Cumulative Percentage of Population

The y-axis measures the cumulative proportion of income in the society and the x-axis measures the cumulative proportion of the population. The 45° line from the origin (the diagonal) measures each successive percentile of the population receiving 1% of total income in the society that is, perfect

equality. The Gini coefficient G is the proportion between the 45° line and the Lorenz curve (the observed deviation from perfect equality) divided by the total area under the 45° line (the maximum possible deviation from perfect equality). Since, there is symmetry between the areas above and below the 45° line, the Gini coefficient can also be defined as one less two times the area under the Lorenz curve:

$$G = 1 - 2\int_0^1 L(R)dR \qquad . \quad . \quad . \qquad (1)$$

The Gini coefficient lies between 0 and 1. The extreme value 0 (1) measures the case of perfect equality (inequality). As the Gini coefficient gets closer and closer to 1 (as the area between the Lorenz curve and the 45° line gets closer to the total area below the 45° line) the degree of inequality increases. The Gini index can also be expressed in the covariance format following the work of Ichoku, *et al* (2011) as:

$$G = \frac{2cov(x, R)}{\bar{x}} \qquad . \quad . \quad . \qquad (4)$$

Where x is income and R is the cumulative distribution of income ranked in ascending order, $\bar{x}$ is the mean income. Clearly, the Gini index is twice the normalized income and rank. It also implies that there is symmetry between income and rank distribution. According to Campos, Esquivel, and Lustig, (2012), a useful starting point in the analysis of the determinants of inequality is to decompose the Gini

coefficient into its main components and examine their contribution. For the purpose of decomposition Lermanand Yitzhaki (1985) showed that the Gini coefficient for total income can be represented as:

$$G = \sum_{k=1}^{K} S_k G_k R_k \qquad . \quad . \quad . \qquad (5)$$

Equation (5) indicates that the effect of income source k on overall income inequality can be decomposed into three components. These are the share of income component k in total income, S_k; the inequality within the sample of income from source k, G_k; and the correlation between source k income and total income, R_k. Eqn(5) indicates that the influence of any income component upon total income inequality depends on: (i) how important the income source is with respect to total income; (ii) how equally or unequally distributed the income source is; and (iii) how the income source and the distribution of total income are correlated (Stark, Taylor and Yitzhaki, 1986). This method of Gini decomposition allows for the estimation of theeffectthata1%changeinincome from source k will have on total income inequality by:

$$\frac{S_k G_k R_k}{G} - S_k \qquad . \quad . \quad . \qquad (6)$$

The component $\frac{S_k G_k R_k}{G}$ measures the source share in total inequality. Clearly if $S_k > \frac{S_k G_k R_k}{G}$ the effect of a percentage change in income from source k will be negative and source k is inequality-

dampening; if the reverse $S_k < \frac{S_k G_k R_k}{G}$ holds the effect of a percentage change in the source income will be positive and source k is inequality-enhancing; and if $S_k = \frac{S_k G_k R_k}{G}$ the source income is inequality invariant.

The Gini coefficient was first developed by the Italian economist and statistician, Corrado Gini in the early 20th century and lies between zero (0) and unity (1). When the value is 0 it represents a society (or community) where everyone has the same income and which, therefore, has no inequality; at the other end of the scale, when it is 1 it represents a society where only one person has all the income and which, thus, has maximum inequality. The Gini values can also be represented as Gini points. This is done by multiplying each value by 100. A Gini score of 40 points and above is sometimes considered critical. A major advantage of the Gini coefficient as a measure of income inequality is that it satisfies the four main principles that any inequality metric should meet in order to be considered a reliable measure. These according to Charles-Coll (2011) are:

i. The transfer principle, also known as the Pigou-Dalton principle – transfers from a poor individual to a richer one should translate into an increase in the measure of inequality, no matter the size of the transfer or the relative position of the poor.

ii. Scale independence – if the general income level increases by a fixed amount, then the overall value of the inequality measure should not change at all.

iii. Anonymity principle – the identity of the income recipients is immaterial in determining the value of the inequality measure.

iv. Population independence – the inequality measure should not be influenced by the size of the population.

4. Results and Discussion

A total of two hundred and forty (240) copies of the questionnaire were distributed and retrieved. Whereas the simple percentage was used analyzing the socio-economic characteristics of the respondents, the income source – based decomposition of the Gini coefficient was used to analyze income inequality. The results are in three categories: the descriptive statistic which describes the socio-economic characteristics of the respondents; the quintile results that describes the proportion of income in the society (Kogi State) being held by the various income classes; and the results of the Gini decomposition showing the source share in total income, source Gini, source income correlation with total income.

4.1.1 Socio-Economic Characteristics of Respondents

The socio–economic characteristics considered were household's head, age, sex, level of education, marital status, Household size and occupation, results for which

are reported in Table 1. Out of the 240 households studied 87.08% were headed by males and 12.92% were headed by females. Table 1 also showed that 7.08% respondents were within the age bracket 25-34 years; 30.42% were 55 years and above. The largest proportion (43.33%) of respondents was within the age bracket of 45-54 years. With a mean age of 46 years the population on average is a young population. This has two net effects. First, it means current young adults heading households and secondly, independent, active, and productive population. Also, 89.17% respondents were married and 6.25% were single. Among the married, 89.00% were from households headed by males and 11.00% from households headed by females. None of the households headed by females had cases of divorce or widow but 1.44% of the households headed by males were divorced and 3.83% were widowed. This indicates that, households with married people were more than households with singles, and cases of divorce and widowed were relatively less prevalent in the area. Results with respect to educational status showed that 8.33% respondents had no formal education. Whereas 8.61%of male headed households had no formal education it was 6.45% of female headed households who had no formal education. However, 26.32% of households headed by males and 22.58% of households headed by female had primary education. Generally, about 26% respondents had primary education. More of the respondents had secondary education than other educational statuses. The

proportion of the sample with secondary education (39.17%) is relatively high compared to 26% with at most primary education and 27% with tertiary education. Households headed by males with secondary education were more (39.23%) compared to households headed by females (38.71%). Those with tertiary education were 25.84% and 32.26% for households headed by males and females respectively. This indicates that the population is mostly educated to the secondary level. This perhaps informed the reason for large family sizes as 25.42% respondents had family sizes between 1 and 5 persons, 62.92% between 6 and 10 members and 3.75% had household sizes of 21 persons and above. Both households headed by males and females had more households with family sizes between 6 and 10 members respectively. The average household size was 9. The implication is that household sizes in Kogi state are high on average. The net effect is that all the food produced by a household could be consumed especially when productivity is low. Total household spending on education usually rise with family size and expenditure per child could be lower in large families. This means low level of household income, low level of education, little savings, and increased poverty. On the basis of these, there is little or no justification for maintaining large families to increase productivity. Most respondents were farmers (52.50%), 17.92% and 29.58% were civil servants and traders respectively. Also, 52.63% and 51.61% of households headed by males and females engaged

in farming, respectively. In addition, 18.18% male headed households were civil servants and 29.19% were into trading. For the households headed by females, it was 16.13% that were civil servants and32.26% were engaged in trading.

Table 1: Socio-economic characteristics of the respondents

Variables	Households Headed by Males (209) (87.08%)		Households Headed by Females (31) (12.92%)		TOTAL (240) (100%)	
	Frequency	**%**	**Frequency**	**%**	**Frequency**	**%**
Age						
25-34	17	8.13	-	-	17	7.08
35-44	44	21.05	2	6.45	46	19.17
45-54	79	37.80	25	80.65	104	43.33
55-Above	69	33.01	4	12.90	73	30.42
Marital Status						
Married	186	89.00	28	90.32	214	89.17
Single	12	5.74	3	9.68	15	6.25
Divorce	3	1.44	-	-	3	1.25
Widow	8	3.83	-	-	8	3.33
Educational Status						
No schooling	18	8.61	2	6.45	20	8.33
Primary	55	26.32	7	22.58	62	25.83
Secondary	82	39.23	12	38.71	94	39.17
Tertiary	54	25.84	10	32.26	64	26.67
Household Size						
1-5	55	26.32	6	19.35	61	25.42
6-10	126	60.29	25	80.65	151	62.92
11-15	13	6.22	-	-	13	5.42
15-20	6	2.87	-	-	6	2.50
21-Above	9	4.31	-	-	9	3.75
Occupation						
Farmer	110	52.63	16	51.61	126	52.50
Civil Servant	38	18.18	5	16.13	43	17.92
Trading	61	29.19	10	32.26	71	29.58
Total	**209**	**100.00**	**31**	**100.00**	**240**	**100.00**

Source: Field Survey, 2016

4.1.2 Income Distribution Based on Income Class

Four income class referred to as quintiles were created to examine the income distribution in the study area, results for which are reported in Table 2. The poorest 25% (the first quintile or 25th percentile) respondents had total (mean) income of N192,000.00 (N34,970.83). The next 25% (the second quintile or 50th percentile) had N280,00.00 (98,958.33) and the 3rd quintile that is, the 75th percentile had 405,000 (182,133.33) total (mean) income, respectively. The income of the poorest 25% was 68.57 percent of the median income (that is, about 31.43 short of the median income). While the 50th percentile's income just equaled the median income the 75th percentile's was 144.64% of the median income, which was in excess of the median income by 44.64%. The first, second, third and forth quintile groups had 11.35, 20.77, 27 and 40.87 percents share of the society's income, respectively. This revealed that the richest 25% respondents' share of total income (40.87%) was higher than that of the poorest 50% that is, the income share (32.13%) of the poorest two income classes put together.

Table 2: Distributional summary statistics

Quintile group	Quintile	% of median	% quintile group share of income	% cumulative group share	cumulative group share × mean (income)
1	192000.00	68.57	11.35	11.35	34970.833
2	280000.00	100.00	20.77	32.13	98958.333
3	405000.00	144.64	27.00	59.13	182133.333
4			40.87	100.00	308033.333

Minimum income 50000
Maximum income 780000
Mean income 308033.3
Median income 280000
Source: Field Survey, 2016

The symmetry plot of total income was also examined and the result shown in Figure 2. If income were symmetrically distributed, all points would lie along the reference line (the straight line defined as y = x). The points in Figure 2 that lie above the reference line indicate that the distribution of income is skewed to the right. This means that the highest incomes are far higher than the least incomes are high. This is evidence that the income distribution is asymmetric. For example, the highest income was N780,000.00 and the least income was N50,000.00, while the median income was N280000. Thus, the highest income is N500,000.00 more than the median income, and the least income is N230,000.00 less than the median

income. This is an indication that the income in the community is not equitably distributed. If income were equitably distributed, the income differences would be the same too. To know how similar, on average, the income distribution is, we make a quintile plot of the total income, shown in Figure 3.A quintile plot of income is a plot of each value of the income plotted against the fraction of the income that has values less than that fraction (quintile). The diagonal line in Figure 3 is a reference line. If incomes were rectangularly distributed, all the points would lie along the diagonal line. Since all the points are below the reference line, we say that the income distribution is skewed right. This is also confirmed by comparing the distribution of income with the normal distribution shown in figure 4. The result indicated that the distribution is different from the normal distribution. The implication is that income inequality exists in Kogi state. The net effect is greater stratification of people, with adverse impacts on trust, self-image, and equality of opportunity for those who faced disadvantage; the negative effect is on the people's health and on the society more broadly. It also means vulnerability to stress of struggling with material disadvantage, as highlighted by the study of the Australian Institute of Health and Welfare (2014), chronic stress of struggling with material disadvantage is significantly intensified by doing so in more unequal societies.
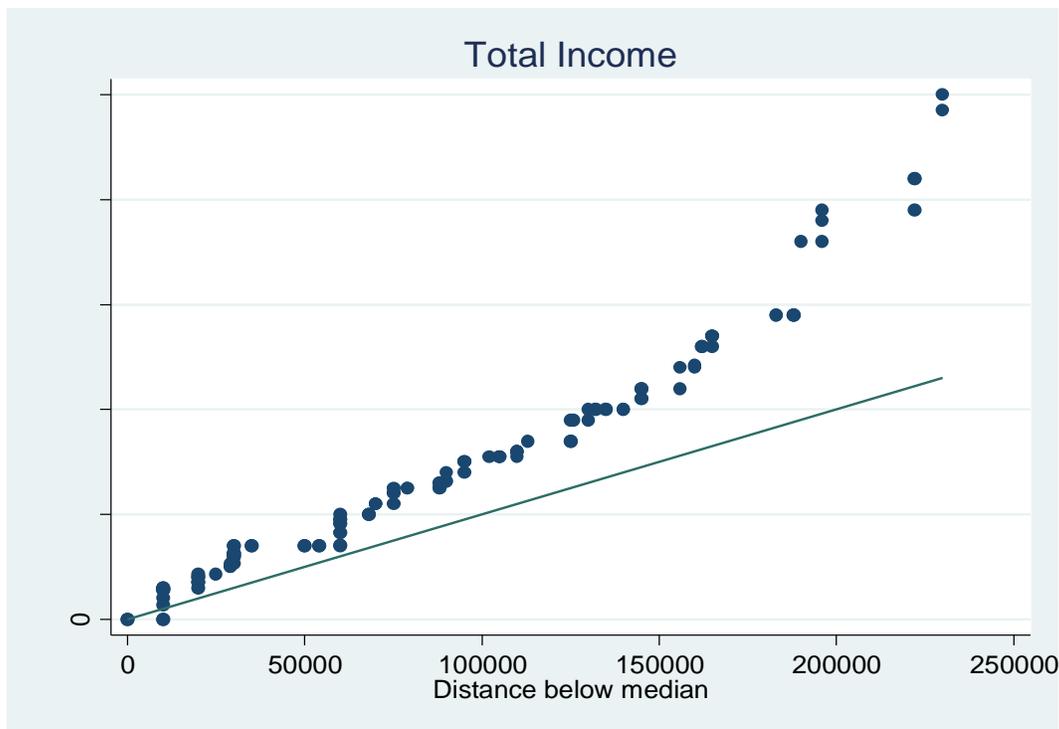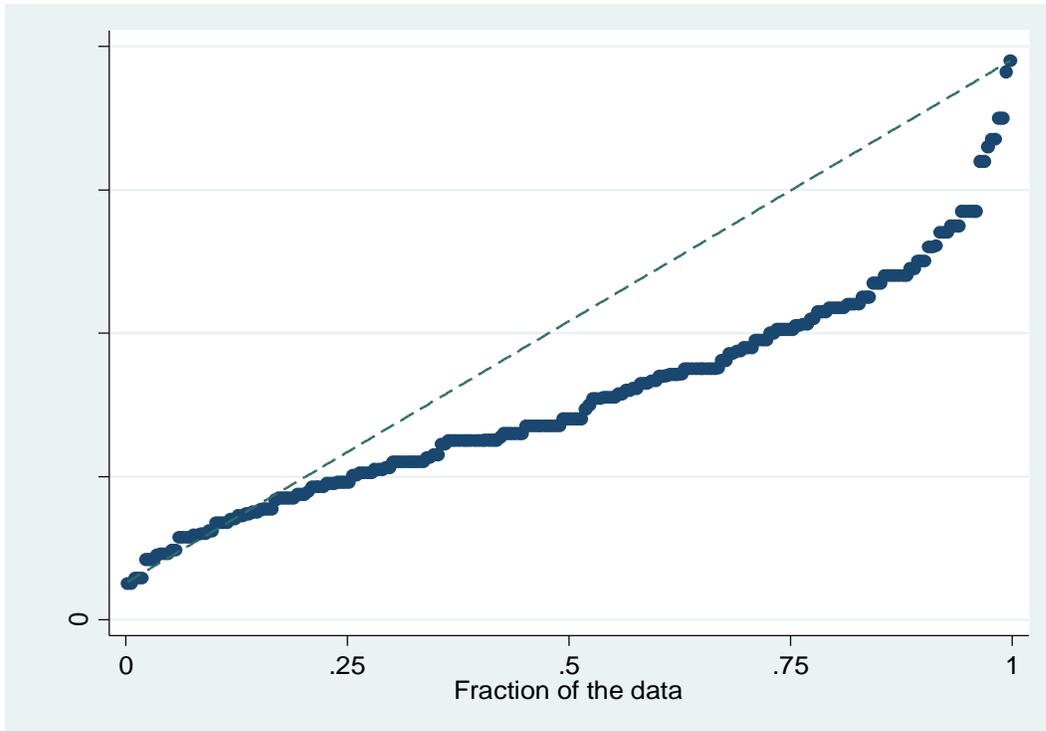

Figure 2: symmetry plot of total income

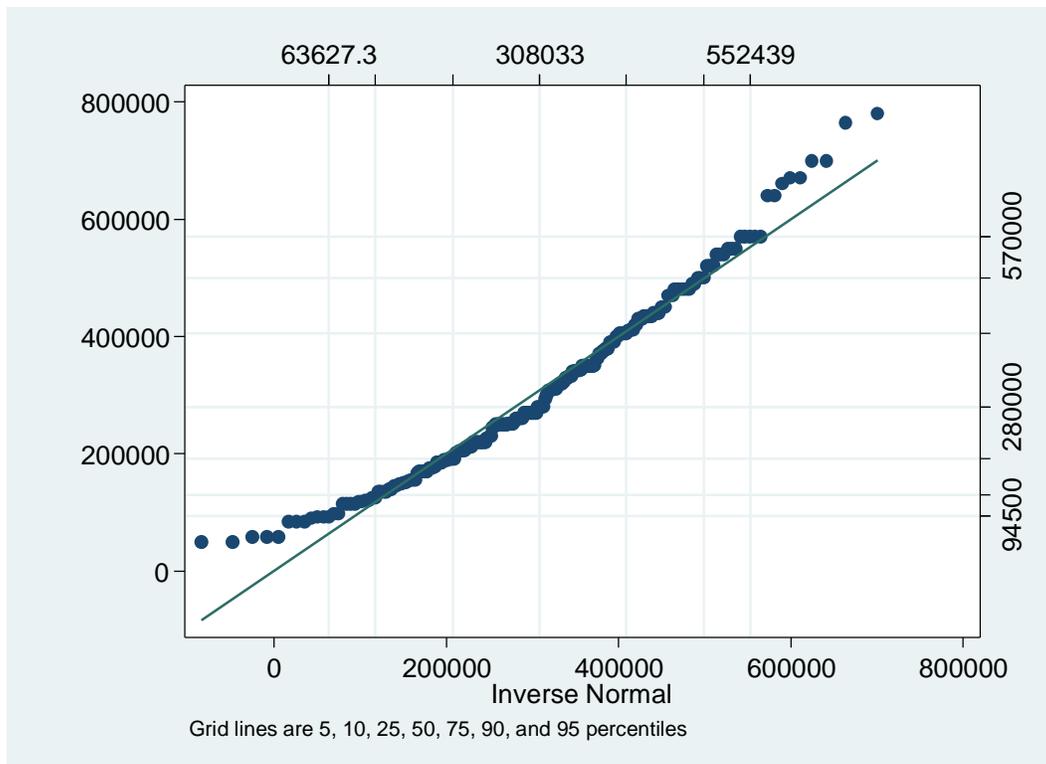Figure 3: quantile plot of the total income

Figure 4: probit plotting (non-normality) of the total income

4.1.3 Income Source-Based Gini Decomposition

This study decomposed the Gini coefficient based on income sources, to allow for the examination of the impact of each income source on inequality. The results are reported in Table 3. Agriculture had the highest share in total income, accounting for 65.53 percent, while the income shares of wages and salaries, and trade were 18.67 and 15.80 percent respectively, revealing that agriculture is relatively, the most important source of income. Income inequality is relatively low in the community with the overall Gini index (0.2699) being significantly less than 0.5. However, the source gini indexes revealed that inequality was relatively high within the various sources, with all the sources gini indexes being in excess of the overall gini. Inequality was higher among traders with trade gini of 0.4, followed by wages and salaries 0.37 and agriculture 0.34. This is expected since not every member of the community had incomes from all the sources and within the same source the members had varying amount of income. Also more of the people had income from agricultural sources relative to trade, and wages and salary sources. Furthermore, while income from agricultural sources contributed 75.70 percent to inequality, income from wages and salaries, and trade contributed 14.30 and 10.00 percent, respectively. The last column of Table 3 showed the effect of a percentage change in income from income source, k on overall inequality. The results revealed that while income from agricultural sources such as rent on land for agricultural purposes, income derived from sale of seeds and seedlings, and income from sale of agricultural outputs are inequality-enhancing, income from wages and salaries, and trade was inequality-dampening. Specifically, a percentage change in income from wages and salaries reduces inequality by 4 percent. Similarly, a percentage change in income from trade reduces inequality by 6 percent. This means that the two income sources distribution favours the low income class and can therefore be targeted for any inequality reducing effort. On the other hand, a percentage change in income from agriculture increased inequality by 10 percent. The implication is that: first, income from agricultural sources are more associated with rich households, such that if agricultural income increases the level of inequality will also increase because there is little or no increase in the income of those on the lower rung of the income ladder; second income from wages and salary, and trade were more associated with poor households, such that increasing incomes from these sources increases poor households' income leaving that of rich households fairly constant so that the inequality gap is reduced. This implies that income from trade and wages and salaries is low income group biased, and income from agriculture is mostly associated with rich households. There is an unequal access to agricultural credit and inputs like fertilizer since land is available to the farming households, though in small holdings.

Table 3: Income Source-Based Gini Decomposition

Source	Source share in total income (S_k)	Source Gini (G_k)	Source Gini correlation with total income (R_k)	Source share in total inequality	% Change ($\frac{S_k G_k R_k}{G} - S_k$)
wages and salaries income	0.1867	0.3704	0.5579	0.1430	-0.0437
Trade income	0.1580	0.4009	0.4260	0.1000	-0.0580
agricultural income	0.6553	0.3416	0.9126	0.7570	0.1017
Total income		0.2699			

Source: Field Survey, 2016

5. Conclusions and Recommendations

5.1 Conclusion

This study examined the sources of income inequality in Kogi state, Nigeria, and came up with some findings. Based on the findings, the study concludes that income inequality though minimal, exists in Kogi state. Agriculture is mostly for the rich who hire the poor to work on their farms, but the poor engage more on paid jobs and petty trade, hence wages and salaries, and trade are mostly associated with people below the mean of the distribution. The study, further concludes that increasing income from wages and salaries, and from trade is the catalyst to reducing inequality in Kogi state but the same cannot be said of income from agriculture since increase in agricultural income increases inequality.

5.2 Recommendations

The following recommendations emanate from the findings:

i. To reduce inequality stable power supply is inevitable, since this can create the enabling environment for small and medium scale businesses to thrive. The hair barber, the hairdresser, the woman who sells fish by the roadside, that woman that deals on sachet water and soft drinks, farmers, sculptors, all needs one form of energy or the other (electric energy can be converted with modern technology into almost all of the forms of energy needed) to foster their businesses, thus electricity is not only an end but also a means to an end.

ii. Policies that invest in the human capital of the workforce such as better job-related training and education for the low-skilled (on-the-job training) are vital because such policies would help to boost productivity potential and future income earnings. Increase in income earnings (wages and salaries) would then

reduce the income inequality gap of the people. Higher educational attainment remains one of the most important elements in counteracting increase in income inequality especially in the long run. Policies that promote the up-skilling of the workforce are therefore relevant factors for reversing further growth in income inequality.

iii. Also, government, especially the state government can provide investment funds for trade expansion through microfinance banks.

iv. Finally, government should also ensure that the people have equitable access to agricultural credit and other farm inputs because agriculture is still very relevant to the economy especially the rural areas.

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